

*my*Perspectives™

ENGLISH LANGUAGE ARTS



Jump Start

How would you like to invent something that became as popular and widely used as Scotch tape or Post-It Notes? People invent things everyday—often because there is a very real use for the items.

Invention

Ask students what the word *invention* suggests to them. Point out that as they work through this unit, they will read many examples about invention.

Video

Project the introduction video in class, ask students to open the video in their interactive textbooks, or have students scan the Bounce Page icon with their phones to access the video.

Discuss It If you want to make this a digital activity, go online and navigate to the Discussion Board. Alternatively, students can share their responses in a class discussion.

Block Scheduling

Each day in this pacing calendar represents a 40–50 minute class period. Teachers using block scheduling may combine days to reflect their class schedule. In addition, teachers may revise pacing to differentiate and support core instruction by integrating components and resources as students require.

Invention

Building something out of nothing is hard work.

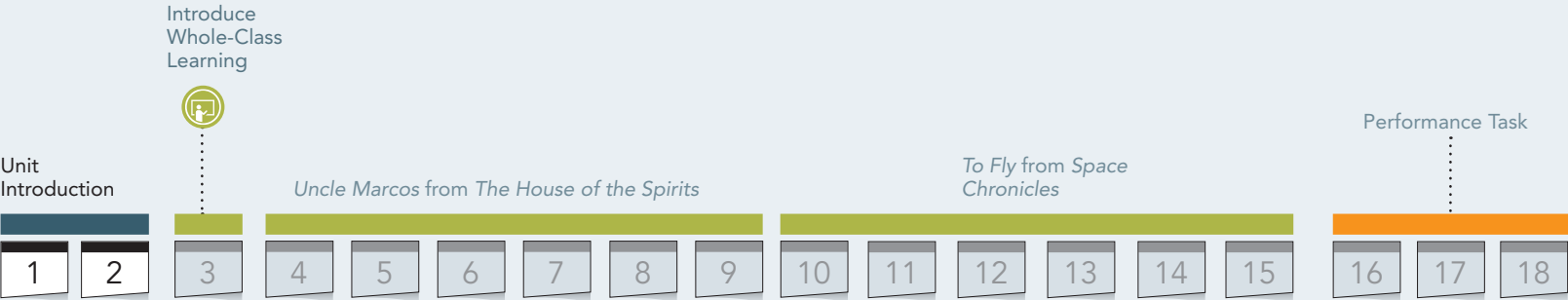


Amazing Technology Invented By MIT - Tangible Media

Discuss It What are some ways in which this invention might have failed?
Write your response before sharing your ideas.

SCAN FOR MULTIMEDIA

Pacing Plan



UNIT 5

UNIT INTRODUCTION

ESSENTIAL QUESTION:

Are inventions realized through inspiration or perspiration?

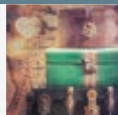
LAUNCH TEXT
ARGUMENT MODEL
Inspiration Is
Overrated!



WHOLE-CLASS
LEARNING

ANCHOR TEXT: SHORT STORY

Uncle Marcos
from *The House of the Spirits*
Isabel Allende



ANCHOR TEXT: EXPOSITORY NONFICTION

To Fly
from *Space Chronicles*
Neil deGrasse Tyson



SMALL-GROUP
LEARNING

EXPOSITORY NONFICTION

**Nikolas Tesla: The
Greatest Inventor
of All?**
Vicky Baez



COMPARE

NOVEL EXCERPT

**from The
Invention of
Everything Else**
Samatha Hunt



INDEPENDENT
LEARNING

WEBSITE ARTICLE

**Ada Lovelace: A
Science Legend**
James Essinger



NEWS ARTICLE

**Fermented Cow Dung
Air Freshener Wins
Two Students Top
Science Prize**
Kimberly Mok



NEWS ARTICLE

**Scientists Build Robot
That Runs, Call It
"Cheetah"**
Rodrigue Ngowi



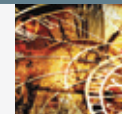
MEDIA: VIDEO

**Sounds of a Glass
Armonica**



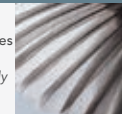
NOVEL EXCERPT

**from The Time
Machine**
H. G. Wells



MYTH

Icarus and Daedalus
from *Old Greek Folk-Stories
Told Anew*
Josephine Preston Peabody



PERFORMANCE TASK

WRITING FOCUS:
Write an Argument

PERFORMANCE TASK

SPEAKING AND LISTENING FOCUS:
Conduct a Small Group Debate

PERFORMANCE-BASED ASSESSMENT PREP

Review Evidence for an Argument

PERFORMANCE-BASED ASSESSMENT

Argument: Text and Oral Presentation

PROMPT:

What situations might encourage people to invent?

Are inventions realized through inspiration or perspiration?

Introduce the Essential Question and point out that students will respond to related prompts.

- **Whole-Class Learning** *What value do Uncle Marcos's books and stories have to his nieces and nephews?*
- **Small-Group Learning** *What inventions in the future might come out of NASA and space exploration?*
- **Performance-Based Assessment** *Are inventions always the result of fulfilling a need or are inventions sometimes totally fanciful?*

Using Trade Books with Invention

Refer to the Teaching with Trade Books section for suggestions on how to incorporate the following thematically-related titles into this unit:

- *The Time Machine** by H. G. Wells
- *20,000 Leagues Under the Sea** by Jules Verne
- *Boy: Tales of Childhood** by Roald Dahl

Current Perspectives

To increase student engagement, search online for stories about invention, and invite your students to recommend stories they find. Always preview content before sharing it with your class.

- **News Story: How Jeff Bezos and Other Billionaires Are Transforming Space Travel** An article by Mike Wall (Space.com, 9/16/15) about the enormous impact that billionaires—such as Elon Musk, Jeff Bezos, Richard Branson, and Paul Allen—have had on the space travel industry in recent years.
- **Video: Elon Musk: Greatest living inventor?** A video of James Fallows (CNBC, 10/25/13) discussing the many hugely influential inventions by billionaire Elon Musk.

Introduce
Small-Group
Learning



**Nikolas Tesla:
The Greatest
Inventor
of All?**

**from The Invention of
Everything Else**

**25 Years Later,
Hubble Sees Beyond
Troubled Start**

**Media: Sounds of
a Glass Armonica**

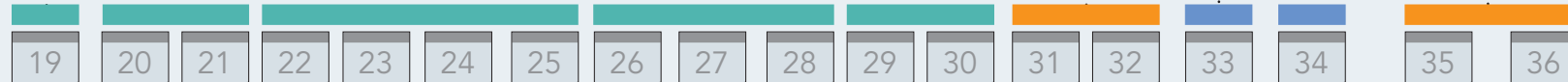
Performance
Task

Introduce
Independent
Learning



**Independent
Learning**

Performance-Based
Assessment



About the Unit Goals

These unit goals were backward designed from the Performance-Based Assessment at the end of the unit and the Whole-Class and Small-Group Performance Tasks. Students will practice and become proficient in many more standards over the course of this unit.

Unit Goals

Review the goals with students and explain that as they read and discuss the selections in this unit, they will improve their skills in reading, writing, research, language, and speaking and listening.

Reading Goals Tell students they will read and evaluate written arguments. They will also read a short story, a news article, and an excerpt from a novel to better understand the ways writers express ideas.

Writing and Research Goals Tell students that they will learn the elements of writing an argumentative essay. They will also write their own argumentative essay. Students will write for a number of reasons, including organizing and sharing ideas, reflecting on experiences, and gathering evidence. They will conduct research to clarify and explore ideas.

Language Goal Tell students that they will develop a deeper understanding of the conventions of standard English grammar and usage, including combining sentences using gerunds and participles. They will then practice conventions of standard English and grammar here in their own writing.

Speaking and Listening Explain to students that they will work together to build on one another's ideas, develop consensus, and communicate with one another. They will also learn to incorporate audio, visuals, and text in presentations.

HOME Connection

A Home Connection letter to students' parents or guardians is available in myPerspectives+. The letter explains what students will be learning in this unit and how they will be assessed.

Unit Goals

Throughout this unit you will deepen your perspective about what it takes to come up with a meaningful, working invention, by reading, writing, speaking, listening, and presenting. These goals will help you succeed on the Unit Performance-Based Assessment.

Rate how well you meet these goals right now. You will revisit your rankings later when you reflect on your growth during this unit.

SCALE	1	2	3	4	5
	NOT AT ALL WELL	NOT VERY WELL	SOMEWHAT WELL	VERY WELL	EXTREMELY WELL
READING GOALS					
WRITING AND RESEARCH GOALS					
LANGUAGE GOAL					
SPEAKING AND LISTENING GOALS					

STANDARDS
Language
Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.



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AUTHOR'S PERSPECTIVE Ernest Morrell, Ph.D.

How to Support Kids When They Have Trouble When setting goals with students, have them consider these questions:

- 1. What are the opportunities open to me if I achieve this goal?
- 2. What are the biggest challenges that I will face in attempting to achieve this goal?

3. What support will I need from others in order to achieve this goal and how will I ensure that I get that support?

The first question helps students see that setting goals helps them take control of their life and focus on the issues that matter to them. As a result, they are likely to make good decisions. The second question helps students understand

Academic Vocabulary: Argument

Academic terms appear in all subjects and can help you read, write, and discuss with more precision. Here are five academic words that will be useful to you in this unit as you write arguments.

Complete the chart.

- 1. Review each word, its root, and the mentor sentences.
- 2. Use the information and your own knowledge to predict the meaning of each word.
- 3. For each word, list at least two related words.
- 4. Refer to the dictionary or other resources if needed.

WORD	MENTOR SENTENCES	PREDICT MEANING	RELATED WORDS
opponent ROOT: -pon- "to place, put"	1. He managed to win the game against a strong opponent. 2. I respect her even though she is my opponent.		postpone, component
proposition ROOT: -posit- "to put"	1. It is my proposition that all people have rights. 2. The proposition that the river leads to the ocean was proven long ago.		
clamor ROOT: -clam-, -claim- "to shout"	1. The clamor grew louder as the crowd approached. 2. Even at night the jungle animals created a clamor.		
legitimate ROOT: -leg- "law"	1. It's a legitimate argument but they pretended not to hear it. 2. The oldest son was the legitimate heir to the fortune.		
controversial ROOT: -vers- "to turn"	1. The idea that plants like music is controversial. 2. Making the youngest girl the leader was a controversial act.		

Academic Vocabulary: Argument

Introduce the blue academic vocabulary words in the chart on the student page. Point out that the root of each word provides a clue to its meaning. Discuss the mentor sentences to ensure students understand each word's usage. Students should also use the mentor sentences as context to help them predict the meaning of each word. Check that students are able to fill the chart in correctly. Complete pronunciations, parts of speech, and definitions are provided for you. Students are only expected to provide the definition.

Possible responses:
opponent [n.] (uh POH nent)
Meaning: person on the other side in a game, debate, argument, etc.
Additional words related to root -pon-: proponent, respond

proposition [n., v.] (prop uh ZIHS uhn)
Meaning: *n.* an offer or proposal; *v.* to make an offer
Additional words related to root -posit-: supposition, positive,

clamor [n., v.] (KLAM uhr)
Meaning: *n.* loud noise or complaint *v.* to make a loud noise
Additional words related to root -clam-, -claim-: clamorous, exclaim

legitimate [adj.] (luh JIHT uh miht)
Meaning: allowed, legal, valid
Additional words related to root -leg-: illegitimate, legislate

controversial [adj.] (kon truh VUR shuhl)
Meaning: likely to cause debate
Additional words related to root -vers-: controvert, reverse

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PERSONALIZE FOR LEARNING

English Language Support

Cognates Many of the academic words have Spanish cognates. Use these cognates with students whose home language is Spanish.

ALL LEVELS PII.12

- | | |
|---------------------------|-------------------------------|
| opponent – oponente | legitimate – legítimo |
| proposition – proposición | controversial – controvertido |
| clamor – clamor | |

INTRODUCTION

Purpose of the Launch Text

The Launch Text provides students with a common starting point to address the unit topic. After reading the Launch Text, all students will be able to participate in discussions about invention.

Lexile: 000 The easier reading level of this selection makes it perfect to assign for homework. Students will need little or no support to understand it.

Additionally, “Inspiration is Overrated” provides a writing model for the Performance-Based Assessment students complete at the end of the unit

Launch Text: Argument Model

What was the greatest invention of all time? That is a difficult question to answer. The class is likely to have several different ideas. If you asked a group of young children or older adults, the answers will be very different. So, what makes a great invention?

Encourage students to read this text on their own and annotate unfamiliar words and sections of text they think are particularly important.

AUDIO SUMMARIES

Audio summaries of “Inspiration is Overrated” are available in both English and Spanish in the Interactive Teacher’s Edition or Unit Resources. Assigning these summaries before students read the Launch Text may help them build additional background knowledge and set a context for their reading.



LAUNCH TEXT | ARGUMENT MODEL

This text presents an **argument**, a type of writing in which an author states and defends a position on a topic. This is the type of writing you will develop in the Performance-Based Assessment at the end of the unit.

As you read, look at the way the writer builds a case. Mark the text to answer this question: What is the writer’s position, and how does he or she support it?

Inspiration Is Overrated!

NOTES

- 1 **H**ere’s something that isn’t on everyone’s shopping list: a coffee mug that irons clothes. It’s just one of a multitude of inventions that most of us have never heard of. Each of those forgotten contraptions was probably someone’s bright idea—a flash of inspiration experienced while walking in the woods, an idea guaranteed to change the world. So what went wrong?
- 2 Some inventions are so much a part of everyday life we forget that they started off as someone’s bright idea. Others are long forgotten or remembered only as being colossal duds.
- 3 For every invention that actually makes it to production, there are thousands that don’t. The line between the bizarre and the ingenious is often a very thin one. History is filled with examples of new inventions that supporters thought would be transformational but turned out to be just minor fads.
- 4 Experts say that the odds are stacked astronomically against inventors, and that no amount of marketing can turn a situation around. The number of failed inventions reinforces how hard it is for inventors to make the leap from idea to marketable product.
- 5 Let’s look at some figures. According to the U.S. Patent and Trademark Office, there are about 1.5 million products that have patents. Perhaps 3,000 of those make money. A noted business magazine states that only one in 5,000 inventions succeeds in the marketplace. This estimate is ten times lower than the one from the Trademark Office!

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PERSONALIZE FOR LEARNING

English Language Support

Descriptive Language Explain to students that when writers are trying to get their message across, word choice matters. Sometimes, writers use flowery language to make their argument more compelling or their story more interesting. In paragraphs 1 and 2, the writer describes types of ideas in a variety of ways, including “bright idea,” “flash of inspiration,” and “colossal duds.”

Ask students why the writer didn’t just use the words *idea* or *failure*, eliciting that the article is more interesting because the writer used descriptive language and the writer’s message is more likely to be remembered because exciting language is used.

- 6 What explains the high rate of failure? Is there something the inventors failed to see? The answer is *yes*: they failed to see how much work was involved in getting a product off the ground. Someone once said that genius is one percent inspiration and ninety-nine percent perspiration. That could be true for invention, too.
- 7 Developing something new that actually works—and that people want—can take years. After an inventor has a brilliant idea, the hard part begins. First, a working model must be developed and tested. If the results are poor or inconsistent, the project may have to be rethought—or even scrapped. It’s no easy thing for an inventor to admit defeat and start over.
- 8 When a working model is finally developed, the inventor must conduct what is called a “search for prior art.” That means checking to make sure that there isn’t a similar or even identical invention around. Sometimes it seems like all the good ideas have been taken!
- 9 When everything is ready to go, the inventor has to apply for a patent—a legal right to ownership of the invention. It’s like a contract, and every single word has legal consequences. Many inventors hire patent lawyers to make sure their interests are protected.
- 10 It’s a common mistake to think that you can sell an idea. You can’t. You can only sell an invention. Turning an idea into a viable invention takes work—time-consuming, tedious, and sometimes frustrating!
- 11 If invention is one percent inspiration and ninety-nine percent perspiration, I’m putting my money on the ninety-nine percent. 

NOTES

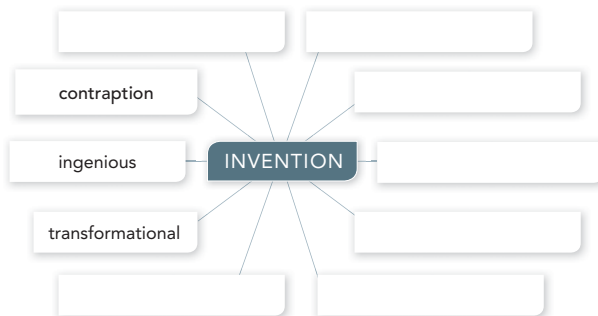
Word Network for Invention

Tell students that they can fill in the Word Network as they read texts in the unit, or they can record the words elsewhere and add them later. Point out to students that people may have personal associations with some words. A word that one student this is related to invention might not be a word another student would pick. However, students should feel free to add any word they personally think is relevant to their Word Network. Each person’s Word Network will be unique. If you choose to print the Word Network, distribute it to students at this point so they can use it throughout the rest of the unit.

WORD NETWORK FOR INVENTION

Vocabulary A Word Network is a collection of words related to a topic. As you read the selections in this unit, identify interesting words related to the idea of invention and add them to your Word Network. For example, you might begin by adding words from the Launch Text, such as *contraption*, *ingenious*, and *transformational*. Continue to add words as you complete this unit.

 **Tool Kit**
Word Network Model



Inspiration Is Overrated! **443**

AUTHOR'S PERSPECTIVE **Elfrieda Hiebert, Ph.D.**

Rare Words Increasing reading comprehension relies on a connection between fluency and vocabulary. **Rare words** are less frequently used words that represent what might be a common idea. More complex text leads to rarer words to express refined concepts. For example, rather than describing a character as

nervous, an author might use the word *disconcerted*, *perturbed*, or *flustered*. Therefore, vocabulary instruction takes different forms across content areas. In reading/language arts, for instance, where many rare unknown words pertain to known concepts, teachers should emphasize semantic connections across

words. This can be achieved effectively with concept maps or word networks, graphic organizers that help students understand the essential attributes, qualities, or characteristics of a word's meaning. Here's a brief example for the rare word *sluggish*:

Summary

Have students read the introductory paragraph. Provide them with tips for writing a summary:

- Write in the present tense
- Make sure to include the title of the work.
- Be concise: a summary should not be equal in length to the original text.
- If you need to quote the words of the author, use quotation marks.
- Don't put your own opinions, ideas, or interpretations into the summary. The purpose of writing a summary is to accurately represent what the author says, not to provide a critique.

If necessary, students can refer to the Tool Kit for help in understanding the elements of a good summary.

See possible summary on the Student page.

Launch Activity

Explain to students that as they work on this unit, they will have many opportunities to discuss how they feel about the quote, "Inventions come from one percent inspiration and ninety-nine percent perspiration." Students' initial responses may be their gut feelings. Remind students that when they choose a side in an argument, they need to have facts to support their positions.

Summary

Write a summary of "Inspiration Is Overrated!" A **summary** is a concise, complete, and accurate overview of a text. It should not include a statement of your opinion or an analysis.

Possible response: This argument kicks off by describing a strange invention that few people would want. For every invention we use in our lives, there are many more that someone came up with but that didn't actually get produced. The vast majority of patented products don't make money. The problem is that coming up with a good idea is just the beginning. It takes a great deal of work to turn an idea into a working product that people want. And even then, a lot of the good ideas have already been done! Coming up with one good idea isn't so hard. Coming up with a good idea that no one else has already done, and making it into something people can use, can take a lot of time and effort.

Launch Activity

Conduct a Four-Corner Debate Consider this statement: **Inventions come from one percent inspiration and ninety-nine percent perspiration.** Choose a position and explain why you feel this way.

- ☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

- Join your classmates who chose the same response in one corner of the room. Together, formulate arguments for the class discussion.
- Share your group's ideas with your classmates. Then, ask questions or make comments. Remember to express your own point of view in a considerate, respectful way.
- After the debate, decide if your opinion has changed. Go to the corner that best represents your new opinion.

QuickWrite

Consider class discussions, presentations, the video, and the Launch Text as you think about the prompt.

PROMPT: What situations might encourage people to invent?

Possible response: I think people invent the most when they see an unsolved problem that something they already know about could solve. I’ve heard it said that there are two kinds of scientists: those who know one topic well and apply different tools to it, and those who know one tool well and apply it to different topics. I think inventors are like the second kind of scientist. They know how to build things, and notice situations where some new kind of device would be useful. I would hope that bigger and more urgent problems are more inspiring for inventions than smaller and less important problems are, but I’m not sure that’s true. It’s likely easier to think of solutions to minor annoyances that affect you than big problems that affect many people.

EVIDENCE LOG FOR INVENTION

Review your QuickWrite and summarize your point of view in one sentence to record in your Evidence Log. Then, record evidence from “Inspiration Is Overrated!” that supports your point of view.

Prepare for the Performance-Based Assessment at the end of the unit by completing the Evidence Log after each selection.

 **Tool Kit**
Word Network Model

Title of Text: _____ Date: _____

CONNECTION TO PROMPT	TEXT EVIDENCE/DETAILS	ADDITIONAL NOTES/IDEAS

How does this text change or add to my thinking? _____ Date: _____



QuickWrite

In this QuickWrite, students should present their own response to the prompt based on the material they have read and viewed in the Unit Overview and Introduction. This initial response will help inform their work when they complete the Performance-Based Assessment at the end of the unit. Students should think about why people invent things. They can consider ideas they may have had when unfilled needs arose in their lives. They can also think about what they know about inventors and why they made what they did.

See possible QuickWrite on the Student page.

Evidence Log for Invention

Students should record their initial position in their Evidence Logs along with evidence from “Inspiration is Overrated” that support this position.

If you choose to print the Evidence Log, distribute it to students at this point so they can use it throughout the rest of the unit.

Performance-Based Assessment:
Refining Your Thinking

- Have students watch the video on Refining Your Thinking.
- A video on this topic is available online in the Professional Development Center.

PERSONALIZE FOR LEARNING

Strategic Support

Students may struggle to decide which side of the argument to take. Create a class chart to help students organize their thoughts. Have students suggest thoughts and ideas for each side, and add them to the chart. Remind students that as they continue working on this idea, they will need evidence to support their

arguments. Ask students to look at the suggestions added to the chart and decide which can be supported by evidence and which are emotion-based. Ask why it is important to be able to tell the difference.

“Inventions come from one percent inspiration and ninety-nine percent perspiration.”

Agree	Disagree

OVERVIEW

WHOLE-CLASS LEARNING

Are inventions realized through inspiration or perspiration?

Many current inventors are working on designs and ideas that could change the way we communicate and the way we travel. Smart phone functionality and social media options are ever-growing and changing. Hybrid and all-electric cars are now a reality. What other practical inventions will we have in the future? During Whole-Class Learning, students will read selections about inventions and inventors.

Whole-Class Learning Strategies

Review the Learning Strategies with students and explain that as they work through Whole-Class Learning they will develop strategies to work in large-group environments.

- Have students watch the video on Whole-Class Learning Strategies.
- A video on this topic is available online in the Professional Development Center.

You may wish to discuss some action items to add to the chart as a class before students complete it on their own. For example for “Listen actively” you might solicit the following from students:

- Students who are listening actively can answer questions about what the speaker said.
- Students who listen actively often take notes.

Block Scheduling

Each day in this Pacing Plan represents a 40–50 minute class period. Teachers using block scheduling may combine days to reflect their class schedule. In addition, teachers may revise pacing to differentiate and support core instruction by integrating components and resources as students require.

Pacing Plan



OVERVIEW: WHOLE-CLASS LEARNING

ESSENTIAL QUESTION:

Are inventions realized through inspiration or perspiration?

How do people invent? Does an idea simply come in a flash? Or is there a long struggle to find a solution to a particular problem? You will work with your whole class to explore inventions and inventors. The selections you are going to read present insights into some aspects of the topic.

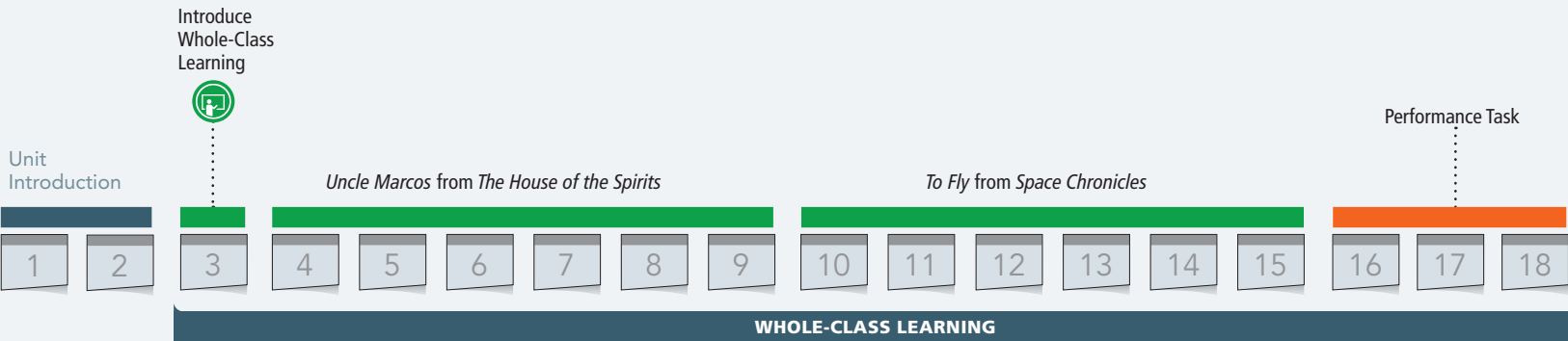
Whole-Class Learning Strategies

Throughout your life, in school, in your community, and in your career, you will continue to learn and work in large-group environments.

Review these strategies and the actions you can take to practice them as you work with your whole class. Add ideas of your own for each step. Get ready to use these strategies during Whole-Class Learning.

STRATEGY	ACTION PLAN
Listen actively	<ul style="list-style-type: none">• Eliminate distractions. For example, put your cell phone away.• Keep your eyes on the speaker.•
Clarify by asking questions	<ul style="list-style-type: none">• If you’re confused, other people probably are, too. Ask a question to help your whole class.• If you see that you are guessing, ask a question instead.•
Monitor understanding	<ul style="list-style-type: none">• Notice what information you already know and be ready to build on it.• Ask for help if you are struggling.•
Interact and share ideas	<ul style="list-style-type: none">• Share your ideas and answer questions, even if you are unsure.• Build on the ideas of others by adding details or making a connection.•

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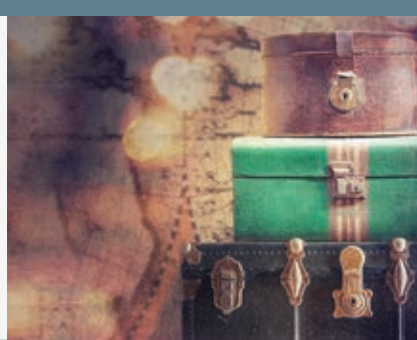
CONTENTS

ANCHOR TEXT: SHORT STORY

Uncle Marcos from *The House of the Spirits*

Isabel Allende

The family's favorite is an eccentric explorer and inventor.



ANCHOR TEXT: EXPOSITORY NONFICTION

To Fly from *Space Chronicles*

Neil deGrasse Tyson

A famous astrophysicist ponders the appeal and challenge of human flight.

► MEDIA CONNECTION: Neil deGrasse Tyson Opens a Rocket in His Office



PERFORMANCE TASK

WRITING FOCUS

Write an Argument

The Whole-Class readings focus on human flight—as realized by both real and fictitious inventors. After reading, you will write an essay on the topic of human flight and when it can be judged as successful.

Contents

Anchor Texts Preview the anchor texts and media with students to generate interest. Encourage students to discuss other texts they may have read or movies or television shows they may have seen that deal with the issues of invention.

You may wish to conduct a poll to determine which selection students think looks more interesting and discuss the reasons for their preference. Students can return to this poll after they have read the selections to see if their preference changed.

Performance Task

Write an Argument Explain to students that after they have finished reading the selections, they will write an argument about what situations might encourage people to invent and prepare an oral presentation of their argument. To help them prepare, encourage students to think about the topic as they progress through the selections and as they participate in the Whole-Class Learning experience.

Introduce
Small-Group
Learning



Nikolas Tesla:
The Greatest
Inventor of All?

from *The Invention of
Everything Else*

25 Years Later,
Hubble Sees Beyond
Troubled Start

Media:
Sounds
of a Glass
Armonica

Performance
Task

Introduce
Independent Learning



Independent
Learning

Performance-
Based
Assessment



Uncle Marcos



AUDIO SUMMARIES

Audio summaries of “Uncle Marcos” are available online in both English and Spanish in the Interactive Teacher’s Edition or Unit Resources. Assigning these summaries prior to reading the selection may help students build additional background knowledge and set a context for their first read.

Summary

“Uncle Marcos” is an excerpt from Isabel Allende’s novel *House of the Spirits*. Uncle Marcos first appears as a corpse in a coffin in the courtyard of the del Valle family. He has always had the habit of dropping in unexpectedly from his adventures abroad. His activities often embarrass his family; he once courted his cousin with a barrel organ. On one occasion, he assembles an airplane that looks like a bird. After a spectacular and much-anticipated flight, he disappears and is thought dead. After Marcos unexpectedly returns, he and his small niece, Clara, begin a fortune-telling business that they abandon for ethical reasons. Uncle Marcos dies of a plague in some distant land, but his remains are returned, unexpected, to the family.

Insight

Isabel Allende’s *House of the Spirits* is an example of magical realism, a genre of fiction that began with Latin American writers. The story of Uncle Marcos has many characteristics of magical realism. He is the center of extraordinary events. Time shifts cause him to be introduced as a dead man in a coffin. It is only later in the narrative that the reader sees him as a person of great whimsy and a master of the unexpected.

ESSENTIAL QUESTION:

Are inventions realized through inspiration or perspiration?

Connection to Essential Question

Uncle Marcos is such a fantastical character that his inventions seem to be realized through inspiration. The reader does not become concerned with his effort to produce his creations. The focus is on his imagination and creativity.

WHOLE-CLASS LEARNING PERFORMANCE TASK

What requirements must be met in order to say human flight is successful?

Connection to Performance Tasks

Whole-Class Learning Performance Task Since “Uncle Marcos” is written in the style of magical realism, the requirements for human flight in the story are only that there be some brief acknowledgement of such necessities as lift plus thrust. “Uncle Marcos” concedes on the lift—wings that flap—and thrust—a propeller. Otherwise, there is no more requirement for flight than imagination.

UNIT PERFORMANCE-BASED ASSESSMENT

What situations might encourage people to invent?

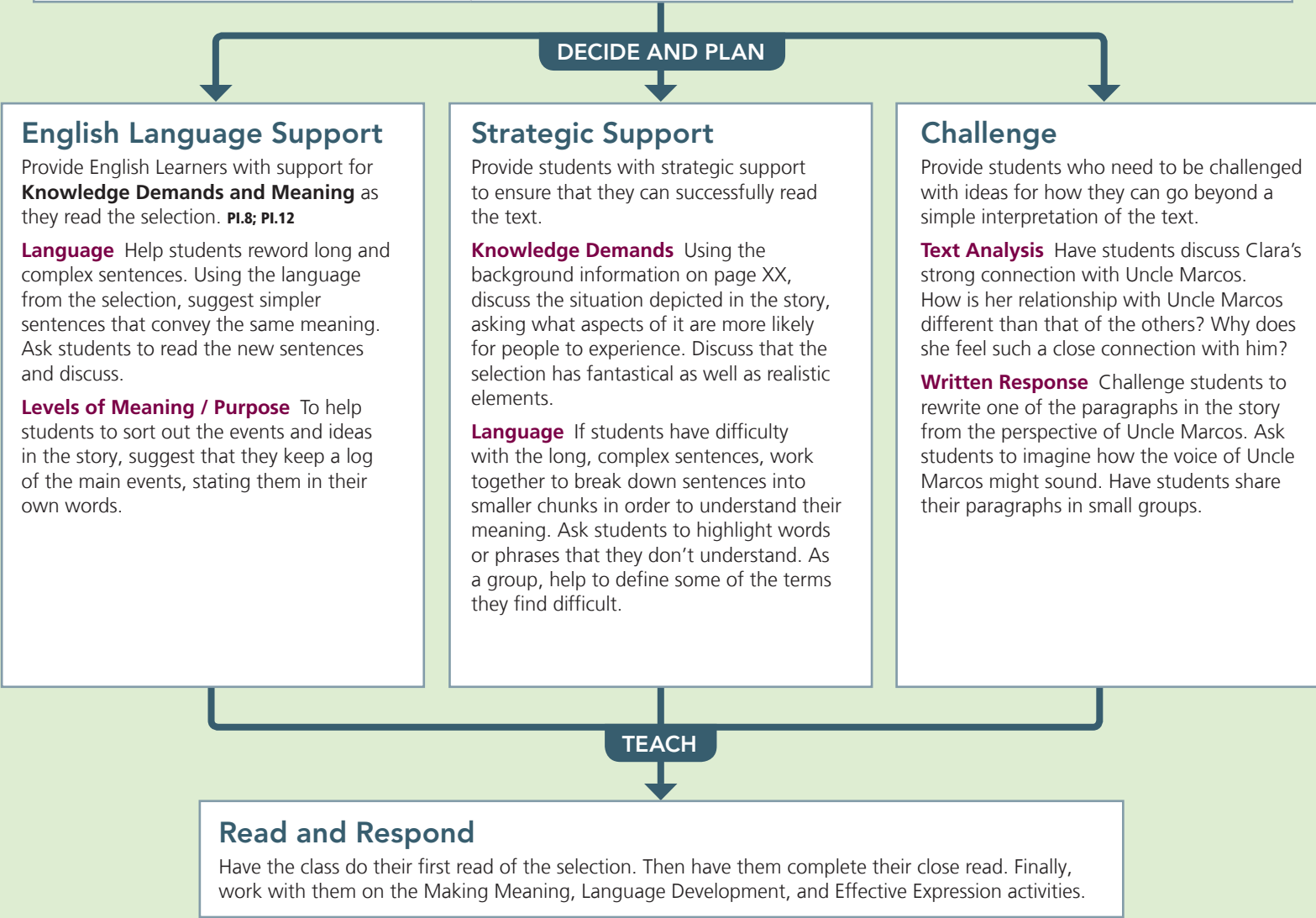
Unit Performance-Based Assessment People are usually encouraged to invent by necessity. Uncle Marcos, however, seems to be encouraged by his imagination and sense of adventure.

LESSON RESOURCES

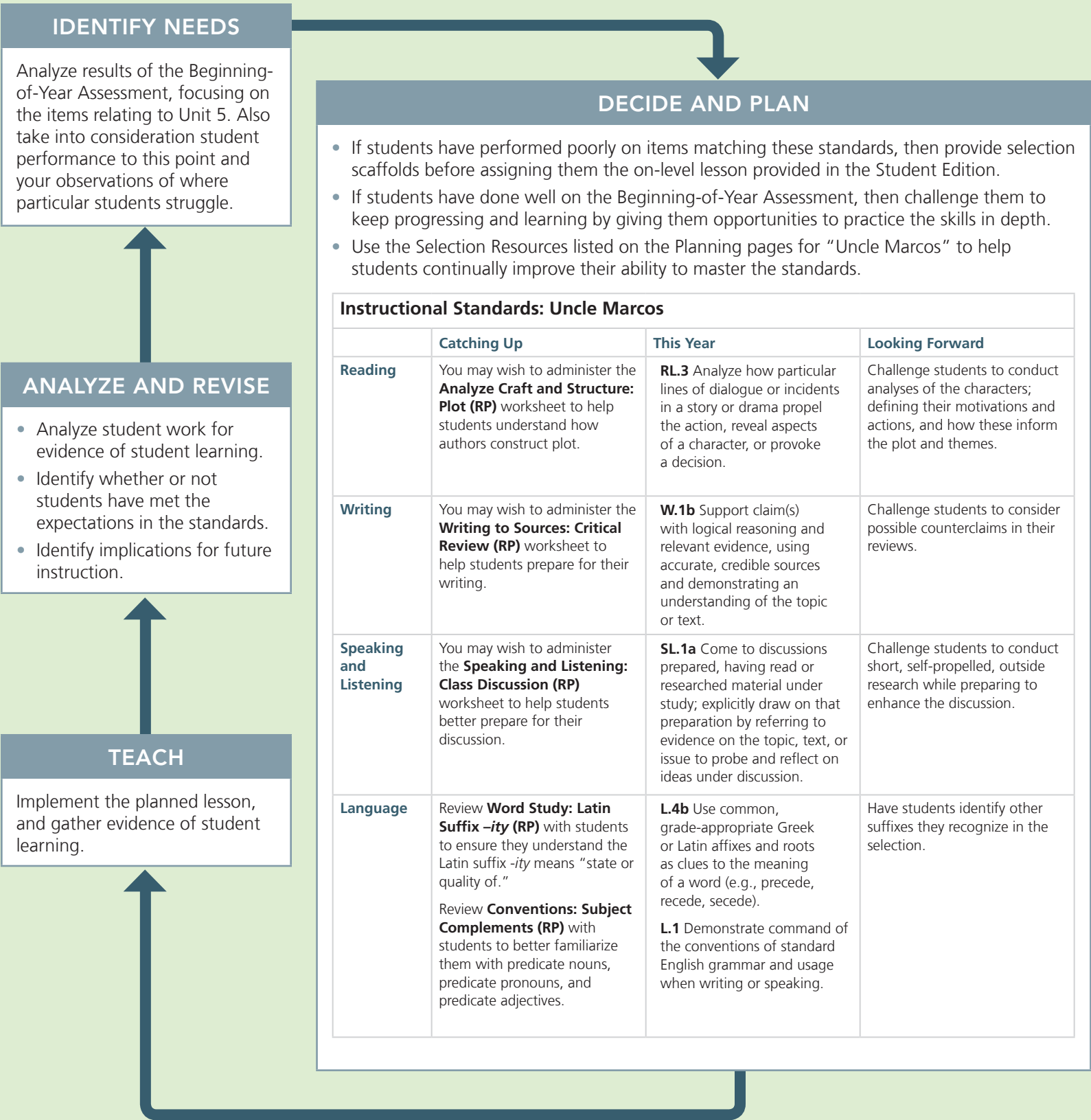
	Making Meaning	Language Development	Effective Expression
Lesson	First Read Close Read Analyze the Text Analyze Craft and Structure	Concept Vocabulary Word Study Conventions	Writing to Sources Speaking and Listening
Instructional Standards	RL.1 Cite the textual evidence . . . RL.3 Analyze how particular . . .	L.1 Demonstrate command . . . L.4b Use common . . .	W.1b Support claim(s) . . . W.1c Use words, phrases . . . W.1d Establish and maintain . . . SL.1a Come to discussions . . . SL.1b Follow rules . . . SL.1c Pose questions that connect . . .
 STUDENT RESOURCES			
Available online in the Interactive Student Edition or Unit Resources	 Selection Audio  First-Read Guide: Fiction  Close-Read Guide: Fiction	 Word Network	 Evidence Log
 TEACHER RESOURCES			
Selection Resources Available online in the Interactive Teacher's Edition or Unit Resources	 Audio Summaries  Annotation Highlights  EL Highlights  English Language Support Lesson: SKILL  Analyze Craft and Structure: Plot	 Concept Vocabulary and Word Study  Conventions: Subject Complements	 Writing to Sources: Critical Review  Speaking and Listening: Class Discussion
Reteach/Practice (RP) Available online in the Interactive Teacher's Edition or Unit Resources	 Analyze Craft and Structure: Plot (RP)	 Word Study: Latin Suffix <i>-ity</i> (RP)  Conventions: Subject Complements (RP)	 Writing to Sources: Critical Review (RP)  Speaking and Listening: Class Discussion (RP)
Assessment Available online in Assessments	  Selection Test		
My Resources	 A Unit 5 Answer Key is available online and in the Interactive Teacher's Edition.		

Reading Support

Text Complexity Rubric: Uncle Marcos from The House of the Spirits	
Quantitative Measures	
Lexile: 1420 Text Length: 3624 words	
Qualitative Measures	
Knowledge Demands ① — ② — ③ — ④ — ⑤	Unfamiliar and fantastical situation (the story includes a great deal of mysticism); Though students will not be able to relate own experiences, the situation and feelings are explained.
Structure ① — ② — ③ — ④ — ⑤	The selection is a linear story with a third-person narrator, no dialogue, and very long, descriptive paragraphs.
Language Conventionality and Clarity ① — ② — ③ — ④ — ⑤	The selection contains long, complex sentences, some challenging vocabulary, mystical references (divines, amulet), and figurative language.
Levels of Meaning/Purpose ① — ② — ③ — ④ — ⑤	The meaning is straightforward but may be difficult to grasp due to challenging language and structure.



Standards Support Through Teaching and Learning Cycle



Jump Start

FIRST READ Do you have a taste for adventure? Have you dreamt of traveling to far off places and exploring the unknown? Where would you go? The world is a big place and there are so many adventures to be had.

Uncle Marcos

Who is Uncle Marcos? How does the family interact? How do the others feel about Uncle Marcos? What is unique about him? Modeling the questions a reader might ask as they read “Uncle Marcos” for the first time brings the text alive for students and connects it to the Whole-Class Performance Task assignment. Selection audio and print capability for the selection are available in the Interactive Teacher’s Edition.

Concept Vocabulary

Support students as they rank their words. Ask if they’ve ever heard, read or used them. Reassure them that the definitions for these words are listed in the selection.

FIRST READ

As they read, students should perform the steps of the first read:

NOTICE: You may want to encourage students to notice the way the narrator talks about Uncle Marcos and how he acts, as well as the way the narrator talks about other characters’ responses to Uncle Marcos.

ANNOTATE: Remind students to mark passages that include descriptive language and imagery.

CONNECT: Encourage students to go beyond the text to make connections to their own lives. They can think about relatives or friends that are unique, as well as the impact of that person on family dynamics.

RESPOND: Students will answer questions and write a summary to demonstrate understanding.

Point out to students that while they will always complete the Respond step at the end of the first read, the other steps will probably happen somewhat concurrently. You may wish to print copies of the **First-Read Guide: Fiction** for students to use.



MAKING MEANING

About the Author



Isabel Allende (b. 1942) is a Chilean American novelist, essayist, and lecturer who has been called the world’s most widely read Spanish-language author. Allende’s novels combine elements of myth and realism (“magical realism”), and are often based on her personal experiences. In 1992, after the tragic death of her daughter, she established a foundation dedicated to the protection and empowerment of women and children worldwide. Allende became a U.S. citizen in 1993 and, in 2014, was awarded the Presidential Medal of Freedom by President Barack Obama.

STANDARDS
Reading Literature
By the end of the year, read and comprehend literature, including stories, dramas, and poems, at the high end of grades 6–8 text complexity band independently and proficiently.

448 UNIT 5 • INVENTION

Uncle Marcos

Concept Vocabulary

As you conduct your first read of “Uncle Marcos,” you will encounter these words. Before reading, note how familiar you are with each word. Then, rank the words in order from most familiar (1) to least familiar (6).

WORD	YOUR RANKING
decipher	
contraption	
newfangled	
ingenuity	
improvisations	
paraphernalia	

After completing the first read, come back to the concept vocabulary and review your rankings. Mark any changes to your original rankings.

First Read FICTION

Apply these strategies as you conduct your first read. You will have an opportunity to complete the close-read notes after your first read.



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AUTHOR’S PERSPECTIVE Kelly Gallagher, M.Ed.

Reading Reasons Students often ask “Why should I read?” Increasingly, teachers see students who often give up easily when confronted with challenging reading material such as a biology textbook or a state-mandated exam. They are unable, or unwilling, to tackle difficult text. How do teachers turn around this apathy? How do teachers shelter fragile adolescent readers and

help them grow into people for whom reading matters? Building reading motivation is complex, as there isn’t a single correct motivational tool, but together, many of these techniques send the message that reading is rewarding.

- Give students access to high-interest reading material, which is provided in this program.
- Give students a time and place to read.



ANCHOR TEXT | NOVEL EXCERPT

Uncle Marcos

from *The House of Spirits*

Isabel Allende

BACKGROUND

"Uncle Marcos" is from Isabel Allende's first novel, which began as a letter to her 100-year-old grandfather. This excerpt draws on the Greek myth of Icarus and Daedalus. In the myth, Daedalus invented a pair of wings and taught his son how to use them to fly, but warned him not to go too close to the sun. Icarus was too excited to listen and he drowned in the ocean after his wings melted.

SCAN FOR
MULTIMEDIA



- 1 It had been two years since Clara had last seen her Uncle Marcos, but she remembered him very well. His was the only perfectly clear image she retained from her whole childhood, and in order to describe him she did not need to consult the daguerreotype¹ in the drawing room that showed him dressed as an explorer leaning on an old-fashioned double-barreled rifle with his right foot on the neck of a Malaysian tiger, the same triumphant position in which she had seen the Virgin standing between plaster clouds and pallid angels at the main altar, one foot on the vanquished devil. All Clara had to do to see her uncle was close her eyes and there he was, weather-beaten and thin, with a pirate's mustache through which his strange, sharklike smile peered out at her. It seemed impossible that he could be inside that long black box that was lying in the middle of the courtyard.
- 2 Each time Uncle Marcos had visited his sister Nívea's home, he had stayed for several months, to the immense joy of his nieces and nephews, particularly Clara, causing a storm in which

1. **daguerreotype** (duh GEHR uh typ) *n.* early type of photograph.

NOTES

CLOSE READ

ANNOTATE: Annotate the references to religion in paragraph 1.

QUESTION: What do they tell you about the story's setting?

CONCLUDE: Why do you think the author made this choice?

DIGITAL
PERSPECTIVES



CLOSE READ



Authors use imagery to help bring their stories to life. The use of religious imagery accomplishes this and tells the reader something about the culture of the characters in the story. You may wish to model the Close Read using the following think-aloud format. Possible responses to questions on the Student page are included. You may also want to print copies of the Close-Read Guide: Fiction for students to use.

ANNOTATE: As I read paragraph 1, I notice and highlight the details that show religious imagery.

QUESTION: I think the writer includes a religious reference to tell the reader that the story is set in a religious household.

CONCLUDE: I think the author made this choice to give the reader a glimpse of who the characters are and what influences impact their lives and decisions.

Additional **English Language Support** is available in the Interactive Teacher's Edition.

CROSS-CURRICULAR PERSPECTIVES

Humanities The introduction talks about the myth of Icarus and Daedalus. Ask students to find a version of this story or share a version with the class. Have students discuss what they find interesting about the story. Discuss the moral

of the story. Ask them how they think the myth might relate to the story of Uncle Marcos. Extend the activity by having students read other Greek myths and sharing them with the class.

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CLOSER LOOK

Analyze Imagery

Students may have marked paragraph 2 during their first read. Use this paragraph to help students understand the author’s use of imagery to enrich the reader’s experience with Uncle Marcos. Encourage them to talk about the annotations that they marked. You may want to model a close read with the class based on the highlights shown in the text.

ANNOTATE: Have students mark details in paragraph 2 that shows what Uncle Marcos did during the day and how Severo and Nívea felt about it, or have students participate while you highlight them.

Question: Guide students to consider what these details might tell them. Ask what a reader can infer from the description of Uncle Marcos’ behavior and how Severo and Nívea react, and accept student responses.

Possible response: His behavior is unusual. He hangs a hammock in their house and wears almost nothing. Severo is unhappy, but Nívea is forgiving.

CONCLUDE: Help students to formulate conclusions about the importance of these details in the text. Ask students why the author might have included these details.

Possible response: The author used imagery here to paint a picture in the reader’s head of what it was like to live with Uncle Marcos and how different characters reacted. The reader, again, sees religious imagery, side-by-side with what might be viewed as unsophisticated behavior.

Remind students that **imagery** is language that uses **images**—words or phrases that appeal to the senses of sight, hearing, touch, taste, or smell. The term *imagery* is also used more broadly to refer to **figurative language** that evokes sensations. Like literal imagery, figurative imagery appeals to the senses, but by making imaginative comparisons to things that may not be purely sensory. Encourage students to revisit paragraph 2 and find examples of both literal and figurative imagery.

NOTES

the sharp lines of domestic order blurred. The house became a clutter of trunks, of animals in jars of formaldehyde,² of Indian lances and sailor’s bundles. In every part of the house people kept tripping over his equipment, and all sorts of unfamiliar animals appeared that traveled from remote lands only to meet their death beneath Nana’s irate broom in the farthest corners of the house. Uncle Marcos’s manners were those of a cannibal, as Severo put it. He spent the whole night making incomprehensible movements in the drawing room; later they turned out to be exercises designed to perfect the mind’s control over the body and to improve digestion. He performed alchemy³ experiments in the kitchen, filling the house with fetid smoke and ruining pots and pans with solid substances that stuck to their bottoms and were impossible to remove. While the rest of the household tried to sleep, he dragged his suitcases up and down the halls, practiced making strange, high-pitched sounds on savage instruments, and taught Spanish to a parrot whose native language was an Amazonic dialect. During the day, he slept in a hammock that he had strung between two columns in the hall, wearing only a loincloth that put Severo in a terrible mood but that Nívea forgave because Marcos had convinced her that it was the same costume in which Jesus of Nazareth had preached. Clara remembered perfectly, even though she had been only a tiny child, the first time her Uncle Marcos came to the house after one of his voyages. He settled in as if he planned to stay forever. After a short time, bored with having to appear at ladies’ gatherings where the mistress of the house played the piano, with playing cards, and with dodging all his relatives’ pressures to pull himself together and take a job as a clerk in Severo del Valle’s law practice, he bought a barrel organ and took to the streets with the hope of seducing his Cousin Antonieta and entertaining the public in the bargain. The machine was just a rusty box with wheels, but he painted it with seafaring designs and gave it a fake ship’s smokestack. It ended up looking like a coal stove. The organ played either a military march or a waltz, and in between turns of the handle the parrot, who had managed to learn Spanish although he had not lost his foreign accent, would draw a crowd with his piercing shrieks. He also plucked slips of paper from a box with his beak, by way of selling fortunes to the curious. The little pink, green, and blue papers were so clever that they always divulged the exact secret wishes of the customers. Besides fortunes there were little balls of sawdust to amuse the children. The idea of the organ was a last desperate attempt to win the hand of Cousin Antonieta after more conventional means of courting her had failed. Marcos thought

2. **formaldehyde** (fawr MAL duh hyd) *n.* solution used as a preservative.
3. **alchemy** (AL kuh mee) *n.* early form of chemistry, with philosophic and magical associations.

PERSONALIZE FOR LEARNING

English Language Support

Sentence Structure The writer of “Uncle Marcos” uses long paragraphs and long sentences in her writing. This decision serves an important purpose in telling the story. In creating the imagery and the sense of chaos, long sentences and long paragraphs that seem to go on and on, help create the chaotic mood of the home. Call students’ attention to the sentence

in paragraph 2 that begins, “After a short time, bored with having to appear...” Read the sentence, using the commas as break points, and explain that several things happen in this sentence. Ask students to help make a list of everything that happens in the sentence, and have them consider why the writer included all of this in one sentence.

no woman in her right mind could remain impassive before a barrel-organ serenade. He stood beneath her window one evening and played his military march and his waltz just as she was taking tea with a group of female friends. Antonieta did not realize the music was meant for her until the parrot called her by her full name, at this point she appeared in the window. Her reaction was not what her suitor had hoped for. Her friends offered to spread the news to every salon⁴ in the city, and the next day people thronged the streets hoping to see Severo del Valle's brother-in-law playing the organ and selling little sawdust balls with a moth-eaten parrot, for the sheer pleasure of proving that even in the best of families, there could be good reason for embarrassment. In the face of this stain to the family reputation, Marcos was forced to give up organ-grinding and resort to less conspicuous ways of winning over Cousin Antonieta, but he did not renounce his goal. In any case, he did not succeed, because from one day to the next the young lady married a diplomat who was twenty years her senior; he took her to live in a tropical country whose name no one could recall, except that it suggested negritude,⁵ bananas, and palm trees, where she managed to recover from the memory of that suitor who had ruined her seventeenth year with his military march and his waltz. Marcos sank into a deep depression that lasted two or three days, at the end of which he announced that he would never marry and that he was embarking on a trip around the world. He sold his organ to a blind man and left the parrot to Clara, but Nana secretly poisoned it with an overdose of cod-liver oil, because no one could stand its lusty glance, its fleas, and its harsh, tuneless hawking of paper fortunes and sawdust balls.

- 3 That was Marcos's longest trip. He returned with a shipment of enormous boxes that were piled in the far courtyard, between the chicken coop and the woodshed, until the winter was over. At the first signs of spring he had them transferred to the parade grounds, a huge park where people would gather to watch the soldiers file by on Independence Day, with the goosestep they had learned from the Prussians. When the crates were opened, they were found to contain loose bits of wood, metal, and painted cloth. Marcos spent two weeks assembling the contents according to an instruction manual written in English, which he was able to decipher thanks to his invincible imagination and a small dictionary. When the job was finished, it turned out to be a bird of prehistoric dimensions, with the face of a furious eagle, wings that moved, and a propeller on its back. It caused an uproar. The families of the oligarchy⁶ forgot all about the barrel organ, and Marcos became the star attraction of the season.

4. **salon** *n.* regular gathering of distinguished guests that meets in a private home.

5. **negritude** (NEE gruh tood) *n.* black people and their cultural heritage.

6. **oligarchy** (OL uh gahr kee) *n.* government ruled by a few.

NOTES

CLOSE READ

ANNOTATE: Mark the sentence that begins "Her friends offered . . ." and ends ". . . reason for embarrassment."

QUESTION: Why did the author choose to write a sentence of this length?

CONCLUDE: What effect does this have on the reader?

decipher (dih SY fuhr) *v.* succeed in interpreting or understanding something

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CLOSE READ

Writers can use structure as a tool to build mood and meaning in a story. Short, choppy sentences evoke a different mood than very long sentences. You may wish to model the Close Read using the following think-aloud format. Possible responses to questions on the Student page are included.

ANNOTATE: As I read paragraph 2, I notice and highlight the details that show a long sentence.

QUESTION: I notice the writer wrote a very long sentence here to tell a lot of information in one thought.

CONCLUDE: I think the reader gets a sense of how chaotic life with Uncle Marcos could be.

WriteNow Analyze and Interpret

Narrative The writer employs lengthy sentences as a tool to create an image of the frantic nature of life with Uncle Marcos. As single sentence can be four or five lines and contains several somewhat connected thoughts. Ask

students to write their own long sentence in this style about a chaotic time during the school day. Ask volunteers to share their writing. Discuss the effectiveness of the tool, as well as its drawbacks, in writing fiction.

CLOSER LOOK

Analyze Motivation

Students may have marked paragraph 3 during their first read. Use this paragraph to help students understand what motivates Uncle Marcos, what makes him do the things he does. Encourage them to talk about the annotations that they marked. You may want to model a close read with the class based on the highlights shown in the text.

ANNOTATE: Have students mark details in paragraph 3 that might hint at what is motivating Uncle Marcos to take this flight, or have students participate while you highlight them.

Question: Guide students to consider what these details might tell them. Ask what a reader can infer from what Uncle Marcos is doing here, and accept student responses.

Possible response: He seems to be enjoying the attention he is receiving for announcing his flight.

CONCLUDE: Help students to formulate conclusions about the importance of these details in the text. Ask students why the author might have included these details.

Possible response: The author wants the reader to know what motivates Uncle Marcos. In this scene, it is clearly attention. He has made the announcement of his impossible flight and everybody, from near and far, has focused their attention on him.

Remind students that **motivation** is the reason or reasons for a character's actions. This motivation may come from internal causes like loneliness or jealousy, or from external causes like danger or poverty. Most characters' **motives** are a combination of internal and external factors, such as fear in response to danger or ambition in response to poverty—or perhaps even ambition in response to shame in response to poverty. One of the ways writers create round, believable characters is by making us understand the complex medley of needs, desires, and circumstances that motivate their behavior. Ask students to point out other moments in the story where Uncle Marcos's behavior shows his need for external approval. Point out that this theme runs through the story.

NOTES

contraption (kuhn TRAP shuhn) *n.* machine that seems strange or unnecessarily complicated

newfangled (NOO fang guhld) *adj.* different from what a person is used to

People took Sunday outings to see the bird; souvenir vendors and strolling photographers made a fortune. Nonetheless, the public's interest quickly waned. But then Marcos announced that as soon as the weather cleared he planned to take off in his bird and cross the mountain range. The news spread, making this the most talked-about event of the year. The **contraption** lay with its stomach on terra firma,⁷ heavy and sluggish and looking more like a wounded duck than like one of those **newfangled** airplanes they were starting to produce in the United States. There was nothing in its appearance to suggest that it could move, much less take flight across the snowy peaks. **Journalists** and the curious **flocked** to see it. Marcos **smiled his immutable⁸ smile** before the avalanche of questions and **posed for photographers** without offering the least technical or scientific explanation of how he hoped to carry out his plan. **People came** from the provinces **to see** the sight. Forty years later his great-nephew Nicolás, whom Marcos did not live to see, unearthed the desire to fly that had always existed in the men of his lineage. Nicolás was interested in doing it for commercial reasons, in a gigantic hot-air sausage on which would be printed an advertisement for carbonated drinks. But when Marcos announced his plane trip, no one believed that his contraption could be put to any practical use. The appointed day dawned full of clouds, but so many people had turned out that Marcos did not want to disappoint them. He showed up punctually at the appointed spot and did not once look up at the sky, which was growing darker and darker with thick gray clouds. The astonished crowd filled all the nearby streets, perching on rooftops and the balconies of the nearest houses and squeezing into the park. No political gathering managed to attract so many people until half a century later, when the first Marxist candidate attempted, through strictly democratic channels, to become President. Clara would remember this holiday as long as she lived. People dressed in their spring best, thereby getting a step ahead of the official opening of the season, the men in white linen suits and the ladies in Italian straw hats that were all the rage that year. Groups of elementary-school children paraded with their teachers, clutching flowers for the hero. Marcos accepted their bouquets and joked that they might as well hold on to them and wait for him to crash, so they could take them directly to his funeral. The bishop himself, accompanied by two incense bearers, appeared to bless the bird without having been asked, and the police band played happy, unpretentious music that pleased everyone. The police, on horseback and carrying lances, had trouble keeping the crowds far enough from the center of the park,

7. **terra firma** (TEHR uh FUR muh) *n.* Latin term meaning "firm earth; solid ground."
8. **immutable** (ih MYOO tuh buhl) *adj.* never changing.

VOCABULARY DEVELOPMENT

Concept Vocabulary Reinforcement When authors create a scene, they use many tools to bring the reader's mind into that scene. One such tool is vocabulary appropriate to the time period. Two of the Concept Vocabulary words found in paragraph 3 are not necessarily words used in modern times, but help the reader to exist with the characters in their time. Review the words

newfangled and *contraption*. Ask students to use the words in a sentence that shows they understand the meaning of each word. Have them use the words to describe the scene in the story. Next, have them use the words to describe something modern. Discuss how the old-fashioned words impact the discussion of a modern idea.

where Marcos waited dressed in mechanic's overalls, with huge racer's goggles and an explorer's helmet. He was also equipped with a compass, a telescope, and several strange maps that he had traced himself on various theories of Leonardo da Vinci and on the polar knowledge of the Incas.⁹ Against all logic, on the second try the bird lifted off without mishap and with a certain elegance, accompanied by the creaking of its skeleton and the roar of its motor. It rose flapping its wings and disappeared into the clouds, to a send-off of applause, whistlings, handkerchiefs, drumrolls, and the sprinkling of holy water. All that remained on earth were the comments of the amazed crowd below and a multitude of experts, who attempted to provide a reasonable explanation of the miracle. Clara continued to stare at the sky long after her uncle had become invisible. She thought she saw him ten minutes later, but it was only a migrating sparrow. After three days the initial euphoria that had accompanied the first airplane flight in the country died down and no one gave the episode another thought, except for Clara, who continued to peer at the horizon.

4 After a week with no word from the flying uncle, people began to speculate that he had gone so high that he had disappeared into outer space, and the ignorant suggested he would reach the moon. With a mixture of sadness and relief, Severo decided that his brother-in-law and his machine must have fallen into some hidden crevice of the **cordillera**,¹⁰ where they would never be found. Nívea wept disconsolately and lit **candles** to **San Antonio**, **patron** of lost objects. Severo opposed the idea of having **masses** said, because he did not believe in them as a way of getting into **heaven**, much less of returning to earth, and he maintained that **masses** and **religious vows**, like the selling of **indulgences**, **images**, and **scapulars**,¹¹ were a dishonest business. Because of his attitude, Nívea and Nana had the children say the **rosary**¹² behind their father's back for nine days. Meanwhile, groups of volunteer explorers and mountain climbers tirelessly searched peaks and passes, combing every accessible stretch of land until they finally returned in triumph to hand the family the **mortal** remains of the deceased in a sealed black coffin. The intrepid traveler was laid to rest in a grandiose funeral. His death made him a hero and his name was on the front page of all the papers for several days. The same multitude that had gathered to see him off the day he flew away in his bird paraded past his coffin. The entire family wept as befit the

9. **Leonardo da Vinci . . . Incas** Leonardo da Vinci (1452–1519) was an Italian painter, sculptor, architect, and scientist; The Incas were Native Americans who dominated ancient Peru until Spanish conquest.

10. **cordillera** (kawr duhl YAIR uh) *n.* system or chain of mountains.

11. **indulgences, images, and scapulars** indulgences are pardons for sins; images are pictures or sculptures of religious figures; scapulars are garments worn by Roman Catholics as tokens of religious devotion.

12. **say the rosary** use a set of beads to say prayers.

NOTES

CLOSE READ

ANNOTATE: In paragraph 4, mark 10 words that have to do with religion.

QUESTION: Why did the author make this choice?

CONCLUDE: What effect does this choice have on the reader?

CLOSE READ

Authors use imagery to help the readers put themselves into the story. A writer may choose to use imagery appropriate to the setting and time of a story to bring the reader to a better understanding of the characters. One such type of imagery is religious imagery. You may wish to model the Close Read using the following think-aloud format. Possible responses to questions on the Student page are included.

ANNOTATE: As I read paragraph 4, I notice and highlight the details that have to do with religion.

QUESTION: I notice that the author uses a lot of religious imagery here. It must have been an important part of the culture of the people in this time and place.

CONCLUDE: I think that this makes the reader appreciate the seriousness of the situation for the characters. They were worried about Uncle Marcos and used religion to comfort themselves and bring them hope.

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PERSONALIZE FOR LEARNING

English Language Support

Unfamiliar Words When reading a story based in a different time period or location, readers will often encounter unfamiliar words or concepts. Sometimes, hints will be provided to the reader to help understand the unfamiliar words or concepts. Here, there are footnotes. Point out footnotes 11 and 12. Ask students to find them within the story and then refer to the corresponding notes. Ask students to explain why

these notes are important and what information they provide. Then, ask students to return to the paragraph and identify context clues they could have used to help them understand these terms, had the footnotes not been available. Ask students to suggest other ways to figure out their meanings, such as background knowledge and online resources.

CLOSE READ

Writers can use punctuation to help tell the story. The writer can choose to make long sentences broken up by commas, to create a mood and show contrast and change. You may wish to model the Close Read using the following think-aloud format. Possible responses to questions on the Student page are included.

ANNOTATE: As I read the last sentence in paragraph 4, I notice and highlight the commas.

QUESTION: I notice that the writer broke up the sentence with several commas to show change.

CONCLUDE: I think that breaking up the sentence this way, in short pieces of information helps the reader to see a big change that took place for the volunteers.

NOTES

CLOSE READ

ANNOTATE: Mark all the commas that appear in the last sentence of paragraph 4.

QUESTION: What is the purpose of breaking the sentence up with commas?

CONCLUDE: What effect does this type of sentence structure have on the reader?

ingenuity (ihn juh NOO uh tee) *n.* the quality of being original and clever

CLOSE READ

ANNOTATE: In lines 4–6 on page 8, mark the types of customers who want their fortunes told.

QUESTION: What can you infer about the services provided by Uncle Marcos and Clara?

CONCLUDE: Why might the author have wanted to show the range of customers lined up at the door?

occasion, except for Clara, who continued to watch the sky with the patience of an astronomer. One week after he had been buried, Uncle Marcos, a bright smile playing behind his pirate’s mustache, appeared in person in the doorway of Nívea and Severo del Valle’s house. Thanks to the surreptitious¹³ prayers of the women and children, as he himself admitted, he was alive and well and in full possession of his faculties, including his sense of humor. Despite the noble lineage of his aerial maps, the flight had been a failure. He had lost his airplane and had to return on foot, but he had not broken any bones and his adventurous spirit was intact. This confirmed the family’s eternal devotion to San Antonio, but was not taken as a warning by future generations, who also tried to fly, although by different means. Legally, however, Marcos was a corpse. Severo del Valle was obliged to use all his legal **ingenuity** to bring his brother-in-law back to life and the full rights of citizenship. When the coffin was pried open in the presence of the appropriate authorities, it was found to contain a bag of sand. This discovery ruined the reputation, up till then untarnished, of the volunteer explorers and mountain climbers, who from that day on were considered little better than a pack of bandits.

5 Marcos’s heroic resurrection made everyone forget about his barrel-organ phase. Once again he was a sought-after guest in all the city’s salons and, at least for a while, his name was cleared. Marcos stayed in his sister’s house for several months. One night he left without saying goodbye, leaving behind his trunks, his books, his weapons, his boots, and all his belongings. Severo, and even Nívea herself, breathed a sigh of relief. His visit had gone on too long. But Clara was so upset that she spent a week walking in her sleep and sucking her thumb. The little girl, who was only seven at the time, had learned to read from her uncle’s storybooks and been closer to him than any other member of the family because of her prophesying powers. Marcos maintained that his niece’s gift could be a source of income and a good opportunity for him to cultivate his own clairvoyance. He believed that all human beings possessed this ability, particularly his own family, and that if it did not function well it was simply due to a lack of training. He bought a crystal ball in the Persian bazaar, insisting that it had magic powers and was from the East (although it was later found to be part of a buoy from a fishing boat), set it down on a background of black velvet, and announced that he could tell people’s fortunes, cure the evil eye, and improve the quality of dreams, all for the modest sum of five centavos. His first customers were the **maids** from around the neighborhood. One of them had been accused of stealing, because her employer had misplaced a valuable ring. The crystal ball revealed the location

13. **surreptitious** (sur uhp TIHSH uhs) *adj.* secretive.

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VOCABULARY DEVELOPMENT

Word Analysis Call students’ attention to the Concept Vocabulary word *ingenuity*. Point out that the Latin root of this word is *gignere*, which means to bring forth or give birth. Ask students to explain how this root is related to the meaning

of ingenuity provided here. Then, ask students to create a list of other words that have the same root. Have students look up the meanings of these words. Finally, discuss how they all relate to the Latin root.



of the object in question: it had rolled beneath a wardrobe. The next day there was a line outside front door of the house. There were coachmen, storekeepers, and milkmen; later a few municipal employees and distinguished ladies made a discreet appearance, slinking along the side walls of the house to keep from being recognized. The customers were received by Nana, who ushered them into the waiting room and collected their fees. This task kept her busy throughout the day and demanded so much of her time that the family began to complain that all there ever was for dinner was old string beans and jellied quince. Marcos decorated the carriage house with some frayed curtains that had once belonged in the drawing room but that neglect and age had turned to dusty rags. There he and Clara received the customers. The two divines wore tunics “color of the men of light,” as Marcos called the color yellow. Nana had dyed them with saffron powder, boiling them in pots usually reserved for rice and pasta. In addition to his tunic, Marcos wore a turban around his head and an Egyptian amulet around his neck. He had grown a beard and let his hair grow long and he was thinner than ever before. Marcos and Clara were utterly convincing, especially because the child had no need to look into the crystal ball to guess what her clients wanted to hear. She would whisper in her Uncle Marcos’s ear, and he in turn would transmit the message to the client, along with any improvisations of his own that he thought pertinent. Thus their fame spread, because all those who arrived sad and bedraggled at the consulting room left filled with hope. Unrequited lovers were told how to win over indifferent hearts, and the poor left with foolproof tips on how to place their money at the dog track. Business grew so prosperous that the waiting room was always packed with people, and Nana began to suffer dizzy spells from being on her feet so many hours a day. This time Severo had no need to intervene to put a stop to his brother-in-law’s venture, for both Marcos and Clara, realizing

NOTES

improvisations (ihm pruh vy ZAY shuhnz) pl.
n. things that are created without any preparation

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CLOSE READ

As they read, have students focus on the many characters the author brings into the story here. They are not all named, as the family members are, but pointing out who they are serves to tell us more about what people in the community wanted or needed to believe. You may wish to model the Close Read using the following think-aloud format. Possible responses to questions on the Student page are included.

ANNOTATE: As I read paragraph 5, I notice and highlight the details that show the types of customers who wanted their fortunes told.

QUESTION: I notice that many different types of people sought the services provided by Uncle Marcos and Clara.

CONCLUDE: I think that they had such a wide variety of customers because everybody wanted to believe that there was a power out there that could help them solve the problems they could not solve on their own.

HOW LANGUAGE WORKS

Linking Verbs and Subject Compliments

Linking verbs are verbs such as *am*, *is*, *are*, *were*, and *was*. They connect the subject with the subject complement, a noun, pronoun, or adjective that completes the thought. Read aloud the following sentence part from paragraph 5 of the text, noting that it can stand alone and function as a complete sentence: *Marcos and Clara were utterly convincing...*

Have students identify the linking verb (*were*) and the subject complement (*convincing*). Then, ask students to find other examples of linking verbs and subject compliments in the text. Have several students share their example sentences. Have other students identify the linking verbs and subject compliments in the examples.

CLOSE READ

Authors choose to include details to bring the reader along on a journey into the lives of characters. Sometimes specific details are meant to invoke certain emotions or reactions in the reader, or help the reader to make connections to the story. You may wish to model the Close Read using the following think-aloud format. Possible responses to questions on the Student page are included.

ANNOTATE: As I read paragraph 6, I notice and highlight the details that show references to animals.

QUESTION: I notice that the narrator makes reference to the many exotic animals Uncle Marcos encountered on his adventures. I think this shows the narrator’s rich memories of her uncle.

CONCLUDE: I think these readers help to bring the story full-circle. At the beginning, they were part of the chaos. Here they are part of the memory and nostalgia for Uncle Marcos and his stories of adventure.

NOTES

CLOSE READ

ANNOTATE: Mark the references to animals in paragraph 6.

QUESTION: Why did the author make this choice?

CONCLUDE: What effect do these details have on the reader?

that their unerring guesses could alter the fate of their clients, who always followed their advice to the letter, became frightened and decided that this was a job for swindlers. They abandoned their carriage house oracle and split the profits, even though the only one who had cared about the material side of things had been Nana.

6 Of all the del Valle children, Clara was the one with the greatest interest in and stamina for her uncle’s stories. She could repeat each and every one of them. She knew by heart words from several dialects of the Indians, was acquainted with their customs, and could describe the exact way in which they pierced their lips and earlobes with wooden shafts, their initiation rites, the names of the most poisonous snakes, and the appropriate antidotes for each. Her uncle was so eloquent that the child could feel in her own skin the burning sting of snakebites, see reptiles slide across the carpet between the legs of the jacaranda room divider, and hear the shrieks of macaws behind the drawing-room drapes. She did not hesitate as she recalled Lope de Aguirre’s search for El Dorado, or the unpronounceable names of the flora and fauna her extraordinary uncle had seen; she knew about the llamas who take salt tea with yak lard and she could give detailed descriptions of the opulent women of Tahiti, the rice fields of China, or the white prairies of the North, where the eternal ice kills animals and men who lose their way, turning them to stone in seconds. Marcos had various travel journals in which he recorded his excursions and impressions, as well as a collection of maps and books of stories and fairy tales that he kept in the trunks he stored in the junk room at the far end of the third courtyard. From there they were hauled out to inhabit the dreams of his descendants, until they were mistakenly burned half a century later on an infamous pyre.

7 Now Marcos had returned from his last journey in a coffin. He had died of a mysterious African plague that had turned him as yellow and wrinkled as a piece of parchment. When he realized he was ill, he set out for home with the hope that his sister’s ministrations and Dr. Cuevas’s knowledge would restore his health and youth, but he was unable to withstand the sixty days on ship and died at the latitude of Guayaquil, ravaged by fever and hallucinating about musky women and hidden treasure. The captain of the ship, an Englishman by the name of Longfellow, was about to throw him overboard wrapped in a flag, but Marcos, despite his savage appearance and his delirium, had made so many friends on board and seduced so many women that the passengers prevented him from doing so, and Longfellow was obliged to store the body side by side with the vegetables of the Chinese cook, to preserve it from the heat and mosquitoes of the tropics until the ship’s carpenter had time to improvise a coffin. At

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PERSONALIZE FOR LEARNING

Strategic Support

Choral Reading Throughout this story, the author makes use of very long sentences to help create the mood of the story. She does this again with describing Uncle Marcos’s final, real demise. Do a choral reading of the final paragraph. Have pairs of students read each sentence slowly and deliberately to create the mood the narrator is trying to evoke here. Ask students to discuss how the read aloud differed from their original first-read of the paragraph.

El Callao they obtained a more appropriate container, and several days later the captain, furious at all the troubles this passenger had caused the shipping company and himself personally, unloaded him without a backward glance, surprised that not a soul was there to receive the body or cover the expenses he had incurred. Later he learned that the post office in these latitudes was not as reliable as that of far-off England, and that all his telegrams had vaporized en route. Fortunately for Longfellow, a customs lawyer who was a friend of the del Valle family appeared and offered to take charge, placing Marcos and all his **paraphernalia** in a freight car, which he shipped to the capital to the only known address of the deceased: his sister's house. ➤

NOTES

paraphernalia (par uh fuhr NAYL yuh) *n.*
equipment needed for a particular activity

Comprehension Check

Complete the following items after you finish your first read.

1. What feature do all Uncle Marcos's adventures have in common?
2. What does Uncle Marcos do to try to win the hand of Cousin Antonieta?
3. What does Uncle Marcos make from the materials he brings back in boxes?
4. How does Clara react to Uncle Marcos's disappearance?
5.  **Notebook** Based on what you read, summarize the character of Uncle Marcos in a few sentences.

RESEARCH

Research to Clarify Choose at least one unfamiliar detail from the text. Briefly research that detail. In what way does the information you learned shed light on an aspect of the story?

Research to Explore Choose something from the text that interests you and formulate a research question.

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CLOSE READ

Authors use punctuation to help express thoughts and create an effect. A colon, for example, can be used to introduce an example or an appositive, which is a noun or noun phrase that provides information about a noun phrase that comes before it. You may wish to model the Close Read using the following think-aloud format. Possible responses to questions on the Student page are included.

ANNOTATE: As I read paragraph 7, I notice and highlight the colon.

QUESTION: The colon provides a slight pause, and it introduces an appositive, which gives the reader additional information.

CONCLUDE: The use of the colon helps the author create a kind of rhythm and build readers' anticipation—readers know they are about to find out the only known address of the deceased, there is a slight pause, and then the information is given.

Comprehension Check

Possible responses:

1. Students' answers will vary, but they should provide details from the text and explain their answers.
2. He built the organ and played music to try to win Cousin Antonieta.
3. He builds a primitive airplane.
4. She continues to look to the stars and watch for him.
5. Uncle Marcos is an adventurer who loves exploring the world. He also love attention and does many things to gain it, including flying a primitive plane. He is a romantic, trying to win over Cousin Antonieta. He is a schemer, with his fortune-telling business.

Research to Clarify

If students struggle to decide on a detail to research, you may want to suggest that they focus on one of the following topics: clairvoyance, alchemy, primitive flying machines, Malaysian tigers.

Research to Explore

If students aren't sure how to go about formulating a research question, suggest that they use their findings from Research to Clarify as a starting point. For example, if students researched Malaysian tigers, they might formulate a question such as *What are some distinguishing features of the Malaysian tiger?*

PERSONALIZE FOR LEARNING

Challenge

Make Connections Uncle Marcos is a unique individual. He is the relative that legends are made of, even if not everything about him was true or real. While it might be impossible to relate to an uncle like him, families and friends are full of unique characters. Think about a unique character in your family or life. Write a short paragraph in the author's style to describe a moment in that person's life.

Jump Start

CLOSE READ What makes stories of adventure so exciting to hear or read? Could it be because the person reading it might be imagining what it would be like to have a life full of exciting, out of the ordinary moments. They allow the reader to dream of far off lands. What adventure would be a dream come true for you?

Close Read the Text

Walk students through the annotation model on the Student page. Encourage them to complete items 2 and 3 on their own. Review and discuss the sections students have marked. If needed, continue to model close reading by using the Annotation Highlights in the Interactive Teacher’s Edition.

Analyze the Text

Possible responses:

- 1. Uncle Marcos bought and built new parts for a barrel organ. He played it for the woman he loved, who did not appreciate it. Uncle Marcos also sold paper fortunes, drawn from a box by a parrot, and other products. When his family became embarrassed, he was forced to stop these activities. **DOK 1**
- 2. Uncle Marcos makes each one into something new by building the object and using it creatively. In both cases, he fails to achieve his goal. **DOK 2**
- 3. Inventions may be created by creative people who see and live in the world in unusual ways. **DOK 4**

FORMATIVE ASSESSMENT

Analyze the Text

- If students fail to cite evidence, then remind them to support their ideas with specific information.
- If struggle to answer the questions, then revisit the sections of the text that will help them and discuss the unclear concepts.



MAKING MEANING



UNCLE MARCOS

Close Read the Text

- 1. This model from the text shows two sample annotations, along with questions and conclusions. Close read the passage, and find another detail to annotate. Then, write a question and your conclusion.

ANNOTATE: Mark the details that use exaggeration to describe Clara’s behavior.

QUESTION: What does this exaggeration show about Clara?

CONCLUDE: The author is emphasizing the idea that Clara was extremely upset.

Close Read

ANNOTATE
QUESTION
CONCLUDE

One night he left without saying goodbye, leaving behind his trunks, his books, his weapons, and all his belongings. Severo, and even Nívea herself, breathed a sigh of relief. His visit had gone on too long. But Clara was so upset that she spent a week walking in her sleep and sucking her thumb.

ANNOTATE: Mark the series of items in the first sentence.

QUESTION: Why might the author choose these items?

CONCLUDE: The author is showing that Uncle Marcos is an unusual and adventurous man.

- 2. For more practice, go back into the text and complete the close-read sections in the side columns.
- 3. Revisit a section of the text you found important during your first read. Read this section closely and **annotate** what you notice. Ask yourself **questions** such as “Why did the author make this choice?” What can you **conclude**?

Analyze the Text

CITE TEXTUAL EVIDENCE to support your answers.

Notebook Respond to these questions.

- 1. **Summarize** When you **summarize**, you restate the most important ideas or events in a text in your own words. Reread paragraph 2. Then summarize the episode with the barrel organ incident.
- 2. **Compare** In what way is the barrel organ incident similar to the incident with the homemade plane? Support your answer with details from the text.
- 3. **Essential Question:** *Are inventions realized through inspiration or perspiration?* What has this story taught you about how inventions are created?

STANDARDS

- Reading Literature
- Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
 - Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.

PERSONALIZE FOR LEARNING

English Language Support

Difficult Concepts As the story begins, the narrator tells what happens to the house when Uncle Marco comes to stay. The line, “the sharp lines of domestic order blurred,” refers to that time. What does this mean? Begin by asking, What is *domestic order*? Explain that it refers to the home. Explain that domestic order means order in the home, or how the home normally functions. Next, ask what the

narrator meant by “the sharp lines...blurred.” Explain that it could mean that something that was always a certain way was no longer that way. Have students consider what the whole phrase means when talking about Uncle Marcos’s visits. (He turned order to chaos in their home.)

Analyze Craft and Structure

Plot A story's **plot** is the sequence of related events in the story. Typically, a plot contains these elements:

- **Exposition** is basic information about the characters and situation, usually provided at the beginning of a story. For example, at the beginning of "Uncle Marcos," we learn about the characters of Uncle Marcos and Clara.
- **Conflict** is a struggle between two opposing forces.
- **Rising action** refers to events that increase the tension of the story's main conflict.
- **Climax** is the point of greatest tension in the story, usually when the outcome of the conflict is resolved.
- **Falling action** refers to events that follow the climax.
- **Resolution** is the story's final outcome, in which remaining conflicts may be either resolved or left open.

The **dialogue** and events in a story help develop the plot in several ways, such as by propelling the action of the plot forward. For example, the event of Uncle Marcos building his flying machine leads to the celebration as he takes off. A story's dialogue and events may also reveal one or more characters' traits and motivation. Finally, they may provoke a decision that leads to the next part of the plot.

Practice

 **Notebook** Respond to these questions.

1. (a) Reread paragraph 2 of the story. What conflict does the author introduce in the first half of that paragraph? (b) **Interpret** What do the events in the first half of paragraph 2 tell the reader about the character of Uncle Marcos?
2. (a) What do you think is the climax of the story? (b) **Cite Evidence** What events or ideas in the story support your claim that this is the climax?
3. (a) What event leads to the resolution of the story? (b) **Evaluate** Do you think this is a satisfying resolution? Why, or why not? Note anything you would add or change to make the resolution more satisfying.

CITE TEXTUAL EVIDENCE
to support your answers.

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Analyze Craft and Structure

One way to think about the organization of plot is to picture it like climbing a mountain. The climber begins on the ground. This is the *exposition*. As the climber begins to climb, the *conflict* is revealed. On the way up, there is the *rising action*. The summit is the *climax*, followed by the *falling action* and the *resolution*, back at the bottom of the mountain. For more support, see **Analyze Craft and Structure: Plot.** 

MAKE IT INTERACTIVE

Draw a picture of a mountain. Have students mark the different parts of plot on the drawing. Then have them point out where they would add the appropriate information about the story of Uncle Marcos to the drawing.

Practice

Possible responses:

1. (a) Uncle Marcos creates mess and chaos when he stays with his sister Nívea and her family. (b) They tell us that Uncle Marcos acts in unconventional ways and does not care much what others think of his behavior.
2. (a) I think the climax of the story is when Uncle Marcos builds his flying machine. (b) For the first time, people take a real interest in what Uncle Marcos is doing. They gather to celebrate him, including giving him flowers, and treat his work with respect and admiration.
3. (a) Uncle Marcos dies on one of his trips. (b) No, because Clara's story is still not over. I would add more details about what happens to Clara.

FORMATIVE ASSESSMENT

Analyze Craft and Structure

- **If** students struggle to understand plot, **then** review the different components of plot.
- **If** students struggle to identify the components of plot in "Uncle Marcos," **then** have them revisit the story together to find examples.

For Reteach and Practice, see **Analyze Craft and Structure: Plot (RP).** 

WriteNow Analyze and Interpret

Plot Have students think about their favorite movie and use what they've learned about plot and its components to analyze the film. After they've identified their favorite movie, students should describe the plot, including exposition, conflict, rising action, climax, falling action, and resolution. Ask volunteers to share their work, and, if others are familiar with the movie being described, have them contribute details. Finally, ask students to consider what would happen to the movie if an element were missing.

Concept Vocabulary

Why These Words?

- Possible responses:
- 1. The vocabulary words help explain what Uncle Marcos makes and how he works on his inventions, from start to finish.
 - 2. *incomprehensible, alchemy, invincible, imagination, mechanic, clairvoyance, venture, excursions, impressions*

Practice

- 1. newfangled
- 2. decipher
- 3. improvisations
- 4. ingenuity
- 5. contraption
- 6. paraphernalia

Word Network

Possible words: *incomprehensible, alchemy, invincible, imagination, mechanic, clairvoyance, venture, excursions, impressions*

Word Study

For more support, see **Concept Vocabulary and Word Study.**

- Possible responses:
- 1. It tells you that the word refers to the state or quality of being able to do something.
 - 2. The word *responsibility* refers to the quality of being responsible, or to something for which one is responsible. Taking care of a pet would be one example of a responsibility.

FORMATIVE ASSESSMENT

Concept Vocabulary

If students struggle to understand and apply the concept vocabulary, then review the words and meanings by finding them in the text.

Word Study

If students struggle to understand the suffix *-ity*, then help them to compose a short list of words that end in *-ity* and work together to determine what the words mean and how the suffix contributes to their meaning.

For Reteach and Practice, see **Word Study: Latin Suffix -ity (RP).**



UNCLE MARCOS

Concept Vocabulary

- | | | |
|-------------|------------|----------------|
| decipher | newfangled | improvisations |
| contraption | ingenuity | paraphernalia |

Why These Words? These concept words help to describe Uncle Marcos's cleverness. For example, Uncle Marcos manages to *decipher* an instruction manual written in English in order to build his flying machine. Uncle Marcos's hard work and creativity in trying to understand the manual written in a foreign language tells the reader that he was totally dedicated to creating this machine.

- 1. How does the concept vocabulary help the reader understand Uncle Marcos as an inventor?
- 2. What other words in the selection describe Uncle Marcos's inventions?

Practice

Notebook The concept vocabulary words appear in "Uncle Marcos." Complete each sentence with the correct word.

- 1. A person who prefers old-fashioned objects might not want something _____.
- 2. A spy might have to _____ a code to find the hidden message.
- 3. If things do not go according to plan, you might have to make _____.
- 4. You might admire a creative person's _____ in solving problems.
- 5. People might call a strange or unusual machine a _____.
- 6. Sports _____ might include a ball, goal or basket, and uniform.

Word Study

Latin suffix: -ity The Latin suffix *-ity* means "state or quality of." The author of this story refers to Severo's legal *ingenuity*, or his quality of being *ingenious* (original, clever, and resourceful).

Use what you know about the Latin suffix *-ity* to answer these questions.

- 1. How does the Latin suffix *-ity* help you understand the meaning of the word *ability* as it is used in paragraph 5?
- 2. Using what you know about the Latin suffix *-ity*, explain what the word *responsibility* means. Then give an example of something that could be considered a responsibility.

STANDARDS

Language

Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *precede, recede, secede*).

AUTHOR'S PERSPECTIVE

Elfrieda Hiebert, Ph.D.

Digital Tools As students develop and expand their word networks, remind them of the digital tools available and of their value. Explain what digital tools offer—pronunciation; audio; word families; definitions; links to synonyms and antonyms; interactive levels of complexity of synonyms and antonyms; words in context

sentences, and so much more. Experiment with these digital tools:

- Lexipedia, for example, is a visual thesaurus. Users type in any word and Lexipedia displays that word with others in the word network, color-coded by parts of speech and relationships. Hover over the word for a full definition.

Conventions

Subject Complements A **linking verb** connects its subject to a subject complement. A **subject complement** is a noun, a pronoun, or an adjective that follows a linking verb and completes the thought by telling something about the subject.

The most common linking verbs are forms of *be*, such as *am*, *is*, *are*, *was*, and *were*. Other verbs that function as linking verbs when they are followed by subject complements include *seem*, *look*, *feel*, *become*, *grow*, and *appear*. There are three types of subject complements:

- A **predicate noun** or **predicate pronoun** follows a linking verb and identifies or renames the subject of a sentence.
- A **predicate adjective** follows a linking verb and describes the subject of a sentence.

The chart below shows examples of a predicate noun, a predicate pronoun, and a predicate adjective.

PREDICATE NOUN	PREDICATE PRONOUN	PREDICATE ADJECTIVE
Ronnie will be the <u>captain</u> of the team.	The winners are <u>they</u> .	The flight to Houston was <u>swift</u> .
The noun <i>captain</i> renames the subject, <i>Ronnie</i> .	<i>They</i> identifies the subject, <i>winners</i> .	<i>Swift</i> describes the subject, <i>flight</i> .

Read It

1.  **Notebook** Identify the predicate noun, pronoun, or adjective in each sentence. Then briefly describe its function in the sentence.
- a. The man who returned was really he, alive and well.
 - b. Clara is a genuine fortune-teller.
 - c. When Uncle Marcos leaves, Clara becomes upset.
2. Reread paragraph 2. Mark and then label at least two examples of subject complements. Try to find at least one predicate noun and at least one predicate adjective.

Write It

 **Notebook** Fill in the following sentences with a predicate noun, or a phrase that includes a predicate noun.

- 1. Uncle Marcos is a(n) _____.
- 2. Clara is the _____.

 **Notebook** Fill in the following sentences with a predicate adjective.

- 3. When he works on his inventions, Uncle Marcos seems _____.
- 4. The character of Clara appears _____.

Conventions

Subject Complements Remind students that there are two main parts of a sentence: the subject and the predicate. The predicate modifies the subject. Subject complements are predicate nouns, predicate pronouns and predicate adjectives. They all serve the purpose of giving the reader more information about the subject.

For more support, see **Conventions: Subject Complements**. 

Read It

Possible responses:

- 1. a. The predicate pronoun *he* identifies the subject, "the man." b. The predicate noun *fortune-teller* renames the subject, Clara. c. The predicate adjective *upset* tells something about the subject, Clara.
- 2. Uncle Marcos's manners were those of a cannibal; they turned out to be exercises; it was the same costume in which Jesus of Nazareth had preached; The machine was just a rusty box on wheels; It ended up looking like a coal stove; The little pink, green, and yellow papers were so clever; The idea of the organ was a last, desperate attempt; Her reaction was not what her suitor had hoped for

Write It

Possible responses:

- 1. inventor
- 2. person who cares most about Uncle Marcos
- 3. determined
- 4. mature for her age

FORMATIVE ASSESSMENT

Conventions

If students are unable to identify linking verbs and subject complements, **then** provide more examples for practice.

For Reteach and Practice, see **Conventions: Subject Complements (RP)**. 

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PERSONALIZE FOR LEARNING

English Language Support

Syntax Understanding sentence structure and sentence components will help students' comprehension and writing. To review subject compliments, create the following chart on the board. Review the completed example shown in number 1. Then, work with the class to complete numbers 2 and 3. **Answers:** (2) Subject: Sarah; Linking verb: was; Predicate noun, pronoun, or adjective: leader (predicate noun) (3) Subject: chef; Linking verb: is; Predicate noun, pronoun, or adjective: she (predicate pronoun)

Sentence	Subject	Linking verb	Predicate noun, pronoun, or adjective
1. The cheetah was fast.	cheetah	was	fast (predicate adjective)
2. Sarah was the leader of the band.			
3. The chef is she.			

Writing to Sources

A critical review is a special kind of opinion. It is the writer’s perspective on another piece of writing, an argument. In order to be effective, the critical review must have a clear argument or claim, must explain why the claim is valid and evidence ad support for that argument. For more support, see **Writing to Sources: Critical Review**. 

Reflect on Your Writing

- 1. **Responses will vary.** Students may note that both involve taking a position, offering support, and anticipating counter-arguments.
- 2. **Responses will vary.** Students may have had difficulty making a claim, finding sufficient evidence to support their claim, and so on.
- 3. **Why These Words?** Responses will vary. Students should note specific word choices and the intended effect of those choices.

FORMATIVE ASSESSMENT

Writing to Sources

If students struggle to identify and apply any aspects of a critical review, **then** review the elements and help students find examples in the text.

For Reteach and Practice, see **Writing to Sources: Critical Review (RP)**. 



EFFECTIVE EXPRESSION



UNCLE MARCOS

STANDARDS

Writing

- Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.
- Use words, phrases, and clauses to create cohesion and clarify the relationships between claim(s), counterclaims, reasons, and evidence.
- Establish and maintain a formal style.

Speaking and Listening

- Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
- Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.
- Pose questions that connect the ideas of several speakers and respond to others’ questions and comments with relevant evidence, observations, and ideas.

Writing to Sources

A critical review is an analysis of a work of literature in which the writer describes the work and makes **claims** about its quality and effectiveness. A critical review should include these elements:

- a *main claim* offering an evaluation or interpretation of at least one work of literature
- an *analysis* of literary elements in the work(s) of literature, such as characters, plot, and theme
- relevant *evidence* and *reasons* that support the main claim and analysis, including text evidence and paraphrases

Assignment

Write a critical review in which you make an argument about how well the author presents the character of Uncle Marcos. Does the author intend to suggest that Uncle Marcos is a great innovator, or just an eccentric man with crazy ideas?

Support your claims with details from the selection. Make sure to use words and phrases that clarify the relationships between your ideas, your reasons, and the textual details that support them. For example, words such as *because* can help clarify a cause-and-effect relationship. Words such as *like* can help show a comparison, and words such as *unlike* help signal contrast.

Vocabulary and Conventions Connection Include several of the concept vocabulary words. Also, remember to use subject complements correctly to strengthen your writing.

decipher	newfangled	improvisations
contraption	ingenuity	paraphernalia

Reflect on Your Writing

After you have written your critical review, answer the following questions.

- 1. How does writing an argument help you to write a critical review?
- 2. What was the most difficult part of writing your critical review?
- 3. **Why These Words?** The words you choose make a difference in your writing. Which words did you specifically choose to clearly convey your ideas?

WriteNow Analyze and Interpret

Analyze an Argument Have students look at both sides of an argument related to “Uncle Marcos.” Divide the class into two groups: One should argue that Uncle Marcos is an innovator, and the other should argue that he is an eccentric man with crazy ideas. Have students brainstorm evidence from the text to support their claims. Create a two-column chart with a claim at the top of each column. Have each group alternate providing evidence to support their claims, and add the evidence to the chart in a point, counter-point fashion. Students can use the class chart to inform their writing for the assignment.

Speaking and Listening

Assignment

Prepare for a **class discussion** about how the characters of Uncle Marcos and Clara change and develop over the course of the story.

- Cite Specific Evidence** As you prepare for the discussion, make sure you are prepared to cite evidence to support your ideas about the characters. Answer the following questions to make sure your ideas are based on text evidence:
 - What are my impressions of Uncle Marcos and Clara?
 - What specific passages in the story support each of my ideas about these characters?
 - Are there other passages in the story that support a different interpretation? Be prepared to back up your interpretation.
- Prepare to Participate in Class Discussion** Before the full class discussion, review ways to participate, such as the following:
 - Follow the rules established for the discussion. Speak in turn, and address other participants respectfully, even when you disagree.
 - Pay attention to what your classmates say. You may wish to take notes as they are speaking.
 - Ask questions that connect ideas your classmates have raised in the discussion.
 - Respond thoughtfully to your classmates' questions and comments. Cite relevant evidence to support your response.
- Evaluate Discussion Participation** As your classmates participate in the discussion, listen attentively. Use a discussion participation evaluation guide like the one shown to analyze their presentations.

DISCUSSION PARTICIPATION GUIDE

Rate each statement on a scale of 1 (not demonstrated) to 5 (demonstrated).

- ☐ The participant was prepared for the discussion.
- ☐ The participant cited specific passages and examples from the story to support ideas.
- ☐ The participant followed the rules of the discussion.
- ☐ The participant posed questions that connected ideas.
- ☐ The participant responded to questions and comments with relevant evidence, observations, and ideas.

EVIDENCE LOG

Before moving on to a new selection, go to your Evidence Log and record what you learned from "Uncle Marcos."

Uncle Marcos 463

Speaking and Listening

- Cite Specific Evidence** You may wish to provide students with an example of a text detail that would serve as support for a claim, explaining why it would make effective support.
- Prepare to Participate in Class Discussion** Explain to students that before the class discussion begins, they might jot down points that they wish to make or questions they may wish to raise so that they have something to refer to when it's their turn to participate. If another student raises a similar point or asks a similar question before they get a chance to, they may want to make a follow-up comment or ask a follow-up question.
- Evaluate Discussion Participation** Encourage students to make a supportive comment about something that a classmate has contributed to the discussion.

For more support, see **Speaking and Listening: Class Discussion.** 

Evidence Log Support students in completing their Evidence Log. This paced activity will help prepare them for the Performance-Based Assessment at the end of the unit.

FORMATIVE ASSESSMENT

Speaking and Listening

- If** students do not cite evidence to support their claims, **then** remind students that citing evidence will give them a stronger argument.
- If** struggle to participate effectively in a class discussion, **then** remind them of the guidelines for participating in a class discussion.

For Reteach and Practice, see **Speaking and Listening: Class Discussion (RP).** 

Selection Test

Administer the "Uncle Marcos" Selection Test, which is available in both print and digital formats online in Assessments.  

PERSONALIZE FOR LEARNING

Strategic Support

Graphic Organizers Sometimes, organizing one's thoughts for a class discussion can be overwhelming. Graphic organizers are a useful tool to help students visualize what they want to say and how they want to say it. Have students create a flow chart to organize their points and their evidence to show how Clara and Uncle Marcos change and develop throughout the story.

They can make a two-column chart with each character at the top of a column or they can set up a flow chart like this.



To Fly

AUDIO SUMMARIES

Audio summaries of “To Fly” are available online in both English and Spanish in the Interactive Teacher’s Edition or Unit Resources. Assigning these summaries prior to reading the selection may help students build additional background knowledge and set a context for their first read.

Summary

Neil DeGrasse Tyson’s essay “To Fly” discusses the human fascination with flight. The author begins with the Wright brothers and their brief flight at Kitty Hawk. He cites the powerful German V-2 rockets of World War II, pointing out that they were actually suborbital ballistic missiles. DeGrasse Tyson notes that the Apollo 11 moon landing was not the greatest height humans have achieved. That distinction belongs to the Apollo 13 astronauts, who were 245,000 miles above Earth’s surface. The author feels the greatest achievement is that of Voyager 2, which is now in interstellar space. Although it is unmanned, Voyager 2 carries a gold phonograph record attached to its side that is bringing the sound of the human heartbeat into outer space.

Insight

Neil DeGrasse Tyson’s “To Fly” is an engaging part of a larger work, *Space Chronicles: Facing the Ultimate Frontier*. The essay and the book from which it comes are a pleas for further exploration of space. The noted astrophysicist is always a great teacher, and the essay is just a small taste of a fascinating subject.

ESSENTIAL QUESTION:

Are inventions realized through inspiration or perspiration?

Connection to Essential Question

“To Fly” shows that the inspiration to achieve flight has always existed. The accomplishments of the twentieth- and twenty-first centuries have been largely due to extended and focused efforts to overcome historic obstacles and rigid thinking.

WHOLE-CLASS LEARNING PERFORMANCE TASK

What requirements must be met in order to say human flight is successful?

Connection to Performance Tasks

Whole-Class Learning Performance Task The essay points out that human flight can be successful when a combination of purpose and technology are present. Inventors like the Wright brothers and the teams at NASA have demonstrated the value of good science and motivation.

UNIT PERFORMANCE-BASED ASSESSMENT

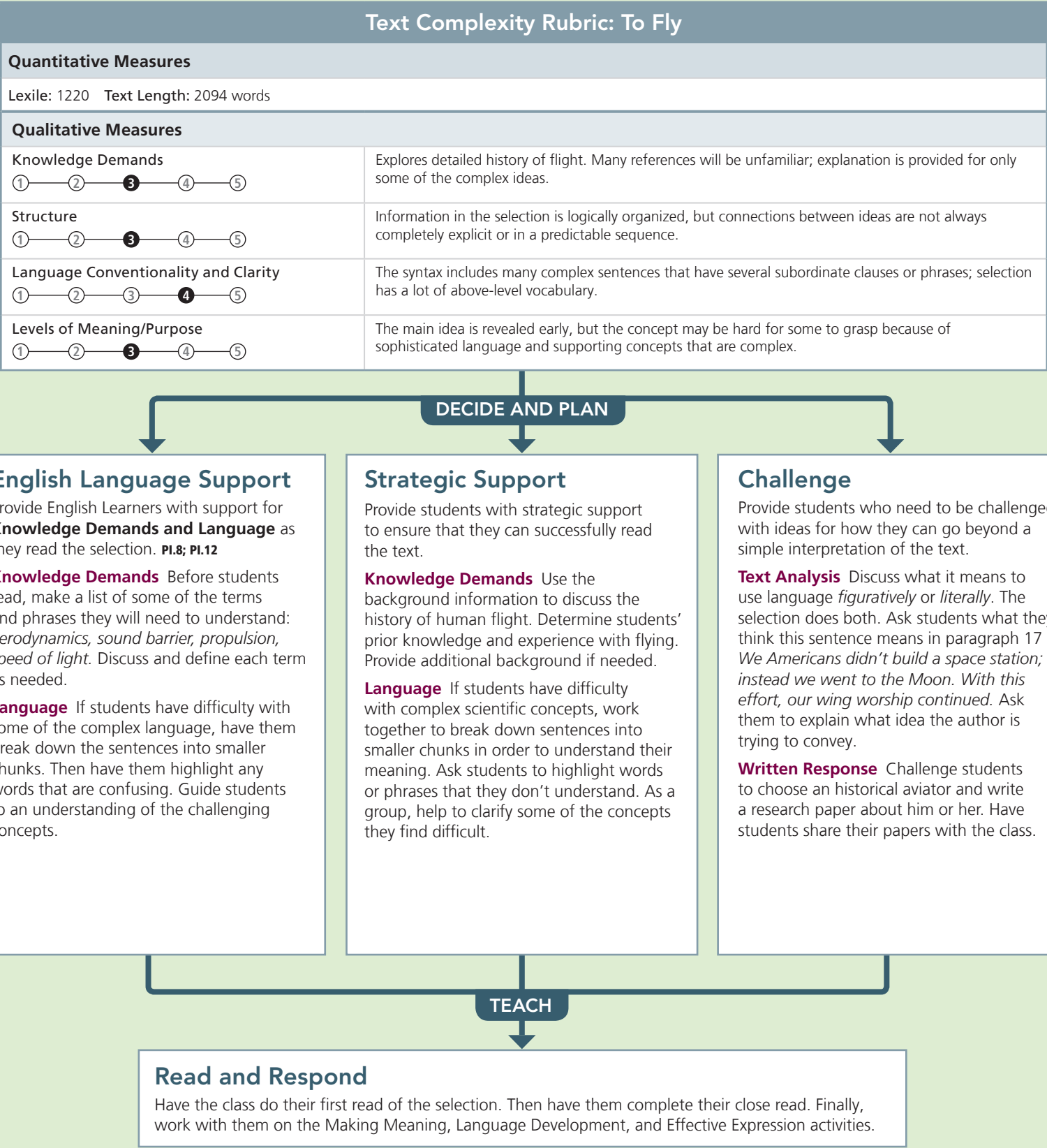
What situations might encourage people to invent?

Unit Performance-Based Assessment Many situations encourage invention. The need to cross rivers encouraged the invention of bridges. A drive for conquest—or defense—has encouraged the invention of weapons. The desire to compete with Soviet technology inspired the space race during the Cold War.

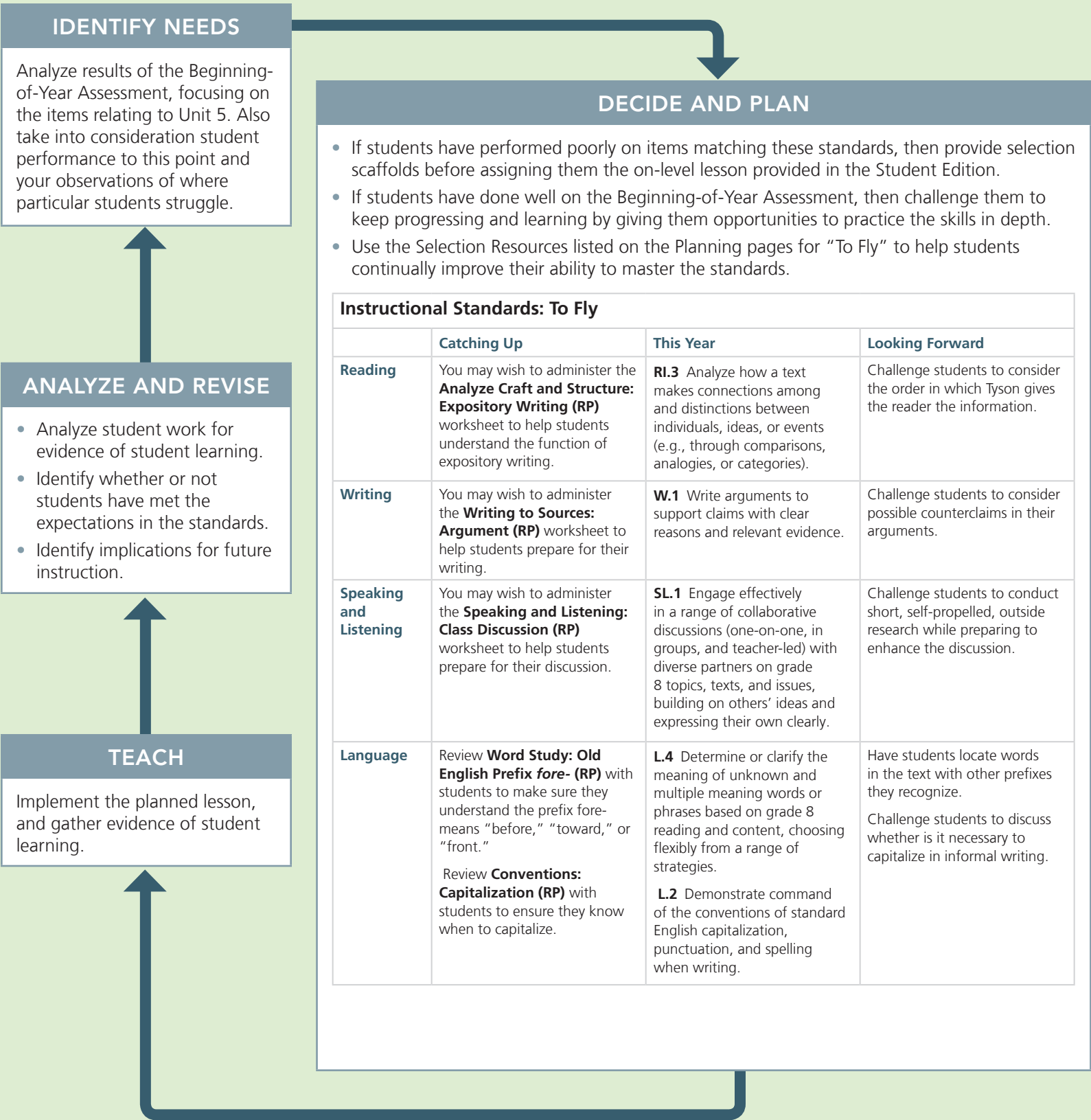
LESSON RESOURCES

	Making Meaning	Language Development	Effective Expression
Lesson	First Read Close Read Analyze the Text Analyze Craft and Structure	Concept Vocabulary Word Study Conventions	Writing to Sources Speaking and Listening
Instructional Standards	RI.3 Analyze how a text . . . RI.4 Determine the meaning . . . RI.5 Analyze in detail the structure . . . L.5a Interpret figures of speech . . .	L.2 Demonstrate command . . . L.2c Spell . . . L.4 Determine or clarify the meaning . . .	W.1 Write arguments . . . W.1b Support claim(s) with logical reasoning . . . W.1e Provide a concluding statement or section . . . SL.1 Engage effectively in a range . . . SL.3 Delineate a speaker's argument . . . SL.4 Present claims . . .
STUDENT RESOURCES			
Available online in the Interactive Student Edition or Unit Resources	 Selection Audio  First-Read Guide: Nonfiction  Close-Read Guide: Nonfiction	 Word Network	 Evidence Log
TEACHER RESOURCES			
Selection Resources Available online in the Interactive Teacher's Edition or Unit Resources	 Audio Summaries  Annotation Highlights  EL Highlights  English Language Support Lesson: SKILL  Analyze Craft and Structure: Expository Writing	 Concept Vocabulary and Word Study  Conventions: Capitalization	 Writing to Sources: Argument  Speaking and Listening: Class Discussion
Reteach/Practice (RP) Available online in the Interactive Teacher's Edition or Unit Resources	 Analyze Craft and Structure: Expository Writing (RP)	 Word Study: Old English Prefix <i>fore-</i> (RP)  Conventions: Capitalization (RP)	 Writing to Sources: Argument (RP)  Speaking and Listening: Class Discussion (RP)
Assessment Available online in Assessments	  Selection Test		
My Resources	 A Unit 5 Answer Key is available online and in the Interactive Teacher's Edition.		

Reading Support



Standards Support Through Teaching and Learning Cycle



Jump Start

FIRST READ Prior to students’ first read, discuss what they already know about the history of aviation. Then, extend this discussion to include missions to explore space.

To Fly

Why have people always been fascinated by the ability to fly? In the future, will we be able to accomplish flights that are thought to be impossible today? Modeling questions such as these will help students connect with “To Fly” and to the Performance Task assignment. Selection audio and print capability for the selection are available in the Interactive Teacher’s Edition.

Concept Vocabulary

Support students as they rank the words. Ask if they’ve ever heard, read, or used them. Reassure them that the definitions for these words are listed in the selection.

FIRST READ

- As they read, students should perform the steps of the first read:
- NOTICE:** You may want to encourage students to notice how Tyson links flying to other topics, such as mythology, history, popular culture, science, and fiction.
 - ANNOTATE:** Remind students to mark text that expresses the main ideas of this selection.
 - CONNECT:** Encourage students to make connections beyond the text. If they cannot make connections to their own lives or other texts, have them consider movies, TV shows, and news reports.
 - RESPOND:** Students will answer questions and write a summary to demonstrate understanding.

Point out to students that while they will always complete the Respond step at the end of the first read, the other steps will probably happen somewhat concurrently. You may wish to print copies of the **First-Read Guide: Nonfiction** for students to use.

Remind students that during their first read, they should not answer the close-read questions that appear in the selection.



MAKING MEANING

About the Author



Neil deGrasse Tyson (b. 1958–) is an American astrophysicist, author, science communicator, and current director of the Hayden Planetarium’s Rose Center for Earth and Space. From 2006 to 2011, he hosted the educational science show *NOVA ScienceNow* on PBS. Tyson grew up in the Bronx and attended the Bronx High School of Science from 1972–1976, where he was the editor-in-chief of “Physical Science,” the school paper, and also the captain of the wrestling team.

STANDARDS
Reading Informational Texts
By the end of the year, read and comprehend literary nonfiction at the high end of the grades 6–8 text complexity band independently and proficiently.

To Fly

Concept Vocabulary

As you conduct your first read of “To Fly,” you will encounter these words. Before reading, note how familiar you are with each word. Then, rank the words in order from most familiar (1) to least familiar (6).

WORD	YOUR RANKING
hapless	
myopic	
foresight	
naiveté	
prescient	
seminal	

After completing the first read, come back to the concept vocabulary and review your rankings. Mark any changes to your original rankings.

First Read NONFICTION

Apply these strategies as you conduct your first read. You will have an opportunity to complete the close-read notes after your first read.



HOW LANGUAGE WORKS

Suffix -ic Help students understand the suffix *-ic*. Explain that words in which this suffix appears are usually adjectives, and adding this suffix to another word usually makes that word an adjective. This suffix can mean “having the character or form of” (biographic); “of or relating to” (artistic); “in the manner of” (dramatic); “associated, dealing with, or using” (electronic); characterized by or affected” (allergic); “caused by” (volcanic).



To Fly

from *Space Chronicles* Neil DeGrasse Tyson

BACKGROUND

The history of human flight is closely tied to the history of speed—flying has meant setting speed records. Heavy flying vehicles, like airplanes, have to move very quickly in order to stay in the air, and space shuttles have to travel at a very high speed called “escape velocity” to get into space.

SCAN FOR
MULTIMEDIA



¹ In ancient days two aviators procured to themselves wings. Daedalus flew safely through the middle air, and was duly honored in his landing. Icarus soared upwards to the sun till the wax melted which bound his wings, and his flight ended in a fiasco. In weighing their achievements perhaps there is something to be said for Icarus. The classic authorities tell us, of course, that he was only “doing a stunt”; but I prefer to think of him as the man who certainly brought to light a serious constructional defect in the flying-machines of his day [and] we may at least hope to learn from his journey some hints to build a better machine.

—Sir Arthur Eddington, *Stars & Atoms* (1927)

NOTES

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Additional **English Language Support** is available in the Interactive Teacher’s Edition.

PERSONALIZE FOR LEARNING

Strategic Support

Daedalus and Icarus Have students research and write one or two paragraphs about Daedalus and Icarus. Who were they? Why are they associated with aviation? What happened to them? How are their stories reflected in the article? Ask volunteers to share their research with the class.

CLOSE READ

As students look for names that are derived from mythology, remind them that they should look for names that are uncommon or unfamiliar. You may wish to model the Close Read using the following think-aloud format. Possible responses to questions on the Student page are included. You may also want to print copies of the Close-Read Guide: Nonfiction for students to use.

ANNOTATE: As I read paragraph 3, I see names I recognize from mythology.

QUESTION: These names are from stories that are thousands of years old. I think Tyson made this choice to show that people’s fascination with flying goes back thousands of years.

CONCLUDE: I think the text would not be as effective if a different choice had been made unless the different text expressed this same idea. Text that did not indicate that people have been fascinated by flying since ancient times would not have the same impact.

CLOSE READ

As students look for ways that the author compares and contrasts humans and birds, remind the class that comparing tells how things are alike and contrasting tells how they are different. You may wish to model the Close Read using the following think-aloud format. Possible responses to questions on the Student page are included.

ANNOTATE: As I read paragraph 4, I see comparisons between people and birds.

QUESTION: I think Tyson makes these comparisons to follow up on his earlier claim that people have “wing envy” or what “One might even call it wing worship.”

CONCLUDE: I think these comparisons help the author’s argument because they support his claim in paragraph 2 that people have always envied birds for their ability to fly. Here, he is saying that while we tend to think we are superior to birds, we nevertheless envy them because they can fly.

NOTES

CLOSE READ
ANNOTATE: In paragraph 3, mark the names derived from mythology.

QUESTION: Why did the author choose these particular names?

CONCLUDE: Would the text be as effective if a different choice had been made?

CLOSE READ
ANNOTATE: In paragraph 4, annotate ways the author compares and contrasts humans and birds.

QUESTION: Why does the author make these comparisons?

CONCLUDE: Evaluate how these comparisons help the author’s argument.

hapless (HAP lihs) *adj.*
unfortunate; unlucky

myopic (my OP ihk) *adj.*
lack of understanding

foresight (FAWR syt) *n.*
looking forward; regard or provision for the future

- 2 For millennia, the idea of being able to fly occupied human dreams and fantasies. Waddling around on Earth’s surface as majestic birds flew overhead, perhaps we developed a form of wing envy. One might even call it wing worship.
- 3 You needn’t look far for evidence. For most of the history of broadcast television in America, when a station signed off for the night, it didn’t show somebody walking erect and bidding farewell; instead it would play the “Star Spangled Banner” and show things that fly, such as birds soaring or Air Force jets whooshing by. The United States even adopted a flying predator as a symbol of its strength: the bald eagle, which appears on the back of the dollar bill, the quarter, the Kennedy half dollar, the Eisenhower dollar, and the Susan B. Anthony dollar. There’s also one on the floor of the Oval Office in the White House. Our most famous superhero, Superman, can fly upon donning blue pantyhose and a red cape. When you die, if you qualify, you might just become an angel—and everybody knows that angels (at least the ones who have earned their wings) can fly. Then there’s the winged horse Pegasus; the wing-footed Mercury; the aerodynamically unlikely Cupid; and Peter Pan and his fairy sidekick, Tinkerbell.
- 4 Our inability to fly often goes unmentioned in textbook comparisons of human features with those of other species in the animal kingdom. Yet we are quick to use the word “flightless” as a synonym for “hapless” when describing such birds as the dodo and the booby, which tend to find themselves on the wrong end of evolutionary jokes. We did, however, ultimately learn to fly because of the technological ingenuity afforded by our human brains. And of course, while birds can fly, they are nonetheless stuck with bird brains. But this self-aggrandizing line of reasoning is somewhat flawed, because it ignores all the millennia that we were technologically flightless.
- 5 I remember as a student in junior high school reading that the famed physicist Lord Kelvin, at the turn of the twentieth century, had argued the impossibility of self-propelled flight by any device that was heavier than air. Clearly this was a myopic prediction. But one needn’t have waited for the invention of the first airplanes to refute the essay’s premise. One merely needed to look at birds, which have no trouble flying and, last I checked, are all heavier than air.
- 6 If something is not forbidden by the laws of physics, then it is, in principle, possible, regardless of the limits of one’s technological foresight. The speed of sound in air ranges from seven hundred to eight hundred miles per hour, depending

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PERSONALIZE FOR LEARNING

English Language Support

Prefixes in-, un-, and im- Help students better understand the prefixes *in-*, *un-*, and *im-*. Explain that as they’re used in the text, these prefixes mean “not.” Point out *inability* (paragraph 4), *unmentioned* (paragraph 4), and *impossibility* (paragraph 5). Discuss the meaning of each word and how it is formed using a prefix. However, also explain that words beginning with *in*, *un*, and *im* don’t always have this prefix. Point out the words *ingenuity* (paragraph 4), *invention* (paragraph 5), *unite*, and *importance* (paragraph 12). Explain that none of these words contain these prefixes.

on the atmospheric temperature. No law of physics prevents objects from going faster than Mach 1,¹ the speed of sound. But before the sound “barrier” was broken in 1947 by Charles E. “Chuck” Yeager, piloting the Bell X-1 (a US Army rocket plane), much claptrap² was written about the impossibility of objects moving faster than the speed of sound. Meanwhile, bullets fired by high-powered rifles had been breaking the sound barrier for more than a century. And the crack of a whip or the sound of a wet towel snapping at somebody’s buttocks in the locker room is a mini sonic boom, created by the end of the whip or the tip of the towel moving through the air faster than the speed of sound. Any limits to breaking the sound barrier were purely psychological and technological.

7 During its lifetime, the fastest winged aircraft by far was the space shuttle, which, with the aid of detachable rockets and fuel tanks, exceeded Mach 20³ on its way to orbit. Propulsionless on return, it fell back out of orbit, gliding safely down to Earth. Although other craft routinely travel many times faster than the speed of sound, none can travel faster than the speed of light. I speak not from a **naiveté** about technology’s future but from a platform built upon the laws of physics, which apply on Earth as they do in the heavens. Credit the Apollo astronauts who went to the Moon with attaining the highest speeds at which humans have ever flown: about seven miles per second at the end of the rocket burn that lifted their craft beyond low Earth orbit. This is a paltry 1/250 of one percent of the speed of light. Actually, the real problem is not the moat that separates these two speeds but the laws of physics that prevent any object from ever achieving the speed of light, no matter how inventive your technology. The sound barrier and the light barrier are not equivalent limits on invention.

8 The Wright brothers of Ohio are, of course, generally credited with being “first in flight” at Kitty Hawk, North Carolina, as that state’s license-plate slogan reminds us. But this claim needs to be further delineated. Wilbur and Orville Wright were the first to fly a heavier-than-air, engine-powered vehicle that carried a human being—Orville, in this case—and that did not land at a lower elevation than its takeoff point. Previously, people had flown in balloon gondolas and in gliders and had executed controlled descents from the sides of cliffs, but none of those efforts would have made a bird jealous. Nor would Wilbur and Orville’s first trip have turned any bird heads. The first of their four flights—at 10:35 A.M. eastern time on December 17, 1903—lasted twelve

1. **Mach 1** (mahk) the speed of sound in dry air; sound goes slower in heavier materials

2. **claptrap** *n.* nonsensical talking

3. **Mach 20** twenty times the speed of sound

NOTES

naiveté (nah eev TAY) *n.* the quality of innocent simplicity

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DIGITAL PERSPECTIVES

Illuminating the Text To help students understand the early history of aviation, and appreciate how far we’ve come, use the search term “Wright Brothers” to find video footage online showing the Wright Brothers’ 1903 flights. (Note: Be sure to preview any video before showing it to students.) Have students discuss what they see in the video and how this helps them understand what Tyson is talking about

in paragraph 8. Then, have students write a paragraph expressing their reaction to the video. What did they think as they were watching it? Did it change their ideas about this historic event? If it did, in what way? What did it feel like to see this as someone who lives in a time when flight is taken for granted? Ask volunteers to share their response with the class.

CLOSE READ

Remind students that they’re looking for text that numbers reasons for something. You may wish to model the Close Read using the following think-aloud format. Possible responses to questions on the Student page are included.

ANNOTATE: As I read paragraph 13, I look for text that indicates something is being numbered.

QUESTION: I think the author chose to number the reasons to give them added significance and to highlight their importance.

CONCLUDE: The effect this had on me was it made me pay more attention. By numbering the reasons, Tyson makes me immediately aware that he’s going to provide more than one reason why the V-2 was significant. So as I read, I’m waiting to see what each reason will be. Here, numbering reasons is like writing a good introduction to an essay—it makes people want to keep reading.

NOTES

prescient (PREESH ee uhnt) *adj.* knowledge of things before they happen

CLOSE READ

ANNOTATE: Annotate the words in paragraph 13 that number the reasons for the V2’s significance.

QUESTION: Why did the author choose to number the reasons?

CONCLUDE: What effect did this choice have on meaning or on the reader?

seconds, at an average speed of 6.8 miles per hour against a 30-mile-per-hour wind. The Wright Flyer, as it was called, had traveled 120 feet, not even the length of one wing on a Boeing 747.

9 Even after the Wright brothers went public with their achievement, the media took only intermittent notice of it and other aviation firsts. As late as 1933—six years after Lindbergh’s historic solo flight across the Atlantic—H. Gordon Garbedian ignored airplanes in the otherwise **prescient** introduction to his book *Major Mysteries of Science*:

10 Present day life is dominated by science as never before. You pick up a telephone and within a few minutes you are talking with a friend in Paris. You can travel under sea in a submarine, or circumnavigate the globe by air in a Zeppelin. The radio carries your voice to all parts of the earth with the speed of light. Soon, television will enable you to see the world’s greatest spectacles as you sit in the comfort of your living room.

11 But some journalists did pay attention to the way flight might change civilization. After the Frenchman Louis Blériot crossed the English Channel from Calais to Dover on July 25, 1909, an article on page three of the *New York Times* was headlined “FRENCHMAN PROVES AEROPLANE NO TOY.” The article went on to delineate England’s reaction to the event:

12 Editorials in the London newspapers buzzed about the new world where Great Britain’s insular⁴ strength is no longer unchallenged; that the aeroplane is not a toy but a possible instrument of warfare, which must be taken into account by soldiers and statesmen, and that it was the one thing needed to wake up the English people to the importance of the science of aviation.

13 The guy was right. Thirty-five years later, not only had airplanes been used as fighters and bombers in warfare but the Germans had taken the concept a notch further and invented the V-2 to attack London. Their vehicle was significant in many ways. **First, it was not an airplane; it was an unprecedentedly large missile. Second, because the V-2 could be launched several hundred miles from its target, it basically birthed the modern rocket. And third, for its entire airborne journey after launch, the V-2 moved under the influence of gravity alone; in other words, it was a suborbital ballistic missile, the fastest way to deliver a bomb from one location on Earth to another.** Subsequently, Cold War “advances”

4. **insular** (IHN suh luhr) *adj.* related to being an island

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PERSONALIZE FOR LEARNING

English Language Support

Idioms Help students understand the idioms *buzzed* (paragraph 12) and *[take up] a notch* (paragraph 13). Explain that as it’s used in the article, *buzzed* means “talked excitedly.” (Reporters buzzed with anticipation when they heard the president was going to make an important speech.) As it’s used in the article, *notch* means “degree, step.” (Art took our idea of forming a team a notch further when he started making suggestions about who should be on the team.)

CLOSER LOOK

Analyze Author's Style

Students may have marked text in paragraph 17 during their first read. Use this paragraph to help students understand the precision in Tyson's writing style. Encourage them to talk about the annotations that they marked. You may want to model a close read with the class based on the highlights shown in the text.

ANNOTATE: Have students mark text in paragraph 17 that demonstrates Tyson's precision as part of his writing style, or have students participate while you highlight them.

Question: Guide students to consider what these details tell them. Ask why they think Tyson is so precise in this part of the text.

Possible response: Tyson is so precise in this part of the text to show how relatively quickly people reached the moon once the age of modern aviation began, and to draw attention to how important the moon landing was.

CONCLUDE: Help students to formulate conclusions about the importance of these details. Ask what bigger idea Tyson is communicating by being so precise in this part of the essay.

Possible response: The age of modern aviation began with the Wright Brothers, whom Tyson talks about earlier in the essay. Landing on the moon is a major aviation milestone. By measuring the exact years, months, days, hours, and minutes from one event to the other, Tyson is emphasizing the relationship between these two accomplishments.

Point out that numbers and precision are part of Tyson's writing style. Earlier in the essay he listed reasons why the V-2 rocket was significant, numbering each reason as he went. Here, he is giving the exact time between the Wright Brothers' first flight and the moon landing in precise time intervals, using numbers for each. Being so precise strengthens Tyson's credibility—he is writing about historical and scientific events, and as a good scientist and thorough researcher, he provides exact details to support his ideas.

NOTES

seminal (SEHM uh nuhl)
adj. being the first or
earliest of something

in the design of missiles enabled military power to target cities on opposite sides of the world. Maximum flight time? About forty-five minutes—not nearly enough time to evacuate a targeted city.

14 While we can say they're suborbital, do we have the right to declare missiles to be flying? Are falling objects in flight? Is Earth "flying" in orbit around the Sun? In keeping with the rules applied to the Wright brothers, a person must be onboard the craft and it must move under its own power. But there's no rule that says we cannot change the rules.

15 Knowing that the V-2 brought orbital technology within reach, some people got impatient. Among them were the editors of the popular, family-oriented magazine *Collier's*, which sent two journalists to join the engineers, scientists, and visionaries gathered at New York City's Hayden Planetarium on Columbus Day, 1951, for its **seminal** Space Travel Symposium. In the March 22, 1952, issue of *Collier's*, in a piece titled "What Are We Waiting For?" the magazine endorsed the need for and value of a space station that would serve as a watchful eye over a divided world:

16 In the hands of the West a space station, permanently established beyond the atmosphere, would be the greatest hope for peace the world has ever known. No nation could undertake preparations for war without the certain knowledge that it was being observed by the ever-watching eyes aboard the "sentinel in space." It would be the end of the Iron Curtains⁵ wherever they might be.

17 We Americans didn't build a space station; instead we went to the Moon. With this effort, our wing worship continued. Never mind that **Apollo** astronauts landed on the airless Moon, where wings are completely useless, in a lunar module named after a bird. A mere **sixty-five years, seven months, three days, five hours, and forty-three minutes after Orville left the ground, Neil Armstrong gave his first statement from the Moon's surface:** "Houston, Tranquility Base here. The Eagle has landed."

18 The human record for "altitude" does not go to anybody for having walked on the Moon. It goes to the astronauts of the ill-fated Apollo 13. Knowing they could not land on the Moon after the explosion in their oxygen tank, and knowing they did not have enough fuel to stop, slow down, and head back, they executed a single figure-eight ballistic trajectory around the Moon, swinging them back toward Earth. The Moon just happened to be near apogee, the farthest point from Earth in its elliptical orbit. No other Apollo mission (before or since) went to the Moon

5. **Iron Curtains** walls of secrecy and suspicion between Europe and the Soviet Union during the Cold War

VOCABULARY DEVELOPMENT

Domain-Specific Words Discuss the following space-related words in paragraph 18: *ballistic* ("related to the science of the motion of projectiles in flight"); *trajectory* ("the curve that a body (as a planet or comet in its orbit or a rocket) describes in space"); *apogee* ("the point farthest from a planet or a satellite (as the moon) reached by an object orbiting it"); *elliptical* ("of or relating to an oval-shaped path"); *orbital* ("of or relating to a path described by one body in its revolution about another"). Encourage students to record and define other space- or aviation-related words in the selection.

CLOSE READ

Remind students that they’re looking for details related to *Voyager 2*. You may wish to model the Close Read using the following think-aloud format. Possible responses to questions on the Student page are included.

ANNOTATE: As I read paragraph 19, I look for text that relates to *Voyager 2*.

QUESTION: I think Tyson chose to focus on *Voyager 2* because he believes it is our greatest achievement of flight.

CONCLUDE: The effect this had on me was it made me feel that, as important as the flight of the *Voyager 2* was, it’s one more achievement in the history of aviation. I feel that by closing the selection with this description, Tyson is suggesting that if we can achieve things like this with *Voyager 2*, we can achieve even more as we continue to fly.

NOTES

CLOSE READ

ANNOTATE: Annotate details in paragraph 19 that show why *Voyager 2* is special.

QUESTION: Why does the author choose to focus on *Voyager 2*?

CONCLUDE: Evaluate the impact on the reader of closing the selection with the description of *Voyager 2*.

during apogee, which granted the Apollo 13 astronauts the human altitude record. (After calculating that they must have reached about 245,000 miles “above” Earth’s surface, including the orbital distance from the Moon’s surface, I asked Apollo 13 commander Jim Lovell, “Who was on the far side of the command module as it rounded the Moon? That single person would hold the altitude record.” He refused to tell.)

19 In my opinion, the greatest achievement of flight was not Wilbur and Orville’s aeroplane, nor Chuck Yeager’s breaking of the sound barrier, nor the Apollo 11 lunar landing. For me, it was the launch of *Voyager 2*, which ballistically⁶ toured the solar system’s outer planets. During the flybys, the spacecraft’s slingshot trajectories stole a little of Jupiter’s and Saturn’s orbital energy to enable its rapid exit from the solar system. Upon passing Jupiter in 1979, *Voyager*’s speed exceeded forty thousand miles an hour, sufficient to escape the gravitational attraction of even the Sun. *Voyager* passed the orbit of Pluto in 1993 and has now entered the realm of interstellar space. Nobody happens to be onboard the craft, but a gold phonograph record attached to its side is etched with the earthly sounds of among many things, the human heartbeat. So with our heart, if not our soul, we fly ever farther. 🎧

6. **ballistically** (buh LIHS tihk lee) *adv.* like a thrown object

MEDIA CONNECTION



Neil deGrasse Tyson Opens
A Rocket In His Office

Discuss It How does viewing this video affect your thinking about space exploration?
Write your response before sharing your ideas.



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CROSS-CURRICULAR PERSPECTIVES

Science Challenge students to research the science of aviation and space travel. Have students answer questions such as the following, and ask volunteers to share their research with the class.
What is the “sound barrier”?
How are rockets different from airplanes?

What is involved in escaping Earth’s gravity?
What challenges do astronauts face in zero gravity?
What are the effects of zero gravity on people?
What challenges are involved in extremely long space missions?

Comprehension Check

Complete the following items after you finish your first read.

1. What kinds of travel does the author discuss in this article?
2. What major innovations does he describe?
3. How does the author connect his ideas to scientific principles and history?
4.  **Notebook** Create a rough timeline showing when the inventions discussed in the article were first created. Make sure the order is correct, even if you do not have an exact date for every invention.

RESEARCH

Research to Clarify Choose at least one unfamiliar detail from the text. Briefly research that detail. In what way does the information you learned shed light on an aspect of the passage?

Research to Explore Choose something that interested you from the text and formulate a research question.

Comprehension Check

Possible responses:

1. flying and space travel
2. the Wright Flyer; the Bell X-1 rocket plane; V-2 rockets; ballistic missiles; the lunar module; the *Voyager 2*
3. Tyson explains relevant scientific principles and gives historical examples that illustrate his ideas.
4. Ancient days – two aviators made wings;
1903 – Wright Flyer; 1944 – V-2 rocket;
1947 – Bell X-1; ballistic missiles; lunar module

Research to Clarify If students struggle to identify an unfamiliar detail, have them reread the text and notice scientific terms or nontechnical words that might be new to them.

Research to Explore Responses will vary. Students should identify something specific from the text and articulate a relevant research question.

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PERSONALIZE FOR LEARNING

Challenge

Interpret Ask students to consider the last sentences of the article. “*Voyager* passed the orbit of Pluto in 1993 and has now entered the realm of interstellar space. Nobody happens to be onboard the craft, but a gold phonograph record attached to its side is etched with the earthly sounds of among many things, the human heartbeat. So with our heart, if not our soul, we fly ever farther.” (You may have to explain what

a phonograph record is.) Have students write a paragraph answering these questions: What does Tyson mean when he says “with our heart, if not our soul, we fly ever farther”? How does this idea connect to his statement at the beginning of the article: “For millennia, the idea of being able to fly occupied human dreams and fantasies”? Ask volunteers to share their response with the class.

Jump Start

CLOSE READ Have students close read the title, “To Fly.” Suggest that this title seems to be missing some words, and ask students to offer words that “complete” the title and communicate the article’s main idea, such as, “People Have Always Wanted To Fly” or “We Have Always Wished We Could Fly.” Ask students to speculate on why Tyson chose this title for his article.

Close Read the Text

Walk students through the annotation model on the Student page. Encourage them to complete items 2 and 3 on their own. Review and discuss the sections students have marked. If needed, continue to model close reading by using the Annotation Highlights in the Interactive Teacher’s Edition.

Analyze the Text

Possible responses:

- 1. Breaking the sound barrier; the space shuttle; landing on the moon; the Wright Brothers’ flights at Kitty Hawk; Louis Blériot crossing the English Channel by air; the V-2 rocket; ballistic missiles; the *Appollo 13* mission; the *Voyager 2* mission **DOK 2**
- 2. Tyson’s attitude is one of satisfaction. Evidence: “A mere sixty-five years, seven months, three days, five hours, and forty-three minutes after Orville left the ground, Neil Armstrong gave his first statement from the Moon’s surface” Paragraph 17; “the greatest achievement of flight was...was the launch of *Voyager 2*” Paragraph 19; “with our heart...we fly ever farther” Paragraph 19 **DOK 4**
- 3. Responses will vary. Students should identify a specific achievement and support their response with relevant details from the text. **DOK 4**
- 4. Responses will vary. Students may conclude that people use past inventions to create new ones. **DOK 4**

FORMATIVE ASSESSMENT

Analyze the Text

- If students fail to cite evidence, then remind them to support their ideas with specific information from the text.
- If students fail to grasp key ideas in the text, then have them review relevant sections of the article.



MAKING MEANING



TO FLY

Tool Kit
Close-Read Guide and
Model Annotation

STANDARDS
Reading Informational Texts
Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).
Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
Analyze in detail the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept.
Language
Interpret figures of speech (e.g., verbal irony, puns) in context.

Close Read the Text

- 1. This model from the text shows two sample annotations, along with questions and conclusions. Close read the passage, and find another detail to annotate. Then, write a question and your conclusion.

ANNOTATE: The author uses figurative language to compare the Wright brothers’ flight to a bird’s flight.

QUESTION: Why does he make this comparison?

CONCLUDE: The author wants readers to understand that compared to the birds, the brothers’ flight was not that impressive.

ANNOTATE: The author uses an analogy to show the distance traveled by the Wright Flyer.

QUESTION: What two things are being compared in this analogy?

CONCLUDE: Why might the author have put these items together?

Close Read

Nor would Wilbur and Orville’s first trip have turned any bird heads. The first of their four flights—at 10:35 A.M. eastern time on December 17, 1903—lasted twelve seconds, at an average speed of 6.8 miles per hour against a 30-mile-per-hour wind. The Wright Flyer, as it was called, had traveled 120 feet, not even the length of one wing on a Boeing 747.

- 2. For more practice, go back and complete the close reads.
- 3. Revisit a section of text you found important during your first read. **Annotate** what you notice. Ask **questions** such as “Why did the author make this choice?” What can you **conclude**?

Analyze the Text

Notebook Respond to these questions.

- 1. **Summarize** the key achievements mentioned in this article.
- 2. **Analyze** What is the author’s attitude toward the achievements he describes? Cite evidence from the text to support your answer.
- 3. **Make a Judgment** Which of the achievements described in the article do you think is the most significant? Why? Cite details from the text to support your answer.
- 4. **Essential Question:** *Are inventions realized through inspiration or perspiration?* What have you learned about how inventions are created?

CITE TEXTUAL EVIDENCE
to support your answers.

PERSONALIZE FOR LEARNING

English Language Support

Multiple Meaning Words Help students understand that the word *flight* (paragraph 1 and throughout the article) has several meanings. Explain that as it’s used here, *flight* is a noun that means “an act or instance of passing through the air by the use of wings” or “a trip made by or in an airplane or spacecraft.” *Flight* can also mean

“a continuous series of stairs from one landing or floor to another” (We climbed a *flight* of stairs), “an act or instance of running away” (The captured bank robber was considered to be a *flight* risk), or “a brilliant, imaginative, or unrestrained exercise or display” (That’s a nice idea, but it’s really a *flight* of fancy).



Analyze Craft and Structure

Analyze Text Structure: Expository Writing Expository writing is writing that explains or informs. An **expository essay** is a work of nonfiction that presents information, discusses ideas, or explains a process. In his expository essay “To Fly,” Neil DeGrasse Tyson presents information and discusses ideas related to human flight and space travel.

An essay writer may use different kinds of organization to introduce and develop ideas and to draw connections among them.

- **Description** uses imagery—such as Tyson’s images of soaring birds and whooshing jets—and figurative language to help readers visualize ideas.
- **Comparison-and-contrast** organization presents similarities and differences among ideas. For example, Tyson compares and contrasts birds and humans to make a point about technology.
- **Cause-and-effect** organization analyzes the relationship between events or situations by showing how one can result from another, such as space travel resulting from the development of the V-2 rocket.

An essay writer may use a variety of evidence to develop and refine key ideas. One kind of evidence that Tyson uses is making **allusions**. Allusions are references to well-known people, places, literary works, characters, myths, historical events, or works of art. In the opening quotation of “To Fly,” allusions to the mythological characters of Daedalus and Icarus help the author make a point about trial and error in the development of human flight.

Practice

Notebook Respond to these questions.

- (a) What is the main idea of this article? (b) **Make Inferences** What is the author’s most likely purpose for writing this article?
- (a) Reread paragraph 3. What allusions does the author make in this paragraph? (b) **Make Connections** What do these allusions have in common? (c) **Analyze** What point do these allusions help the author make?
- (a) Reread paragraph 14. What does the author contrast in this paragraph? (b) In what ways are they different? (c) **Analyze** How does the author use this type of organization to make his point?

CITE TEXTUAL EVIDENCE
to support your answers.

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Analyze Craft and Structure

Continue the discussion of Tyson’s writing style and organization. Ask for an additional use of imagery (paragraph 7 – a moat separates the speed of sound and the speed of light); comparison-and-contrast (paragraph 6 – comparing breaking the sound barrier with the speed of bullets and whips); cause-and-effect (paragraph 1 – Icarus’s wings melting because he flew too close to the sun); and allusion (paragraph 5 – Lord Kelvin).

For more support, see **Analyze Craft and Structure: Expository Writing**.

MAKE IT INTERACTIVE

Have students write either a comparison-and-contrast or a cause-and-effect paragraph in which they also use either imagery or allusion. Students should demonstrate a clear understanding of comparison-and-contrast, cause-and-effect, imagery, and allusion.

Practice

Possible responses:

- (a) The main idea of this article is people have always been fascinated by flying. (b) Tyson’s purpose was most likely to discuss our fascination with flying and to talk about some of the advances and achievements people have made in aviation.
- (a) Air Force jets; the bald eagle; the dollar bill; the quarter; the Kennedy half dollar; the Eisenhower dollar; the Susan B. Anthony dollar; the Oval Office; Superman; Pegasus; Mercury; Cupid; Peter Pan; Tinkerbell (b) They all relate to what Tyson calls people’s “wing worship.” (c) These allusions help Tyson make the point that we are fascinated with flying.
- (a) He contrasts missiles with aircraft. (b) Missiles fall through the air; aircraft truly fly. (c) Tyson uses this type of organization to show that we are quick to say that anything that moves through the air is flying.

FORMATIVE ASSESSMENT

Analyze Craft and Structure

- **If** students have difficulty identifying Tyson’s use of comparison-and-contrast or cause-and-effect, **then** show them appropriate parts of the text and discuss these elements.
- **If** students have difficulty understanding imagery or allusion, **then** review appropriate parts of the text and discuss the use of either imagery or allusion.

For Reteach and Practice, see **Analyze Craft and Structure: Expository Writing (RP)**.

WriteNow Analyze and Interpret

Describe Have students write 1–2 paragraphs in which they use all of the following: comparison-and-contrast, cause-and-effect, imagery, and allusion. Tell them they can extend

the paragraph they wrote for the “Make It Interactive” activity, or, if they prefer, write something new. Ask volunteers to share their response with the class.

Concept Vocabulary

Why These Words?

Possible responses:

- 1. The concept vocabulary helps the reader better understand the inventions Tyson describes because these words describe what can result from both conventional thinking and innovative thinking.
- 2. *constructional defect* (paragraph 1), *technological ingenuity* (paragraph 4), *inventive* (paragraph 7), *unprecedentedly* (paragraph 13)

Practice

Possible responses:

- 1. A *hapless* person who works at a restaurant might drop a tray loaded with dishes.
- 2. Innovative: *foresight*; *prescient*; *seminal*; Conventional: *hapless*; *myopic*; *naiveté*. The innovative words express looking forward and making advances; the conventional words express not making the same kind of progress.

Word Network

Possible words: *better machine, advances, device, physics, faster, exceeded, achievement*

Word Study

For more support, see **Concept Vocabulary and Word Study**.

Possible responses:

- 1. in the front of the book
- 2. at the front of the animal

FORMATIVE ASSESSMENT

Concept Vocabulary

If students fail to see the connection among the words, **then** work as a class to use the words in sentences on a single topic and discuss why they are connected.

Word Study

If students have trouble answering the questions, **then** review the prefix *fore-* and discuss the words. Also discuss the words *foresee* and *forehead*. For Reteach and Practice, see **Word Study: Old English Prefix fore- (RP)**.



LANGUAGE DEVELOPMENT



TO FLY

Concept Vocabulary

hapless	foresight	prescient
myopic	naiveté	seminal

Why These Words? These concept words help to show the contrast between innovative thinking and conventional thinking. For example, in paragraph 5, the author criticizes Lord Kelvin's limited vision of flight as *myopic*. This word vividly reveals the author's view of Kelvin's mistake.

- 1. How does the concept vocabulary help the reader better understand the inventions the author describes?
- 2. What other words in the selection connect to innovative or conventional thinking?

Practice

Notebook The concept vocabulary words appear in "To Fly."

- 1. Describe something that might happen to a hapless person who works at a restaurant.
- 2. Divide the concept vocabulary words into two groups: innovative thinking and conventional thinking. Explain why you placed each word in its group.

Word Study

Old English prefix: fore- You can use the Old English prefix *fore-* to help determine the meaning of a word. The prefix *fore-* means "before," "toward," or "front." In this passage, the author notes that lack of *foresight*, or looking ahead, can be an obstacle to creating new inventions.

Use what you know about the prefix *fore-* to answer these questions.

- 1. Where is a book's *Foreward* located?
- 2. Where would you expect to find an animal's *foreleg*?

STANDARDS

Language

Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

- Spell correctly.

Determine or clarify the meaning of unknown and multiple meaning words or phrases based on grade 8 reading and content, choosing flexibly from a range of strategies.

VOCABULARY DEVELOPMENT

Concept Vocabulary Reinforcement Students will benefit from additional examples and practice with the concept vocabulary. Reinforce their comprehension with "show-you-know" sentences. The first part of the sentence uses the vocabulary word in an appropriate context. The second part of the sentence—the show-you-know part—clarifies the first. Model the strategy with this example for *hapless*:

The *hapless* dog walker had the same problem every day; the dogs' leashes kept getting all tangled up.

Then, give students these sentence prompts, and coach them in creating the clarification part:

- 1. The *myopic* scientist's experiment kept failing;

Possible response: he couldn't see the solution even though it was right in front of him.

- 2. Myra's invention is *prescient*;

Possible response: it meets a need many people don't even know we have yet.

Conventions

Capitalization Capital letters are used in many different situations. For example, a capital letter is used at the beginning of the first word in a sentence, and the pronoun *I* is always capitalized. **Capitalization of proper nouns** and **proper adjectives** is also part of correct spelling.

This chart shows examples of how capitalization is used.

CAPITALIZE	EXAMPLES
the first letter of the first word in a sentence	The blue jay is a very aggressive bird. Wait! Can you give me back my pen?
the beginning of the first word in a quotation that is a complete sentence; the beginning of the first word in a line of dialogue	Einstein said, "Anyone who has never made a mistake has never tried anything new."
the pronoun <i>I</i>	After swimming, I felt tired.
proper nouns, including people's names, people's titles when used as part of their names, place names, and names of organization	Elsa went sailing down the Hudson River with Ms. Liu and her Girl Scout troop.
proper adjectives, or adjectives formed from proper nouns	Many people of Brazilian background speak the Portuguese language.

Read It

1.  **Notebook** Identify the capital letters in each sentence, and explain why each one is capitalized.
- a. Superman, one of the most famous American superheroes, has the power to fly.
- b. The *Apollo 13* astronauts returned safely to Earth.
- c. I think the launch of *Voyager 2* was the most important space mission.
2.  **Notebook** Reread paragraph 10 of "To Fly." Mark all the uses of capitalization, and note why each letter is capitalized.

Write It

 **Notebook** Revise the following paragraph. Make sure to capitalize proper nouns and adjectives, as well as other words that should begin with capital letters.

In this article, neil degrasse tyson starts by discussing birds and mythical flying figures, such as pegasus, mercury, and peter pan. he continues with the invention of the airplane by the wright brothers, wilbur and orville. although tyson mainly focuses on american technology for flight and space travel, he also discusses the german v-2 rocket. he writes, "their vehicle was significant in many ways."

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Conventions

Capitalization Continue the discussion of capitalization. Provide students with several sentences that have improper capitalization and have students correct them.

For more support, see **Conventions: Capitalization.** 

MAKE IT INTERACTIVE

Have students write a sentence that demonstrates correct capitalization for the first letter of the first word in a sentence, the beginning of the first word in a quotation that's a complete sentence, proper nouns, and proper adjectives, as in the following sentence: *When Janell asked me if I preferred speaking English or French, I said, "Both languages work equally well for me."*

Read It

1. (a) **S**uperman (proper noun); **A**merican (proper adjective); (b) **T**he (first word of sentence); **A**pollo (proper noun); **E**arth (proper noun); (c) **I** (first word of sentence); **V**oyager (proper noun)
2. **P**resent (first word of sentence); **Y**ou (first word of sentence); **P**aris (proper noun); **Y**ou (first word of sentence); **Z**eppelin (proper noun); **T**he (first word of sentence); **S**oon (first word of sentence)

Write It

In this article, Neil Degrasse Tyson starts by discussing birds and mythical flying figures, such as Pegasus, Mercury, and Peter Pan. He continues with the invention of the airplane by the Wright Brothers, Wilbur and Orville. Although Tyson mainly focuses on American technology for flight and space travel, he also discusses the German V-2 rocket. he writes, "Their vehicle was significant in many ways."

FORMATIVE ASSESSMENT

Conventions

- **If** students have trouble understanding capitalization, **then** review when capitalization is necessary.
- **If** students have trouble using correct capitalization, **then** show them simple sentences and discuss where and why capitalization is required. For Reteach and Practice, see **Conventions: Capitalization (RP).** 

PERSONALIZE FOR LEARNING

English Language Support

Capitalization Review paragraph 18 with students. Have them identify the capitals letters in the paragraph and tell you why each of these letters is capitalized. Also, explain that when *Moon* is capitalized, it refers specifically to Earth's moon; tell students that they will often see this word not capitalized, in which case it refers to any moon. Also point out that *Earth* is capitalized when it refers to our planet, but there are times when it is not capitalized (as when it refers to soil: We shoveled a great deal of earth as we dug the enormous hole.).

Writing to Sources

Discuss with students the importance of stating a clear position, supporting it with relevant, logical evidence, and including and addressing counterclaims. Also remind students to include details from the article in their essay.

For more support, see **Writing to Sources: Argument.**

Reflect on Your Writing

- 1. Responses will vary. Students should clearly answer the question, identifying at least one other relevant claim. They should also suggest a revision for the claim they made.
- 2. Responses will vary. Students should suggest an effective revision for how they presented evidence in their essay.
- 3. **Why These Words?** Responses will vary. Have students list specific examples of words they chose that clearly convey their ideas.

FORMATIVE ASSESSMENT

Writing to Sources

If students have trouble articulating a position, then ask them to simply tell you, in one or two sentences, what their response to the questions is. Then, have them write their response. For Reteach and Practice, see **Writing to Sources: Argument (RP).**



EFFECTIVE EXPRESSION



TO FLY

STANDARDS

- Write arguments to support claims with clear reasons and relevant evidence.
- Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.
- Provide a concluding statement or section that follows from and supports the argument presented.

Speaking and Listening

- Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
- Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.
- Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.

Writing to Sources: Argument

An **argument** is a logical way of presenting a viewpoint, belief, or stand on an issue. An argument must include at least one **claim**, or position on a question. In an **argumentative essay**, the author supports his or her claims with logical reasons and with **evidence** such as facts, statistics, anecdotes, quotations, or examples.

Assignment

Write an argumentative essay in which you state a claim in response to the following question: *Why do humans have such a strong desire to fly when it is against our nature to do so?*

Follow these steps as you write your essay:

- Begin by clearly stating your position.
- In the body of the essay, develop your argument with logical reasoning supported by relevant evidence from the selection.
- Organize your reasons and evidence logically. Use transitional words and phrases such as *because*, *instead*, and *after* to clarify the relationships between your claims, your reasons, and the supporting evidence.
- Conclude with a strong closing statement that follows from and supports your argument.
- Review your essay to make sure you have maintained a formal style.

Vocabulary and Conventions Connection Include several of the concept vocabulary words. Also, remember to use correct capitalization for proper nouns and proper adjectives, to make your writing clear.

hapless	foresight	prescient
myopic	naiveté	seminal

Reflect on Your Writing

Notebook After you have written your essay, answer the following questions.

- 1. What other claims might fit the assignment? How might you revise the claim you chose to make it stronger?
- 2. How might you revise the way you present your evidence to help it more strongly support your claim?
- 3. **Why These Words?** The words you choose make a difference in your writing. Which words did you specifically choose to clearly convey your ideas?

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PERSONALIZE FOR LEARNING

Challenge

Extend Review Tyson's use of allusion in paragraph 3. Have students write a paragraph about other examples of or allusions to birds, wings, or flying that are common in American culture. If students can't think of examples they're already familiar with, have them conduct research online. Ask volunteers to share their responses with the class.



Speaking and Listening

Assignment

With your class, share and discuss the new information about invention and aviation that you learned from reading Neil DeGrasse Tyson's expository essay "To Fly."

- 1. Cite Specific Evidence** As you prepare for the discussion, make sure you are prepared to cite specific passages and quotations from the selection to help explain how the information in the essay increased your knowledge of the subject. Answer the following questions to make sure your ideas are based on text evidence:
 - What did I learn from "To Fly" about invention and aviation?
 - What specific passages and quotations in the essay taught me more about these subjects?
- 2. Prepare to Participate in Class Discussion** Before the full class discussion, review ways to participate, such as the following:
 - Follow the rules established for the discussion. Speak in turn, and address other participants with respect.
 - Pay attention to what your classmates say. You may wish to take notes as they are speaking.
 - Ask questions that connect ideas your classmates have raised in the discussion.
 - Respond thoughtfully to your classmates' questions and comments. Cite relevant evidence from the text, as well as your own observations and ideas.
- 3. Evaluate Discussion Participation** As your classmates participate in the discussion, listen attentively. Use a discussion participation evaluation guide like the one shown to analyze their presentations.

DISCUSSION PARTICIPATION EVALUATION GUIDE

Rate each statement on a scale of 1 (not demonstrated) to 5 (demonstrated).

- ☐ The participant was prepared for the discussion.
- ☐ The participant cited specific passages and examples from the selection to explain what he or she had learned.
- ☐ The participant followed the rules of the discussion.
- ☐ The participant posed questions that connected ideas.
- ☐ The participant responded to questions and comments with relevant evidence, observations, and ideas.

EVIDENCE LOG

Before moving on to a new selection, go to your Evidence Log and record what you learned from "To Fly."

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Speaking and Listening

- 1. Cite Specific Evidence** Remind students to check the wording of quotations from the text that they'll be using in the discussion. Also remind them to cite the paragraph where this text appears. Instead of saying "Tyson says _____" they should say "In paragraph 4, Tyson says _____."
- 2. Prepare to Participate in Class Discussion** As part of their preparation, have students write all the quotations they plan to use on a sheet of paper or use a separate index card for each quotation. This will give them immediate access to the quotations during the discussion.
- 3. Evaluate Discussion Participation** Encourage students to make at least one supportive comment about classmates who participate in the discussion.

For more support, see **Speaking and Listening: Class Discussion.**

Evidence Log Support students in completing their Evidence Log. This paced activity will help prepare them for the Performance-Based Assessment at the end of the unit.

FORMATIVE ASSESSMENT

Speaking and Listening

- If students have trouble identifying something they've learned, **then** have them review the text and look for technical or historical information they're unfamiliar with.
- If students struggle to participate in the class discussion, **then** ask them discussion-related questions they can easily answer. For Reteach and Practice, see **Speaking and Listening: Class Discussion (RP).**

Selection Test

Administer the "To Fly" Selection Test, which is available in both print and digital formats online in Assessments.

PERSONALIZE FOR LEARNING

Strategic Support

Extend In paragraph 19, Tyson says the gold phonograph record attached to *Voyager 2* has "earthly sounds of among many things, the human heartbeat." Have students write 1–2 paragraphs in which they (a) explain why scientists most likely chose to include the human heartbeat on this record; (b) speculate about what other earthly sounds might be on this record. Students should also state why they think the record might have the sounds they identify. (Note: You may have to explain what a phonograph record is.)

Jump Start

Have you ever gotten into an argument? Have you ever felt strongly about an issue, while someone else disagrees with you? Who is right? The answer to that question is not easy, but if you have a strong argument, supported by evidence, you are on the right track.

Write an Argument

Remind students that they are going to formulate an opinion of what successful flight looks like based on the information they learned in this unit. Remind them to return to the text while writing.

Students should complete the assignment using word processing software to take advantage of editing tools and features.

Elements of an Argument

Students should begin by making a claim and considering the counterclaim. Point out that they need to support their claim with evidence from the text. When making an effective argument, organization is key. Evidence and reasons to support the claim should be clear and relevant. Also, students must have introductions and conclusions that make their arguments cohesive and effective.

MAKE IT INTERACTIVE

Project the Launch Text and remind students of the writer’s argument. Ask students to identify the elements that make up a good argument. Ask volunteers to cite examples from the launch text, in preparation for writing their own arguments.

Academic Vocabulary

Ask students to use each of the academic vocabulary words in a sentence that could be either an introduction to an argument or a concluding sentence. For example: In order for legitimate flight to take place, the device must become airborne.



PERFORMANCE TASK: WRITE AN ARGUMENT

WRITING TO SOURCES

- UNCLE MARCOS
- TO FLY

ACADEMIC VOCABULARY

As you craft your argument, consider using some of the academic vocabulary you learned in the beginning of the unit.

opponent
proposition
clamor
legitimate

Tool Kit
Student Model
of an Argument

- STANDARDS
- Writing
- Write arguments to support claims with clear reasons and relevant evidence.
 - Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
 - Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.
 - Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.
 - Establish and maintain a formal style.
 - Provide a concluding statement or section that follows from and supports the argument presented.

Write an Argument

You have just read two texts in which the authors explore the idea of human flight. In “Uncle Marcos,” Uncle Marcos builds a flying machine and becomes a hero when he attempts to fly it over the mountains. In “To Fly,” author Neil DeGrasse Tyson discusses the development of human flight from fantasies and myths to airplanes and space travel. Now you will use your knowledge of these texts to explore your thoughts and write your own argument about human flight.

Assignment

You have read two authors’ perspectives on human flight. Think about what defines human flight. Write an argument in which you make a claim that answers this question:

What requirements must be met in order to say human flight is successful?

Be sure to clearly introduce your position and show how it differs from alternative ideas presented in the selections. Support your claims with logical reasoning and relevant text evidence.

Elements of an Argument

An **argument** is a logical way of presenting a viewpoint, belief, or stand on an issue. A well-written argument may convince the reader, change the reader’s mind, or motivate the reader to take a certain action.

An effective argument contains these elements:

- a clearly stated claim that is distinguishable from other possible claims
- consideration of **counterclaims**, or opposing positions
- logical organization that makes clear connections between claims and supporting evidence
- valid, relevant reasoning
- a concluding statement that follows from the claim
- words and phrases that help to connect ideas
- formal, language and style

Model Argument For a model of a well-crafted argument, see the Launch Text, “Inspiration Is Overrated!”

Challenge yourself to find all of the elements of an effective argument in the text. You will have an opportunity to review these elements as you prepare to write your own argument.



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AUTHOR’S PERSPECTIVE Kelly Gallagher, M.Ed.

Read, Analyze, Emulate Teachers can use scaffolding to help students grow as writers by studying good writing with them. When students recognize the qualities of good writing, they begin producing it.

Step 1: Read Provide students with excellent narratives from the text and direct them to “read like a writer” by paying attention to ideas, style, voice, and

organization. Encourage students to look for the moves the writer made to elicit a response in readers.

Step 2: Analyze Focus on the ideas by asking students questions such as “What is the writer’s theme? How did the writer develop it?” Then turn to style and voice, asking, “How did the writer develop the characters?” “What effect did the dialogue

have?” “What sensory details did the writer use?” and “Where do you hear the author’s distinctive voice?” Finally, ask questions about organization, such as “How did the writer pace events?” “What do you notice about the writer’s paragraphing decisions?”

Step 3: Emulate Select one or two of the writer’s moves to practice. Guide students to follow the models they studied as they write.

Prewriting / Planning

Develop a Claim Reread the assignment. Answer the following questions, and explain your answers, to help you define successful human flight:

- Does human flight just require moving above the ground, such as a ride in a hot-air balloon or glider? _____.
- Does human flight require a powered airborne vehicle such as an airplane or a rocket with one or more persons aboard? _____.
- Does Uncle Marcos successfully fly in his mechanical bird? _____.
- Can a spacecraft such as *Voyager 2*, flying through space with no humans aboard, be called human flight? _____.

Consider Possible Counterclaims Strong arguments take differing ideas into account by addressing them directly. As you form your ideas, build in sections in which you explain opposing opinions or alternate interpretations. Then, write a reasoned, well-supported response to those counterclaims.

Counterclaim	Response, with Reasons and Supporting Evidence

Gather Evidence There are many different types of evidence you can use to support your argument. Here are some examples of different kinds of evidence used in the Launch Text.

facts	statements that can be proved true	<i>For every invention that actually makes it to production, there are thousands that don't.</i>
statistics	facts presented in the form of numbers	<i>According to the U.S. Patent and Trademark Office, there are about 1.5 million products that have patents.</i>
examples	facts, ideas, or events that support a general idea	<i>Here's something that isn't on everyone's shopping list: a coffee mug that irons clothes.</i>

Using a variety of evidence can make your argument stronger. Besides the types in the chart, you may use **anecdotes**—brief stories that illustrate a point—and **quotations** from experts. Collect evidence from the Anchor Texts, other reliable sources, and your own knowledge.

Connect Across Texts To connect your argument with the Anchor Text, consider how the author of each text might define human flight.

Paraphrase or use **exact quotations** from each text to provide examples that support your ideas. Then explain how your views about human flight are similar to or differ from those of the authors of “Uncle Marcos” and “To Fly.”

EVIDENCE LOG

Review your Evidence Log and identify key details you may want to cite in your argument.

STANDARDS

Writing

Write arguments to support claims with clear reasons and relevant evidence.

- Introduce claim(s), acknowledge and distinguish the claim(s) from alternate claims, and organize the reasons and evidence logically.
- Support claim(s) with logical reasoning and relevant evidence.
- Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.
- Establish and maintain a formal style.
- Provide a concluding statement or section that follows from and supports the argument presented.

Performance Task: Write an Argument 479

Prewriting/Planning

Develop a Claim One of the most challenging parts of writing an argument is developing a strong claim. While having an opinion may not be difficult, being able to express the opinion in a clear and strong fashion can be a challenge. Once students have answered the questions, have them write a claim sentence. Next, have them work with partners to review the sentences, for support and assistance. Remind them that the claim needs to be supportable by evidence.

Gather Evidence Point out that having a variety of types of evidence will help support their arguments. For example, relying solely on what they read in “Uncle Marcos” to support an argument would not be as strong as bringing in other evidence, anecdotes, facts or statistics from other sources. Remind students that not all Internet sources are reliable. Direct them to acceptable websites.

Connect Across Texts Once students construct a claim, have them begin by returning to the text in this unit for support or for counterclaims. Suggest that they make a chart for each piece to record the evidence they plan to use in their writing.

PERSONALIZE FOR LEARNING

Strategic Support

Organization One of the most difficult but most important parts of writing an argument is organization. Suggest that students use index card to organize their thoughts. Have them label one *Argument* for their main claim. Next, they should have *Claim and Evidence* cards, as well as *counterclaim* cards. Finally, a *Conclusion* card should be written. Once they have completed all of their cards, they can easily organize and reorganize them to create the most impactful argument.

Drafting

Present Your Reasoning The claim-reason-evidence model is a valuable organizational tool. While making a claim and gathering evidence has been reviewed, students might need reinforcement for the “reason” section. Explain to students that the reason is the “why” in an argument. Point out the claim in the example. Review the reasons. They are “why” the claim is a valid one. The evidence supports the “reason” or the “why.”

Write a First Draft Students have been introduced to several organization tools for constructing an argument. Remind them to consider the tools they are using and draw on what they have learned about constructing a good argument. Point out that their introductions and conclusions are where their claims go and are the bookends for their reasoning and evidence.



PERFORMANCE TASK: WRITE AN ARGUMENT

Drafting

Present Your Reasoning

You can build support for your argument through reasoning supported by evidence. In a strong argument, reasons are supported by evidence and organized in an order that makes sense. Use an outline to help you plan your reasons and the evidence that supports them.

LAUNCH TEXT

Model: “Inspiration Is Overrated!”

CLAIM
Inspiration does not always produce successful inventions.

REASON
Many ideas for inventions never succeed.

EVIDENCE
One source says that only 3,000 products make money out of the 1.5 million products that have patents. Another says that only 1 in 5,000 products succeeds in the marketplace.

REASON
There is a reason many new inventions fail.

EVIDENCE
The author compares genius and invention by referring to the saying “genius is one percent inspiration and ninety-nine percent perspiration.”

CONCLUSION
The conclusion restates and extends the claim: Successfully turning an idea into an invention requires a lot of hard work, not just inspiration.

Argument Outline

CLAIM

REASON

EVIDENCE

REASON

EVIDENCE

CONCLUSION

STANDARDS
Writing
Write arguments to support claims with clear reasons and relevant evidence.

Write a First Draft Use your chart to help you write the first draft.

- Start by writing an introduction that clearly introduces your claim about human flight.
- Gather different kinds of evidence, such as facts, statistics, examples, and anecdotes, to support your claim.
- Present your reasons and evidence in a logical order.
- Conclude with a conclusion statement or section that briefly summarizes or extends your argument.

AUTHOR'S PERSPECTIVE Jim Cummins, Ph.D.

Working in Pairs There is an important sense in which the development of academic expertise on the part of ELLs is a process of socialization rather than simply instruction. As a result, English writing development will be enhanced when students can work in pairs to create texts to share with others. That's because the process of collaboration and

communication entails social interaction, which fosters language development.

- First, teachers can partner students to read, discuss, and react to a reading in the unit. Select a text, such as a nonfiction article, poem, or narrative.
- Have partners discuss the text, make notes about their ideas, and together write a response that calls out what

they found important, or their response to a prompt teachers provide. Encourage students to include specific details from the text in their drafts. Then, teachers can invite partners to share their writing with the whole class. Guide students to explain how working together helped them express their ideas more effectively than working alone.

LANGUAGE DEVELOPMENT: CONVENTIONS

Revising to Combine Sentences Using Gerunds and Participles

Gerunds and participles are **verbals**, or verb forms that are used as another part of speech.

Identifying Gerunds A **gerund** is a verb form ending in *-ing* that acts as a noun. A **gerund phrase** is a gerund with modifiers, objects, or complements, all acting together as a noun. Like all nouns, gerund and gerund phrases may be used in different parts of a sentence, as in these examples:

As a subject: *Baking cookies* is Heather's hobby.

As a direct object: Lucille enjoys *swimming*.

As a predicate noun: David's greatest talent is *playing the piano*.

As the object of a preposition: Randall never gets tired of *surfing*.

Identifying Participles A **participle** is a verb form that acts as an adjective. There are two kinds of participles: present participles and past participles. A **participial phrase** is a present or past participle modifiers, objects, or complements, all acting together as an adjective.

Present participle: The *chirping* canary sang sweetly.

Past participle in participial phrase: The runner, *filled with hope*, raced toward the finish line.

Revising Sentences To combine sentences using gerunds and participles, first identify pairs of sentences that sound choppy and that concern the same idea. Then, combine the sentences by using participles, gerunds, or participial or gerund phrases.

Read these choppy sentences: The sisters like to draw and paint. They like to play together. These sentences can be combined with gerunds. The sisters like *drawing, painting, and playing together*.

Read It

These sentences from the Launch Text contain gerunds and participles. Describe the function of each verbal in the sentence shown.

- *Each of these **forgotten** contraptions was probably someone's bright idea, a flash of inspiration **experienced while walking in the woods**. (past participle and past participial phrases)*
- ***Developing** something new that actually works—and that people want—can take years. (gerund)*

Write It

As you draft your argument, find pairs of sentences that deal with the same subject. If they are too choppy or repetitive, combine them using gerund or participial phrases.

TIP

SPELLING

Make sure to spell verbs used as gerunds or participles correctly.

- Remember that, when a verb ends in *e*, the *e* should almost always be dropped before adding *-ing*. For example, the verb *hike* becomes the gerund *hiking*.

- Past participles use the past tense of the verb. For most verbs, the past tense ends in *-ed*, as in *remembered*.

- Some verbs form the past tense differently. Many of these verbs also have special forms for the past participle, such as *forgotten*. Make sure to use the correct form as your participle.

STANDARDS

Language

- Explain the function of verbals (gerunds, participles, infinitives) in general and their function in particular sentences.
- Spell correctly.

Revising to Combine Sentences Using Gerunds and Participles

Read It

Students use gerunds or particles in their speech and writing all of the time. Understanding their purpose will help improve their writing. Have students look at the examples of each type of gerund and participle provided before the *Read It* section on the Student page. Ask them to provide alternative gerunds or participles for each sample sentence. The sentence must make sense.

MAKE IT INTERACTIVE

Point out the following sentence in paragraph 5 of the Launch Text:

A noted business magazine states that only one in 5,000 inventions succeeds in the marketplace.

Ask students to decide if there is a gerund or participle in this sentence and to identify it. Ask students to explain how they arrived at their conclusion. Have students find other examples in the Launch text.

Write It

Provide students with additional sentences to combine for further practice.

At camp, Sam likes to swim and hike. Michael likes to paint and climb the rock wall.

In the evening, the chef cooks. He also prepares the food.

HOW LANGUAGE WORKS

Gerunds and Participial Phrases To reinforce student understanding of gerunds and participial phrases, copy the following chart on the board, and work with students to create example sentences for each category of verbal.

Verbal	Sentence
Gerund as a subject	
Gerund as a direct object	
Gerund as a predicate noun	
Gerund as an object of a preposition	
Present participle	
Past participle	

Revising

Conclusion Remind students that while they may have provided a strong argument and much evidence, the conclusion is the big finish. It is the last thing that the reader reads and it is what is likely to stick with the reader most. Therefore, a well-planned conclusion can make the difference in constructing a great argument. Ask students to answer this question: what is the single most important idea I want my reader to take away from my argument?

Use Language to Make Connections Provide students with opportunities to revise sentences using use transitions effectively. Offer the following example. Ask students to combine these sentences into one using transitions.

The banana is the greatest piece of produce. It comes with its own wrapper. It provides you with potassium.



PERFORMANCE TASK: WRITE AN ARGUMENT

Revising

Evaluating Your Draft

Use the following checklist to evaluate the effectiveness of your first draft. Then, use your evaluation and the instruction on this page to guide your revision.

PURPOSE AND ORGANIZATION	EVIDENCE AND ELABORATION	CONVENTIONS
<div>☐ Presents a clearly stated claim that is distinguished from other possible claims.</div> <div>☐ Organizes information in a logical way that makes connections between claims, counterclaims, reasons, and evidence.</div> <div>☐ Presents ideas in a clear and formal style.</div> <div>☐ Includes a conclusion that logically supports or extends the argument.</div>	<div>☐ Uses relevant, logical evidence and reasons to support the main claim.</div> <div>☐ Considers and discusses possible counterclaims.</div> <div>☐ Includes language that helps make connections among claims, counterclaims, and supporting details.</div>	<div>☐ Attends to the norms and conventions of the discipline, especially correct use of gerunds and participles.</div>

WORD NETWORK

Include interesting words from your Word Network in your argument.

STANDARDS

- Writing**
Write arguments to support claims with clear reasons and relevant evidence.
- Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
 - Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.
 - Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.
 - Establish and maintain a formal style.
 - Provide a concluding statement or section that follows from and supports the argument presented.

Revising for Purpose and Organization

Conclusion Make sure that your conclusion statement or section logically supports or extends your argument. You may wish to restate your claim and summarize the strongest reasons and evidence that support it. You may also introduce a final quotation or example. If you wish to extend your argument, make sure the connection between what you have written and your new idea is clear and logical. Use transition words and other language to make connections and help readers understand your train of thought.

Revising for Evidence and Elaboration

Use Language to Make Connections Make sure you are using transitions effectively in your argument. Add new transition words and phrases if necessary to make connections and clarify the relationship between ideas. Use words such as *because* and *therefore* to make connections when one event or idea led to another. Use words and phrases such as *such as* and *for example* to introduce evidence and examples. Use words such as *before* and *later* to clarify when events occurred.

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PERSONALIZE FOR LEARNING

English Language Support

Transitions Writing complex sentences that are not run-ons can be a challenge. Practice combining sentences will help improve their writing. Provide students with a list of transition words. You can use the examples in this lesson or add others. Provide them with several short sentences on index cards or presented on a screen. These sentences can have a content connection, such as sentences about flight. Alternatively, they can have no obvious connection and students can use transitions to make humorous sentences.

PEER REVIEW

Exchange papers with a classmate. Use the checklist to evaluate your classmate's argument and provide supportive feedback.

1. Is the claim clearly stated, and distinguished from other possible claims and counterclaims?

☐ yes ☐ no If no, suggest how the writer might improve it.

2. Are the reasons and evidence logical and relevant?

☐ yes ☐ no If no, explain what the author might add or remove.

3. Does the organization make clear connections among claims, counterclaims, reasons, and evidence?

☐ yes ☐ no If no, tell what you think might be missing.

4. What is the strongest part of your classmate's paper? Why?

Editing and Proofreading

Edit for Conventions Reread your draft for accuracy and consistency. Correct errors in grammar and word usage. Make sure you have correctly combined sentences using gerunds and participles.

Proofread for Accuracy Read your draft carefully, looking for errors in spelling and punctuation. As you proofread, make sure that you have used the correct spelling for gerunds and other verbs ending in *-ing*. Also check that you have used the correct form of any irregular past participles, such as *lit* and *broken*.

Publishing and Presenting

Post your final essay to a class or school website so classmates can read and comment on your ideas. Consider the ways in which other students' arguments are similar to and different from your own.

Reflecting

Reflect on what you learned as you wrote your argument. What did you learn about how ideas for inventions are realized? What was the most challenging aspect of composing your argument? Did you learn something from reviewing the work of others and discussing your argument with your classmates that might inform your writing process in the future?

STANDARDS

Writing

Write arguments to support claims with clear reasons and relevant evidence.

- Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.

- Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.

- Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.

- Establish and maintain a formal style.

- Provide a concluding statement or section that follows from and supports the argument presented.

Performance Task: Write an Argument **483**

Peer Review

Remind students that the purpose of peer review is to provide useful feedback. Constructive feedback is written in a positive way, but also provides useful information for improving an essay.

Publishing and Presenting

Have students read several examples of other students' arguments. Have them read arguments that took a similar stand to their own. Also, have them read opposing viewpoints. As a class, discuss the impact of reading the work of others. Did they find points they may have missed to support their own arguments? Did reading opposing viewpoints impact how they felt about their own points of view?

PERSONALIZE FOR LEARNING

Challenge

Write an Argument Select a relevant topic from current events or pop culture or select a quote and ask students to take a side write a brief argument related to the topic. Remind students to use what they have learned in this unit to construct an effective argument. Be sure to include claims, reasoning and evidence, as well as a strong introduction and conclusion. Ask volunteers to share their arguments with the class.

SMALL-GROUP LEARNING

Are inventions realized through inspiration or perspiration?

Sometimes, inventions are “discovered” when the inventor is working on something else. Percy Spencer, an American physicist and inventor, was actually working on another project when he noticed that the candy bar in his pocket had melted. As he followed up on the phenomenon, he popped the world’s first batch of microwave popcorn! Because of his work and further investigation, he is credited with inventing the microwave oven. During Small-Group Learning, students will read selections that relate to inventions and their inventors.

Small-Group Learning Strategies

Review the Learning Strategies with students and explain that as they work through Small-Group Learning they will develop strategies to work in small-group environments.

- Have students watch the video on Small-Group Learning Strategies.
- A video on this topic is available online in the Professional Development Center.

You may wish to discuss some action items to add to the chart as a class before students complete it on their own. For example, for “Support others” you might solicit the following from students:

- Students can encourage others in their group to elaborate on an idea.
- Students can invite others who have not yet spoken to join the discussion.



OVERVIEW: SMALL-GROUP LEARNING

ESSENTIAL QUESTION:

Are inventions realized through inspiration or perspiration?

Can hard work alone—or a great idea alone—result in a successful invention? Every invention has an inventor or two, thinking hard and doing what it takes. You will work in a group to continue your exploration of the process of invention.

Small-Group Learning Strategies

Throughout your life, in school, in your community, and in your career, you will continue to learn and work with others.

Look at these strategies and the actions you can take to practice them as you work in teams. Add ideas of your own for each step. Use these strategies during Small-Group Learning.

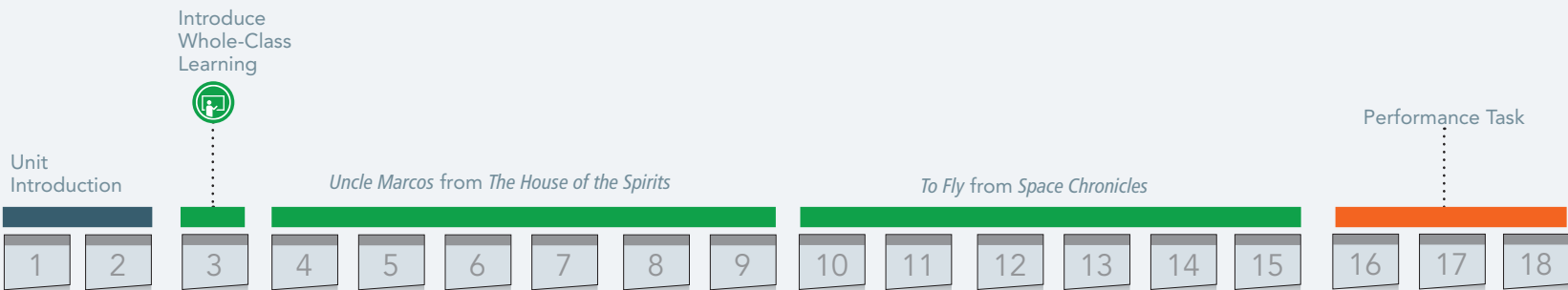
STRATEGY	ACTION PLAN
Prepare	<ul style="list-style-type: none">• Complete your assignments so that you are prepared for group work.• Organize your thinking so you can contribute to your group’s discussions.•
Participate fully	<ul style="list-style-type: none">• Make eye contact to signal that you are listening and taking in what is being said.• Use text evidence when making a point.•
Support others	<ul style="list-style-type: none">• Build off ideas from others in your group.• Invite others who have not yet spoken to do so.•
Clarify	<ul style="list-style-type: none">• Paraphrase the ideas of others to ensure that your understanding is correct.• Ask follow-up questions.•

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Pacing Plan

484 UNIT 5 • INVENTION

SCAN FOR MULTIMEDIA



CONTENTS

COMPARE

EXPOSITORY NONFICTION

Nikola Tesla: The Greatest Inventor of All?

Vicky Baez

How did history forget about one of its most visionary inventors?



NOVEL EXCERPT

from **The Invention of Everything Else**

Samantha Hunt

The combination of fact, fiction, biography, and history creates an engaging portrait of an under-appreciated inventor.

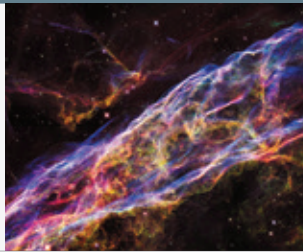


NEWS ARTICLE

25 Years Later, Hubble Sees Beyond Troubled Start

Dennis Overbye

In spite of its flaws, the Hubble Space Telescope remains a groundbreaking invention that has changed the way people see the universe.



MEDIA: VIDEO

Sounds of a Glass Armonica

Watch one of Benjamin Franklin's favorite inventions in action!



PERFORMANCE TASK

SPEAKING AND LISTENING FOCUS

Conduct a Small Group Debate

The Small-Group readings feature inventions that have been realized through "inspiration or perspiration." After reading, your group will plan and conduct a debate on this topic.

Contents

Selections Circulate among groups as they preview the selections. You might encourage groups to discuss any knowledge they already have about any of the selections or the situations and settings shown in the photographs. Students may wish to take a poll within their group to determine which selections look the most interesting.

Remind students that communicating and collaborating in groups is an important skill that they will use throughout their lives – in school, in their careers, and in their community.

Performance Task

Present a Small Group Debate Give groups time to read about and briefly discuss the small-group debate they will create after reading. Encourage students to do some preliminary thinking about the types of media they may want to use. This may help focus their subsequent reading and group discussion.

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Overview: Small-Group Learning 485

Introduce
Small-Group
Learning



*Nikolas Tesla: The
Greatest Inventor
of All?*

*from The Invention of
Everything Else*

*25 Years Later,
Hubble Sees Beyond
Troubled Start*

*Media: Sounds of a
Glass Armonica*

Performance Task

Introduce
Independent Learning



Independent
Learning

Performance-
Based
Assessment



SMALL-GROUP LEARNING

SMALL-GROUP LEARNING

Working as a Team

- 1. **Take a Position** Remind groups to let all members share their responses. You may wish to set a time limit for this discussion.
- 2. **List Your Rules** You may want to have groups share their lists of rules and consolidate them into a master list to be displayed and followed by all groups.
- 3. **Apply the Rules** As you circulate among the groups, ensure that students are staying on task. Consider a short time limit for this step.
- 4. **Name Your Group** This task can be creative and fun. If students have trouble coming up with a name, suggest that they think of something related to the unit topic. Encourage groups to share their names with the class.
- 5. **Create a Communication Plan** Encourage groups to include in their plans agree-upon times during the day to share ideas. They should also devise a method for recording and saving their communications.

Accountable Talk

Remind students that groups should communicate politely. You can post these Accountable Talk suggestions and encourage students to add their own. Students should:

Remember to . . .

Ask clarifying questions.

Which sounds like . . .

Can you please repeat what you said?

Would you give me an example?

I think you said _____. Did I understand you correctly?

Remember to . . .

Explain your thinking.

Which sounds like . . .

I believe _____ is true because _____.

I feel _____ because _____.

Remember to . . .

Build on the ideas of others.

Which sounds like . . .

When _____ said _____, it made me think of _____.



OVERVIEW: SMALL-GROUP LEARNING

Working as a Team

- 1. **Take a Position** In your group, discuss the following question:

Is an invention typically created by a single inventor?
Or, is an invention usually the result of many minds working together?

As you take turns sharing your thoughts, be sure to provide information and examples to support your ideas. After all group members have shared, discuss your responses. Did other group members' ideas change your own response? Why or why not?

- 2. **List Your Rules** As a group, decide on the rules that you will follow as you work together. Samples are provided; add two more of your own. You may add or revise rules based on your experience together.

- Everyone should participate in group discussions.
- People should not interrupt.

- _____
- _____

- 3. **Apply the Rules** Before you engage in group discussions or activities, review the rules and adapt them as needed based on your group's experience.

- 4. **Name Your Group** Choose a name that reflects the unit topic.

Our group's name: _____

- 5. **Create a Communication Plan** Decide how you want to communicate with one another. For example, you might use online collaboration tools, email, or instant messaging.

Our group's decision: _____

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FACILITATING SMALL-GROUP LEARNING

Forming Groups

You may wish to form groups for Small-Group Learning so that each consists of students with different learning abilities. Some students may be adept at organizing information whereas

other may have strengths related to generating or synthesizing information. A good mix of abilities can make the experience of Small-Group Learning dynamic and productive.

Making a Schedule

First, find out the due date for the small-group activities. Then, preview the texts and activities with your group and make a schedule for completing the tasks.

SELECTION	ACTIVITIES	DUE DATE
Nikola Tesla: The Greatest Inventor of All?		
from The Invention of Everything Else		
25 Years Later, Hubble Sees Beyond Troubled Start		
Sounds of a Glass Armonica		

Working on Group Projects

As your group works together, you'll find it more effective if each person has a specific role. Different projects require different roles. Before beginning a project, discuss the necessary roles and choose one for each group member. Here are some possible roles; add your own ideas.

Project Manager: monitors the schedule and keeps everyone on task

Researcher: organizes research activities

Recorder: takes notes during group meetings



Overview: Small-Group Learning 487

Making a Schedule

Encourage groups to preview the reading selections and to consider how long it will take them to complete the activities accompanying each selection. Point out that they can adjust the due dates for particular selections as needed as they work on their small-group projects, however, they must complete all assigned tasks before the group Performance Task is due. Encourage groups to review their schedules upon completing the activities for each selection to make sure they are on track to meet the final due date.

Working on Group Projects

Point out to groups that the roles they assign can also be changed later. Students might have to make changes based on who is best at doing what. Try to make sure that there is no favoritism, cliquishness, or stereotyping by gender or other means in the assignment of roles.

Also, you should review the roles each group assigns to its members. Based on your understanding of students' individual strengths, you might find it necessary to suggest some changes.

AUTHOR'S PERSPECTIVE

Kelly Gallagher, M.Ed.

Accountability in Group Work The teacher's role during group work is to serve as the facilitator rather than as the leader. This means that the teacher should support the thinking and discussion, but not provide the answers or content direction. Problems can arise if a group is unfocused, if the task is not meaningful, or if there is no accountability. To help groups work together well,

achieve their goals, and ensure accountability, teachers can follow these three steps:

1. First, define and clarify the task. Explain why it is valuable, and make sure students know what they are expect to do.
2. Let each group know that one student will be selected randomly to share the group's thinking. This randomness builds in accountability.

3. Pull the whole class back together to share back information and to check learning.

If groups struggle, teachers can prod them with questions that support how they will get to the answer. For example, if they are unable to find the main point of the essay, ask them: *"In this type of text, where might a reader look to find the main idea?"*

Nikola Tesla: The Greatest Inventor of All

AUDIO SUMMARIES

Audio summaries of “Nikola Tesla: The Greatest Inventor of All” are available online in both English and Spanish in the Interactive Teacher’s Edition or Unit Resources. Assigning these summaries prior to reading the selection may help students build additional background knowledge and set a context for their first read.

Summary

“Nikola Tesla: The Greatest Inventor of All” tells the story of the genius behind much of modern electrical technology. Tesla came to America in 1884 to work with Thomas Edison. After he and Edison had a falling out, Tesla started his own company. There he developed the system of alternating current, which differed from Edison’s direct current. (Both are used today.) Tesla invented many devices still in use. He also helped develop the electrical system used in modern cities. With George Westinghouse he created a power plant at Niagara Falls that provided power throughout New York State. Tesla died penniless and forgotten, but today the electric vehicle he designed in 1882 is the forerunner of the Tesla, a modern electric car.

Insight

“Nikola Tesla: The Greatest Inventor of All” provides students with a glimpse of the creative genius who invented many practical applications of electricity. The fact that Tesla was almost forgotten is an interesting insight into the power of publicity and labeling. Modern electric companies bear Edison’s name in spite of their use of alternating current and the technologies that Tesla invented.

ESSENTIAL QUESTION:

Are inventions realized through inspiration or perspiration?

Connection to Essential Question

For Nikola Tesla, the work behind an invention took place in his mind. He worked out the technology in his head before his invention took physical form. Unlike Edison, who made many models of an invention before he was satisfied—expending greater “perspiration”—Tesla was more dependent on inspiration for the realization of his invention.

SMALL-GROUP LEARNING PERFORMANCE TASK

Are inventions realized through inspiration or perspiration?

Connection to Performance Tasks

Small-Group Learning Task “Nikola Tesla: The Greatest Inventor of All” provides an interesting view of the creative process. The selection suggests that the realization of an invention is just as reliant on inspiration as it is on physical effort.

UNIT PERFORMANCE-BASED ASSESSMENT

What situations might encourage people to invent?

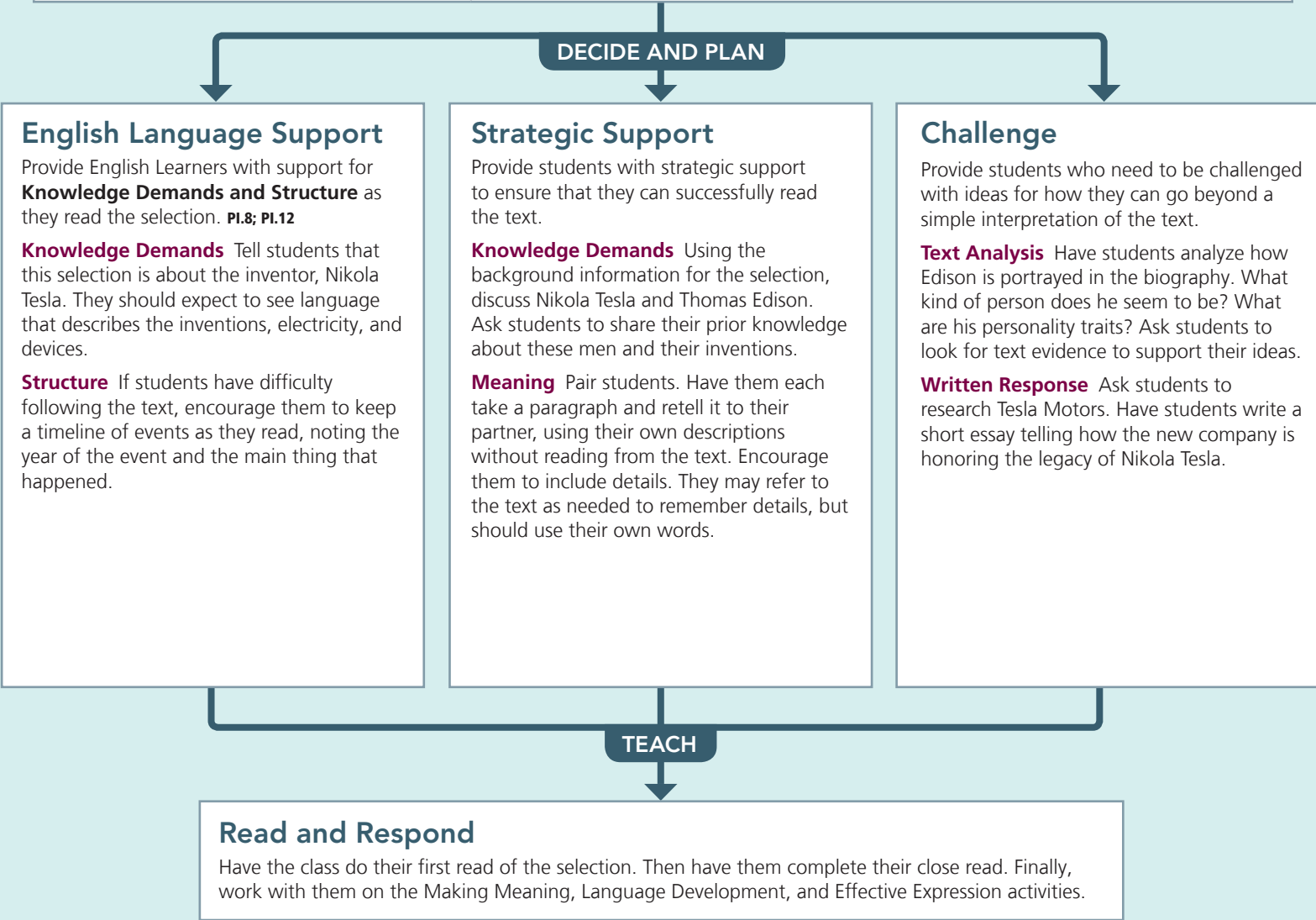
Unit Performance-Based Assessment The selection indicates that prolific creators are encouraged to invent by the connections their mind makes between physical principles. Tesla was driven by his own creativity to demonstrate the practical application of the inventions he envisioned.

LESSON RESOURCES

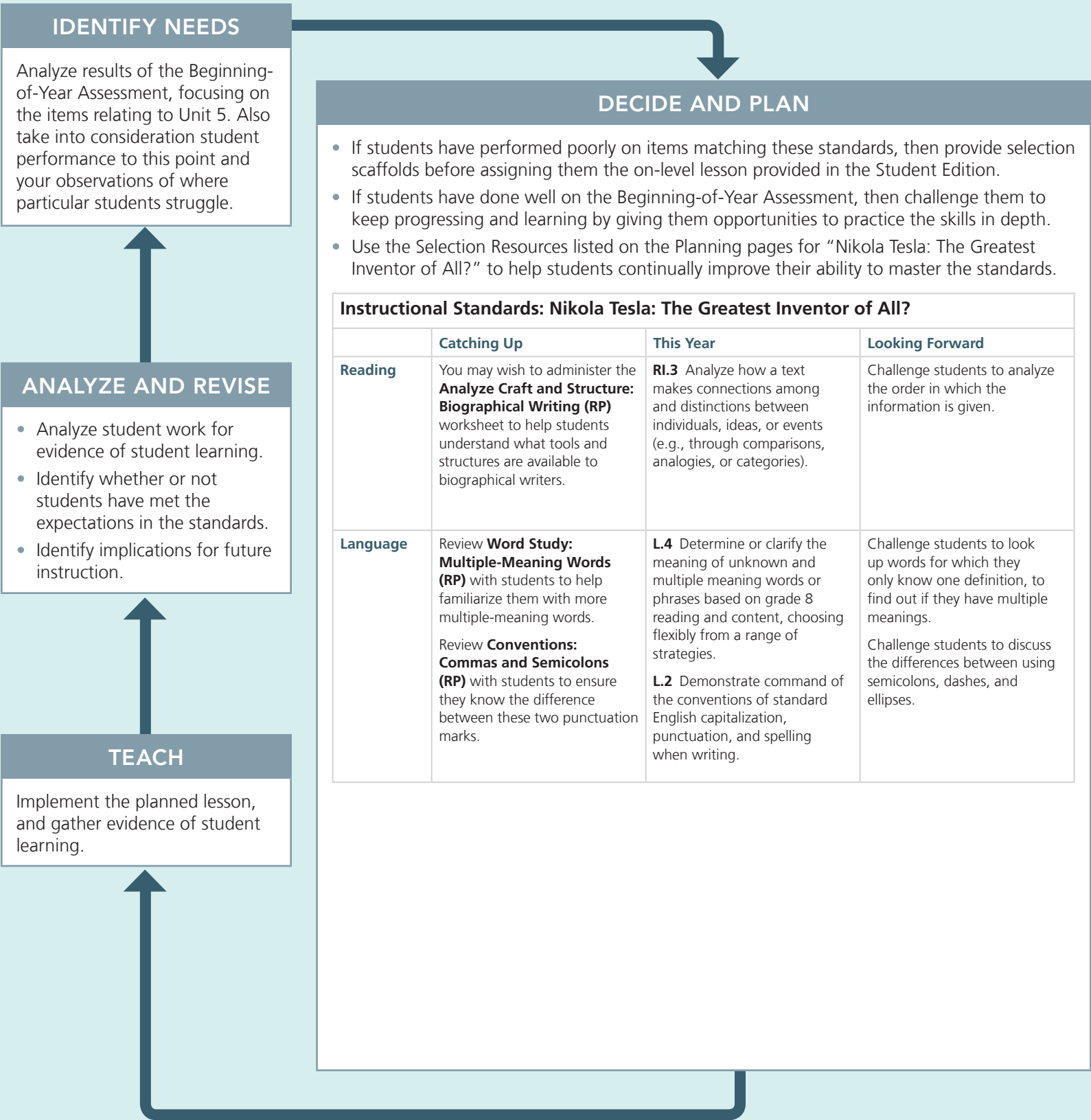
	Making Meaning	Language Development
Lesson	First Read Close Read Analyze the Text Concept Vocabulary Word Study Analyze Craft and Structure	Conventions
Instructional Standards	L.4 Determine or clarify . . . L.4d Consult general . . . L.4d Verify the preliminary determination . . . RI.3 Analyze how a text . . . RI.5 Analyze in detail . . .	L.2 Demonstrate command of the conventions . . . L.2a Use punctuation . . .
STUDENT RESOURCES		
Available online in the Interactive Student Edition or Unit Resources	 Selection Audio  First-Read Guide: Nonfiction  Close-Read Guide: Nonfiction  Word Network	 Evidence Log
TEACHER RESOURCES		
Selection Resources Available online in the Interactive Teacher's Edition or Unit Resources	 Audio Summaries  Annotation Highlights  EL Highlights  English Language Support Lesson: SKILL  Analyze the Text Questions  Concept Vocabulary and Word Study  Analyze Craft and Structure: Biographical Writing	 Conventions: Commas and Semicolons
Reteach/Practice (RP) Available online in the Interactive Teacher's Edition or Unit Resources	 Word Study: Multiple-Meaning Words (RP)  Analyze Craft and Structure: Biographical Writing (RP)	 Conventions: Commas and Semicolons (RP)
Assessment Available online in Assessments	  Selection Test	
My Resources	 A Unit 5 Answer Key is available online and in the Interactive Teacher's Edition.	

Reading Support

Text Complexity Rubric: Nikola Tesla: The Greatest Inventor of All?	
Quantitative Measures	
Lexile: 860 Text Length: 567 words	
Qualitative Measures	
Knowledge Demands ① — ② — ③ — ④ — ⑤	The subject may be unfamiliar to some readers (Nikola Tesla), but the topic is clearly explained.
Structure ① — ② — ③ — ④ — ⑤	The selection is a chronologically organized biography.
Language Conventionality and Clarity ① — ② — ③ — ④ — ⑤	The selection contains conventional syntax and on-level vocabulary.
Levels of Meaning/Purpose ① — ② — ③ — ④ — ⑤	Meaning and concepts are straightforward. The main purpose of the selection is to tell about the life of Nikola Tesla and his inventions.



Standards Support Through Teaching and Learning Cycle



Jump Start

FIRST READ Why do we sometimes fail to recognize a person’s accomplishments? Who decides which names in history are remembered? Engage students in a conversation about recognizing achievement that sets the context for reading “Nikola Tesla: The Greatest Inventor of All?” As students share their thoughts, guide them to identify specific factors that affected their responses.

Nikola Tesla: The Greatest Inventor of All?

Why do some inventions catch on while others fail? What makes one inventor more successful than another? Modeling questions such as these will help students connect to “Nikola Tesla: The Greatest Inventor of All?” and to the Small-Group Performance Task assignment. Selection audio and print capability for the selection are available in the Interactive Teacher’s Edition.

Concept Vocabulary

Have students look closely at the example of a base word, or “inside word,” and discuss how they can use base words to figure out the meanings of the technical vocabulary terms. Point out that each term consists of two words, and that students can start with either word as the base word. Ask students to think of other examples of technical terms that have base words they know.

FIRST READ

As they read, students should perform the steps of the first read:

NOTICE: You may want to encourage students to identify or infer key ideas in the text.

ANNOTATE: Remind students to mark passages that contrast Tesla’s achievements with those of his peers.

CONNECT: Connect Tesla’s achievements with those of other people you know or have heard of whose talent has been overlooked or underestimated.

RESPOND: Students will answer questions and write a summary to demonstrate understanding. Point out to students that while they will always complete the Respond step at the end of the first read, the other steps will probably happen somewhat concurrently. You may wish to print copies of the **First-Read Guide: Nonfiction** for students to use.

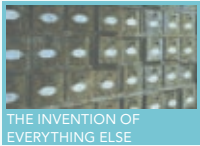
MAKING MEANING



About the Author
Vicky Baez (b. b. 1971) was born in Albuquerque, New Mexico. Her elementary school teacher’s exciting science demonstrations instilled in her a love of the subject, and she frequently writes about science and scientists. Her own science library currently exceeds 1,000 books.

Comparing Texts

In this lesson, you will read and compare the article “Nikola Tesla: The Greatest Inventor of All?” and an excerpt from *The Invention of Everything Else*, a novel of the last days of Tesla’s life.



Nikola Tesla: The Greatest Inventor of All?

TECHNICAL VOCABULARY

As you perform your first read, you will encounter these words.

electrical engineer alternating current direct current

Base Words: If these words are unfamiliar, check to see if they contain a base word you know. Then use context and your knowledge of the “base inside” word to find the meaning of the concept word. Follow this example of the strategy.

Unfamiliar Word: *equipment*

Familiar “Inside” Word: *equip*, which means “to supply with necessary items for a particular purpose”

Context: At each place where he worked, he designed and made improvements to the **equipment**.

Conclusion: Tesla designed *equipment*, or items used for a purpose.

Apply your knowledge of base words and other vocabulary strategies to determine the mean you encounter during your first read.

First Read NONFICTION

Apply these strategies as you conduct your first read. You will have an opportunity to complete a close read after your first read.

STANDARDS
Reading Instructional Texts
By the end of the year, read and comprehend literary nonfiction at the high end of the grades 6–8 text complexity band independently and proficiently.
Language
Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.



AUTHOR'S PERSPECTIVE Jim Cummins, Ph.D.

Language Awareness Vocabulary knowledge is an extremely robust predictor of students’ reading comprehension. The Frayer model is an effective tool for enabling students to extend their vocabulary knowledge in a systematic way.

The tool aims to deepen students’ knowledge of words and concepts by focusing their attention not only on simple definitions but also on characteristics of the concept and examples and non-examples of it.



EXPOSITORY NONFICTION

Nikola Tesla: The Greatest Inventor of All?

Vicky Baez

BACKGROUND

At the end of the nineteenth century, electricity was a new technology. At this time, very few people had access to electric lighting, and most people used coal, gas, and steam power for energy. Today, electricity has become a common utility because of inventors like Nikola Tesla and Thomas Edison.



- N**ikola Tesla was born in 1856 to a Serbian family in the country that is now called Croatia. When Tesla was young, he was able to do such complex math problems in his head that his teachers thought he was cheating. He finished high school in 3 years instead of 4.
- He started college, but didn't finish. However, he learned enough to go to work. He moved several times over the next few years, each time getting a job as an electrician. At each place where he worked, he designed and made improvements to the equipment.
- In 1884, he moved to New York City. He came with a letter of recommendation to Thomas Edison from one of his bosses. The letter is claimed to have said, "I know two great men and you are one of them; the other is this young man." Edison hired Tesla, who began as an **electrical engineer**. He quickly became very important to the company, solving some of its most difficult problems. **Tesla was able to use his mind to imagine how different methods worked. Edison always made a lot of models and tried them out, which took a lot longer.**
- In 1885, Tesla and Edison had a falling out. Tesla told Edison he could improve some of Edison's motors and generators. Edison told him he would pay him \$50,000 if he did. This was quite a lot of money at that time. Tesla worked hard and spent months on the task. When he succeeded, he asked Edison for the reward, but Edison told him he had been joking. He said, "Tesla, you don't understand our American humor." He offered Tesla a \$10 raise on his \$18 weekly pay. Tesla quit the job.
- Tesla started his own company in 1887, Tesla Electric Light and Manufacturing. There he worked on making a system called

NOTES

Mark base words or indicate another strategy that helped you determine meaning.

electrical engineer (eh LEK trihk uhl • ehnh jih NEER) *n.*

MEANING:

Technical Vocabulary

ELECTRICAL ENGINEER If groups are struggling to define the term *electrical engineer*, point out the base word *electrical*. Then have students use context clues to determine the meaning of engineer. Point of the clue "solving some of its most difficult problems" (paragraph 3) and "improve some of Edison's motors and generators." (paragraph 4) Have students use these clues to define electrical engineer.

Possible response: In this context, an *electrical engineer* means "someone who applies knowledge of electricity to solve technical problems."

CLOSER LOOK

Infer Key Ideas

Circulate among groups as students conduct their close read. Suggest that groups close read paragraph 3. Encourage them to talk about the annotations they mark. If needed, provide the following support.

ANNOTATE: Have students mark details in paragraph 3 that explain how Tesla's ability to solve problems was unique, or work with small groups as you highlight them together.

Question: Guide students to consider what these details might tell them. Ask what a reader can infer from the last two sentences in the text, and accept student responses.

Possible response: The last two sentences make a comparison between the way Tesla and Edison solved technical problems. Tesla was better able to solve problems because he could work them out in his head, instead of spending a lot of time and effort making models the way Edison did.

Additional **English Language Support** is available in the Interactive Teacher's Edition.

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FACILITATING SMALL-GROUP LEARNING

Expository Text Ask students to suggest why the title of the text takes the form of a question. Advise students as they perform their close read that they should look for evidence that might support an answer to the question. Circulate and offer support as needed. If group members

struggle to identify the kind of statements that would directly answer author's question, suggest that the answer might be implied. Through her choice of facts, details, and examples, she may reveal a **bias**, or preference, one way or the other.

Technical Vocabulary

ALTERNATING CURRENT, DIRECT CURRENT If groups struggle to define the terms *alternating current* and *direct current*, point out the base word in both terms: *current*. Have students apply what they know about *current* (in general, “a flow”) to electricity. Then have them discuss the difference between *alternating* and *direct* as they define the terms.

Possible response: *Alternating current* means a “flow of electricity that switches sides or directions,” while *direct current* is a “straightforward flow of electricity.”

Comprehension Check

Possible responses:

- 1. Tesla could solve complex math problems in his head.
- 2. Edison did not pay him what he said he would.
- 3. The Tesla coil conducted electricity without wires.
- 4. Tesla Motors makes electric cars, and their first car used Tesla’s design.
- 5. Summaries will vary but should include the following information: Tesla was born in what is now Croatia; though he was gifted in math, he didn’t finish college but worked as an electrician, designing equipment; in 1884, he started work for Edison in New York City; the two fell out when Edison refused to pay Tesla what he promised; Tesla started his own company and developed an “alternating current,” while Edison used “direct current;” each claimed his system was better; Tesla died forgotten and penniless, but now he is celebrated as a great inventor.

Research to Clarify

If students have difficulty narrowing their research results on the unfamiliar details in the text, suggest they enter search terms as follows: *Tesla AND “X-rays,” Tesla AND “fluorescent lights,”* and so on.

NOTES

Mark base words or indicate another strategy that helped you determine meaning.

alternating current (AWL tuhr nay tihng•KUH rehnt) *n.*

MEANING:

direct current (dih REKT •KUH rehnt) *n.*

MEANING:

“**alternating current**” to produce electricity. Thomas Edison thought his system, called “**direct current**,” was better and safer. The two became rivals. They each gave talks about why his particular method was better. They had public demonstrations to show people how they created electricity. This rivalry was referred to as the “War of the Currents.”

- 6 Another rival of Edison’s, George Westinghouse, had also been trying to create an electrical system. He bought some of Tesla’s inventions and paid him \$2,000 a month to consult with him. Tesla spent all his money on new inventions and ideas. He invented the Tesla coil, which carried electricity without wires. You can still see a Tesla coil at some museums today. Tesla invented or helped develop a long list of devices, including X-ray machines, radio, wireless remotes, fluorescent lights, and the system of electricity that is still used today in our cities. He helped create a power plant in Niagara Falls that provided power all the way to New York City. He was given many awards and honorary degrees from universities all over the world.
- 7 Sadly, Tesla died without a cent. People forgot about him, and remembered Edison, whose companies still exist and have his name, like Consolidated Edison, the electric company that powers New York City. In the 1990s, people started to write about Tesla, and now he is becoming better known again. The owner of a new car company named it Tesla Motors because they make electric cars. Their first car used Tesla’s design from 1882 for an electric car. 🚗

Comprehension Check

Notebook Complete the following items after you finish your first read. Review and clarify details with your group.

- 1. Why did Tesla’s teachers sometimes think he was cheating?
- 2. Why did Tesla leave Edison’s company?
- 3. What was unique about the Tesla coil?
- 4. Why does Tesla Motors use Tesla’s name?
- 5. Confirm your understanding of the text by writing a short summary.

RESEARCH

Research to Clarify Choose at least one unfamiliar detail from the text. Briefly research that detail. In what way does the information you learned shed light on an aspect of the selection?

PERSONALIZE FOR LEARNING

Challenge

Dramatize “The Battle of the Currents” Have students research the dispute between Tesla and Edison and how it grew into “The Battle of the Currents.” Students can work in groups to research the rivalry and script a play featuring Tesla, Edison, and possibly Westinghouse. Have students present their dramatizations, in which they should explain the technology that each inventor promoted. As a safety precaution, do not permit students to reproduce the two rivals’ public demonstrations with real electricity.



Close Read the Text

With your group, revisit sections of the text you marked during your first read. What do you **notice**? What **questions** do you have? What can you **conclude**?



Analyze the Text

Complete the activities.

- Review and Clarify** With your group, reread paragraph 3. Discuss the differences between Edison's and Tesla's approaches to invention. Whose approach, Edison's or Tesla's, do you think is better? Why?
- Present and Discuss** Now, work with your group to share passages that you found important. Discuss what you noticed in the text and the conclusions you reached.
- Essential Question: Are inventions realized through inspiration or perspiration?** What has this selection taught you about invention? Discuss with your group.

CITE TEXTUAL EVIDENCE
to support your answers.

Technical Vocabulary

electrical engineer alternating current direct current

Why These Words? The technical vocabulary words are all related to the invention and development of electricity. Confirm your understanding by looking up the meaning of each one in a glossary of scientific terms. Then, identify another technical term from the article that is related to electricity. If the term is unfamiliar to you, look it up in a glossary of scientific terms.

Practice

Notebook For each item, show your understanding of the technical vocabulary by writing a sentence that uses both of the terms.

- electrical engineer, electricity
- alternating current, Nikola Tesla
- direct current, Thomas Edison

Word Study

Multiple-Meaning Words Many English words have more than one meaning. In "Nikola Tesla: The Greatest Inventor of All?," the word *current* refers to an *electrical current*, which is the flow of electricity through a wire. In this context, *current* is a technical word with a definition specific to the fields of science, electricity, and physics. Use a dictionary to look up other definitions of the word *current*, and write that meaning and the part of speech for each.



NIKOLA TESLA: THE GREATEST INVENTOR OF ALL?

TIP

GROUP DISCUSSION

If you do not understand a group member's contribution, ask for clarification. Respond politely when others ask you for clarification, and try to state your point more simply and clearly.

WORD NETWORK

Identify words from the selection that relate to the concept of invention. Add these words to your Word Network.

STANDARDS

Language

Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on grade 8 reading and content, choosing flexibly from a range of strategies.

Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.

Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

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Jump Start

CLOSE READ Ask students to consider the following prompt: Why do you think Edison is better remembered today than Tesla? As students discuss this question in their groups, ask them to consider the relationship between genius and celebrity.

Close Read the Text

If needed, model close reading by using the Annotation Highlights in the Interactive Teacher's Edition.

Remind students to use Accountable Talk in their discussions and to support one another as they complete the close read.

Analyze the Text

Possible responses

- Possible response: Edison came up with ideas in his head and then created different models until his idea worked. Tesla was able to use his imagination to see how his ideas would work. Tesla's method seems more efficient, but maybe more difficult to share with others.
- Passages will vary. Remind students to explain to group members why they chose the passage they presented.
- Responses will vary by group. Students may note that Tesla seemed to be able to use his mind to come up with inventive solutions to practical

FORMATIVE ASSESSMENT

Analyze the Text

- If students struggle to close read the text, then provide the **Analyze the Text Questions** available online in the Interactive Teacher's Edition or Unit Resources. Answers and DOK levels are also available.

Concept Vocabulary

If students struggle to understand the meanings of *alternating* and *direct current*, then suggest they search online for *alternating current* vs. *direct current*, or that they search online for animations of both types of currents; reading why and how the two currents are used differently may help students understand each one more fully.

Word Study

If students have trouble distinguishing among the various meanings of *current*, then suggest they look in the dictionary for example sentences illustrating the different meanings; then have them write their own examples sentences.

For Reteach and Practice, see **Word Study: Multiple-Meaning Words (RP)**.

Analyze Craft and Structure

Analyze Text Structure: Biographical Writing As students create their charts, remind them that facts, quotations, and description are the *what* of the informational text and should go under *Elements*. Chronological order, comparison and contrast, and cause and effect explain *how* the author organizes the elements and should go under *Development of Ideas*. Also, help students understand that every change in organizational structure—from compare and contrast in one paragraph to cause and effect in another—illustrates the use of pacing. For more support, see **Analyze Craft and Structure: Biographical Writing**. 

Possible responses:

- 1. The author uses a cause-and-effect strategy to explain the “falling out” of Tesla and Edison. The strategy shows how the cause of the falling out—Tesla working hard to win a money reward—led to the effect—Tesla quitting Edison’s company.
- 2. In paragraphs 3 and 5, the author uses a comparison-and-contrast strategy to show key differences between Tesla and Edison—how they worked and, later, how their companies took different paths for the creation of electrical systems.

FORMATIVE ASSESSMENT

Analyze Craft and Structure

If students have trouble identifying the strategy used in a paragraph, **then** have them reread the paragraph and draw a diagram to show the key people and events.

For Reteach and Practice, see **Analyze Craft and Structure: Biographical Writing (RP)**. 



MAKING MEANING



NIKOLA TESLA: THE GREATEST INVENTOR OF ALL?

Analyze Craft and Structure

Analyze Text Structure: Biographical Writing Biographical writing is a type of nonfiction in which the author tells about important events in the life of another person. The elements of biographical writing include:

- a real-life person who is the subject
- factual information about the setting and context
- details and descriptions that help develop the subject’s character
- **direct quotations**, a person’s exact words, that support the facts presented and help to develop the subject’s character
- the use of **pacing**, which is the way an author shapes the flow of information in a text—how much information readers receive in a given section of text and the order in which they receive it

The author of a biographical text may have more than one purpose, but one of the **author’s purposes** is to inform readers about his or her subject. To achieve that purpose, a biography author must use pacing to organize and structure detailed information about the subject that is understandable to readers. They often use the following strategies to organize information:

- **chronological order**: the order in which events actually occur;
- **comparison and contrast**: explanation and analysis of the similarities and differences between related subjects
- **cause and effect**: explanation and analysis of the reasons and results for something that happens

By using pacing and these organizational strategies, an author of a biographical text can structure information clearly and logically.

Practice

 **Notebook** Use a chart such as the one shown to analyze the elements of biographical writing in each paragraph of the selection.

PARAGRAPH	ELEMENTS	DEVELOPMENT OF IDEAS
paragraph 1	<ul style="list-style-type: none">• relevant facts• information about the context• descriptive details	<ul style="list-style-type: none">• introduces the subject with relevant facts• descriptive details that develop the subject

- 1. Reread paragraph 4. What organizational strategy does the author use? How does this strategy link individuals, ideas, and events in the selection?
- 2. Reread paragraphs 3 and 5. What organizational strategy does the author use there? How does it help link ideas and events.

STANDARDS

Reading Informational Texts
• Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).
• Analyze in detail the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept.

PERSONALIZE FOR LEARNING

Strategic Support

Analyzing Details Students may be confused about the seeming overlap between two items in the list of biographical elements: “factual information about the setting and context” and “details and description that help develop a subject’s character.”

Confirm that facts *do* include details—in the form of examples, names and dates, statistics.

The details associated with description, however, tend to be sensory details that paint an image in the reader’s mind. Therefore, as students look for biographical elements, they should draw a distinction between details that explain (the “factual information” in the bullet list) and details that describe (“details and description”).

Conventions

Commas and Semicolons

- A **comma (,)** is a punctuation mark that signals a brief pause.
- A **semicolon (;)** may be used to join two independent clauses.

USE A COMMA . . .	
1. . . before a conjunction to separate two independent clauses in a compound sentence.	Tesla worked hard, and he invented many things.
2. . . between items in a series.	He worked on radio, fluorescent lights, and electric plants.
3. . . between coordinate adjectives , adjectives of equal rank whose order may be switched.	The ingenuous, inventive products changed the world. [No comma: Three inventive products changed the world.]
4. . . after introductory words, phrases, or clauses.	In his later years, Tesla had little money.
5. . . to set off nonrestrictive , or nonessential , phrases or clauses.	Edison's company, which was in the United States, hired Tesla. [No comma: The company where Tesla worked was in the United States.]

USE A SEMICOLON . . .	
1. . . to join independent clauses not joined by the conjunction <i>and, but, or, nor, for, so, or yet</i> .	Edison did not pay Tesla \$50,000; Tesla quit.
2. . . to separate independent clauses joined by adverbs such as <i>however</i> and <i>therefore</i> or by phrases such as <i>on the other hand</i> .	Tesla had many great inventions; however, his fame faded over the years.

Read It

Revise each sentence to correct the punctuation by adding commas or semicolons as needed.

1. paragraph 1 (comma)
2. paragraph 3 (semicolon)
3. paragraph 5 (comma)
4. paragraph 7 (comma)

Write It

Revise each sentence to correct the punctuation by adding commas or semicolons as needed.

1. Tesla contributed many great electrical inventions to the world however he died a poor man.
2. Tesla invented or helped to develop X-ray machines wireless remotes florescent lights and the Tesla coil.
3. Edison preferred the direct current he thought it was safer than alternating current.

TIP

COLLABORATION TIP

To ensure that your group understands the correct use of commas in different grammatical situations, challenge members to come up with examples of each type of sentence modeled in the chart.

STANDARDS

Language

Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing

- Use punctuation (comma, ellipsis, dash) to indicate a pause or break.

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Conventions

As needed, add the following additional comma rules to those presented in the student chart:

- Do not place a comma before or after a list of items in a series
INCORRECT: Before the test put, cell phones, calculators, and notebooks, in your backpack.
CORRECT: Before the test, put cell phones, calculators, and notebooks in your backpack.
- Use a comma to introduce a quotation.
Did Edison really say, "You don't understand American humor"?

For more support, see **Conventions: Commas and Semicolons.** 

Read It

Possible responses:

1. sentence 2: to set off an introductory clause
2. sentence 3: to separate two independent clauses in a compound sentence
3. sentence 1: to set off an introductory phrase
4. Paragraph 7: sentence 1: to set off an introductory phrase

Write It

Correct answers:

1. Tesla contributed many great electrical inventions to the world; however, he died a poor man.
2. Tesla invented, or helped to develop, X-ray machines, wireless remote, fluorescent lights, and the Tesla coil.
3. Edison preferred the direct current; he thought it was safer than alternating current.

FORMATIVE ASSESSMENT

Conventions

If students have trouble editing sentences 1 and 3, **then** suggest that they identify the types sentences they are. Then ask them to find and study the rules for commas and semicolons that apply to independent clauses.

For Reteach and Practice, see **Conventions: Commas and Semicolons (RP).** 

PERSONALIZE FOR LEARNING

English-Language Support

Compound Subjects English learners and native speakers alike often have trouble understanding the difference between a simple sentence with a compound subject (or compound verb) and a compound sentence. A compound sentence has independent clauses that could each stand alone as sentence. Compound subjects (or

compound verbs) are phrases that cannot stand alone. The two parts of a compound subject (or compound verb) are connected by a coordinating conjunction (like *and* or *but*) but they do NOT need a comma as well. Have students correct the punctuation in these two sentences. It may help students if you tell them how many errors to spot in each.

1. Both direct current, and alternating current are used in the U.S. today. (1 error)
2. AC adapters and USB plugs run on direct current. (no error)
3. Tesla invented the induction motor, and demonstrated radio transmissions before Marconi did. (1 error)

from The Invention of Everything Else

AUDIO SUMMARIES

Audio summaries of “from *The Invention of Everything Else*” are available online in both English and Spanish in the Interactive Teacher’s Edition or Unit Resources. Assigning these summaries prior to reading the selection may help students build additional background knowledge and set a context for their first read.

Summary

This excerpt from Samantha Hunt’s novel *The Invention of Everything Else* is an interior monologue in which an aged Nikola Tesla reflects on the origins of dust motes in his hotel room, on some newspaper clippings, and on his loneliness and poverty. He sits precariously on his window ledge as he prepares food for pigeons. Then, he retrieves a terrible memory of his first invention, an experiment with May bugs that was eaten by a local bully. He thinks angrily about Marconi, whom he believes stole the system for wireless transmission of messages from an article Tesla had published eight years earlier. He recalls that Marconi sent as his first transmission the letter *s*. He bitterly considers all the negative words for which the letter stands.

Insight

The Invention of Everything Else challenges the belief that Marconi invented the radio. Indeed, the Supreme Court in 1943 did invalidate some of Marconi’s patents. Tesla had provided an idea that Marconi used in the practical application of Tesla’s ideas. Tesla was an extraordinary genius with such an active mind that he rarely bothered to take out patents on his work. Unlike other inventors, like Edison, Westinghouse, and Marconi, Tesla did not spend much time on public relations, so he was forgotten long before his death.

ESSENTIAL QUESTION:

Are inventions realized through inspiration or perspiration?

Connection to Essential Question

The modern controversy over the invention of the radio is directly related to the essential question regarding the realization of inventions. Although Tesla supplied some inspiration, Marconi expended the effort required to make radio a practical reality.

SMALL-GROUP LEARNING PERFORMANCE TASK

Are inventions realized through inspiration or perspiration?

Connection to Performance Tasks

Small-Group Learning Task Students will find plenty of material in the excerpt from *The Invention of Everything Else* for a discussion of the realization of inventions. The learning task will require them to consider the relative importance of each aspect of invention.

UNIT PERFORMANCE-BASED ASSESSMENT

What situations might encourage people to invent?

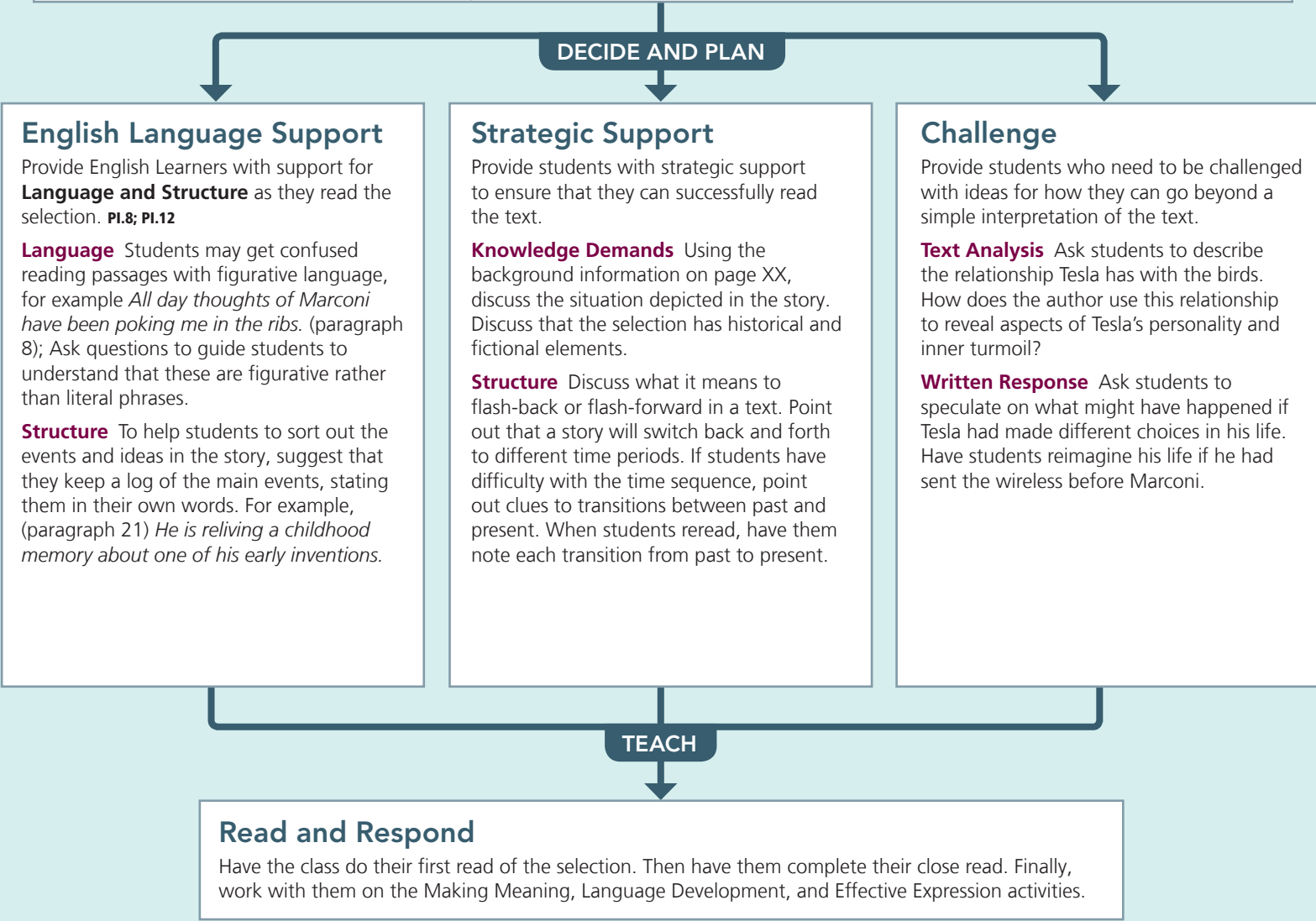
Unit Performance-Based Assessment Some people might find inspiration a sufficient impetus to invent. Many scientists, including Tesla, provided information that led to the invention of the radio, but only Marconi put in the effort to make the device a reality.

LESSON RESOURCES

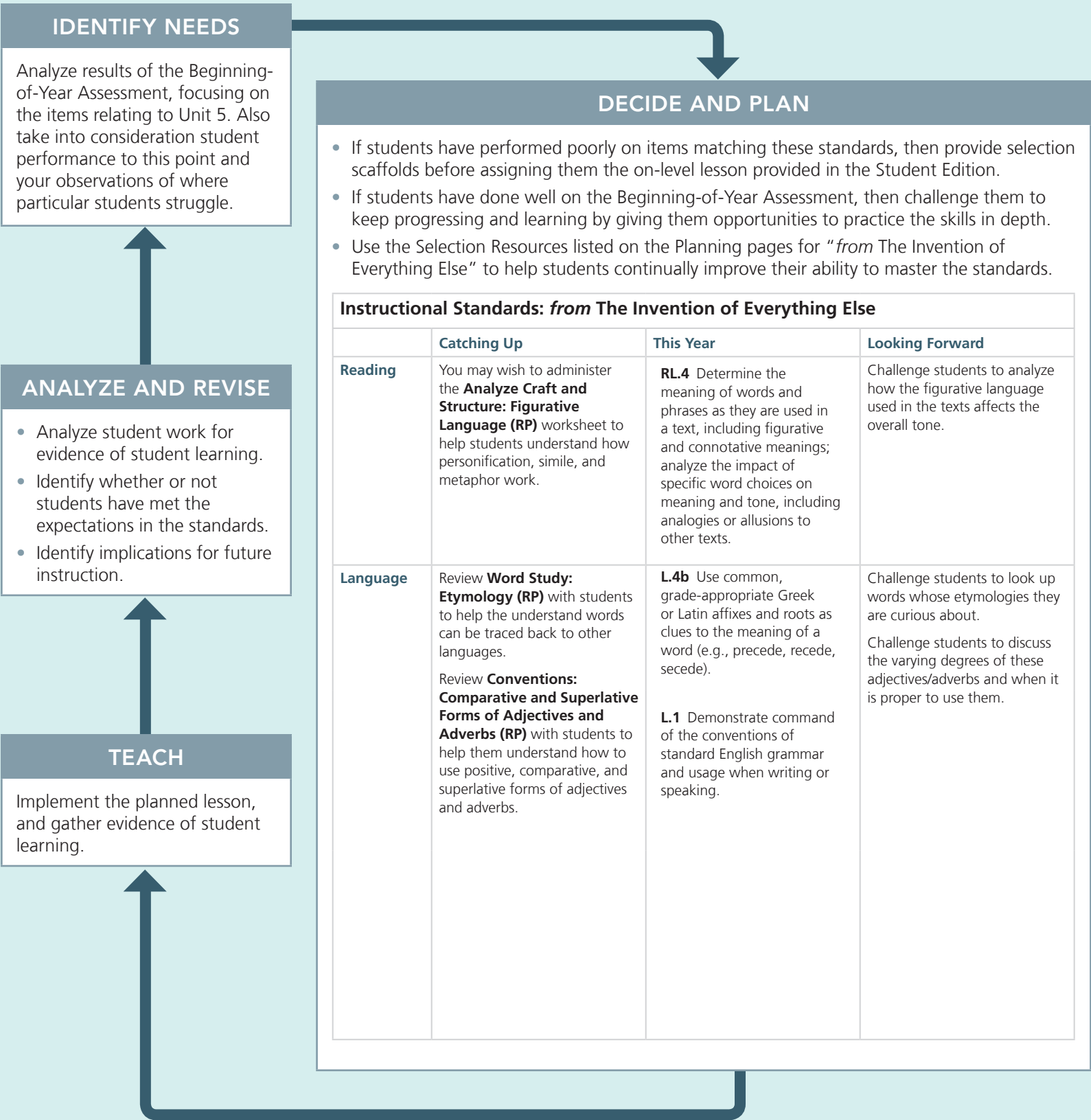
	Making Meaning	Language Development	Effective Expression
Lesson	First Read Close Read Analyze the Text Concept Vocabulary Word Study Analyze Craft and Structure	Conventions	Prepare to Compare Writing to Compare
Instructional Standards	L.4b Use common, grade-appropriate . . . L.4c Consult general and specialized . . . L.5c Distinguish among the connotations . . . RL.4 Determine the meaning . . . L.5 Demonstrate understanding . . .	L.1 Demonstrate command . . .	W.1 Write arguments . . . W.6 Use technology. . . SL.1 Engage effectively . . . SL.1a Come to discussions . . . SL.1c Pose questions that connect . . . SL.1d Acknowledge new information . . .
STUDENT RESOURCES			
Available online in the Interactive Student Edition or Unit Resources	 Selection Audio  First-Read Guide: Fiction  Close-Read Guide: Fiction  Word Network		 Evidence Log
TEACHER RESOURCES			
Selection Resources Available online in the Interactive Teacher's Edition or Unit Resources	 Audio Summaries  Annotation Highlights  EL Highlights  English Language Support Lesson: SKILL  Analyze the Text Questions  Concept Vocabulary and Word Study  Analyze Craft and Structure: Figurative Language	 Conventions: Comparative and Superlative Forms of Adjectives and Adverbs	 Prepare to Compare: Nonfiction and Fiction  Writing to Compare: Argumentative Essay
Reteach/Practice (RP) Available online in the Interactive Teacher's Edition or Unit Resources	 Word Study: Etymology (RP)  Analyze Craft and Structure: Figurative Language (RP)	 Conventions: Comparative and Superlative Forms of Adjectives and Adverbs (RP)	
Assessment Available online in Assessments	  Selection Test		
My Resources	 A Unit 5 Answer Key is available online and in the Interactive Teacher's Edition.		

Reading Support

Text Complexity Rubric: from The Invention of Everything Else	
Quantitative Measures	
Lexile: 880 Text Length: 3635 words	
Qualitative Measures	
Knowledge Demands ① — ② — ③ — ④ — ⑤	The central situation may not be familiar to all students, but the situation and feelings are explained.
Structure ① — ② — ③ — ④ — ⑤	Use of flash-back, flash-forward may be challenging.
Language Conventionality and Clarity ① — ② — ③ — ④ — ⑤	Selection contains figurative language; complex descriptions.
Levels of Meaning/Purpose ① — ② — ③ — ④ — ⑤	Multiple levels of meaning; description of events are interspersed with introspective comments by character, and observations and generalizations about human nature; some sophisticated concepts.



Standards Support Through Teaching and Learning Cycle



Jump Start

FIRST READ Engage students in a discussion about how a fictional account of a person might provide insight that a biography cannot. How might readers understand and relate to a fictional Tesla?

from The Invention of Everything Else.

Why is Tesla living in a hotel? Why does he keep pigeons? Modeling questions such as these will help students connect to the excerpt from “The Invention of Everything Else” and to the Small-Group Performance Task assignment. Selection audio and print capability for the selection are available in the Interactive Teacher’s Edition.

Concept Vocabulary

Encourage groups to discuss the concept vocabulary. Have they seen the terms in texts before?

Ask groups to look closely at the difference between denotation and connotation, and discuss how knowing the difference can help them determine the intended meaning of a word. Encourage groups to think of common words that have negative connotations and their neutral or positive counterparts, for example, *skinny* and *slim*, *nosy* and *curious*. Talk about how context helps determine a word’s connotative meaning.

FIRST READ

As they read, students should perform the steps of the first read:

NOTICE: You may want to encourage students to notice the elderly Tesla and where he is living.

ANNOTATE: Remind students to mark passages that describe Tesla’s reactions to events from the past.

CONNECT: Have students compare the thoughts and feelings of Tesla as he recalls what happened to what you read in the biography about Tesla’s life.

RESPOND: Students will answer questions and write a summary to demonstrate understanding.

Point out to students that while they will always complete the Respond step at the end of the first read, the other steps will probably happen somewhat concurrently. You may wish to print copies of the **First-Read Guide: Fiction** for students to use.

MAKING MEANING



Comparing Texts

You will now read an excerpt from the novel *The Invention of Everything Else*. First, complete the first-read and close-read activities for the excerpt. Then, you will analyze the differences in how a subject is portrayed in a work of nonfiction and in a work of fiction.

About the Author



Samantha Hunt (b. 1971) is an American novelist, essayist, and short story writer. Her award-winning stories and essays have appeared in many prestigious publications, including *The New Yorker*, *The New York Times Magazine*, and *Esquire*. In 2006 she won the National Book Foundation’s *5 Under 35* award.

STANDARDS
Reading Literature
By the end of the year, read and comprehend literature, including stories, dramas, and poems, at the high end of grades 6–8 text complexity band independently and proficiently.
Language
Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., bullheaded, willful, firm, persistent, resolute).

from The Invention of Everything Else

Concept Vocabulary

As you perform your first read of the excerpt from *The Invention of Everything Else*, you will encounter these words.

deficiencies triumph revolutionized

Connotation and Denotation A dictionary shows a word’s literal, or **denotative meaning**. The emotions and associations connected to a word is known as its **connotative meaning**. Depending on our experiences, certain words have a **positive, negative, or neutral connotation**.

EXAMPLE SENTENCE: Out on the ledge of my room, I maintain a small infirmary for injured and **geriatric** pigeons.

geriatric (Jeh ree At rik) *adj* of or relating to old people, especially with regard to health care.

- The author is referring to “geriatric pigeons,” thus comparing them to humans. The **connotation** enriches the word’s meaning.

First Read FICTION

Apply these strategies as you conduct your first read. You will have an opportunity to complete a close read after your first read.



VOCABULARY DEVELOPMENT

Concept Vocabulary Reinforcement To increase familiarity with the concept vocabulary, ask students to use each of the words in a sentence. Encourage students to include context clues in their own sentences to demonstrate knowledge of the word. If students are still struggling with the words, encourage them to identify the base word in each term, look up the base word in the dictionary, and then use the definition to come up with the meaning of the concept vocabulary word.

from The Invention of Everything Else

Samantha Hunt

BACKGROUND

In her novel, Samantha Hunt imagines the last days in the life of Nikola Tesla from the perspective of the famous inventor. This excerpt refers to Guglielmo Marconi, an inventor who sent the first wireless signal across an ocean and received a Nobel Prize for his work in 1911. However, he did so by using many key inventions that were initially developed by Tesla.

SCAN FOR
MULTIMEDIA 

¹ **L**ightning first, then the thunder. And in between the two I'm reminded of a secret. I was a boy and there was a storm. The storm said something muffled. Try and catch me, perhaps, and then it bent down close to my ear in the very same way my brother Dane used to do. Whispering. A hot, damp breath, a tunnel between his mouth and my ear. The storm began to speak. You want to know what the storm said? Listen.

NOTES

from The Invention of Everything Else 495



Additional **English Language Support** is available in the Interactive Teacher's Edition.



FACILITATING SMALL-GROUP CLOSE READING

Fiction As groups perform the close read, circulate and offer support as needed.

- Remind groups that when they read a narrative, they should be sure to identify the main character and the plot.
- If a group is confused about why particular events are important, remind them to think

about the perspective of the main character and how the events relate to him.

- Challenge groups to determine the theme of the text and the specific details that refine the theme.

NOTES

- 2 Things like that, talking storms, happen to me frequently. Take for example the dust here in my hotel room. Each particle says something as it drifts through the last rays of sunlight, pale blades that have cut their way past my closed curtains. Look at this dust. It is everywhere. Here is the tiniest bit of a woman from Bath Beach who had her hair styled two days ago, loosening a few small flakes of scalp in the process. Two days it took her to arrive, but here she is at last. She had to come because the hotel where I live is like the sticky tongue of a frog jutting out high above Manhattan, collecting the city particle by wandering particle. Here is some chimney ash. Here is some buckwheat flour blown in from a Portuguese bakery on Minetta Lane and a pellicle of curled felt belonging to the haberdashery¹ around the corner. Here is a speck of evidence from a shy graft inspector. Maybe he lived in the borough of Queens. Maybe a respiratory influenza killed him off in 1897. So many maybes, and yet he is still here. And, of course, so am I. Nikola Tesla, Serbian, world-famous inventor, once celebrated, once visited by kings, authors and artists, welterweight pugilists,² scientists of all stripes, journalists with their prestigious awards, ambassadors, mezzo-sopranos,³ and ballerinas. And I would shout down to the dining hall captain for a feast to be assembled. “Quickly! Bring us the Stuffed Saddle of Spring Lamb. Bring us the Mousse of Lemon Sole and the Shad Roe Belle Meunière! Potatoes Raclette! String Bean Sauté! Macadamia nuts! A nice bourbon, some tonic, some pear nectar, coffees, teas, and please, please make it fast!”
- 3 That was some time ago. Now, more regularly, no one visits. I sip at my vegetable broth listening for a knock on the door or even footsteps approaching down the hallway. Most often it turns out to be a chambermaid on her rounds. I’ve been forgotten here. Left alone talking to lightning storms, studying the mysterious patterns the dust of dead people makes as it floats through the last light of day.
- 4 Now that I have lived in the Hotel New Yorker far longer than any of the tourists or businessmen in town for a meeting, the homogeneity⁴ of my room, a quality most important to any hotel decor, has all but worn off. Ten years ago, when I first moved in, I constructed a wall of shelves. It still spans floor to ceiling. The wall consists of seventy-seven fifteen-inch-tall drawers as well as a number of smaller cubbyholes to fill up the odd spaces. The

1. **haberdashery** *n.* store that sells men’s clothing, including hats made from felt.
2. **welterweight pugilists** (PYOO juh lihsts) *n.* professional boxers of intermediate weight, between lightweight and middleweight.
3. **mezzo-sopranos** (MEHT soh suh PRAN ohs) singers.
4. **homogeneity** (hoh muh juh NEE uh tee) *n.* similar and uniform quality.

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PERSONALIZE FOR LEARNING

English Language Support

Syntax Help students analyze the somewhat confusing sentence structure in the second paragraph. Guide students’ attention to the sentence beginning with “Nikola Tesla, Serbian, world-famous inventor, once celebrated, once-visited by kings, authors and artists...” Point out that the sentence does not follow the usual subject/predicate/object structure. In fact, it does not contain a verb at all. Explain that the entire sentence consists of a noun

(“Nikola Tesla”), followed by words and phrases that describe him. Point out that the last of the identifying phrases (“authors and artists, welterweight pugilists...”) refer to the people who used to visit him. Explain that students can navigate the sentence by examining each word or phase that is separated by commas and determining how it relates to the rest of the sentence.

ALL LEVELS PI.7



CLOSER LOOK

Analyze Conflict

Circulate among groups as students conduct their close read. Suggest that groups close read paragraph 8. Encourage them to talk about the annotations they mark. If needed, provide the following support.

ANNOTATE: Have students mark details in paragraph 8 that describe what is happening in this scene, or work with small groups as you highlight them together.

Question: Guide students to consider what these details might tell them. Ask what a reader can infer from Tesla's fixation on sending Marconi a message, as well as from his accusation that Marconi has stolen his invention, and accept student responses.

Possible response: By noting Tesla's nagging thoughts, his fixation on his anger at Marconi's theft, the author is suggesting the reason for Tesla's current condition, both financial and emotional.

CONCLUDE: Help students to formulate conclusions about the importance of these details in the text. Ask students why the author might have included these details.

Possible response: There are two conflicts here. The first is man versus man, as Marconi's "theft" of Tesla's invention suggests an ongoing struggle between the two men. The second and greater conflict is that of man versus himself. Tesla cannot let go of his anger, and the fact that he brings up the conflict with Marconi when his feeling low or lonely suggests that it represents his failures and disappointments.

Remind students that a **conflict** is a struggle between opposing forces. There are two kinds of conflicts: external and internal. In an **external conflict**, a character struggles against an outside force: another character, an element of nature, or some aspect of society. In an **internal conflict**, the conflict is within a single character who is struggling with opposing feelings, beliefs, needs, or desires.

top drawers are so high off the ground that even I, at over six feet tall, am forced to keep a wooden step stool behind the closet door to access them. Each drawer is stained a deep brown and is differentiated from the others by a small card of identification taped to the front. The labels have yellowed under the adhesive. COPPER WIRE. CORRESPONDENCE. MAGNETS. PERPETUAL MOTION. MISC.

5 Drawer #42. It sticks and creaks with the weather. This is the drawer where I once thought I'd keep all my best ideas. It contains only some cracked peanut shells. It is too dangerous to write my best ideas down. "Whoops. Wrong drawer. Whoops." I repeat the word. It's one of my favorites. If it were possible I'd store "Whoops" in the safe by my bed, along with "OK" and "Sure thing" and the documents that prove that I am officially an American citizen.

6 Drawer #53 is empty, though inside I detect the slightest odor of ozone.⁵ I sniff the drawer, inhaling deeply. Ozone is not what I am looking for. I close #53 and open #26. Inside there is a press clipping, something somebody once said about my work: "Humanity will be like an anthep stirred up with a stick. See the excitement coming!" The excitement, apparently, already came and went.

7 That is not what I'm looking for.

8 Somewhere in one of the seventy-seven drawers I have a clipping from an article published in the *New York Times*. The article includes a photo of the inventor Guglielmo Marconi riding on the shoulders of men, a loose white scarf held in his raised left hand, flagging the breeze. All day thoughts of Marconi have been poking me in the ribs. They often do whenever I feel particularly low or lonely or poorly financed. I'll shut my eyes and concentrate on sending Marconi a message. The message is, "Marconi, you are a thief." I focus with great concentration until I can mentally access the radio waves. As the invisible waves advance through my head I attach a few words to each—"donkey," and "worm," and "limacine," which is an adjective that I only recently acquired the meaning of, like a slug. When I'm certain that the words are fixed to the radio waves I'll send the words off toward Marconi, because he has stolen my patents. He has stolen my invention of radio. He has stolen my notoriety. Not that either of us deserved it. Invention is nothing a man can own.

9 And so I am resigned.

5. **ozone** *n.* form of oxygen that occurs especially after a thunderstorm, with a sharp odor like chlorine.

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from *The Invention of Everything Else* 497

NOTES

- 10 Out the window to the ledge, thirty-three stories above the street, I go legs first. This is no small feat. I am no small man. Imagine an oversized skeleton. I have to wonder what a skeleton that fell thirty-three stories, down to the street below, would look like. I take one tentative glance toward the ground. Years ago power lines would have stretched across the block in a mad cobweb, a net, because years ago, any company that wanted to provide New York with electricity simply strung its own decentralized power lines all about the city before promptly going out of business or getting forced out by J. P. Morgan.⁶ But now there is no net. The power lines have been hidden underground.
- 11 That's not why I've come here. I have no interest in jumping. I'm not resigned to die. Most certainly not. No, I'm resigned only to leave humans to their humanness. Die? No. Indeed, I've always planned to see the far side of one hundred and twenty-five. I'm only eighty-six. I've got thirty-nine more years. At least.



- 12 "HooEEehoo. HooEEehoo." The birds answer the call. Gray flight surrounds me, and the reverse swing of so many pairs of wings, some iridescent, some a bit duller, makes me dizzy. The birds slow to a landing before me, beside me, one or two perching directly on top of my shoulders and head. Mesmerized by their feathers—such engineering!—I lose my balance. The ledge is

6. **J.P. Morgan** powerful businessman who merged several electrical companies to create one massive company in 1891.

DIGITAL PERSPECTIVES

Illuminating the Text Find and show images of New York City, circa late 1800s, that depict the power lines that were strung haphazardly across streets. This will help students understand both the author's metaphor of a "mad cobweb" and the enthusiasm with which people embraced electricity in the latter part of the century. After students have viewed the images, have them

discuss how their ability to visualize the scene of a "mad cobweb" has changed. Ask them if the description was accurate and what other words or phrases they would use to describe the scene. Additionally, have them consider what the many power lines suggest about the way the public embraced electricity when it was first made available.



CLOSER LOOK

Analyze Characterization

Circulate among groups as students conduct their close read. Suggest that groups close read paragraphs 14 through 16. Encourage them to talk about the annotations they mark. If needed, provide the following support.

ANNOTATE: Have students mark details in paragraphs 14 through 16 that reveal something about Tesla's character, or work with small groups as you highlight them together.

Question: Guide students to consider what these details might tell them. Ask what a reader can infer from Tesla's actions, the way he speaks to the birds, and his admission that humans remain a challenge for him, and accept student responses.

Possible response: Tesla's relationship with the birds reveals that he is caring and lonely and a bit eccentric. His admission that he gets along better with birds than with humans confirms this analysis.

CONCLUDE: Help students to formulate conclusions about the importance of these details in the text. Ask students why the author might have included these details.

Possible response: Tesla's actions and words help to show his state of mind at this point in his life. They help reveal the isolation he feels now and help point to the difficulties he has had with people in the past.

Remind students that **characterization** is the way a writer develops and reveals a character's personality and temperament. With **direct characterization**, a writer simply tells us what a character is like. With **indirect characterization**, the writer *shows* us a character's traits, using descriptions of his actions, behavior, appearance, and thoughts.

NOTES

perhaps only forty-five centimeters wide. My shoulders lurch forward a bit, just enough to notice the terrific solidity of the sidewalks thirty-three stories down. Like a gasp for air, I pin my back into the cold stone of the window's casing. A few pigeons startle and fly away out over Eighth Avenue, across Manhattan. Catching my breath, I watch them go. I watch them disregard gravity, the ground, and the distance between us. And though an old feeling, one of wings, haunts my shoulder blades, I stay pinned to the window. I've learned that I cannot go with them.

- 13 Out on the ledge of my room, I maintain a small infirmary for injured and geriatric⁷ pigeons. A few tattered boxes, some shredded newspaper. One new arrival hobbles on a foot that has been twisted into an angry knuckle, a pink stump. I see she wants nothing more to do with the hydrogen peroxide that bubbled fiercely in her wound last night. I let her be, squatting instead to finger the underside of another bird's wing. Beneath his sling the ball of his joint has finally stayed lodged in its orbit, and for this I am relieved. I turn my attention to mashing meal.

- 14 "Hello, dears." The air of New York this high up smells gray with just a hint of blue. I sniff the air. "It's getting chilly, hmm?" I ask the birds. "And what are your plans for the New Year tonight?" The hotel has been in a furor, preparing for the festivities all week. The birds say nothing. "No plans yet? No, me neither."

- 15 I stand, looking out into the darkening air. "HooEEehoo?" It's a question. I stare up into the sky, wondering if she will show tonight. "HooEEehoo?"

- 16 Having lived in America for fifty-nine years, I've nearly perfected my relationships with the pigeons, the sparrows, and the starlings of New York City. Particularly the pigeons. Humans remain a far greater challenge.

- 17 I sit on the ledge with the birds for a long while, waiting for her to appear. It is getting quite cold. As the last rays of sun disappear from the sky, the undersides of the clouds glow with a memory of the light. Then they don't anymore, and what was once clear becomes less so in the darkening sky. The bricks and stones of the surrounding buildings take on a deeper hue. A bird cuts across the periphery of my sight. I don't allow myself to believe it might be her. "HooEEehoo?" Don't look, I caution my heart. It won't be her. I take a look just the same. A gorgeous checkered, his hackle purple and green. It's not her.

- 18 She is pale gray with white-tipped wings, and into her ear I have whispered all my doubts. Through the years I've told her of my childhood, the books I read, a history of Serbian battle songs, dreams of earthquakes, endless meals and islands, inventions,

7. **geriatric** (jehr ee AT rihk) *adj.* elderly.

Concept Vocabulary

DEFICIENCIES If groups are struggling to define the word *deficiencies*, point out that they can use context clues to infer the word’s meaning. Draw their attention to the context clues “*I don’t have wings*” and “*I don’t have magnetite in my head*.” Have students use these context clues to define the word. Encourage them to consider the word’s connotation.

Possible response: In this context, *deficiencies* means “a lack of something.”

NOTES

Mark context clues or indicate another strategy you used that helped you determine meaning.

deficiencies (dih FIHSH uhn seez) *n.*

MEANING:

lost notions, love, architecture, poetry—a bit of everything. We’ve been together since I don’t remember when. A long while. Though it makes no sense, I think of her as my wife, or at least something like a wife, in as much as any inventor could ever have a wife, in as much as a bird who can fly could ever love a man who can’t.

19 Most regularly she allows me to smooth the top of her head and neck with my pointer finger. She even encourages it. I’ll run my finger over her feathers and feel the small bones of her head, the delicate cage made of calcium built to protect the bit of magnetite⁸ she keeps inside. This miraculous mineral powers my system of alternating-current electrical distribution. It also gives these birds direction, pulling north, creating a compass in their bodies, ensuring that they always know the way home.

20 I’ve not seen my own home in thirty-five years. There is no home anymore. Everyone is gone. My poor, torn town of Smiljan—in what was once Lika, then Croatia, now Yugoslavia. “I don’t have wings,” I tell the birds who are perched beside me on the ledge. “I don’t have magnetite in my head.” These **deficiencies** punish me daily, particularly as I get older and recall Smiljan with increasing frequency.

21 When I was a child I had a tiny laboratory that I’d constructed in an alcove of trees. I nailed tin candle sconces to the trunks so that I could work into the night while the candles’ glow crept up the orange bark and filled my laboratory with odd shadows—the stretched fingers of pine needles as they shifted and grew in the wind.

22 There is one invention from that time, one of my very first, that serves as a measure for how the purity of thought can dwindle with age. Once I was clever. Once I was seven years old. The invention came to me like this: Smiljan is a very tiny town surrounded by mountains and rivers and trees. My house was part of a farm where we raised animals and grew vegetables. Beside our home was a church where my father was the minister. In this circumscribed⁹ natural setting my ears were attuned to a different species of sounds: footsteps approaching on a dirt path, raindrops falling on the hot back of a horse, leaves browning. One night, from outside my bedroom window, I heard a terrific buzzing noise, the rumble of a thousand insect wings beating in concert. I recognized the noise immediately. It signaled the seasonal return of what people in Smiljan called May bugs, what people in America call June bugs. The insects’ motions, their constant energy, kept me awake through the night, considering, plotting, and scheming. I roiled in my bed with the possibility these insects presented.

8. **magnetite** (MAG nuh tyt) *n.* type of iron that is strongly attracted by magnets.
9. **circumscribed** (sur kuhm SKRYBD) *adj.* limited.

VOCABULARY DEVELOPMENT

Concept Vocabulary Reinforcement Students will benefit from additional examples and practice with the concept vocabulary. Reinforce their comprehension with “show-you-know” sentences. The first part of the sentence uses the vocabulary word in an appropriate context. The second part of the sentence—the show-you-know part—clarifies the first.

Model the strategy with this example for *deficiencies*:

The thief’s *deficiencies* were obvious: he had neither money nor honor.

Then, give students these sentence prompts and coach them in the clarification part:

1. At the end of the race, she raised her arms in triumph; _____.

Possible response: she had beaten her nearest rival by barely a meter.

2. Many people hope that in fifty years, electric cars will have revolutionized transportation; _____.

Possible response: the anticipate that one day, everyone will be driving electric cars.

Concept Vocabulary

Triumph If groups are struggling to define the word *triumph*, point out that they can use context clues to infer the word's meaning. Draw their attention to the context clues "their speed increased," "a jump," and "was immediately struck by a vision of the future in which humans would exist in a kingdom of ease." Have students use these context clues to define the word. Encourage students to consider the word's connotation (positive) and come up with synonymous words with neutral connotation (for example, *success*).

Possible response: In this context, *triumph* means "a great achievement."

NOTES

Mark context clues or indicate another strategy you used that helped you determine meaning.

triumph (TRY uhmf) *n.*

MEANING:

23 Finally, just before the sun rose, I sneaked outside while my family slept. I carried a glass jar my mother usually used for storing stewed vegetables. The jar was nearly as large as my rib cage. I removed my shoes—the ground was still damp. I walked barefoot through the paths of town, stopping at every low tree and shrub, the leaves of which were alive with June bugs. Their brown bodies hummed and crawled in masses. They made my job of collection quite easy. I harvested the beetle crop, sometimes collecting as many as ten insects per leaf. The bugs' shells made a hard click when they struck against the glass or against another bug. So plentiful was the supply that the jar was filled to brimming in no time.

24 I returned to my pine-tree laboratory and set to work. First, by constructing a simple system of gear wheels, I made an engine in need of a power supply. I then studied the insects in the jar and selected those that demonstrated the most aggressive and muscular tendencies. With a dab of glue on their thorax undersides, I stuck my eight strongest beetles to the wheel and stepped back. The glue was good; they could not escape its harness. I waited a moment, and in that moment my thoughts grew dark. Perhaps, I thought, the insects were in shock. I pleaded with the bugs, "Fly away!" Nothing. I tickled them with a twig. Nothing. I stomped my small feet in frustration and stepped back prepared to leave the laboratory and hide away from the failed experiment in the fronds of breakfast, when, just then, the engine began to turn. Slowly at first, like a giant waking up, but once the insects understood that they were in this struggle together their speed increased. I gave a jump of **triumph** and was immediately struck by a vision of the future in which humans would exist in a kingdom of ease, the burden of all our chores and travails would be borne by the world of insects. I was certain that this draft of the future would come to pass. The engine spun with a whirling noise. It was brilliant, and for a few moments I burned with this brilliance.

25 In the time it took me to complete my invention the world around me had woken up. I could hear the farm animals. I could hear people speaking, beginning their daily work. I thought how glad my mother would be when I told her that she'd no longer have to milk the goats and cows, as I was developing a system where insects would take care of all that. This was the thought I was tumbling joyfully in when Vuk, a boy who was a few years older than me, entered into the laboratory. Vuk was the urchin son of an army officer. He was no friend of mine but rather one of the older children in town who, when bored, enjoyed needling

from *The Invention of Everything Else* 501

HOW LANGUAGE WORKS

Comparative and Superlative Forms of Adjectives and Adverbs Explain to students that the comparative form of an adjective adds *-er* to the word or *more* before the word, while the comparative form of an adverb is preceded by *more*. Explain that the comparative form of an

adjective is used when comparing two things and that the superlative form is used when comparing three or more. For example, point to the superlative adjectives *most aggressive* and *strongest* in paragraph 24 and to the comparative adjective *older* in paragraph 25. Note that

the second use of *older* (*older children*) is appropriate as the narrator is presumably comparing two groups of children—those who are older and those who are younger. Have students suggest sentences using the comparative form of *aggressive* and *strong* and the superlative form of *old*.

Concept Vocabulary

Revolutionized If groups are struggling to define the word *revolutionized*, point out that they can use context clues to infer the word’s meaning. Draw their attention to the context clue “how I had developed insect energy, the source that would soon be providing the world with cheap, replenishable power.” Have students use this context clue to define the word. Encourage them to consider the word’s connotation—is it positive, neutral, or negative?

Possible response: In this context, *revolutionized* means “changed dramatically.”

NOTES

Mark context clues or indicate another strategy you used that helped you determine meaning.

revolutionized (rehv uh LOO shuh nyzd) *v.*

MEANING:

me, vandalizing the laboratory I had built in the trees. But that morning my delight was such that I was glad to see even Vuk. I was glad for a witness. Quickly I explained to him how I had just **revolutionized** the future, how I had developed insect energy, the source that would soon be providing the world with cheap, replenishable power. Vuk listened, glancing once or twice at the June bug engine, which, by that time, was spinning at a very impressive speed. His envy was thick; I could nearly touch it. He kept his eyes focused on the glass jar that was still quite full of my power source. Vuk twisted his face up to a cruel squint. He curled the corners of his fat lips. With my lecture finished, he nodded and approached the jar. Unscrewing the lid he eyed me, as though daring me to stop him. Vuk sank his hand, his filthy fingernails, down into the mass of our great future and withdrew a fistful of beetles. Before I could even understand the annihilation I was about to behold, Vuk raised his arm to his mouth, opened the horrid orifice, and began to chew. A crunching sound I will never forget ensued. Tiny exoskeletons mashed between molars, dark legs squirming for life against his chubby white chin. With my great scheme crashing to a barbarous end—I could never look at a June bug again—I ran behind the nearest pine tree and promptly vomited.

- 26 On the ledge the birds are making a noise that sounds like contentment, like the purr of the ocean from a distance. I forget Vuk. I forget all thoughts of humans. I even forget about what I was searching for in the wall of drawers until, staring out at the sky, I don’t forget anymore.
- 27 On December 12, 1901, Marconi sent a message across the sea. The message was simple. The message was the letter S. The message traveled from Cornwall, England, to Newfoundland, Canada. This S traveled on air, without wires, passing directly through mountains and buildings and trees, so that the world thought wonders might never cease. And it was true. It was a magnificent moment. Imagine, a letter across the ocean without wires.
- 28 But a more important date is October 1893, eight years earlier. The young Marconi was seated in a crowded café huddled over, intently reading a widely published and translated article written by me, Nikola Tesla. In the article I revealed in exacting detail my system for both wireless transmission of messages and the wireless transmission of energy. Marconi scribbled furiously.
- 29 I pet one bird to keep the chill from my hands. The skin of my knee is visible through my old suit. I am broke. I have given AC electricity to the world. I have given radar, remote control, and

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PERSONALIZE FOR LEARNING

Challenge

Personal Experience Ask students to think about how young Tesla might have felt when Vuk ate his bugs and when Marconi stole his ideas. Then have students think of a time when someone either stole an idea from them or when someone ruined something they worked hard on. Students should write a paragraph describing their experience, how it made them feel, and what they learned from it.

radio to the world, and because I asked for nothing in return, nothing is exactly what I got. And yet Marconi took credit. Marconi surrounded himself with fame, strutting as if he owned the invisible waves circling the globe.

30 Quite honestly, radio is a nuisance. I know. I'm its father. I never listen to it. The radio is a distraction that keeps one from concentrating.

31 "HooEEHoo?"

32 There is no answer.

33 I'll have to go find her. It is getting dark and Bryant Park is not as close as it once was, but I won't rest tonight if I don't see her. Legs first, I reenter the hotel, and armed with a small bag of peanuts, I set off for the park where my love often lives.

34 The walk is a slow one, as the streets are beginning to fill with New Year's Eve revelers. I try to hurry, but the sidewalks are busy with booby traps. One gentleman stops to blow his nose into a filthy handkerchief, and I dodge to the left, where a woman tilts her head back in a laugh. Her pearl earrings catch my eye. Just the sight of those monstrous jewels sets my teeth on edge, as if my jaws were being ground down to dull nubs. Through this obstacle course I try to outrun thoughts of Marconi. I try to outrun the question that repeats and repeats in my head, paced to strike with every new square of sidewalk I step on. The question is this: "If they are your patents, Niko, why did Marconi get word—well, not word but letter—why did he get a letter across the ocean before you?" I walk quickly. I nearly run. Germs be damned. I glance over my shoulder to see if the question is following. I hope I have outpaced it.

35 New York's streets wend their way between the arched skyscrapers. Most of the street-level businesses have closed their doors for the evening. Barbizon Hosiery. Conte's Salumeria, where a huge tomcat protects the drying sausages. Santangelo's Stationery and Tobacco. Wasserstein's Shoes. Jung's Nautical Maps and Prints. The Wadesmith Department Store. All of them closed for the holiday. My heels click on the sidewalks, picking up speed, picking up a panic. I do not want this question to catch me, and worse, I do not want the answer to this question to catch me. I glance behind myself one more time. I have to find her tonight.

NOTES

I do not want this
question to catch me,
and worse, I do not
want the answer to this
question to catch me.

Comprehension Check

- 1. Marconi stole his invention of radio and has gained notoriety as a result.
- 2. Tesla uses the ledge outside his window as a place to treat old and injured pigeons.
- 3. Tesla invented an engine powered by bugs.
- 4. Tesla lives in the Hotel New Yorker in New York City.
- 5. Students’ summaries will vary but should include an indication of the conflict Tesla has with Marconi, his love of pigeons and his current isolation in a hotel in New York City.

Research

Research to Clarify Students will likely be unfamiliar with many details in the story. If they have trouble figuring out what to focus on, you may want to suggest the following details: history of the Hotel New Yorker, how homing pigeons navigate, patents, june bugs.

NOTES

- 36

I turn one corner and the question is there, waiting, smoking, reading the newspaper. I pass a lunch counter and see the question sitting alone, slurping from a bowl of chicken soup. “If they are your patents, Niko, why did Marconi send a wireless letter across the ocean before you?”
- 37

The question makes me itch. I decide to focus my thoughts on a new project, one that will distract me. As I head north, I develop an appendix of words that begin with the letter S, words that Marconi’s first wireless message stood for. 🐞

Comprehension Check

Complete the following items after you finish your first read. Review and clarify details with your group.

- 1. Why is the narrator, Nikola Tesla, angry at Marconi?
- 2. What does Tesla use the ledge outside his window for?
- 3. According to the story, what did Tesla invent when he was seven?
- 4. According to the excerpt, where does Tesla live?
- 5. 📓 **Notebook** Confirm your understanding of the excerpt by writing a short summary.

RESEARCH

Research to Clarify Choose at least one unfamiliar detail from the excerpt. Briefly research that detail. In what way does the information you learned shed light on an aspect of the story?

PERSONALIZE FOR LEARNING

Challenge

Speculate The excerpt ends with Tesla asking himself why Marconi sent a wireless letter across the ocean before he, Tesla, did. Ask students to speculate on how Tesla’s life might have been different if he had fought harder in the beginning for the credit he deserved for his inventions. Have students write a day in the life of Tesla at the age of 86, a day that might have been if he had made different choices many years before.



Close Read the Text

With your group, revisit sections of the text you marked during your first read. What do you **notice**? What **questions** do you have? What can you **conclude**?



Analyze the Text

Complete the activities.

- 1. Review and Clarify** Reread paragraphs 21–25 of the excerpt. What is one of the first inventions Tesla made as a child? How does this **anecdote**, or short account, about his childhood experience with invention help to develop Tesla's character? What does it reveal about the nature of inventions? Discuss with your group.
- 2. Present and Discuss** Now, work with your group to share the passages from the text that you found especially important.

CITE TEXTUAL EVIDENCE
to support your answers.

Concept Vocabulary

deficiencies triumph revolutionized

Why These Words? The concept vocabulary words from the text are related. With your group, determine what the words have in common. Identify at least two more words in the excerpt that relate to the concept. How do these word choices help to deepen your understanding of Tesla's perspective?

Practice

Notebook Confirm your understanding of these words from the text by using each word in a sentence.

Word Study

Etymology English words come from a variety of sources. The **etymology** of a word identifies the **word's origin**, and tells how its spelling and meaning have changed over time. In *The Invention of Everything Else*, the author uses the word *triumph* to refer to the satisfaction that Tesla feels when the insects finally begin to power the engine. The word *triumph* comes from the Old French word *triumphe*, "success in battle" and "spiritual victory." However, it originated from the Latin word *triumphus*. Use a dictionary to find the meaning of the Latin word *triumphus*. Then, analyze the etymology of the concept vocabulary word *triumph* and find two words with similar denotations but different connotations.



from THE INVENTION OF
EVERYTHING ELSE

TIP

GROUP DISCUSSION

As you work with your group, make sure each member has an opportunity to contribute to the discussion. Be sensitive to the amount of time you spend speaking.

WORD NETWORK

Identify words from the selection that relate to the concept of invention. Add these words to your Word Network.

STANDARDS

Language

Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *precede*, *recede*, *secede*).

Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.

Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., *bullheaded*, *willful*, *firm*, *persistent*, *resolute*).

from The Invention of Everything Else 505

Jump Start

CLOSE READ Ask students to consider the following prompt: In what way can invention result in both great achievement and deep personal failure? As students discuss the prompt in their groups, have them consider what they learned about Tesla from both the biography and from the excerpt. Ask them how they felt about Tesla after reading the excerpt.

Close Read the Text

If needed, model close reading by using the Annotation Highlights in the Interactive Teacher's Edition.

Remind students to use Accountable Talk in their discussions and to support one another as they complete the close read.

Analyze the Text

- 1. Possible response:** The first invention he made was an engine powered by bugs. The anecdote shows that even early on, he was excited about invention and also naïve about the motivations of others. The anecdote reveals that invention is, in part, inspiration, as Tesla came up with the idea when he was kept awake by the noise of June bugs.
- Responses will vary by group. Groups should support their choice of passages with explanations about their significance.

Concept Vocabulary

Why These Words? Possible response: The concept vocabulary words relate to the reasons people invent and the results of their inventions.

Practice

Possible responses:

The invention of radio was a *triumph*, and soon it was being used to send messages around the world.

The airplane *revolutionized* transportation, making it possible for people to travel long distances in a short amount of time.

The salesman's *deficiencies* were apparent: he was shy and awkward around people.

Word Network

Possible words: concentration, laboratory, considering, plotting, scheming

Word Study

For more support, see **Concept Vocabulary and Word Study**.

Possible responses:

Latin: *triumphus* from the Greek *thriombos*, which referred to a hymn to Bacchus sung in festivals in his honor

FORMATIVE ASSESSMENT

Analyze the Text

- If students struggle to close read the text, then provide the **Analyze the Text Questions** available online in the Interactive Teacher's Edition or Unit Resources. Answers and DOK levels are also available.

Concept Vocabulary

If students fail to see a connection among the words, then ask them to use each in a sentence about invention.

Word Study

If students struggle to identify connotations, then have them use the synonyms in a sentence and determine how those sentences differ from sentences that include *triumph*.

For Reteach and Practice, see **Word Study: Etymology (RP)**.

Analyze Craft and Structure

Analyze Word Choice: Figurative Language Discuss with students why authors use figurative language. Point out that by making comparisons to unlike things, the author can help readers visualize what they’re reading. Explain that figurative language allows authors to use just a few words to create vivid pictures in the minds of readers.

For more support, see **Analyze Craft and Structure: Figurative Language.**

MAKE IT INTERACTIVE

Choose an interesting image and project it to the class. Ask students to take a minute to write down what the image looks like. For example, the tree looks like a man with outstretched hands. Then, ask students to discuss in their groups the different comparisons they made.

See possible responses on Student page.

FORMATIVE ASSESSMENT

Analyze Craft and Structure

If students are unable to identify examples of similes, then remind them to look for the signal word *like* or *as*. For Reteach and Practice, see **Analyze Craft and Structure: Figurative Language. (RP)**

MAKING MEANING



from THE INVENTION OF EVERYTHING ELSE

STANDARDS
Reading Literature
Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

Analyze Craft and Structure

Analyze Word Choice: Figurative Language In *The Invention of Everything Else*, the author uses **figurative language**—language not meant to be taken literally—to describe and compare things in imaginative ways. The chart defines several **figures of speech**, or types of figurative language, and provides an example from the excerpt for each type.

TYPE OF FIGURATIVE LANGUAGE	DEFINITION	EXAMPLE FROM THE EXCERPT
personification	comparison in which a nonhuman subject is given human characteristics	"The storm said something muffled."
simile	compares two unlike things using the words <i>like</i> or <i>as</i>	"She had to come because the hotel where I live is like the sticky tongue of a frog jutting out high above Manhattan, collecting the city particle by wandering particle."
metaphor	compares two unlike things by saying that one thing is the other	"Years ago power lines would have stretched across the block in a mad cobweb, a net, ... "

Reread the selection and find other examples of figurative language. Gather your examples in the chart. With your group, analyze the ways in which the examples you noted deepen your understanding of the excerpt and of the subject, Nikola Tesla.

TYPE OF FIGURATIVE LANGUAGE	EXAMPLE FROM THE TEXT
personification	One new arrival hobbles on a foot that has been twisted into an angry knuckle, a pink stump. (paragraph 13)
simile	Like a gasp for air, I pin my back into the cold stone of the window's casing. (paragraph 12)
metaphor	... while the candles' glow crept up the orange bark and filled my laboratory with odd shadows— the stretched fingers of pine needles as they shifted and grew in the wind. (paragraph 21)

Conventions

Comparative and Superlative Forms of Adjectives and Adverbs

Most adjectives and adverbs have three degrees of comparison:

- The **positive** is used when no comparison is made: Tesla was a *great* inventor.
- The **comparative** is used when two things are being compared: Some people believe that Tesla was a *greater* inventor than Edison.
- The **superlative** is used when three or more things are being compared: Perhaps, Tesla was the *greatest* inventor of all.

FORMING COMPARATIVE AND SUPERLATIVE DEGREES

Use <i>-er</i> or <i>more</i> to form the comparative degree.	greater, taller, more gifted, more creative
Use <i>-est</i> or <i>most</i> to form the superlative degree.	sharpest, fastest, most inventive, most colorful
Use <i>more</i> and <i>most</i> with adverbs of three or more syllables.	more astonishing, more creatively, most astonishing, most creatively

Unlike the examples above, some adverbs and adjectives are irregular. **Irregular adjectives and adverbs** must be memorized. This chart shows some commonly used irregular adjectives and adverbs.

POSITIVE	COMPARATIVE	SUPERLATIVE
bad, badly	worse	worst
good, well	better	best
many, much	more	most
far (distance)	farther	farthest
far (extent)	further	furthest

Read It

Identify the adjective or adverb in each sentence. Then, identify the degree of comparison it indicates: *positive*, *comparative*, or *superlative*.

1. Toward the end of his life, Tesla seemed happiest feeding pigeons.
2. Tesla's supporters were convinced he was doing the most exciting work ever in the field of electrical engineering.
3. Rather than admit he had dropped out of school, Tesla found it easier to pretend he had drowned.
4. Find three adjectives and adverbs in *The Invention of Everything Else* and indicate the degree of comparison each reflects.

Write It

 **Notebook** Write a brief paragraph about Tesla's feelings toward Marconi. Your paragraph should have a least one adjective or adverb for each degree of comparison.

STANDARDS

Listening
Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

from *The Invention of Everything Else* 507

Conventions

Comparative and Superlative Forms of Adjectives and Adverbs Discuss with students how the positive form is simply the adjective or adverb. Then point out that the comparative, when it is used to compare two things that are stated in the sentence, usually includes the word *than* in the comparison. For example, *She arrived earlier **than** he did.* Explain, too, that when forming the superlative, always use *the*. For example, *He is **the** best dog ever.*

For more support, see Conventions: Comparative and Superlative Forms of Adjectives and Adverbs. 

Read It

MAKE IT INTERACTIVE

Have students write each sentence on a sentence strip using a different colored marker for the adjective or adverb, underlining comparative adjectives and adverbs, and circling superlative adjectives and adverbs.

Possible responses:

1. happiest, superlative
2. most exciting, superlative
3. easier, comparative
4. It is getting quite cold (positive); Here is the tiniest bit of a woman from Bath (superlative); Now, more regularly, no one visits (comparative).

Write It

Paragraphs will vary, but make sure that students use at least one adjective or adverb for each degree of comparison and that at least one of those is irregular.

PERSONALIZE FOR LEARNING

English Language Support

Commonly Confused Words Tell students that the word pairs *later* and *latest*, *latter* and *last* have different uses. Share the following definitions and examples with students:

Later: the comparative form of late; referring to time
He arrived later than she did.

Latest: the superlative form of late; referring to time
He was the latest arrival.

Latter: a comparative adjective that means occurring nearer to the end of something; refers to position
The latter half of the movie was boring.

Last: a superlative adjective that means occurring at the end of something; refers to position
The last scene in the movie was a surprise.
Invite students to work as a group to write a sentence for each word.

FORMATIVE ASSESSMENT

Conventions

If students are unable to distinguish between comparative and superlative, **then** have them look for endings *-er* or *-est*, or for the words *more* or *most*.

For Reteach and Practice, see **Conventions: Comparative and Superlative Forms of Adjectives and Adverbs (RP)**. 

25 Years Later, Hubble Sees Beyond a Troubled Start



AUDIO SUMMARIES

Audio summaries of “25 Years Later, Hubble Sees Beyond a Troubled Start” are available online in both English and Spanish in the Interactive Teacher’s Edition or Unit Resources. Assigning these summaries prior to reading the selection may help students build additional background knowledge and set a context for their first read.

Summary

In “25 Years Later, Hubble Sees Beyond Troubled Start,” Dennis Overbye recounts the initial difficulties and amazing accomplishments of the Hubble Space Telescope. Launched into space in 1990, the telescope at first had technical problems. Three years later a NAA crew spent five days of spacewalks repairing the telescope. The Hubble began recording images of space that had never before been seen. Astronaut servicing crews kept the Hubble up to date, but in 2003, the Columbia space shuttle exploded. This led NASA to cancel a scheduled Hubble repair. The Hubble appeared to be doomed, but in 2009 a repair crew once again serviced it. Today the Hubble continues to send extraordinary images from the early days of our universe.

Insight

“25 Years Later, Hubble Sees Beyond Troubled Start” reveals that even the best scientific inspirations are often dependent on political realities. The article states that it was over three decades from the original proposal to the final fruition of the telescope. The problems the scientists encountered and the delays in fixing them are unfortunate realities of major scientific efforts.

ESSENTIAL QUESTION:

Are inventions realized through inspiration or perspiration?

Connection to Essential Question

Inventions like the Hubble telescope are the work of many scientists, engineers, and astronauts. The newspaper article by Dennis Overbye suggests the amount of time and effort put into the creation of the telescope. Although the original idea was an inspiration, the “perspiration was considerable.

SMALL-GROUP LEARNING PERFORMANCE TASK

Are inventions realized through inspiration or perspiration?

Connection to Performance Tasks

Small-Group Learning Task “25 Years Later, Hubble Sees Beyond Troubled Start” is a demonstration of the amount of energy that must be devoted to making an inspiration a reality.

Unit Performance-Based Assessment Science depends on new and improved ways to make discoveries about the universe. The article shows that the desire for more knowledge is one reason people invent.

UNIT PERFORMANCE-BASED ASSESSMENT

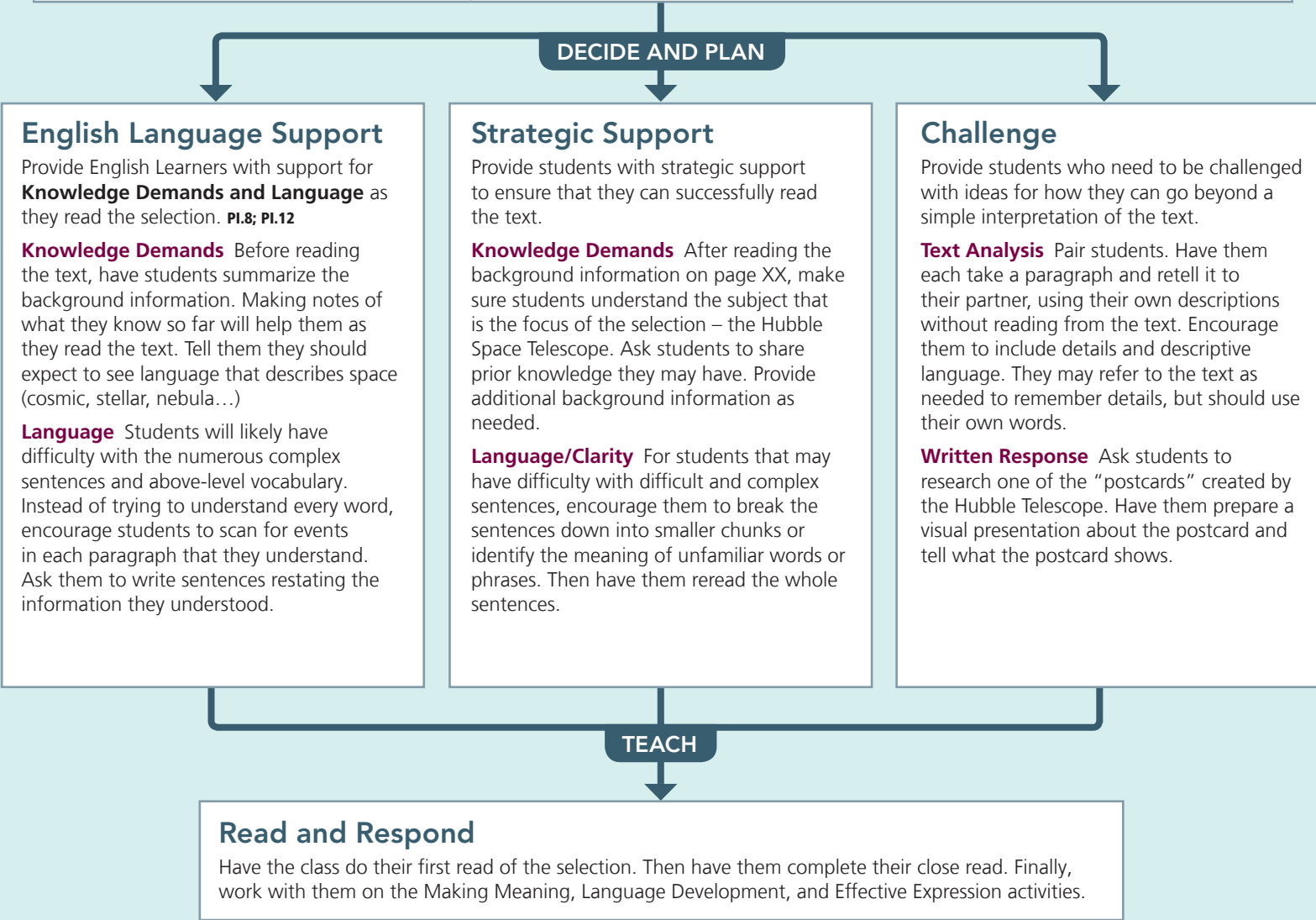
What situations might encourage people to invent?

LESSON RESOURCES

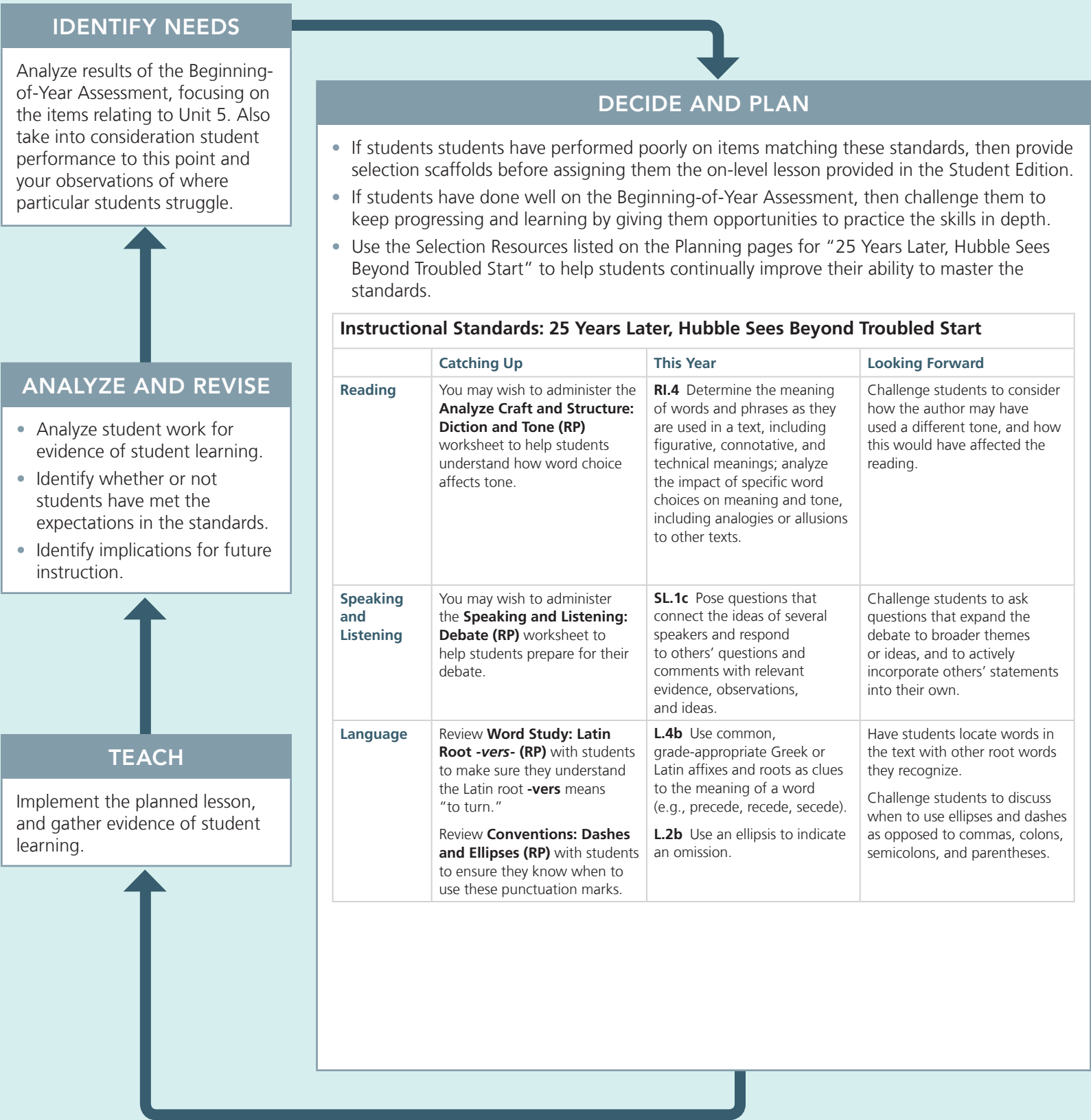
	Making Meaning	Language Development	Effective Expression
Lesson	First Read Close Read Analyze the Text Concept Vocabulary Word Study Analyze Craft and Structure	Conventions	Speaking and Listening
Instructional Standards	L.4b Use common, grade-appropriate Greek or Latin . . . RI.4 Determine the meaning . . . RI.6 Determine an author's . . .	L.2a Use punctuation . . . L.2b Use an ellipsis . . .	SL.1 Engage effectively . . . SL.1a Come to discussions . . . SL.1b Follow rules . . . SL.1c Pose questions that connect . . . SL.1d Acknowledge new information . . . SL.3 Delineate a speaker's argument. . .
STUDENT RESOURCES			
Available online in the Interactive Student Edition or Unit Resources	Selection Audio First-Read Guide: Nonfiction Close-Read Guide: Nonfiction Word Network		Evidence Log
TEACHER RESOURCES			
Selection Resources Available online in the Interactive Teacher's Edition or Unit Resources	Audio Summaries Annotation Highlights EL Highlights English Language Support Lesson: SKILL Concept Vocabulary and Word Study Analyze Craft and Structure: Diction and Tone	Conventions: Dashes and Ellipses	Speaking and Listening: Debate
Reteach/Practice (RP) Available online in the Interactive Teacher's Edition or Unit Resources	Word Study: Latin Root -vers- (RP) Analyze Craft and Structure: Diction and Tone (RP)	Conventions: Dashes and Ellipses (RP)	Speaking and Listening: Debate (RP)
Assessment Available online in Assessments	Selection Test		
My Resources	A Unit 5 Answer Key is available online and in the Interactive Teacher's Edition.		

Reading Support

Text Complexity Rubric: 25 Years Later, Hubble Sees Beyond Troubled Start	
Quantitative Measures	
Lexile: 1320 Text Length: 1272 words	
Qualitative Measures	
Knowledge Demands ① — ② — ③ — ④ — ⑤	Students may not be familiar with the subject that is central to the selection (the Hubble Space Telescope). Clear explanations are made of most of the elements in the selection.
Structure ① — ② — ③ — ④ — ⑤	Organization is evident and sequential.
Language Conventionality and Clarity ① — ② — ③ — ④ — ⑤	The syntax includes many complex sentences that have several subordinate clauses or phrases; selection has a lot of above-level vocabulary; language is used for figurative power.
Levels of Meaning/Purpose ① — ② — ③ — ④ — ⑤	The main idea is revealed early, but the concept may be hard for some to grasp because of sophisticated language and supporting concepts that are complex.



Standards Support Through Teaching and Learning Cycle



Prepare to Compare

Discuss with students what factors to consider as they locate similarities and differences between the nonfiction and fiction texts they have read about the life of Nikola Tesla. For example, in reflecting on the biography, students should note how the author uses facts, rather than imagination or speculation, to chronicle Tesla's life. In contrast, they should note that the excerpt from the novel uses descriptive language and imagination to help readers identify with Tesla and visualize what his life was like in his later years.

For more support, see **Prepare to Compare: Nonfiction and Fiction.**

Prepare for Discussion Ensure that all group members have a role during the group's discussion.

MAKE IT INTERACTIVE

Compare Notes Project the Interactive Teacher's Edition of paragraph 1 of "Nikola Tesla: The Greatest Inventor of All?" and paragraph 1 of the excerpt from *The Invention of Everything Else*.

Note that while both include facts about the life of Tesla, the fiction text includes imagery and details that help connect the reader to Tesla, whereas the nonfiction text includes a chronological structure and reliable information about events.

See possible responses are in chart on Student page.

Prepare to Write Encourage groups to outline both texts, then compare the structure and use of figurative language in the them.

FORMATIVE ASSESSMENT

Conventions

If students are unable to compare the two texts, then have them write a few sentences that tell what they learned about Tesla in each selection.

EFFECTIVE EXPRESSION



NIKOLA TESLA: THE GREATEST INVENTOR OF ALL?



from THE INVENTION OF EVERYTHING ELSE

Prepare to Compare

In this feature you read two selections about the inventor Nikola Tesla. In the nonfiction biographical text, "Nikola Tesla: The Greatest Inventor of All?," you learned factual information about Tesla and his life. In the novel excerpt from *The Invention of Everything Else*, you learned about the ways in which the author uses figurative language to develop Tesla's character, using both historical facts and her own imagination. Now, you will work in groups to compare the nonfiction, biographical portrayal of Tesla's character with the fictional portrayal in the novel excerpt.

Prepare for Discussion

Come to the discussion prepared with your notes on structure and figurative language. Define and assign roles for group members in the discussion.

Compare Notes

Review the definitions of *biography* and different text structures: *chronological*, *cause and effect*, and *comparison and contrast*. Also review the types of figurative language that authors use to create effects, including *metaphor*, *simile*, *personification*, and *connotation*.

With your group, discuss how the biographical text and the novel excerpt depict Tesla in different ways. Discuss and use the chart to take notes as you respond to the following questions:

QUESTION	NIKOLA TESLA: THE GREATEST INVENTOR OF ALL?	FROM THE INVENTION OF EVERYTHING ELSE
Which text mainly uses a chronological text structure?	✓	✓
Which facts are referred to in both selections?	the country of Tesla's birth, his invention of the radio, the theft of his patent	the country of Tesla's birth, his invention of the radio, the theft of his patent
Which of the two texts includes more reliable information about events?	✓	✓
Which of the two texts uses more figurative language?	✓	✓
Which selection reveals more about Tesla's personality?	✓	✓

During your discussion, ask members of your group relevant questions, and respond to their questions with pertinent ideas and observations as well as relevant evidence from the selections.

Prepare to Write

For your essay, prepare a general definition of biographical text. Briefly identify the differences in organizational structure that the biographical text on Tesla and the excerpt from the novel have. Then briefly note the differences in word choice and figurative language between the two texts. You will develop these ideas more thoroughly as you write.

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PERSONALIZE FOR LEARNING

Challenge

Building Understanding Have groups discuss how the genres in the Small-Group Learning section affected students' understandings of and receptiveness to the lessons presented throughout the unit. Encourage students to share which genre they found most understandable or thought-provoking. Remind students that there is no one genre that is better than another, and that a genre or format they find easier to understand may be challenging for another student.



Writing to Compare

Assignment

Write an **argumentative essay** in which you take a position on the following statement:

Nikola Tesla deserves more recognition than he has received for his inventive contributions.

Draft

- Begin your essay by making a clear claim as to whether or not this statement is true. Discuss your thesis with the group.
- Consider both texts as you develop your claim, analyzing the ways in which Tesla is portrayed, both in fiction and in nonfiction.
- Be sure your argument demonstrates logical reasoning and uses relevant evidence to support your ideas.
- Create cohesion in your essay by using words and phrases that connect your claims, reasons, and evidence.
- Conclude your essay with an explanation of why your claim is more persuasive than the counterargument.

Review and Revise

Once you are done drafting, review your essay to be sure you have maintained a formal style. Revise any sections that seem too informal. Then publish your essay so others can comment on it on a class or school website.

STANDARDS

Writing

- Write arguments focused on discipline-specific content.
- Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

Speaking and Listening

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.

- Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
- Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.
- Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.

from *The Invention of Everything Else* 509

Writing to Compare

Draft Explain to students that an argumentative essay is an essay in which students investigate a topic, collect and evaluate evidence, and then support a position on the topic. Point out that a good argumentative essay includes clear transitions that help the reader follow the argument and that help connect the ideas.

Review and Revise Remind students that as they revise, they should check to make sure that each paragraph relates back to and supports the thesis. Have them also check to make sure that they have provided evidence and examples from *both* texts to support their reasons. Encourage students to use a spell check to proofread their work but to also review it for the proper spelling of names and places.

For more support, see **Writing to Compare: Argumentative Essay**.

Evidence Log Support students in completing their Evidence Log. This paced activity will help prepare them for the Performance-Based Assessment at the end of the unit.

FORMATIVE ASSESSMENT

Writing to Compare

If students are unable to provide specific examples and details, **then** have students skim “Nikola Tesla: The Greatest Inventor of All?” and the excerpt from *The Invention of Everything Else* for ideas.

Selection Test

Administer “The Invention of Everything Else” Selection Test, which is available in both print and digital formats online in Assessments.

PERSONALIZE FOR LEARNING

Strategic Support

Transitions Some students may require additional support in using transitions when revising their argument. Pair students with a partner and have them identify places in each other's essay where transition words might clarify what the writer is trying to say or help the flow of the argument. Have them consider the specific relationships among the ideas. For example, point out that if

they are trying to compare two things, they might use words like *similarly* or *likewise*. If they intend to show a cause-effect relationship, they might use *because*, *therefore*, and *as a result*. Have students review the suggested transitions for the appropriate type of relationship and revise their argument.



Jump Start

First Read When you look up and see the stars, what do you notice? Mostly, tiny, twinkling white dots. Between light pollution and great distance, there is a limit to what you can see with the naked eye. What do you think you could see if you had a telescope that was out in space?

25 Years Later, Hubble Sees Beyond Troubled Start

What is the Hubble telescope? Why was it such a big deal? What kind of images does it provide? Modeling questions such as these will help students connect to “25 Years Later, Hubble Sees Beyond Troubled Start” and to the Small-Group Performance Task assignment. Selection audio and print capability for the selection are available in the Interactive Teacher’s Edition.

Concept Vocabulary

Remind groups that when they come to an unfamiliar word as they read, one of the first things they should do is look for context clues. Have them find the word deployed in the text. Ask students to identify some clues within the text that hint at the words meaning. Next, have them consider background knowledge. Have they heard of that word being used in a different way? Finally, have them consult a dictionary, if necessary.

FIRST READ

As they read, students should perform the steps of the first read:

NOTICE: You may want to encourage students to notice the details provided about the history of the Hubble telescope.

ANNOTATE: Remind students to mark passages that include details about the Hubble’s rocky start and final outcome.

CONNECT: Encourage students to read other articles, watch news reports and look at images taken by the Hubble telescope.

RESPOND: Students will answer questions and write a summary to demonstrate understanding. Point out to students that while they will always complete the Respond step at the end of the first read, the other steps will probably happen somewhat concurrently. You may wish to print copies of the **First-Read Guide: Nonfiction** for students to use.

About the Author



Dennis Overbye (b. 1944) is a science writer specializing in physics and cosmology, the science of the origin and development of the universe. In 1998, he joined the staff of the *New York Times* as deputy science editor, then switched to full-time writing. His articles have appeared in *Time*, *Science*, the *Los Angeles Times*, and the *New York Times*, among others. In 2014, he was a finalist for the Pulitzer Prize for Explanatory Reporting. Overbye lives in New York City with his wife, daughter, and two cats.

STANDARDS
Reading Informational Texts
By the end of the year, read and comprehend literary nonfiction at the high end of the grades 6–8 text complexity band independently and proficiently.
Language
Use context (e.g., the overall meaning of a sentence or paragraph; a word’s position or function in a sentence) as a clue to the meaning of a word or phrase.

25 Years Later, Hubble Sees Beyond Troubled Start

Concept Vocabulary

As you perform your first read of “25 Years Later, Hubble Sees Beyond Troubled Start,” you will encounter these words.

aberration amateur controversy

Context Clues Sometimes you need to **infer** the meaning of an unfamiliar word by looking for **context clues** in the surrounding words. If you are still unsure about the word’s meaning, it’s a good idea to look it up in a dictionary or a thesaurus. When you look up a word in a **dictionary** you will find its meaning, pronunciation and part of speech. When you look up a word in a **thesaurus**, you will find the word’s synonyms, or words with similar meanings.

Suppose you come across this sentence in the selection:

When the Hubble was finally deployed, NASA’s spinmasters were instantly at the top of their game, hailing it as the greatest advance in astronomy since Galileo.

If you can’t get the meaning of *deployed* from the context, look it up in a dictionary or thesaurus.

Dictionary

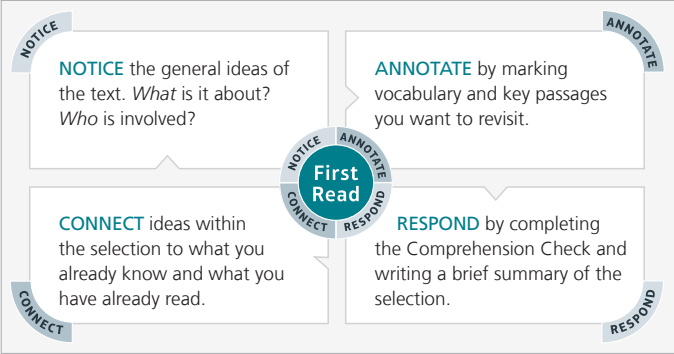
deployed [dih PLOYD] **v.**
moved into position for military action; brought into effective action; utilized

Thesaurus

deployed organized; positioned; arranged; installed

First Read NONFICTION

Apply these strategies as you conduct your first read. You will have an opportunity to complete a close read after your first read.



PERSONALIZE FOR LEARNING

English Language Support

Make Predictions Have students read the title of the article. Ask a volunteer to guess what the article is going to be about. After they respond that it is about Hubble, ask what else they can predict from the title. They should suggest that it started 25 years ago and there were some problems. Next, if they do not already know, tell them what Hubble is. Ask them to again predict what they will learn as they read.



NEWS ARTICLE

25 Years Later, Hubble Sees Beyond Troubled Start

Dennis Overbye

BACKGROUND

Lyman Spitzer Jr. (1914–1997), whose ideas inspired the creation of the Hubble Space Telescope, achieved great success as an astrophysicist. He studied space astronomy, star clusters, and the physics of stars. Not only did he propose the creation of a space telescope, he did so a decade before the first satellite had been launched.



- A**gainst all odds, it's 25 years in space and counting for the Hubble Space Telescope this month.¹
- Few icons of science have had such a **perilous** existence, surviving **political storms**, physical calamities, and the simple passage of time in the service of cosmic exploration.
- In 1946, the astronomer Lyman Spitzer Jr. had a dream. A telescope in space, above the unruly atmosphere, would be able to see stars unaffected by the turbulence that blurs them and makes them twinkle. It would be able to see ultraviolet and infrared emissions that are blocked by the atmosphere and thus invisible to astronomers on the ground.
- It took more than three decades for the rest of the astronomical community, NASA, and Congress to buy into this dream, partly as a way to showcase the capabilities of the space shuttle, still in development then, and the ability of astronauts to work routinely in space. By the time the telescope was launched into space from the space shuttle *Discovery* on April 25, 1990, it had been almost canceled at least twice and then delayed following the explosion of the shuttle *Challenger* in 1986.

1. **this month** This article was published in April 2015.

NOTES

DIGITAL
PERSPECTIVES



CLOSER LOOK

Analyze Connotation

Circulate among groups as students conduct their close read. Suggest that groups close read paragraph 2. Encourage them to talk about the annotations they mark. If needed, provide the following support.

ANNOTATE: Have students mark details in paragraph 2 that show the writers use of descriptive language, or work with small groups as you highlight them together.

Question: Guide students to consider what these details might tell them. Ask what a reader can infer from the writer's decision to describe these events using adjectives with strong connotations, and accept student responses.

Possible response: The Hubble Telescope had to overcome a lot.

CONCLUDE: Help students to formulate conclusions about the importance of these details in the text. Ask students why the author might have included these details.

Possible response: The author is using strong descriptive language here to make the reader more interested in the subject. Words with strong connotations pique the reader's interest.

Remind students that a **connotation** is an association or feeling that a word suggests in addition to its literal dictionary definition, or **denotation**. The connotations of words are one of the ways in which writers convey their *tone*, or attitude toward their subject matter.

Additional **English Language Support** is available in the Interactive Teacher's Edition.



FACILITATING SMALL-GROUP READING

Nonfiction Remind student that when reading nonfiction, they are getting information about a real person, place, or event. As they read, they should look for facts or information about the subject. Ask students to think about what they have learned about the Hubble Space

Telescope in paragraphs 1–4. What background information does the writer give? Why is it important to know this information before learning exactly what happened and what has changed?

Concept Vocabulary

ABERRATION If groups are struggling to define the word *aberration*, point out that there are hints within the sentence that will help them to define the word. Draw students' attention to the context clues *the kind of mistake* and *the flaw* and have them use these clues to define the word.
Possible response: In this context, *aberration* means a "failure in a mirror."

AMATEUR If groups are struggling to define the word *amateur*, point out that there are hints within the text that will help them to define the word. Here, amateur astronomers are being implicitly compared to the professionals at NASA. Also, have students consider any background knowledge they may have about *amateur* (for example, sports references).
Possible response: In this context, *amateur* means "someone who pursues an interest as a pastime rather than as a profession."

NOTES

Mark context clues or indicate another strategy you used that helped you determine meaning.

aberration (ab uh RAY shuhn) *n.*

MEANING:

amateur (AM uh chur) *n.*

MEANING:

- 5 When the Hubble was finally deployed, NASA's spinmasters were instantly at the top of their game, hailing it as the greatest advance in astronomy since Galileo.²
- 6 And it might have been except for one problem: The telescope couldn't be focused. Instead, within days it became a laughingstock—a "technoturkey," in the words of some of its critics.
- 7 Designed using spy satellite technology, Hubble had an eight-foot mirror, just small enough to fit into the space shuttle cargo bay.
- 8 But because of a measuring error during a testing process that was hurried to save money, that big mirror wound up misshapen, polished four-millionths of an inch too flat, leaving the telescope with blurry vision. It was the kind of mistake, known as a spherical **aberration**, that an **amateur** astronomer might make, and it was a handful of astronomers who first recognized the flaw—to the disbelief and then the dismay of the engineers and contractors working for NASA.
- 9 For bright objects, astronomers could correct for the flaw with image processing software. But for the fainter parts of the universe, the Hubble needed glasses.
- 10 NASA scientists shrugged off their heartbreak and worked to figure out a way to provide corrective lenses.
- 11 Three years later, the space shuttle *Endeavour* and a repair crew led by Story Musgrave—astronaut, pilot, surgeon, spacewalker and Zen gardener—rode to the rescue.
- 12 In five tense days of spacewalks, they replaced the telescope's main camera and installed tiny mirrors designed to correct the Hubble's vision.
- 13 The rest of the universe snapped into crystalline focus. And NASA could stop holding its breath.
- 14 The Hubble was the first big-deal telescope of the Internet age, and its cosmic postcards captivated the world. Trained on a patch of sky known as the Hubble Ultra Deep Field in 2010, the telescope's keen eye discerned swarms of baby galaxies crawling out of the primordial³ darkness as early as only 600 million years after the Big Bang.
- 15 And it took one of the first visible-light photos of a distant planet, Fomalhaut b, orbiting its star.
- 16 In perhaps its most iconic image, called "Pillars of Creation," the Hubble recorded baby stars burning their way out of biblical-looking mountains of gas and dust in a stellar nursery known as the Eagle nebula.

2. **Galileo** Galileo Galilei (1564–1642) was an Italian scientist and scholar who was the first person to use a telescope to observe space.
3. **primordial** *adj.* ancient; from the beginning of time.

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HOW LANGUAGE WORKS

Dashes Direct students attention to paragraph 6. Ask them to notice any unusual punctuation. Point out the punctuation after the word laughingstock. Ask if anyone can identify that mark. Explain that it is a dash. Ask students to suggest why the writer used it. Point out that a dash shows a strong, sudden break in thought or speech. Again, ask students why the writer chose to use a dash here and what impact it has on the sentence.

- 17 These postcards were not without **controversy**. The Hubble's camera records in black and white, through filters that isolate the characteristic light from different atoms, such as sulfur, hydrogen, and oxygen. Then the different layers are assigned whatever colors look good to the eye and best show off the underlying astrophysics rather than their natural colors.
- 18 "Pillars of Creation," for example, is presented in earth tones of green and brown and is oriented to look like a Turner landscape, while the natural emissions from the nebula are shades of red.
- 19 Technological hiccups have also continued. In 1999, four of the six gyroscopes that keep the telescope pointed failed, and the Hubble went into "safe mode."⁴ A crew was hastily dispatched to replace the gyros. That was the first of what would be three trips to the telescope by John M. Grunsfeld, an astronaut, astronomer, and now NASA's associate administrator for science, who would win the sobriquet "Hubble Repairman" for his feats.
- 20 The telescope has been reborn again and again over the years, thanks to the efforts of astronaut servicing crews. Astronauts wearing the equivalent of boxing gloves have gradually learned how to do things the telescope's designers had never dared dream of, fiddling with its innards, replacing circuit boards, and performing the equivalent of eye surgery and computer repairs in space.
- 21 The Hubble was hitting its stride, getting better and better, when the *Columbia* space shuttle disintegrated in 2003, killing all seven astronauts on board. That harkened the end of NASA's space shuttle dreams.
- 22 The agency's administrator, Sean O'Keefe, canceled what was to be the final Hubble servicing mission on the grounds that it was too risky. Without it, the telescope would be doomed to die in orbit within two or three years when its batteries and gyros failed again.
- 23 The decision was announced and defended by Dr. Grunsfeld, who was then NASA's chief scientist. "Being an astronaut, there are not a lot of things that have really shocked me in my life," Dr. Grunsfeld recalled later. "But I don't think anybody could ever prepare themselves for, you know, trying to bury something that they have said, 'Hey, this is worth risking my life for.'"
- 24 Mr. O'Keefe's decision ignited a national outcry. Schoolchildren offered to send their pennies to NASA to help pay for the telescope.

4. **four of the six gyroscopes . . . "safe mode."** Gyroscopes are devices that make sure the Hubble is facing the right way when making observations. The Hubble was designed to stop recording information if enough of its parts became damaged.

NOTES

Mark context clues or indicate another strategy you used that helped you determine meaning.

controversy (KON truh vur see) *n.*

MEANING:

Concept Vocabulary

CONTROVERSY If groups are struggling to define the word *controversy*, point out that there are hints within the text that will help them to define the word. Ask students to reread paragraph 17 and focus on the context clue *not without*. These words suggest that there is a problem (*records in black and white . . . assigned whatever color looks good*).

Possible response: *Controversy* means a "a dispute" or "discussion with opposing views."

VOCABULARY DEVELOPMENT

Word forms As students learned, *controversy* is a dispute or discussion over opposing views. Explain that the adjective form of *controversy* is *controversial*, and the adverb form is *controversially*. Have students use all three forms in sentences that demonstrate an understanding of what each word means. Have volunteers share their sentences.

CLOSER LOOK

Analyze Figurative Language



Circulate among groups as students conduct their close read. Suggest that groups close read paragraph 27. Encourage them to talk about the annotations they mark. If needed, provide the following support.

ANNOTATE: Have students mark details in paragraph 27 that show the writer's use of figurative language, or work with small groups as you highlight them together.

Question: Guide students to consider what these details might tell them. Ask what a reader can infer from the figurative language used in this paragraph, and accept student responses.

Possible response: The writer wants the reader to feel the big impact of the Hubble Telescope on the world.

CONCLUDE: Help students to formulate conclusions about the importance of these details in the text. Ask students why the author might have included these details.

Possible response: The Hubble telescopes images are not just pretty pictures, but they help the world see how large the universe really is and how we are but a small part of it.

Reminds students that **figurative language** is language that is used imaginatively rather than literally and includes one or more *figures of speech*, devices for making unexpected comparisons or for changing the usual meaning of words.

NOTES

- 25 Behind the scenes, however, Dr. Grunsfeld and other astronomers and NASA engineers were working on ways to save the Hubble, perhaps by sending robots to work on it.
- 26 The robotic approach was eventually rejected by a National Academy of Sciences panel, but it had served as a place holder to keep the teams of engineers together. In the end, Mr. O'Keefe resigned, and his successor, Michael Griffin, reinstated a servicing mission.
- 27 In 2009, Dr. Grunsfeld led one last mission to the Hubble. He was the last human to touch the telescope, patting it as the shuttle *Atlantis* prepared to let it go again. But that does not mean the telescope has ceased to **touch humanity**. On the contrary, it continues to deliver news about this thing we are all part of—a universe—but barely understand.
- 28 Earlier this spring, astronomers announced that the Hubble had seen a sort of cosmic mirage known as an Einstein ring, in which they could view multiple reruns of a star that died in a stupendous supernova explosion more than nine billion years ago on the other side of the cosmos.
- 29 NASA is making a big deal of the Hubble anniversary, with a weeklong symposium⁵ in Baltimore, where the Space Telescope Science Institute is based.
- 30 "This is a celebration partly about the telescope and partly about NASA," Dr. Grunsfeld said, "but much of it is a celebration of people doing science."
- 31 The Hubble today is more powerful than its designers ever dreamed, and it has a good chance of living long enough to share the universe with its designated successor, the James Webb Space Telescope, due to be launched in 2018. The Hubble's longevity is something few would have imagined 10 years ago, yet NASA is already planning a 30th-anniversary celebration in 2020, Dr. Grunsfeld said.
- 32 After a quarter-century, the telescope's future and promise are still as big as the sky and our ignorance of what lies behind it. 🌌

5. **symposium** *n.* conference where experts discuss a certain topic.

DIGITAL PERSPECTIVES

Illuminating the Text Have students find or provide students with several examples of images taken by the Hubble Telescope. Ask students to give their thoughts about the images. Ask them to compare what they see with what they might

have seen in the sky on a clear night. Also, given what they read in paragraph 17, ask them what they notice and what they think about the colors in images.

Comprehension Check

Complete the following items after you finish your first read. Review and clarify details with your group.

1. When was the Hubble Space Telescope launched into space?
2. What advantage does a telescope in space have over one located on the ground?
3. A *laughingstock* is the subject of a joke or an object of ridicule. According to the article, what flaw made Hubble a “laughingstock”?
4. What is Hubble’s most recent image?
5.  **Notebook** Confirm your understanding of the article by writing a short summary.

RESEARCH

Research to Clarify Choose at least one unfamiliar detail from the text. Briefly research that detail. In what way does the information you learned shed light on an aspect of the article?

Research to Explore Conduct research on an aspect of the text you find interesting. For example, you may want to learn more about the Hubble’s designated successor, the James Webb Space Telescope, due to be launched in 2018.

25 Years Later, Hubble Sees Beyond Troubled Start **515**

Comprehension Check

Possible responses:

1. The Hubble Telescope was launched into space on April 25, 1990.
2. A telescope in space would see more stars, unaffected by the atmosphere. It would also see the ultraviolet in infrared emissions blocked by the atmosphere.
3. The Hubble had a mistake, a spherical aberration, which caused it to have blurred images.
4. The Hubble saw a cosmic mirage known as an Einstein ring. With this, the Hubble saw multiple reruns of a star dying in a supernova explosion.
5. Summaries will vary but should include the following information: the Hubble launched in 1990; people were very excited, but the Hubble’s mirror had a flaw; a crew was sent in a space shuttle to fix the problem; the Hubble began sending back amazing images of planets and stars; NASA sent three more missions to repair the Hubble; the Hubble continues to send amazing images as NASA celebrates the telescope’s 25 years in space.

Research to Clarify

If students struggle to decide on a detail to research, you may want to suggest that they focus on one of the following topics: Lyman Spitzer Jr, Challenger, Discovery, NASA, Galileo, Endeavor, “Pillars of Creation,” John Grunsfeld, James Webb Space Telescope.

Research to Explore

If students aren’t sure how to go about formulating a research question, suggest that they use their findings from Research to Clarify as a starting point. For example, if students researched the James Webb Telescope, they might formulate a question such as, “What is unique about the James Webb Space telescope?”

PERSONALIZE FOR LEARNING

Challenge

Timeline Have students use what they have learned in this article and do more research about the history of the Hubble Space Telescope. Have students create a timeline of the telescope from its conception until today. Have students include images to enhance their timeline presentations. Display timelines. Survey the timelines and find unique details included in some timelines. Ask those students to share the details with the class.

Jump Start

CLOSE READ Space exploration—books, television shows, and movies have all glorified this idea. In fact, it is a reality. People have been to space, landed on the moon, orbited Earth, lived on the International Space Station and will someday go to Mars. Have students discuss why space exploration has such a hold on people’s imagination.

Close Read the Text

If needed, model close reading by using the Annotation Highlights in the Interactive Teacher’s Edition.

Remind students to use Accountable Talk in their discussions and to support one another as they complete the close read.

Analyze the Text

Possible responses:

1. The error shows that even brilliant people working on a long term project can make mistakes. Inventions are made by humans, who make mistakes.
2. Students may choose the third paragraph of the text, which describes Lyman Spitzer Jr.’s idea for a telescope in space. Students may wonder whether Spitzer worked on the Hubble. They may conclude that amazing inventions start with an idea.
3. Students may note that astronomers needed inspiration to envision the Hubble and to solve its problems but that they needed to work hard to make the Hubble work.

Concept Vocabulary

Why These Words? Possible response:

The concept words all have to do with the Hubble’s flaws or shortcomings. Another word that has to do with this concept is *laughingstock*.

Practice

Possible responses:

When the talented singer a note, it was an *aberration*. The woman studying rocks was an *amateur*, not a professional scientist. There is often a *controversy* over whether the country should spend a great deal of money on dangerous space missions.

Word Network

Possible words: capabilities, corrective, discerned, engineers

Word Study

For more support, see **Concept Vocabulary and Word Study**



MAKING MEANING



25 YEARS LATER, HUBBLE SEES BEYOND TROUBLED START

TIP

GROUP DISCUSSION

Take time to review the meanings of unfamiliar words and technical terms before discussing the article with your group.

WORD NETWORK

Identify words from the selection that relate to the concept of invention. Add these words to your Word Network.

STANDARDS

Language
Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *precede*, *recede*, *secede*).

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Close Read the Text

With your group, revisit sections of the text you marked during your first read. What do you **notice**? What **questions** do you have? What can you **conclude**?



Analyze the Text

CITE TEXTUAL EVIDENCE to support your answers.

Complete the activities.

1. **Review and Clarify** With your group, reread paragraphs 8–9 of the selection. Discuss the specific problem that the Hubble had. What does that problem show about the nature of invention?
2. **Present and Discuss** Now, work with your group to share the passages from the text that you found especially important. Take turns presenting your passages. Discuss what you noticed in the text, the questions you asked, and the conclusions you reached.
3. **Essential Question: Are inventions realized through inspiration or perspiration?** What has this article taught you about invention? Discuss with your group.

Concept Vocabulary

aberration amateur controversy

Why These Words? The concept vocabulary words from the text are related. With your group, determine what the words have in common. Write your ideas and add another word that fits the category.

Practice

Notebook Confirm your understanding of these words from the text by using each in a sentence. Provide context clues for the words.

Word Study

Latin root: -vers- The word *controversy* contains the Latin root *-vers-* meaning “to turn.” It also includes a variation of the Latin prefix *contra-*, which means “against” or “in opposition.” In the news article, the author explains that the images, or “postcards,” from Hubble were the subject of a *controversy* because people had different opinions on the accuracy and usefulness of the images. Based on the context and the meanings of the Latin word parts, you can infer that a *controversy* is a situation in which groups of people *turn against* each other. Use a dictionary to find the definitions of the following words that include the root *-vers-*: *reverse*, *subversive*, and *converse*. Then, briefly explain how the root *-vers-* contributes to the meaning of each word.

FORMATIVE ASSESSMENT

Analyze the Text

- If students struggle to close read the text, then provide the **Analyze the Text Questions** available online in the Interactive Teacher’s Edition or Unit Resources. Answers and DOK levels are also available.

Concept Vocabulary

If students struggle to understand the concept vocabulary, **then** review them in context again.

Word Study

If struggle to understand the Latin root *-vers-*, **then** review words that contain the root and how its meaning connects them all together.

Analyze Craft and Structure

Determine Author's Purpose: Diction and Tone “In “25 Years Later, Hubble Sees Beyond Troubled Start,” Dennis Overbye establishes the **tone** of the article through his **diction**, or **word choice**.

- **Tone** is the writer's attitude toward his or her audience and subject. For example, the tone might be formal or informal, serious or playful.
- **Diction** includes not only the individual words, but also includes the phrases and expressions the writer uses.
 - If the topic is technical or scientific, and the audience does not have a lot of prior knowledge, the writer may have to define terms or simplify **technical language**. Technical language is the language specific to a discipline. By using technical language, an author can be precise.
 - By using words with strong **connotations**, or associations, an author can shape readers' views. For example, calling a government program *disastrous* creates one picture; calling it *flawed* creates another.
- The use of **informal** or **formal** language can make a text serious or funny, academic or personal. The type of language used and the length and style of sentences and paragraphs can make a text seem simple or complex.

Use this chart to note how Dennis Overbye writes about the Hubble. Gather your notes in the chart and share your ideas with your group.

DICTION	PASSAGE	TONE
Where does the writer use precise scientific language? <i>blocked by the atmosphere and thus invisible to astronomers on the ground.</i>	Paragraph 3: “It would be able to see ultraviolet and infrared emissions that are	The tone is serious.
Where does the writer write simply about a complex scientific idea?	Paragraph 17: Writer describes how Hubble's images are assigned colors.	The tone is knowledgeable.
Where does the writer use words with strong connotations?	Paragraph 6: “laughingstock,” “technoturkey”	The use of the words makes the tone seem friendly and more humorous.
Where does the author use short sentences or paragraphs?	Paragraph 1: The paragraph is one sentence long.	The tone of introductory paragraph is surprised.

After sharing your notes, discuss the overall tone of the article with your group.

TIP

PROCESS

Some members of your group may have different ideas about the tone of the article. Different text selections may be easier for or more interesting to some readers than others. Focus on evidence in the text that shows the tone the author is trying to establish.

STANDARDS

Reading Informational Texts

- Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
- Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.

Analyze Craft and Structure

Diction and Tone Tone is an important tool of a writer, even when the writer is sharing information, rather than a piece of fiction. The tone of an article tells the reader how the writer feels. The writer's diction, or word choice helps the writer create the tone. Often, the writer's opinion can be discerned from the writer's diction. For more support, see **Analyze Craft and Structure: Diction and Tone.** 

See possible responses in chart on Student page.

FORMATIVE ASSESSMENT

Analyze Craft and Structure

If students struggle to understand the author's use of tone and diction, **then** review examples from the article.

For Reteach and Practice, see **Analyze Craft and Structure: Diction and Tone (RP).** 

PERSONALIZE FOR LEARNING

English Language Support

Connotations Remind students that the author uses the words *disastrous* and *flawed* to describe the Hubble experience. Have students explain what each means. Ask how the two words are similar. Ask which word has a stronger negative connotation. Ask: Would you rather fix a flawed project or a disastrous one? Have students suggest other sets of words that are similar in meaning but have different connotations.

Sounds of a Glass Armonica



AUDIO

Audio summaries of “Sounds of a Glass Armonica” are available online in both English and Spanish in the Interactive Teacher’s Edition or Unit Resources. Assigning these summaries prior to reading the selection may help students build additional background knowledge and set a context for their first read.

Summary

The media selection “Sounds of a Glass Armonica” presents composer and musician William Zeitler as he plays the glass armonica. Invented by Benjamin Franklin in 1761, the armonica premiered in 1762. The modern armonica shown in the video is a series of glass goblets attached horizontally to a slowly revolving rod that is propelled by a small motor. The player touches each goblet in a musical composition, producing an ethereal melody.

Insight

“Sounds of a Glass Armonica” provides an insight into the wide range of creativity of one of America’s earliest and most celebrated inventors. Not only was Franklin a creator of practical inventions, like the Franklin stove and bifocals, he was also a musician of some note. The glass armonica was very popular for musical occasions in which the room was small, but there was no way to amplify the sound. Today, the armonica is increasing in popularity, aided by modern sound technology.

ESSENTIAL QUESTION:

Are inventions realized through inspiration or perspiration?

Connection to Essential Question

The glass armonica is an invention that was inspired by water-tuned wineglasses centuries ago. It began, no doubt, as an exploration of sound made by glasses containing different amounts of liquid. Once Benjamin Franklin observed the phenomenon, the invention of an actual instrument turned the experiment into a matter of applied physics. The inspiration was realized through perspiration.

SMALL-GROUP LEARNING PERFORMANCE TASK

Are inventions realized through inspiration or perspiration?

Connection to Performance Tasks

Small-Group Learning Task Both inspiration and perspiration were involved in the invention of the armonica throughout its history. After viewing the video, students might appreciate the amount of perspiration involved in creating the instrument.

UNIT PERFORMANCE-BASED ASSESSMENT

What situations might encourage people to invent?

Unit Performance-Based Assessment Many situations encourage people to invent. Franklin was probably encouraged to invent the glass armonica by his interest in music and by the intellectual challenge involved.

TK

Media Complexity Rubric: Sounds of a Glass Armonica

Quantitative Measures

Format and Length Approximately 2:17 minute video

Qualitative Measures

Knowledge Demands

①—②—③—④—⑤

To fully understand the video, prior knowledge is needed about Benjamin Franklin. The video also contains reference to classical music (Mozart).

Structure

①—②—③—④—⑤

The video is a demonstration of the instrument Franklin invented with some verbal explanation.

Language Conventionality and Clarity

①—②—③—④—⑤

There is very little speaking in the video. There are some references to classical music that may need explanation.

Levels of Meaning/Purpose

①—②—③—④—⑤

Meaning and concepts are straightforward and easy to grasp.

LESSON RESOURCES

	Making Meaning	Effective Expression
Lesson	First Review Close Review Analyze the Media Media Vocabulary	Research
Instructional Standards	SL.1a Come to discussions prepared . . .	W.7 Conduct short research projects . . . W.8 Gather relevant information . . . SL.1 Engage effectively . . . SL.4 Present claims . . . SL.5 Integrate multimedia and visual displays . . .
STUDENT RESOURCES		
Available online in the Interactive Student Edition or Unit Resources	 Selection Audio  First-Review Guide: Media-Video  Close-Review Guide: Media-Video  Word Network	 Evidence Log
TEACHER RESOURCES		
Selection Resources Available online in the Interactive Teacher's Edition or Unit Resources	 Audio Summaries  Media Vocabulary	 Research: Presentation

Jump Start

FIRST REVIEW When the glass armonica was first played in the 18th century, the eerie sound it produced was said to drive some people mad. What kind of sound could do that? Why might it be easier for us, today, to hear such strange sounds and not go mad? Engage students in a discussion of how sound can affect our thoughts and emotions. As students discuss, urge them to also share the kinds of sounds that move them.

Sounds of a Glass Armonica

What would it be like to touch glass and create sound with your fingertip? What might you hear? Modeling questions such as these will help students connect to “Sounds of a Glass Armonica” and to the Small-Group Performance Task assignment. Selection audio for the selection is available in the Interactive Teacher’s Edition.

Media Vocabulary

Encourage groups to discuss the media vocabulary. Have they seen the terms in texts before? Do they use any of them in their speech and writing?

Ask groups to look closely at the three terms and ask how they relate to videos and films they see online every day. Point out that video clips are ubiquitous online. Have students discuss different ways that zoom and focus effects can be used in video clips.

FIRST REVIEW MEDIA

As they review, students should perform the steps of the first review:

WATCH: Remind students to play close attention to what the narrator says—and how.

NOTE: Encourage students to make notes of any elements of the video they may want revisit during their close review.

CONNECT: Encourage students to make connections beyond the video. If they cannot make connections to their own lives, have them consider music they have heard or strange instruments they’ve learned about.

RESPOND: Students will answer questions and write a summary to demonstrate understanding. Point out to students that while they will always complete the Respond step at the end of the first review, the other steps will probably happen



LANGUAGE DEVELOPMENT



25 YEARS LATER, HUBBLE SEES BEYOND TROUBLED START

Conventions

Dashes and Ellipses

- An **ellipsis** (. . .) shows an omission from a quoted passage. It can also show a pause or an interruption in speech.
- A **dash** (—) shows a strong, sudden break in thought or speech.

This chart shows when to use an ellipsis or a dash.

USE AN ELLIPSIS	EXAMPLES
to show the reader that you have chosen to omit a word or words from a quoted passage	As the inscription on the Statue of Liberty says, “Give me your tired, your poor”
to indicate a pause or an interruption in speech	The scientist said, “When I saw the telescope’s pictures, I . . . I couldn’t speak.”
USE A DASH	EXAMPLES
to show the reader that there is a strong, sudden break in thought or speech	“I can’t believe—hey, look at the meteor!—how gorgeous the night sky is.”
in place of <i>in other words</i> , <i>namely</i> , or <i>that is</i> before an explanation	The astronaut wanted one thing—to explore space in his lifetime.
to set off nonrestrictive elements (modifiers or other elements that are not essential to the meaning of the sentence) when there is a sudden break in thought	Albert Einstein—the physicist who developed the theory of relativity—became an American citizen in 1940.

Read It

Work with your group to complete each of the following items.

1. The following quotations are passages from the news article. Use an ellipsis to omit a portion of each quotation without altering the meaning.
 - a. “Few icons of science have had such a perilous existence, surviving political storms, physical calamities, and the simple passage of time in the service of cosmic exploration.”
 - b. “The telescope has been reborn again and again over the years, thanks to the efforts of astronaut servicing crews.”
2. Review the selection, and find at least two sentences in which the author uses dashes. Record the sentence, and determine the reason the author used dashes based on the information about dashes included in the chart.

Write It

Notebook Write a brief paragraph in which you explain what you learned from the news article about the Hubble Space Telescope. In your paragraph, use an ellipsis and a dash in each of the ways indicated in the chart.

STANDARDS

- Language
- Use punctuation (comma, ellipsis, dash) to indicate a pause or break.
 - Use an ellipsis to indicate an omission.

PERSONALIZE FOR LEARNING

English Language Support

Some students may have difficulty with the exact meaning of the word *zoom*, which describes something between a sound and a motion. Explain that the word *zoom* actually derived from the sound it describes. It was first used in the 1880s as a noun, but in World War I, aviators

used it as a verb to describe the action of their planes. It wasn’t until 1936 that the word was used to describe a camera lens—and the zooming action of moving in for a close up. Elicit that this means *zoom* is an onomatopoeic, meaning the word sounds like what it is—like *splat* or *squish*.



Speaking and Listening

Assignment

With your group, conduct a **debate** in which you respond to one of the following **propositions**, or statements of opinion:

- ☐ **Proposition 1:** Learning about the universe with a space telescope, such as Hubble, is a worthwhile pursuit that should be endorsed and well funded.
- ☐ **Proposition 2:** The Hubble's flaws prevent it from providing humans with accurate and useful information about the universe.

Project Plan Decide which proposition your group will debate. With your group, determine which members will argue for the proposition and which members will argue against it. Choose a moderator to keep time and see that the debaters follow the rules. Keep the following instructions in mind:

Preparing for the Debate

- Conduct research to identify evidence and examples that support your position.
- Jot down reasons that support your argument as well as evidence from the selection and from your research that supports these reasons.
- Create a thesis, or statement of your position, from your notes. Present this thesis during your opening statement.
- Prepare for your opponents' arguments by thinking about the topic from their perspective and considering the arguments that they might make.

Taking Part in the Debate

- During the debate, each participant should build on or respond to the arguments presented by the previous speaker.
- Refer to supporting evidence from the selection and from your research.
- Listen carefully to speakers on the opposing side during the debate, so that you can address their arguments and make counterclaims to their position.
- Listen carefully for errors in logic and reasoning in your opponents' arguments. You can use these errors in your counterclaims to reinforce the validity of your position.
- Use a respectful tone during the debate, particularly when pointing out flaws or weaknesses in your opponents' arguments.

EVIDENCE LOG

Before moving on to a new selection, go to your Evidence Log and record what you learned from "25 Years Later, Hubble Sees Beyond Troubled Start."

STANDARDS

Speaking and Listening

- Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
- Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
- Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.
- Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.
- Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.
- Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.

25 Years Later, Hubble Sees Beyond Troubled Start **519**



CLOSER REVIEW

Analyze Zoom

Circulate among groups as students conduct their close review. Suggest that groups close review [0:52 to 1:05] in the video. Encourage them to talk about the notes they make. If needed, provide the following support.

NOTE: Have students note the details in the video that show how the camera zooms, or work with small groups to have students participate while you note them together.

Question: Guide students to consider what the details they noted might tell them. Ask what a viewer can infer from the zooming in, and accept possible responses.

Possible response: When the camera zooms in, the viewer can see exactly what the musician does with his hands.

CONCLUDE: Help students to formulate conclusions about the importance of these details in the video. Ask students why the director might have included these details.

Possible response: The director probably wanted to remove some of the "mystery" of the glass armonica, which is very different from other instruments. By zooming in on the musician's hands and fingers, the director lets the viewer understand how the instrument is played.



FACILITATING SMALL-GROUP CLOSE REVIEWING

Video As groups perform the closer review, circulate and offer support as needed.

- Remind groups that when they view and listen to a video, they should pay close attention to anything being said—and the information those words may seek to convey.
- If the group is confused about how the music is produced, talk them through the basics of

how vibration produces sound, and sound has different pitches—with shorter wavelengths providing the higher sounds.

- Challenge groups to come up with their own simple description of how the glass armonica produces its unique sound.

Comprehension Check

- Possible responses:
- 1. Friction between the glass and a wet fingertip.
 - 2. Benjamin Franklin
 - 3. It's there for the performer to wet his or her fingers.
 - 4. Mozart

Jump Start

CLOSE REVIEW Ask students whether any of them have run a wet finger around the lip of wine glass. Have them consider the following prompts: *What kind of noise does that friction produce? What was Franklin's insight? How did he turn that into a playable instrument?* As students discuss the prompts in their groups, have them consider other unusual noise-makers and how those could be turned into instruments.

Close Review

If needed, model close reviewing by using the Closer Review note in the Interactive Teacher's Edition.

Remind students to use Accountable Talk in their discussions and to support one another as they complete the close review.

Analyze the Media

- Possible responses:
- 1. Responses will vary by group. Remind students to review their notes from the first review to get details that support their assertions before discussing with the group.
 - 2. Responses will vary by group. Groups should support their assertions about how the glass armonica was created and what went into the design process with specific reference to the video.
 - 3. Responses will vary. Groups should conclude that some combination of perspiration and inspiration is required, though they may place emphasis on one or the other.

Media Vocabulary

Make sure that students use the words accurately. For more support, see **Media Vocabulary**

Word Network

Students may suggest such words as *voila*, *custom-blown*, and *invention*.



MAKING MEANING

About the Musician
William Zeitler (b. 1954) earned his music degree from the California Institute of the Arts. He is a pianist, composer, and the author of a book on the history of the glass armonica. He is also one of the world's few professional armonica players and has released five CDs of original armonica music.

Sounds of a Glass Armonica

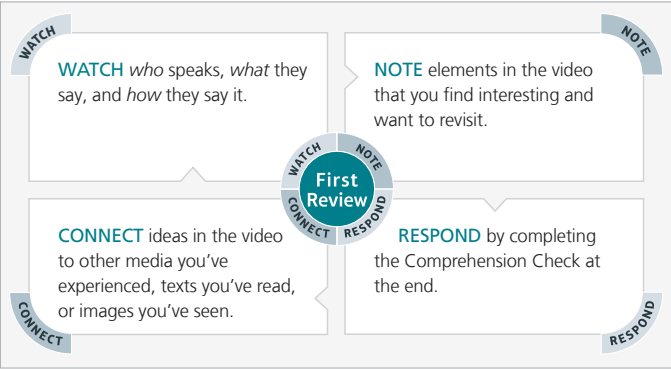
Media Vocabulary

The following words will be useful to you as you analyze, discuss, and write about the video.

Zoom: to enlarge, magnify, or close in on an image	<ul style="list-style-type: none">• Elements within the lens create the camera's zoom effect.• Zooming in on an image emphasizes its importance.
Video Clip: a short video, often part of a larger recording, that can be used on a website	<ul style="list-style-type: none">• The term "video clip" is used to mean any short video shorter than the length of a traditional television program.• A video clip can contain video, audio, animation, graphics or any other content.
Focus: to aim the camera so that it creates distinct image	<ul style="list-style-type: none">• A shot that is out of focus can seem mysterious and eerie.• Some photographers prefer sharply focused images and bright colors.

First Review MEDIA: VIDEO

Review the video using these strategies.



STANDARDS
Language
Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

FORMATIVE ASSESSMENT

Analyze the Media

If students fail to cite evidence, then remind them to find specific details from the video as evidence to support their ideas.

Media Vocabulary

If students don't use the media vocabulary accurately, then remind re-read the definitions and practice using each term in sentences.

Sounds of a Glass Armonica



BACKGROUND

Although Benjamin Franklin is well known for his role in the foundation of the United States, he was also one of the era's foremost scientists. Among his numerous inventions were the "Franklin stove," the lightning rod, bifocals, the rocking chair, and a musical instrument called the armonica, that premiered in 1762. At first Franklin named the instrument the "glassychord," but soon changed it to *armonica*—based on the Italian word *armonia*, which means "harmony."

SCAN FOR
MULTIMEDIA 

NOTES

Sounds of a Glass Armonica 521

Research

Assignment If groups have trouble deciding which task to take on, encourage them to try a democratic approach, discussing both topics first, then voting with a show of hands to find out which presentation is the most popular.

Project Plan Make clear that doing some preliminary research to discover what the options are is a good way to proceed—whichever instrument the group finally decides upon. Once they have an array of possible instruments, for instance, the group can make an educated decision about which one they most want to investigate.

Presentation Point out that different members of a group may be better at—or more comfortable with—certain parts of the presentation than with other parts. As groups practice their presentations, encourage them to be flexible in assigning parts.

For more support, see **Research:**

Presentation. 

Evidence Log Support students in completing their Evidence Log. This paced activity will help prepare them for the Performance-Based Assessment at the end of the unit.

FORMATIVE ASSESSMENT

Research Presentation

If students are unable to find an instrument for their presentation, **then** have them write a brief summary of what happens in each.

PERSONALIZE FOR LEARNING

Strategic Support

Research Students may require support in finding out how to actually build a homemade instrument. Encourage them to check out educational sites on the Internet, or add the phrase "for kids" to a search to limit it to doable projects, as in "Make Your Own Zither for Kids." They can then sift through the results and possibly find sites with multiple, doable projects that can help them create their own instrument.

Conduct a Small Group Debate

Assignment Before groups begin work on their projects, have them clearly differentiate the role each group member will play. Remind groups to consults the schedule for Small-Group Learning to guide their work during the Performance Task.

Students should complete the assignment using presentation software to take advantage of text, graphics, and sound features.

Analyze the Text Remind groups that although one selection may offer the most powerful evidence for their position, it is important that they consider evidence from all of the selections. Even if one selection does not seem to support the group's position at all, analyzing the selection will still be helpful for identifying potential counterclaims.

Gather Evidence and Media Examples Remind students that the position they are arguing for does not necessarily have to reflect their own personal viewpoint. Remind them to look for evidence that supports their group's chosen position, *not* their personal views.



MAKING MEANING

Comprehension Check

Complete the following items after you finish your first review. Review and clarify details with your group.

- 1. What produces sound in the glass armonica?
- 2. Who invented the glass armonica?
- 3. What is the purpose of the bowl of water shown in the video?
- 4. What famous composer wrote for the glass armonica?

MEDIA VOCABULARY

Use these words as you discuss and write about the video.

zoom
video clip
focus

WORD NETWORK

Identify words from the video that relate to the concept of invention. Add these words to your Word Network.

STANDARDS

Speaking and Listening
Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.

Close Review

Watch the video or parts of it again. Write any new observations that seem important. What **questions** do you have? What can you **conclude**?



Analyze the Media

CITE TEXTUAL EVIDENCE to support your answers.

Complete the activities.

- 1. **Present and Discuss** Choose the section of the video you found most interesting or powerful. Share your choice with the group and explain what you notice in video, the questions it raises for you, and the conclusions you reached about it.
- 2. **Review and Synthesize** With your group, review the whole video. What did you learn about how the armonica was created? What do you think went into the design process?
- 3. **Essential Question: Are inventions realized through inspiration or perspiration?** What has this video revealed about whether inventions are realized through inspiration or perspiration? Discuss with your group.

AUTHOR'S PERSPECTIVE

Ernest Morrell, Ph.D.

Digital Speech Since "a picture is worth a thousand words," help students find and use effective images for oral presentations. Remind students to give full credit to visual sources, as they would for print ones. Teachers can guide students to create rhetorically powerful digital presentation such as slideshows, blogs, and online forums using these suggestions:

- *Keep it simple.* Choose one striking image rather than several smaller ones. Position the visual carefully, allowing "white space" to make the image stand out.

- *Go for quality.* Choose clear, high-quality images or take high-resolution photos.
- *Limit bullet points and text.* The most effective slideshows have limited text. Suggest that slides should have no more than six words across and six lines down of text.
- *Choose color and font carefully.* Cool colors (blues, greens) work best for backgrounds; warm colors (orange, red)



Research

Assignment

Create a **presentation** highlighting a homemade or unusual musical instrument. Choose from the following topics:

- ☐ Research and present information on an unusual musical instrument, such as the armonica, the steel drum, and the theremin.
- ☐ Research and present information on a “homemade” instrument, such as the glass xylophone, saw, and tissue-paper-and-comb.

Project Plan

- With your group, formulate a plan for your presentation. Decide which instrument to research, the kind of research you will conduct, and the best way to present your information.
- Find research sources, and make sure each is reliable and trustworthy.
- Find visuals, video, and audio to use in your presentation.
- Consider giving a short demonstration showing the technique involved in producing the sound of the instrument.
- Try designing a musical instrument of your own based on what you have learned from your research.
- Work with your group to identify search terms that will lead you to the best, most relevant information.
- Decide who is responsible for each task in the project.

Use a chart like this to organize your ideas.

PRESENTER	SCRIPT	MEDIA

Presentation With your group, run through your presentation before you present it to the class. Try to present information from research as clearly as possible. Emphasize key points and help listeners in the class understand the information through the wording you use and through visuals.



SOUNDS OF A GLASS ARMONICA

EVIDENCE LOG

Before moving on to a new selection, go to your Evidence Log and record what you learned from the video.

STANDARDS

- Writing**
- Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
 - Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
- Speaking and Listening**
- Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
 - Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.
 - Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

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Organize Your Ideas Remind groups that their thesis should be a concise sentence that clearly states their position. Encourage students to evaluate the strength and credibility of each piece of evidence they use. Point out that it's more effective to make a few really strong points than a dozen flimsy points. For every claim students make, they should carefully consider how they would address the counterarguments.

Rehearse With Your Group

Practice With Your Group Point out to students that their debate rehearsal will not be exactly like the real thing because they will not be interacting with the other team in their rehearsal. However, a rehearsal is still useful because it allows students to practice presenting their claim and their main reasons and evidence. Explain that for the real debate, they will need to be prepared—as much as possible—for the unexpected.

Improve Your Debate Technique Suggest that the moderator uses a timer during the debate rehearsal to ensure that speakers stay within their allotted time limits. Moderators also might give speakers a cue when they have 30 seconds left.

Present and Evaluate

Before beginning the debates, set the expectations for the audience. You may wish to have students consider these questions as other groups debate.

- What is the group's thesis?
- What are the group's strongest supporting reasons and evidence?
- What debate techniques did this group excel at?

PERSONALIZE FOR LEARNING

Strategic Support

Counterclaims If some groups have trouble thinking of, and addressing, potential counterclaims to their argument, suggest that they hold a “mini-debate” during the planning process. They should divide their group into two halves and have one half argue for the opposing side. As the first half presents their claims and

evidence, the second half will attempt to rebut their arguments. This will help students anticipate the other group's arguments during the real debate. Explain that the act of arguing for the other side, simply for the sake of debate or to explore a position further, is called “playing devil's advocate.”

INDEPENDENT LEARNING

Are inventions realized through inspiration or perspiration?

Encourage students to think carefully about what they have already learned and what more they want to know about the unit topic of invention. This is a key first step to previewing and selecting the text or media they will read or review in Independent Learning.

Independent Learning Strategies

Review the Learning Strategies with students and explain that as they work through Independent Learning they will develop strategies to work on their own.

- Have students watch the video on Independent Learning Strategies.
- A video on this topic is available online in the Professional Development Center.

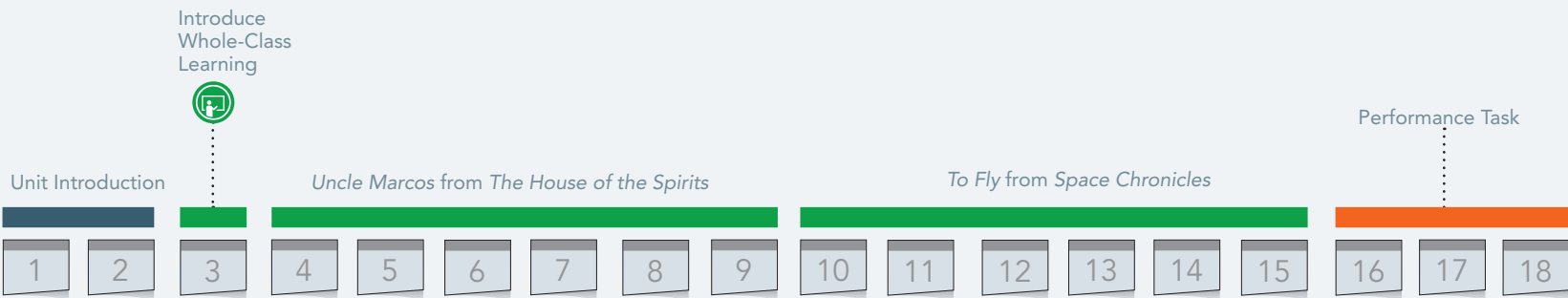
Students should include any favorite strategies that they might have devised on their own during Whole-Class and Small-Group Learning. For example, for the strategy “Create a schedule” students might include:

- Understand the goals and deadlines.
- Make a schedule for what to do each day.

Block Scheduling

Each day in this Pacing Plan represents a 40–50 minute class period. Teachers using block scheduling may combine days to reflect their class schedule. In addition, teachers may revise pacing to differentiate and support core instruction by integrating components and resources as students require.

Pacing Plan



PERFORMANCE TASK: SPEAKING AND LISTENING FOCUS

SOURCES

- NIKOLA TESLA: THE GREATEST INVENTOR OF ALL?
- FROM THE INVENTION OF EVERYTHING ELSE
- 25 YEARS LATER, HUBBLE SEES BEYOND TROUBLED START
- SOUNDS OF A GLASS ARMONICA

Tool Kit
Collaboration Checklist

- STANDARDS
- Speaking and Listening
- Delineate a speaker’s argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.
 - Present claims and findings (e.g., argument, narrative, response to literature presentations), emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.

Conduct a Small Group Debate

Assignment

You have read articles, excerpts from novels, and viewed videos that deal with how inventions are made. With your group, pair up with another group to conduct a debate in which each team takes a position on the Essential Question:

Are inventions realized through inspiration or perspiration?

Plan With Your Group

Support your position with evidence and examples from reading, viewing, and analyzing the selections in this part of the unit. Use the chart to list your ideas. For each selection, identify evidence about whether inventions are realized through inspiration or perspiration. Use the evidence to begin planning the argument you will make in the debate. Refer to the collaboration checklist for tips on working effectively as a group.

TITLE	SUPPORTING EVIDENCE
Nikola Tesla: The Greatest Inventor of All?	
from The Invention of Everything Else	
25 Years Later, Hubble Sees Beyond Troubled Start	
Sounds of a Glass Armonica	

Gather Evidence and Media Examples As a group, discuss your notes and ideas. Identify specific examples from the selections to support your group’s position. Allow each group member to make suggestions.

Organize Your Ideas As a group, organize your notes for the debate. Craft a thesis, or statement of your position. Present this thesis during your opening statement. Prepare for your opponents' arguments by considering possible counterclaims to their position. Assign one member in each group to moderate the debate and keep responses within a designated time limit. As you make your arguments, be sure to support your position by citing specific examples from the texts and media.

PREPARE YOUR ARGUMENT	
Position	
Examples That Support Position	
Counterclaims and Arguments To Address Counterargument	

Rehearse With Your Group

Practice With Your Group As you practice for the debate, use this checklist to evaluate the effectiveness of your group's rehearsal. Then, use your evaluation and the instruction here to guide your revision.

CONTENT	DEBATE TECHNIQUE	PRESENTATION TECHNIQUES
☐ Thesis is presented clearly and is supported by logical arguments. ☐ Position supported with evidence from the texts.	☐ Each speaker speaks within the allotted time limit. ☐ The moderator effectively moderates speakers. ☐ Points are clear and can be followed.	☐ Each speaker argues with energy and conviction. ☐ Each speaker speaks clearly.

Fine-Tune the Content To make your debate stronger, you may need to review evidence to be sure it supports your thesis. If your position is not fully supported, add information to better support your points.

Improve Your Debate Technique Review all the points that you will use in the debate. If any are difficult to follow, try rewording or simplifying or defining technical language.

Present and Evaluate

As you listen to other groups' debates, evaluate how well they meet the checklist. After the debate, discuss whether the other group's reasoning was logical and the evidence cited was sufficient and relevant. Then, discuss and reflect on any new information you gained from the process and whether it changed your initial views on the subject.

STANDARDS

Speaking and Listening

- Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
- Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
- Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.
- Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.
- Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.
- Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.

Contents

Selections Encourage students to scan and preview the selections before choosing the one they would like to read or review. Suggest that they consider the genre and subject matter of each one before making their decision. You can use the information on the following Planning pages to advise students in making their choice.

Remind students that the selections for Independent Learning are only available in the digital edition of *myPerspectives™*. Allow students who do not have digital access at home to preview the selections or review the media selection(s) using classroom or computer lab technology. Then either have students print the selection they choose or provide a printout for them.

Performance-Based Assessment Prep

Review Evidence for an Argument Point out to students that collecting evidence during Independent Learning is the last step in completing their Evidence Log. After they finish their independent reading, they will synthesize all the evidence they have compiled in the unit.

The evidence students collect will serve as the primary source of information they will use to complete the writing and oral presentation for the Performance-Based Assessment at the end of the unit.

Performance Task: Conduct a Small Group Debate **525**

Introduce Small-Group Learning



Nikolas Tesla: The Greatest Inventor of All?

from The Invention of Everything Else

25 Years Later, Hubble Sees Beyond Troubled Start

Media: *Sounds of a Glass Armonica*

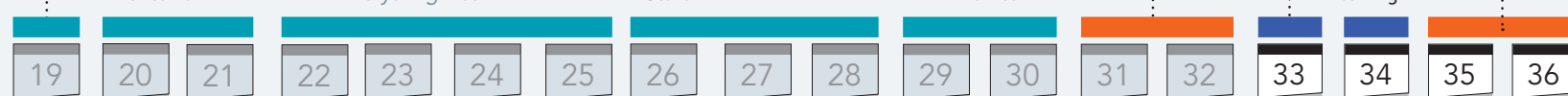
Introduce Independent Learning



Performance Task

Performance-Based Assessment

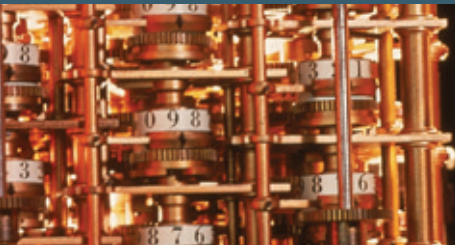
Independent Learning



INDEPENDENT LEARNING

Independent Learning

525



SELECTION RESOURCES

- First-Read Guide: Nonfiction
- Close-Read Guide: Nonfiction
- Comprehension Check and Analyze the Text
- Audio Summaries
- Selection Audio
- Selection Test

Ada Lovelace: A Science Legend

Summary

This blog entry by James Essinger, “Ada Lovelace: A Science Legend,” recounts a brief history of Ada Lovelace’s life and genius. Lovelace, the only legitimate child of Lord Byron, never knew her father. Guided by her mother into an education that emphasized mathematics, she had an irrepressible imagination. Her chance meeting with the inventor Charles Babbage introduced her to his “Analytical Engine,” an early attempt to create a computer. Although Babbage rejected her help, Lovelace went on to write what is seen as the world’s first computer program. Today Ada Lovelace is regarded as “one of the most insightful and visionary women in the history of science.”

Insight

Reading about Ada Lovelace will show students that some inventors are handicapped by being born ahead of their time. Lovelace was a woman in an age that did not value women’s intelligence or knowledge.

Connection to Essential Question

The Essential Question, “Are inventions realized through inspiration or perspiration?” is moot in the case of Ada Lovelace. Lovelace’s invention was not realized until more than a century after her death.

Connection to Performance-Based Assessment

What situations might encourage people to invent? Many situations encourage invention, but “Ada Lovelace: A Science Legend” suggests that many woman were discouraged from inventing before the twentieth century. Society relegated women to less important activities and often did not take their ideas seriously.

Text Complexity Rubric: Ada Lovelace: A Science Legend

Quantitative Measures	
Lexile: 1320 Text Length: 1402 words	
Qualitative Measures	
Knowledge Demands ① — ② — ③ — ④ — ⑤	The central subject (a woman influential in the pre-history of the computer) may not be familiar to all students, but the ideas are explained clearly.
Structure ① — ② — ③ — ④ — ⑤	The selection is biographical and written with conversational language, making it easy to follow.
Language Conventionality and Clarity ① — ② — ③ — ④ — ⑤	Some sentences in the explanation are complex, with multiple clauses and difficult vocabulary, and some figures of speech (“digital friends”).
Levels of Meaning/Purpose ① — ② — ③ — ④ — ⑤	Selection has only one level of meaning. The main concept and supporting ideas are clearly stated when reading or listening.

MY NOTES

Fermented Cow Dung Air Freshener Wins Two Students Top Science Prize

Summary

Kimberley Mok's blog article reports on an organic air freshener made by treating cow dung. Most commercial air fresheners contain potentially harmful chemicals. The cow dung air freshener won top prize for two students in Indonesia's Science Project Olympiad. The students extracted the water from fermented manure and mixed it with coconut water. They then distilled the liquid to eliminate impurities. The result is an inexpensive natural air freshener with an herbal aroma.

Insight

The article will reinforce the idea that anyone with a creative idea can be an inventor. The students chose materials that are common and abundant in their environment and used them to make a product that is competitive with more expensive—and less dangerous—products with a similar purpose.

SELECTION RESOURCES

- First-Read Guide: Nonfiction
- Close-Read Guide: Nonfiction
- Comprehension Check and Analyze the Text
- Audio Summaries
- Selection Audio
- Selection Test

Connection to Essential Question

The Essential Question "Are inventions realized through inspiration of perspiration?" is often answered with the word *both*. The students in the article went to some effort to create their product, but their inspiration was probably the result of study and research.

Connection to Performance-Based Assessment

What situations might encourage people to invent? The invention of the cow dung air freshener was encouraged by the urge to compete. The students wanted to have an experiment for their science fair. Many inventions are the result of competition to be first or best at producing something new.

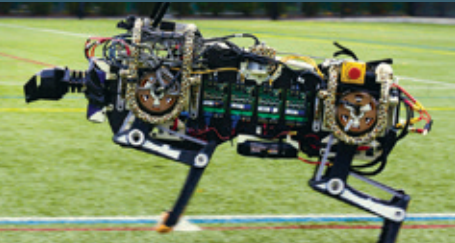
Text Complexity Rubric: Fermented Cow Dung Air Freshener Wins Science Prize

Quantitative Measures

Lexile: 1460 Text Length: 292 words

Qualitative Measures

Knowledge Demands ①—②—③—④—⑤	The topic will probably not be familiar to students, but the concept is explained clearly.
Structure ①—②—③—④—⑤	The selection is logically organized and connections between ideas are clear.
Language Conventionality and Clarity ①—②—③—④—⑤	Some sentences in the explanation are complex, with multiple clauses and difficult vocabulary; figurative language ("toxic soup").
Levels of Meaning/Purpose ①—②—③—④—⑤	Selection has only one level of meaning. The main concept and supporting ideas are clearly stated when reading or listening.



SELECTION RESOURCES

- First-Read Guide: Nonfiction
- Close-Read Guide: Nonfiction
- Comprehension Check and Analyze the Text
- Audio Summaries
- Selection Audio
- Selection Test

Scientists Build Robot That Runs, Call It “Cheetah”

Summary

Rodrique Ngowi’s newspaper article, “Scientists Build Robot That Runs, Call It ‘Cheetah,’” describes a robot that is controlled by video game technology and existing sensors from military equipment. However, key elements had to be invented. Scientists created powerful lightweight motors. They devised complex algorithms to balance the robot and provide the appropriate amount of force to each leg. Scientists hope to develop sensors that will make the robot autonomous. Funded by the U.S. Department of Defense, the final result of the research is intended both for military and civilian use.

Insight

This article about robot technology points out the variety of purposes. It demonstrates that groups of scientists can use both established technology and creativity to produce a new generation of technology.

Connection to Essential Question

Reading “Scientists Build Robot That Runs, Call It “Cheetah” provides an answer to the Essential Question, “Are inventions realized through inspiration or perspiration?” Students will understand that the invention of a technology product can take decades of hard work.

Connection to Performance-Based Assessment

The question “What situations might encourage people to invent?” can be answered by considering that the robot described in the article has a dual purpose—military and civilian. Ultimately, the scientist are encouraged to invent by the knowledge that the robot will someday save lives.

Text Complexity Rubric: Scientist Build Robot That Runs, Call it “Cheetah”

Quantitative Measures	
Lexile: 1380 Text Length: 598 words	
Qualitative Measures	
Knowledge Demands ① — ② — ③ — ④ — ⑤	Explores complex themes that will be unfamiliar; explanation is provided for only some of the complex ideas.
Structure ① — ② — ③ — ④ — ⑤	Information in the selection is logically organized, but connections between ideas are not always completely explicit or in a predictable sequence.
Language Conventionality and Clarity ① — ② — ③ — ④ — ⑤	The syntax includes many complex sentences; selection has a lot of above-level vocabulary. (prototype, Kevlar strips, carbon fiber)
Levels of Meaning/Purpose ① — ② — ③ — ④ — ⑤	The main idea is revealed early, but the concept may be hard for some to grasp because of sophisticated language and supporting concepts that are complex.

MY NOTES

SELECTION RESOURCES

- First-Read Guide: Fiction
- Close-Read Guide: Fiction
- Comprehension Check and Analyze the Text
- Audio Summaries
- Selection Audio
- Selection Test

from *The Time Machine: An Invention*

Summary

In this excerpt from H.G. Wells's *The Time Machine*, the Time Traveler explains his invention to a skeptical group comprised of men from various walks of life—most of them scientific—and the narrator. The Time Traveler shows them a miniature version of his time machine and allows the Psychologist to press the lever that sends the small machine through time. After all have expressed their amazement and disbelief, the Time Traveller shows them the full-size machine. They are still skeptical.

Connection to Essential Question

Students will find that the excerpt from *The Time Machine* provides an enigmatic answer to the Essential Question, “Are inventions realized through inspiration or perspiration?” The reader does not know the extent of the effort expended by the Time Traveler, but one can imagine that it is considerable. As for inspiration, the invention was clearly a remarkable inspiration.

Connection to Performance-Based Assessment

The question “What situations might encourage people to invent?” has a clear answer when it comes to Wells's Time Traveller. He is curious and daring. He is encouraged to invent because he wants to test the limits of time.

Insight

This excerpt from the famous novel by H.G. Wells illustrates the difficulty inventors sometimes face when making claims for their inventions. The novel is one of several novels of the late nineteenth century that can be classified as science fiction. Many of the inventions in those early novels have since become a reality. Time travel is one of the few inventions that has yet to materialize.

Text Complexity Rubric: from *The Time Machine*

Quantitative Measures

Lexile: 840 Text Length: 1341 words

Qualitative Measures

Knowledge Demands ①—②—③—④—⑤	Students will not be familiar with the situation that is central to the selection. Clear explanations are made of many but not all the elements in the selection.
Structure ①—②—③—④—⑤	Organization of the first-person narrative is mostly sequential; Paragraphs contain a lot of information, but quotes break up the text somewhat.
Language Conventionality and Clarity ①—②—③—④—⑤	Sentences are long with embedded clauses, above-level vocabulary and challenging scientific concepts. Selection was written in the late 1800s, so language style changes and some expressions may be unfamiliar.
Levels of Meaning/Purpose ①—②—③—④—⑤	The main idea is not difficult, but the concept may be hard for some to grasp because of sophisticated language and supporting concepts that are complex.



“Icarus and Daedalus” from *Old Greek Folk-Stories Told Anew*

Summary

“Icarus and Daedalus” from *Old Greek Folk-Stories Told Anew* by Josephine Preston Peabody, tells the story of Daedalus, a great inventor, and his son Icarus. Imprisoned in a tower in Crete with his son, Daedalus made two wings from feathers, string, and wax. He taught himself to fly, and then made wings for Icarus. Both took flight, but Icarus flew too close to the sun, and the wax in his wings melted. Icarus plunged to his death. Daedalus was overcome with grief. He hung his wings in the temple of Apollo and never tried to fly again.

Insight

This is a classical story that warns about inventions. Although one might love to invent things, one must always consider the consequences. The fate of Icarus can be attributed to the anger of the gods at Daedalus’ attempting to appear divine, or it can indicate that Daedalus did not take into account his son’s impetuosity when he made the wings for him.

SELECTION RESOURCES

- First-Read Guide: Fiction
- Close-Read Guide: Fiction
- Comprehension Check and Analyze the Text
- Audio Summaries
- Selection Audio
- Selection Test

Connection to Essential Question

The Essential Question is “Are inventions realized through inspiration or perspiration?” In the case of Daedalus, both were important. The inspiration was provided by intelligent observation. The realization of the invention depended on the practical application of Daedalus’ genius.

Connection to Performance-Based Assessment

What situations might encourage people to invent? There are many answers to this question, but in the case of Daedalus, the situation that spurred invention was his imprisonment in a tower. The desire for freedom has inspired many.

Text Complexity Rubric: Icarus and Daedalus

Quantitative Measures	
Lexile: 1090 Text Length: 719 words	
Qualitative Measures	
Knowledge Demands ① — ② — ③ — ④ — ⑤	The selection is a Greek myth that may be unfamiliar to students. Background information and context will be helpful, but the story is fairly straightforward.
Structure ① — ② — ③ — ④ — ⑤	The selection is a linear story with some dialogue.
Language Conventionality and Clarity ① — ② — ③ — ④ — ⑤	Selection has complex sentences with antiquated language, figurative language, and many descriptive passages.
Levels of Meaning/Purpose ① — ② — ③ — ④ — ⑤	Multiple levels of meaning; meaning is not always explicit; the main idea is clear, but some of the supporting concepts are complicated.

MY NOTES

You may wish to direct students to use the generic **First-Read** and **Close-Read Guides** in the Print Student Edition. Alternatively, you may wish to print copies of the genre-specific **First-Read** and **Close-Read Guides** for students. These are available online in the Interactive Student Edition or Unit Resources. 

FIRST READ

- Students should perform the steps of the first read independently.
- NOTICE:** Students should focus on the basic elements of the text to ensure they understand what is happening.
- ANNOTATE:** Students should mark any passages they wish to revisit during their close read.
- CONNECT:** Students should increase their understanding by connecting what they’ve read to other texts or personal experiences.
- RESPOND:** Students will write a summary to demonstrate their understanding.

Point out to students that while they will always complete the Respond step at the end of the first read, the other steps will probably happen somewhat concurrently. Remind students that they will revisit their first-read annotations during the close read. You may wish to print copies of the First-Read Guide for students to use.

After students have completed the First-Read Guide, you may wish to assign the Comprehension Check and Analyze the Text Questions for the selection that are available in the Digital Teacher’s Edition.

Anchor Standards

In the first two sections of the unit, students worked with the whole class and in small groups to gain topical knowledge and greater understanding of the skills required by the anchor standards. In this section, they are asked to work independently, applying what they have learned and demonstrating increased readiness for college and career.



INDEPENDENT LEARNING

First-Read Guide

Use this page to record your first-read ideas.

Selection Title: _____

 **Tool Kit**
First-Read Guide and
Model Annotation

NOTICE

NOTICE new information or ideas you learn about the unit topic as you first read this text.

ANNOTATE

ANNOTATE by marking vocabulary and key passages you want to revisit.

CONNECT

CONNECT ideas within the selection to other knowledge and the selections you have read.

RESPOND

RESPOND by writing a brief summary of the selection.

First Read

 **STANDARD**
Reading Read and comprehend complex literary and informational texts independently and proficiently.

528 UNIT 5 • INVENTION

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PERSONALIZE FOR LEARNING

Challenge

Additional Questions To help students reflect on their first read and prepare for the close read, encourage them to think about what more they would like to know about a text. Ask students to write two to three questions they have about the text. Then, students can meet in small groups

with others who have read the same text. Each group can share First-Read Guides and their additional questions before proceeding to the Close Read.

Close-Read Guide

 **Tool Kit**
Close-Read Guide and
Model Annotation

Use this page to record your close-read ideas.

Selection Title: _____

Close Read the Text

Revisit sections of the text you marked during your first read. Read these sections closely and **annotate** what you notice. Ask yourself **questions** about the text. What can you **conclude**? Write down your ideas.



Analyze the Text

Think about the author's choices of patterns, structure, techniques, and ideas included in the text. Select one, and record your thoughts about what this choice conveys.

QuickWrite

Pick a paragraph from the text that grabbed your interest. Explain the power of this passage.

 STANDARD

Reading Read and comprehend complex literary and informational texts independently and proficiently.

Overview: Independent Learning **529**

 CLOSE READ

Students should begin their close read by revisiting the annotations they made during their first read. Then, students should analyze one of the author's choices regarding the following elements:

- **patterns**, such as repetition or parallelism
- **structure**, such as cause-and-effect or problem-solution
- **techniques**, such as description or dialogue
- **ideas**, such as the author's main idea or claim

MAKE IT INTERACTIVE

Group students according to the selection they have chosen. Then, have students meet to discuss the selection in depth. Their discussions should be guided by their insights and questions.

PERSONALIZE FOR LEARNING

Challenge

Group Review Have students who have read the same text collaborate to write a group review of the entire text. The review should include a summary and excerpts from each group member's Close-Read Guide. Group members should agree on contributions, the order in which the excerpts will appear, and how the excerpts will fit into paragraphs within the review. Together, group

members should revise and edit the writing for coverage of the entire text, and make sure ideas are logically organized and expressed clearly. They can use signal words and transitions to connect the ideas and writing of all the contributors. After editing and proofreading, the completed reviews may be posted in a blog or printed and distributed to the class.

Share Your Independent Learning

Prepare to Share

Explain to students that sharing what they learned from their Independent Learning selection provides classmates who read a different selection with an opportunity to consider the text as a source of evidence during the Performance-Based Assessment. As students prepare to share, remind them to highlight how their selection contributed to their knowledge of the concept of invention as well as how the selection connects to the question: *Are inventions realized through inspiration or perspiration?*

Learn from Your Classmates

As students discuss the Independent Learning selections, direct them to take particular note of how their classmates’ chosen selections align with their current position on the Performance-Based Assessment question.

Reflect

Students may want to add their reflection to their Evidence Log, particularly if their insight relates to a specific selection from the unit.

MAKE IT INTERACTIVE

With students, research some famous inventors from history. List at least 10 of their names on chart paper or a Whiteboard for everyone to see. Discuss their inventions. Then ask each student to submit a fantasy invention that might have been created by a particular inventor (same style or category of object, for example). Then have students present their drawings or ideas in front of the class. The class tries to guess who the inventor might have been. (Examples: A jeweled bracelet that is actually a “wrist phone”: Alexander Graham Bell; Hoover board that runs on steam: Robert Fulton)

Evidence Log Support students in completing their Evidence Log. This paced activity will help prepare them for the Performance-Based Assessment at the end of the unit.



INDEPENDENT LEARNING

EVIDENCE LOG

Go to your Evidence Log and record what you learned from the text you read.

STANDARDS
Speaking and Listening
Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 8 topics, texts, and issues*, building on others’ ideas and expressing their own clearly.

Share Your Independent Learning

Prepare to Share

Are inventions realized through inspiration or perspiration?

Even when you read something independently, your understanding continues to grow when you share what you have learned with others. Reflect on the text you explored independently and write notes about its connection to the unit. In your notes, consider why this text belongs in this unit.

Learn From Your Classmates

Discuss It Share your ideas about the text you explored on your own. As you talk with your classmates, jot down ideas that you learn from them.

Reflect

Underline the most important insight you gained from these writing and discussion activities. Explain how this idea adds to your understanding of the topic of invention.

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AUTHOR'S PERSPECTIVE

Kelly Gallagher, M.Ed.

Building a Writing Portfolio with Students Teachers can create a portfolio that enables students to demonstrate the variety of writing they complete over the year. There are three elements of keeping a portfolio—collection of all the writing a student has done, selection of the best pieces, and reflection to evaluate growth.

Teachers can set the criteria using such categories as *Best Argument*, *Best Narrative Piece*, *Best Informative Piece*, *Best On-Demand Writing*, *Best Poetry*, *Best Blended Genre*, *Best Writing from Another Class*, *Best Model of Revision*, and *Best Single Line You Wrote this Year*. Students should also include a reflective letter at

the end of the year. To help them learn to reflect, use questions like this throughout the year.

- Where does your writing still need improvement? How will you improve?
- Reflect on a struggle you faced during this unit. How did you overcome it?



Review Evidence for an Argument

At the beginning of this unit you took a position on the following question:

What situations might encourage people to invent?

EVIDENCE LOG

Review your Evidence Log and your QuickWrite from the beginning of the unit. Has your position changed?

☐ YES	☐ NO
Identify at least three pieces of evidence that convinced you to change your mind.	Identify at least three new pieces of evidence that reinforced your initial position.
1.	1.
2.	2.
3.	3.

State your position now: _____

Identify a possible counterclaim: _____

Evaluate the Strength of Your Evidence Consider your argument. Do you have enough evidence to support your claim? Do you have enough evidence to refute a counterargument? If not, make a plan.

- ☐ Do more research
- ☐ Talk with my classmates
- ☐ Reread a selection
- ☐ Ask an expert
- ☐ Other: _____

STANDARDS

Writing

- Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
- Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.

Review Evidence for an Argument

Evidence Log Students should understand that their position on an issue, or which side they are arguing, could evolve as they learn more about the subject and are exposed to additional points of view. Point out that just because they took an initial position on the question *What situations might encourage people to invent?* doesn't mean that their position can't change after careful consideration of their learning and evidence.

Evaluate the Strength of Your Evidence

Encourage students to keep in mind that their argument should include evidence. Their evidence should support the position, or side of the argument they are presenting. Evidence may include facts (such as statistics and physical details), anecdotes (personal experience of the student or others), and expert opinion. The evidence that they provide in their essay should support and strengthen their side of the argument.

Writing to Sources: Argument

Students should complete the Performance-Based Assessment independently, with little to no input or feedback during the process. Students should use word processing software to take advantage of editing tools and features.

Prior to beginning the Assessment, ask students to think about what motivates them to be creative. Suggest they consider different sources of inspiration, from being moved by the brilliant inventions of others to being confronted by problems that need solutions—or even just listening to music they like.

Review the Elements of Effective Argument

Students can review the work they did earlier in the unit as they complete the Performance-Based Assessment. They may also consult other resources such as:

- the elements of an effective argument, including a clear claim, logical reasons, and relevant evidence, as well effective organization of an argument, available in Whole-Class Learning
- their Evidence Log
- their Word Network

Although students will use evidence from unit selections for their writing mode, they may need to collect additional evidence, including facts, statistics, anecdotes, quotations from authorities, or examples.



INDEPENDENT LEARNING

EVIDENCE LOG

Go to your Evidence Log and record what you learned from the text you read.

STANDARDS
Speaking and Listening
Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.

Share Your Independent Learning

Prepare to Share
Are inventions realized through inspiration or perspiration?

Even when you read something independently, your understanding continues to grow when you share what you have learned with others. Reflect on the text you explored independently and write notes about its connection to the unit. In your notes, consider why this text belongs in this unit.

Learn From Your Classmates

Discuss It Share your ideas about the text you explored on your own. As you talk with your classmates, jot down ideas that you learn from them.

Reflect
Underline the most important insight you gained from these writing and discussion activities. Explain how this idea adds to your understanding of the topic of invention.

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the end of the year. To help them learn to reflect, use questions like this throughout the year.

- Where does your writing still need improvement? How will you improve?
- Reflect on a struggle you faced during this unit. How did you overcome it?



Review Evidence for an Argument

At the beginning of this unit you took a position on the following question:

What situations might encourage people to invent?

EVIDENCE LOG

Review your Evidence Log and your QuickWrite from the beginning of the unit. Has your position changed?

☐ YES	☐ NO
Identify at least three pieces of evidence that convinced you to change your mind.	Identify at least three new pieces of evidence that reinforced your initial position.
1.	1.
2.	2.
3.	3.

State your position now: _____

Identify a possible counterclaim: _____

Evaluate the Strength of Your Evidence Consider your argument. Do you have enough evidence to support your claim? Do you have enough evidence to refute a counterargument? If not, make a plan.

- ☐ Do more research
- ☐ Talk with my classmates
- ☐ Reread a selection
- ☐ Ask an expert
- ☐ Other: _____

STANDARDS

- Writing**
- Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
 - Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.

Argument Rubric

As you review the Argument Rubric with students, remind them that the rubric is a resource that can guide their revisions. Students should pay particular attention to the differences between an argument in which the claim is supported by reasons and evidence (a score of 3) and one that engages the reader and establishes the position in a compelling way (a score of 4).

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PERSONALIZE FOR LEARNING

English Language Support

Multiple Meaning Words Some students may have difficulty with the word *address*, as in “opposing claims may be addressed” in the Focus and Organization column of the rubric. Students who are familiar with the word *address* as meaning “to put instructions for delivering a letter on an envelope,” may be confused by its use here. Point out that in this context, *address*

means “to deal with” or “to discuss.” Have volunteers come up with other multiple-meaning words. For example, the word *engages*, found in the rubric, can mean “holds someone’s attention,” or “hires.” Ask students to use the context of the rubric to determine which meaning *engages* has here.

Speaking and Listening: Oral Presentation

Students should annotate their written argument in preparation for the oral presentation, marking the important elements (claim, reasons, evidence, and counterclaims) as well as critical anecdotes or facts.

Remind students that the effectiveness of oral presentation relies on how the speaker establishes credibility with his or her audience. If a speaker comes across as confident and authoritative, it will be easier for the audience to give credence to the speaker's claim.

Review the Oral Presentation Rubric As you review the Oral Presentation Rubric with students, remind them that it is a valuable tool that can help them plan their presentation. They should strive to include all of the criteria required to achieve a score of 3. Draw their attention to some of the subtle differences between scores of 2 and 3.



PERFORMANCE-BASED ASSESSMENT

SOURCES

- WHOLE-CLASS SELECTIONS
- SMALL-GROUP SELECTIONS
- INDEPENDENT-CHOICE SELECTIONS



WORD NETWORK

As you write and revise your argument, use your Word Network to help vary your word choices.

STANDARDS

Writing

Write arguments to support claims with clear reasons and relevant evidence.

- a. Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
- b. Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.
- c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.
- d. Establish and maintain a formal style.
- e. Provide a concluding statement or section that follows from and supports the argument presented.

PART 1

Writing to Sources: Argument

In this unit, you read about various inventors and inventions, real and imaginary. In some cases, the inventors described seem like uniquely gifted individuals who also work hard. In other cases, inventors are presented as workers presented with a challenge who use what they know to solve practical problems.

Assignment

Write an argument in which you state and defend a claim about the following question:

What situations might encourage people to invent?

Take a position on this question based on the knowledge you gained from reading and analyzing the selections in the unit. Use examples from the selections you read and viewed to support your claim. Make sure that you support your claim with sound reasoning and evidence, and organize your ideas so that they flow logically and are easy to follow. Address and refute counterclaims. Use an appropriately formal tone.

Reread the Assignment Review the assignment to be sure you fully understand it. The task may reference some of the academic words presented at the beginning of the unit. Be sure you understand each of the words given below in order to complete the assignment correctly.

Academic Vocabulary

- | | | |
|-------------|------------|---------------|
| opponent | clamor | controversial |
| proposition | legitimate | |

Review the Elements of Effective Argument Before you begin writing, read the Argument Rubric. Once you have completed your first draft, check it against the rubric. If one or more of the elements is missing or not as strong as it could be, revise your essay to add or strengthen that component.

DIGITAL PERSPECTIVES

Preparing for the Assignment To help students understand what an effective oral presentation of an essay looks and sounds like, find examples on the Internet of students or adults reading from their own work. Project the examples for the class, and have students note the techniques that

make each speaker successful (that is gesture, pacing, tone, and so on). Suggest that students record themselves presenting their explanatory essays so they can practice incorporating some of the elements in the examples you showed them.

Argument Rubric

	Focus and Organization	Evidence and Elaboration	Conventions
4	<div>The introduction engages the reader and establishes a position in a compelling way.</div> <div>The position is supported by logical reasons and relevant evidence, and opposing claims are addressed.</div> <div>The reasons and evidence are organized logically so that the argument is easy to follow.</div> <div>Transitions clearly show the relationships among ideas.</div> <div>The conclusion follows from the rest and supports the argument.</div>	<div>The sources of evidence are relevant and credible.</div> <div>The tone of the argument is formal and objective.</div> <div>Words are carefully chosen and suited to the audience and purpose.</div>	<div>The argument intentionally uses standard English conventions of usage and mechanics.</div>
3	<div>The introduction is somewhat engaging and states the position clearly.</div> <div>The claim is supported by reasons and evidence, and opposing claims are acknowledged.</div> <div>Reasons and evidence are organized so that the argument is easy to follow.</div> <div>Transitions show the relationships among ideas.</div> <div>The conclusion restates the claim.</div>	<div>The sources are relevant.</div> <div>The tone of the argument is mostly formal and objective.</div> <div>Words are generally suited to the audience and purpose.</div>	<div>The argument demonstrates general accuracy in standard English conventions of usage and mechanics.</div>
2	<div>The introduction states a claim.</div> <div>The claim is supported by some reasons and evidence, and opposing claims may be briefly acknowledged.</div> <div>Reasons and evidence are organized somewhat logically.</div> <div>A few sentence transitions are used to orient readers.</div> <div>The conclusion relates to the claim.</div>	<div>Some sources are relevant.</div> <div>The tone of the argument is occasionally formal and objective.</div> <div>Words are somewhat suited to the audience and purpose.</div>	<div>The argument demonstrates some accuracy in standard English conventions of usage and mechanics.</div>
1	<div>The claim is not clearly stated.</div> <div>The claim is not supported by reasons and evidence, and opposing claims are not addressed.</div> <div>Reasons and evidence are disorganized and the argument is difficult to follow.</div> <div>The conclusion does not include relevant information.</div>	<div>Reliable and relevant evidence is not included.</div> <div>The vocabulary is ineffective.</div> <div>The tone of the argument is informal.</div>	<div>The argument contains mistakes in standard English conventions of usage and mechanics.</div>

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Reflect on the Unit

- Have students watch the video on Reflecting on Your Learning.
- A video on this topic is available online in the Professional Development Center.

Reflect on the Unit Goals

Students should re-evaluate how well they met the unit goals now that they have completed the unit. You might ask them to provide a written commentary on the goal they made the most progress with as well as the goal they feel warrants continued focus.

Reflect on the Learning Strategies

Discuss It If you want to make this a digital activity, go online and navigate to the Discussion Board. Alternatively, students can share their learning strategies reflections in a class discussion.

Reflect on the Text

Consider having students share their text reflections with one another.

MAKE IT INTERACTIVE

Have students write one or two sentences that summarize their reflections on the unit. Then have students read their reflections to the class. Afterward, have students discuss the reflections. Were there any common themes?

Unit Test and Remediation

After students have completed the Performance-Based Assessment, administer the Unit Test. Based on students' performance on the test, assign the resources as indicated on the Interpretation Guide to remediate. Students who take the test online will be automatically assigned remediation, as warranted by test results.