SOCIAL STUDIES

TEACHER'S GUIDE

GRADE 7







Addis Ababa City Administration Education Bureau

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GRADE 7

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Unit One

Physical Characteristics of the Earth

Total periods allotted for the unit: 13

1. Unit Introduction

In this unit the students are supposed to learn about the physical characteristics of the earth. The teachers are expected to guide the students to understand how the earth and other members of the solar system were originated and evolved to the present state. Further, in the unit students are going to learn about the external components and internal structure of the earth. In the process, the unit deals with the sources of information about the internal parts of the earth, the materials forming the crust of the earth and the distribution and economic value of the different rock types in Ethiopia.

2. Unit learning outcomes

After completing this unit, students will be able to:

- Explain the origin of the earth and the solar system;
- Describe the four components of the earth and their interaction;
- Explain the earth's internal layers and their characteristics;
- Identify direct and indirect sources of information regarding the interior layers of the earth;
- Identify major elements, minerals and rocks forming the crust of the earth;
- Analyze the spatial distribution and economic importance of rocks in Ethiopia.

3. Main Contents

1.1 Origin of the earth and the solar system
1.2 External components and internal structure of the earth
1.3 Materials forming the crust of the Earth
1.4 The distribution and economic value of the different rock types in Ethiopia

1.1Origin of the earth and the solar system

Periods allotted for the lesson: 3

1. Competencies

At the end of this lesson, students will be able to:

- ✓ Discuss how the earth and other members of the solar system were originated and evolved to the present state

2. Contents

1.1 Origin of the earth and the solar system

3. Overview

The origin of the earth is related to the formation of the solar system. Astronomers today believe that the sun, planets and smaller bodies in the solar system were formed from a large filament of hot spinning gases. The flammable was loosely packed gases largely made up of hydrogen and helium, and dust particles. Gradually the gas and dust particles drew together because of gravitational pull and formed a thin disc. In due course, the disc split into rings and kept on spinning. The spinning ring at the center formed the sun while the outer rings resulted in the formation of the sun's family. Our solar system consists of our star, the Sun, and everything bound to it by gravity - the planets Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune, dwarf planets such as Pluto, dozens of moons and millions of asteroids, comets and meteoroids.

4. Teaching-learning Process

4.1 Suggested Teaching Aids

To make your lesson lively and appropriate, use the following teaching aids:

- A map that shows the sun and the sun's family with their elliptical path
- Video (optional - tap this link https://www.youtube.com/watch?v=gxKCDjnWabk)– which shows the origin of the earth and the solar system.

4.2 Suggested Teaching Methods

The new curriculum requires teachers to apply a variety of active-learning methods to encourage students' involvement in the teaching-learning process. Therefore, think about the active learning methods you want to use and make a decision when you will use each during the lesson. We recommend the following methods for this lesson:

- Brainstorming – let the students guess and forward their ideas and facts and share experiences in class. List what they guess on the black board and add your own points while clarifying concepts.
- Explanation - Introduce the lesson.
- Discussion – Help students to actively participate and share ideas and experiences on the formation of the earth and the solar system.
- Demonstration
  - Show a picture/diagram which consists of the sun and the sun's family with their elliptical path.
  - Show a video that shows the formation of the earth and the solar system
- Questions and answers: You are supposed to ask questions stated in the evaluation part of the lesson presentation or any question you developed based on the content. Finally, students will give answers. You are also supposed to facilitate students to raise questions on the topic they have learnt and you need to respond rightly.

1.3 Pre-lesson Preparation

- Plan the most appropriate teaching method for the lesson.
- Get ready in advance with the suggested teaching aids.
  - Pictures/diagram that shows the sun and the sun's family with their elliptical path.
  - Video (optional), which shows the origin of the earth and the solar system
- Prepare notes, activities and exercises.

4.4 Presentation of the Lesson

A. Introduction of the lesson

- Introduce students to what they are going to learn (the origin of the earth and the solar system)
- Be sure that the students are clear about the competencies of the lesson.
- To start the lesson brainstorms them about the origin of the earth and the solar system and employ explanation to handle the lesson
- Ask students the following questions: Where did Earth come from, and how it is formed?

B. Body of the lesson

- Tell them the origin of the earth is intimately related to the formation of the solar system. Explain the solar system was formed when diffused dusts and gases came together.

The whole dust cloud moved so rapidly in space that the particles were pulled together because of gravity, forming a big disc of dense and heavier matter. It finally divided into ringed parts. The centre of which formed the sun and the outer rings which evolved into planets. In the process, emphasize that the earth formed in the same process in which the solar system was formed some 4.6 billion years ago.

In your discussion, bring to the attention of students the following points:

- Our solar system is made up of a star, eight planets and countless smaller bodies such as dwarf planets, asteroids and meteoroids.
- The sun is the centre of the solar system.
- In order of their distance from the sun, planets are classified in to two; inner planets and outer planets.

C. Stabilization

You may stabilize the lesson by reviewing the key ideas and concepts of the lesson such as:

- The earth's origin is related to the process of formation of the solar system.
- The birth of our solar system began as dust and gases (nebula). Repeated collision caused the dust particles to change into planets.
- The earth is one of the planets that, along with the others, revolve around the sun.
- Geologists estimate that the earth formed 4.6 billion years ago.

4.5 Evaluation and Follow up

A. Evaluation

To know the level of understanding of the students and whether the expected competencies are achieved, ask the students questions about the topic you taught.

You can ask the students' questions like the following:

- How old is the Earth? How the earth and other members of the solar system were formed?
- What is planet? List them in order of their distance from the sun.
- What are asteroids? Where they are positioned in the solar system?

B. Follow up

- To help your students get more knowledge on the lesson you have taught, you can give them the activity (activity 1.1) in the text book with your supervision and assistance.

- Give the students appropriate feedback for their responses and activities.

4.6 Expected Answers for Activity

Activity 1.1

A. Individual work

1. Solar system is the collection of eight planets and their moons in orbit round the sun, together with smaller bodies in the form of asteroids, meteoroids, and comets.
2. There are **eight (8)** planets in our solar system. In order of their distance from the sun they are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune
3. Mercury

B. Group discussion

1. The origin of the earth is related to the formation of the solar system. The sun and the sun's family (planets, asteroids, meteoroids etc) were formed from a large filament of hot whirling gases. Finally as a result of long time processes the sun and the planets were formed.

1.2 Shape and movements of the earth

1.2 Shape and movements of the earth

Period allotment for this lesson:- 2

1. Competency:

After studying this lesson, you will be able to:-

- Evaluate the shape and movement of the earth and their effects

2. Content

A. Shape of the earth

B. Movement of the earth

3. Overview: - The earth's shape is not perfectly round. It is an oblate spheroid. Rotation is the movement of the earth on its axis. Effects of rotation include day and night, High and Low Tide. Revolution is the movement of the earth around the sun in a fixed path or orbit. Effects of revolution are seasons, varying the length of day and night.

4. Teaching learning process

4.1 Suggested teaching aid

Use the following aids when you conduct the lesson topic

- A figure that shows the actual shape of the earth

- A figures that shows the movement of the earth

- Videos on
https://www.youtube.com/watch?v=IJhgZBn-LHg
https://www.youtube.com/watch?v=DX7AcDo19-c
https://www.youtube.com/watch?v=9G8b2En7bv8

4.2. Suggested teaching methods

The following active learning methods can be used at different points during the lessons presentation:

Brainstorming: - you are advised to ask questions then, let the students guess and forward their ideas/facts and share experiences in class. In doing so, list what they guess on the black board and add your own points while clarifying concepts.

Explanation: - Introduce the lesson

Discussion: - Help students to actively participate and share ideas and experiences on the shape of the earth and movement of the earth.

Demonstration: - Show a picture/diagram on the shape of the earth and movement.

Show a video on the different methods of acquiring information about the movement of the earth and its effect.

Question and answer: - You are supposed to ask questions stated in the evaluation part of lesson presentation or any question you developed based on the content. Finally, students will give answers. You are also supposed to facilitate students to raise questions on the topic they have learnt and you need to respond rightly.

4.3. Pre-lesson Preparation - Design the most appropriate teaching method for the lesson. Get ready in advance with the suggested teaching aids.

- Pictures/diagram that shows the shape of the earth and movement on axis and around the sun.
- Get diagrams representing the actual shape of the earth and show the movement of the earth.
- Prepare notes, activities and exercises.

4.4 Presentation of the Lesson

A. Introduction of the lesson

- Introduce students to what they are going to learn.

Be sure that the students are clear about the competencies of the lesson.

To start the lesson brainstorm students about the topic by asking questions:

- What is the shape of the earth?
- What are the movement of the earth and their effects?

B. Body of the lesson

Organize the classroom in to small groups and let the students discuss on the topic. Then let the students present

their group works through their representatives. Finally tell them, the earth's shape is not perfectly round. It is an oblate spheroid, it is like a sphere.

In your discussion, bring to the attention of students the following points.

The motion of the earth is divided into two; These are

i. Rotation ii. Revolution

- What are the effects of the earth's rotation and revolution**?**

C. Stabilization

Complete your lesson presentation with a review of key ideas and concepts such as

- Shape of the earth is an oblate spheroid.

Rotation is the movement of the earth on its axis and revolution is the movement of the earth around the sun with path called orbit.

4.5 Evaluation and Follow up

A. Evaluation Ask students the following questions.

Distinguish between the earth's rotation and revolution and list out their effects?

B. Follow up

Form groups of five or more students. Let them discuss the activities with your supervision and assistance.

Give them a chance to present their main points to the class. Motivate students to perform independent activities as stated in Activity 1.2

4.6 Expected Answers for Activity

Activity 1.2

A. Individual

1. As the earth rotates on its axis, half of the earth faces the sun (causes day) and half of the earth faces away from the sun (cause night).

2. The tilt of the axis affects the amount of daylight available each season. Earth's rotation around its axis causes the Northern Hemisphere to have less daylight all year than the Southern Hemisphere. The tilt of the axis causes the Northern and Southern Hemispheres to have night and day at opposite times.

3. Rotation of the Earth causes night and day to alternate. Since we learned that the Earth's axis is tilted and hence the equator is not facing the Sun directly, different places on earth would experience unequal length of days and nights not exactly 12 hours of day and 12 hours of night all the time.

B. Group work

1. Wrap up their group work by providing constructive feed backs and summary of what they have been performing.

1.3 External components and internal structure of the earth

Periods Allotted for the lesson: 5

1. Competencies

At the end of this lesson, students will be able to:

- ✓ State the four components (sub-systems) of the earth and their constant interaction;
- ✓ Distinguish the difference and similarities between direct and indirect sources information about the internal parts of the earth

2. Contents

1.2.1. External Components of the earth (lithosphere, biosphere, hydrosphere and atmosphere)

1.2.2. Internal structure and sources information about the internal parts of the earth
1.2.2.1. Sources of information about the internal parts of the earth;

1.2.2.2. Internal structure (Crust, mantle and core) of the earth

3. Overview

Everything in earth's system can be placed into one of the four major subsystems: land, water, living things, or air. These four subsystems are called "spheres". They are the lithosphere, hydrosphere, biosphere, and the atmosphere. The earth's system is an integrated system. The interaction of these systems influences every environment on Earth.

The knowledge about the internal parts of the earth is obtained from direct sources and indirect sources. The structure of the earth's interior is fundamentally divided into three layers. These are crust, mantle and core.

4. Teaching-learning Process

4.1 Suggested Teaching Aids

Use the following aids when you conduct the lesson topic

- A figure that shows the external components (sub systems)of the earth
- A figures that shows the internal structure of the earth
- Video (optional - tap the following links)
  - https://www.youtube.com/watch?v=9JFr8_BDsiU - shows the external

components of the earth (four spheres of the earth).

- https://www.youtube.com/watch?v=VNGUdObDoLk - shows the different methods of acquiring information about the interior of the earth.
- https://www.youtube.com/watch?v=eXiVGEEPQ6c shows the internal structure of the earth.

4.2 Suggested Teaching Methods

The following active learning methods can be used at different points during the lessons presentation:

- Brainstorming – to assess students' abilities and their prior knowledge about the topic, you are advised to ask questions then, let the students guess and forward their ideas/ facts and share experiences in class. In doing so, list what they guess on the black board and add your own points while clarifying concepts.
- Explanation – Introduce the lesson.
- Discussion – Help students to actively participate and share ideas and experiences on the external components and internal structure of the earth.
- Demonstration
  - Show a picture/diagram on external components of the earth and its internal structure.
  - Show a video on the different methods of acquiring information about the interior of the earth and the internal structure of the earth.
- Questions and answers: You are supposed to ask questions stated in the evaluation part of lesson presentation or any question you developed based on the content. Finally, students will give answers. You are also supposed to facilitate students to raise questions on the topic they have learnt and you need to respond rightly.

4.3 Pre-lesson Preparation

- Design the most appropriate teaching method for the lesson.
- Get ready in advance with the suggested teaching aids.
- Pictures/maps that shows the external components of the earth(four spheres) of the earth and their interaction.
- Get diagrams representing the lithosphere, biosphere, hydrosphere and atmosphere.
- Video (optional), which shows the external components of the earth.
- Prepare notes, activities and exercises.

4.4 Presentation of the Lesson

A. Introduction of the lesson

- Introduce students to what they are going to learn.
- Be sure that the students are clear about the competencies of the lesson.

- To start the lesson brainstorm students about the topic by asking questions:
    - Do you know what each of these spheres represents - lithosphere, hydrosphere, biosphere and atmosphere? Are these external components or sub systems interacted?
    - List out the various sources of information about the interior of the earth?
    - How do you describe the structure of the earth? How many layers are there?

B. Body of the lesson

Organize the classroom in to small groups and let the students discuss on the topic. Then let the students present their group works through their representatives. Finally, tell them the external components of the earth are grouped as the lithosphere (land), biosphere (living things), hydrosphere (water) and atmosphere (air). Explain the internal structure and sources information about the internal parts of the earth.

In your discussion, bring to the attention of students the following points.

- These four subsystems of the earth are the lithosphere, hydrosphere, biosphere,and the atmosphere and the earth's system is an integrated system.
- The knowledge about the internal parts of the earth is obtained from direct and indirect sources.
- The structure of the earth's interior is fundamentally divided into three layers.These are crust, mantle and core.

C. Stabilization

Complete your lesson presentation with a review of key ideas and concepts such as:

- ✓ The physical environment of the earth can be divided in to four components or subsystems. They are the lithosphere, hydrosphere, biosphere and the atmosphere.
- ✓ The knowledge about the internal parts of the earth's are obtained from direct and indirect sources.
- ✓ The structure of the earth's interior is fundamentally divided into three layers. These are crust, mantle and core.

4.5 Evaluation and Follow up

A. Evaluation

Ask students the following questions.

- ✓ State the four components of the earth?
- ✓ Distinguish the direct and indirect sources of information about the interior of the earth

B. Follow up

- Form groups of five or more students. Let them discuss the activities with your supervision and assistance. Give them a chance to present their main points to the class.
- Motivate students to perform independent activities as stated in Activity 1.1 (A)

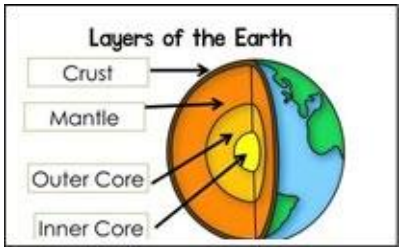
4.6 Expected Answers for Activity

Activity 1.2

A. Individual work

1. Crust, Mantle and core
2. Crust
3. **Direct sources:** Mining, volcanic eruption and deep ocean drilling projects etc

   Indirect sources: Earth quake and by studying the Meteors that fall to the earth

4. Core
5. 

B. Group discussion

1. Lithosphere, hydrosphere, biosphere and atmosphere
2. In the inner core the force of gravity is so intense that the molten metal (Fe and Ni) is compressed in to a solid material.

1.4 Materials forming the crust of the Earth

Periods Allotted for the lesson: 3

1. Competencies:

At the end of this lesson, students will be able to:

- ✓ Analyze how and why different earth's materials are differentiated into different layers;
- ✓ Identify major elements, minerals and rocks forming the crust of the earth;

2. Contents

1.3.1. Major elements

1.3.2. Major Minerals

1.3.3. Major rocks forming the crust

3. Overview

Earth's crust is made up of several elements and minerals. There are more than 90 naturally occurring elements on earth but only eight elements make over 98% of the minerals on the Earth's crust. They are, in decreasing quantity, oxygen, silicon, aluminum, iron, calcium, sodium, potassium, magnesium. These elements are in a solid form in the outer layer of the earth and in hot and molten form in the interior.

Minerals, the building blocks of rocks, are inorganic solids with a specific internal structure and a definite chemical composition. Major rock forming minerals includes Silicates, Oxides, Carbonates, Sulfides, Sulfates, and Chlorides. On the basis of their mode of formation (origin), rocks of the Earth's crust are classified into three. These are igneous, sedimentary and metamorphic rocks.

4. Teaching-learning Process

4.1 Suggested Teaching Aids

- A diagram/table that shows the most abundant elements of the earth's crust.
- A diagram/table that shows the most abundant minerals of the earth's crust.
- Samples rocks

4.2 Suggested Teaching Methods

You are asked to conduct your class by using the suggested teaching methods.

- Brainstorming – let the students guess and forward their ideas and facts and share experiences in class. List what they guess on the black board and add your own points while clarifying concepts.
- Explanation – Introduce the lesson.
- Discussion – Divide your students in to three groups and give reading assignment to the three groups on major elements, minerals and rocks. Let one of the group work on elements and the others two work on minerals and rocks. Finally let them present their findings to the class through their leaders.

- Demonstration: Bring sample rocks and show the different types of rocks.
- Questions and answers: You are supposed to ask questions stated in the evaluation part of lesson presentation or any question you developed based on the content. Finally, students will give answers. You are also supposed to facilitate students to raise questions on the topic they have learnt and you need to respond rightly.
- Field visit- Organize a small group for field visit. In their group, let them walk around their
- school compound and its surroundings. You can order them to collect samples of several types of rocks and bring them back to the classroom. Finally, let them to report to the class about the uses of rocks they have collected in their locality.

4.3 Pre-lesson Preparation

- Plan the most appropriate teaching method for the lesson.
- Get ready in advance with the suggested teaching aids.
- Refer the materials that are relevant to the topic you are teaching.
- Prepare notes, activities and exercises.

4.4 Presentation of the Lesson

A. Introduction of the lesson

- Introduce students to what they are going to learn.
- Be sure that the students are clear about the competencies of the lesson.
- To start the lesson brainstorms students about the topic by asking questions that are listed in the text books or any other questions you developed.

B. Body of the lesson

Tell them the major elements, minerals and major rocks forming the crust of the earth. In

your discussion, bring to the attention of students the following points.

- Earth’s crust is made up of several elements and minerals.
- On the basis of their mode of formation (origin), rocks of the Earth’s crust are classified into three. These are igneous, sedimentary and metamorphic rocks

C. Stabilization

- You may stabilize the lesson by reviewing the key ideas and concepts of the lesson.

4.5 Evaluation and Follow up

A. Evaluation

Ask the following questions

- List the different rock forming elements and minerals?
- How do you think each type of rocks has been formed?
- What are some of the economic importance of rocks?

B. Follow up

- Let the students work on the following activities (Activity 1.3) with your supervision and assistance.
- Divide your students in to three groups and give reading assignment to the three groups on the major elements, minerals and rocks. Let one of the group work on elements and the others two work on minerals and rocks. Finally, let them present their findings to the class through their representatives. The lesson should be wrapped by teachers' summary.

4.6 Expected Answers for Activity

Activity 1.3

A. Individual work

1. Rocks vary on the basis of their formation. For Example, Igneous rocks are formed when molten rock (magma) cools and solidifies either on the surface or beneath the surface while sedimentary rocks are formed when sediments come to settle in a certain areas after they have been transported in to those areas by various erosion agents. In addition metamorphic rocks are produced from pre-existing igneous, sedimentary, and even other metamorphic rocks through heat and pressure inside the earth's crust. Sometimes they are called changed rocks.
2. Intrusive igneous rocks (plutonic rock) and extrusive igneous rocks (volcanic rocks).
3. The most abundant element in the Earth's crust are oxygen, silicon, aluminum, iron, calcium, sodium, potassium, and magnesium.
4. Major rock forming minerals are those minerals which are found in abundance in the rocks of the earth's crust including Silicates Oxides Carbonates Sulfides Sulfates Chlorides
5. Heat and pressure are the most important agents of change of igneous and sedimentary rocks into metamorphic rocks.

B. Group discussion

1. Extrusive igneous rocks are formed as a result of the cooling and solidification of lava on the surface of the earth. Intrusive igneous rocks are formed when magma cools and crystallizes within the interior of earth.
2. Almost all (98.5%) of earth's crust is made up of only eight elements – oxygen, silicon, aluminum, iron, calcium, sodium, potassium, and magnesium – and these are the elements that make up most minerals. The major rocks forming the crust are classified into three: igneous, sedimentary and metamorphic.

1.5 The distribution and economic value of the different rock types in Ethiopia

Periods Allotted for the lesson: 2

1. Competencies:

At the end of this lesson, students will be able to:

- ✓ Describe the distribution and economic value of the different rock type in Ethiopia.

2. Contents

- ➢ The distribution and economic value of the different rock types in Ethiopia

3. Overview

The major rocks in Ethiopia include igneous, sedimentary and metamorphic rocks. These rocks are exposed to the surface in different parts of the country. Igneous rocks cover large areas in the central part of the country. Eastern Ethiopia is mainly covered with sedimentary rocks. Metamorphic rocks are found in the northern, western and southern edges of the country.

Rocks have a broad range of uses that makes them significantly important to human life. These include: Source of fuel, construction purpose, source of food nutrient, formation of soil etc

4. Teaching-learning Process

4.1 Suggested Teaching Aids

To make your lesson lively and appropriate, use the following teaching aids:

- Sample rocks
- A map that shows distribution of the different rock types in Ethiopia
- A photograph that shows the economic value of the different rock types.

4.2 Suggested Teaching Methods

- Brainstorming – let the students guess and forward their ideas and facts and share experiences in class. List what they guess on the black board and add your own points while clarifying concepts.
- Explanation – Introduce the lesson.
- Discussion – Help students to actively participate and share ideas and experiences on the distribution and economic value of the different rock types in Ethiopia
- Demonstration
- Bring a map and show the distribution and economic value of the different rock types in Ethiopia
- Bring sample rocks and teach them its economic importance.
- Questions and answers: You are supposed to ask questions stated in the evaluation part of lesson presentation or any question you developed based on the content. Finally, students will give answers. You are also supposed to facilitate students to raise questions on the topic they have learnt and you need to respond rightly.
- Field visit- Organize a small group for field visit. In their group, let them walk around their school compound and its surroundings. You can order them to collect samples of several types of rocks and bring them back to the classroom. Finally, let them to report to the class about the uses of rocks they have collected in their locality.

4.3 Pre-lesson Preparation

- Plan the most appropriate teaching method for the lesson.
- Get ready in advance with the suggested teaching aids.
- Organize a field trip in the school compound and its vicinity to collect sample rocks.
- Prepare notes, activities and exercises.

4.4 Presentation of the Lesson

A. Introduction of the lesson

- Introduce students to what they are going to learn
- Be sure that the students are clear about the objectives of the lesson.
- To start the lesson brainstorms them about the distribution and economic value of the different rock types in Ethiopia.

B. Body of the lesson

Try to explain the distribution and economic value of the different rock types in Ethiopia. In doing so, bring to the attention of students the following points.

- The major rocks: igneous, sedimentary and metamorphic rocks are found in different parts of the country.
- Rocks have a broad range of uses that makes them significantly important to human life.

C. Stabilization

- You may stabilize the lesson by reviewing the key ideas and concepts of the lesson.

4.5 Evaluation and Follow up

A. Evaluation

Ask the following questions

- Which type of rock cover more areas in Ethiopia? List the different economic importance of rocks?

B. Follow up

- Let the students work on the following activities (Activity 1.4) with your supervision and assistance.
- Help the students to perform field visit and report to the class.

4.6 Expected Answers for Activity

Activity 1.4

A. Individual work

1. Igneous rocks cover large areas in the central part of the Ethiopia including Addis Ababa.
2. Rocks are used as :
   - Source of energy - Building and construction
   - Formation of soil - Source of food nutrient

B. Group discussion

1. Yes. It is possible to learn of past conditions of the earth by studying sedimentary rocks because sedimentary rocks contain fossils which indicate evidences of past events.
2. Wrap up their group work by providing constructive feed backs and summary of what they have been performing.

Answer key for Unit 1 Review Question

I. True or False Items

1. True 2. True 3. False 4. False 5. True 6. True

II. Matching Items

1. E 2. A 3. D 4. C 5. D 6. D

III. Multiple-choice Items

1. C 2. C 3. B 4. C

IV. Fill in the Blank Items

1. Sun 2. Orbit, Elliptical 3.Mineral

V. Short Answer Items

1. The sun and the sun's family (planets, asteroids, meteoroids etc) were formed from a large filament of hot whirling gases. Finally as a result of long time processes the sun and the planets were formed.
2. There are **eight (8)** planets in our solar system. These are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune
3. **Direct Sources:** Mining, volcanic eruption, deep ocean drilling projects
   Indirect Sources: Earth quake wave and the study of Meteors that fall to the earth
4. Reasons that we know that earth is spherical in shape :-
   - The sun rise and sun set
   - ship's visibility,
   - Circumnavigation of the earth,
   - earth's curved horizon,
   - space photographs
5. Once in a day

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Unit Two

Human Evolution and World Population

Total periods allotted for the unit: 25

1. Unit Introduction

In this unit the students are supposed to learn about human evolution and world population. The teachers are expected to guide the students to understand about the origin of human being, and the world's population growth, distribution. Further, in the unit students are going to learn about the component and characteristics of population. In the process, the unit deals with the historical development and role of different modes of transport, and road safety, road traffic accidents and its socio-economic implication.

2. Unit learning outcomes

After completing this unit, students will be able to:

- Explain the origin of human beings;
- Point out the archeological sites that show the origin of earlier human beings;
- Discusses world population growth distribution;
- Calculate different demographic rates;
- Evaluate the role of different mode of transportation;
- Identify and show significant road signs

3. Main Contents

2.1 Human Evolution

2.2 Trend of World Population

2.3 People and the Development of Transportation

2.1 Human Evolution

Periods allotted for the lesson: 3

1. Competencies:

At the end of this lesson, students will be able to:

- ✓ Point out archeological sites that show the origin of earlier human beings;
- ✓ Examine the historical routes humankind has passed through over time;

2. Contents

2.1.1. Archeology and archeological works

2.1.2. Origin of the first human beings

2.1.3. Historical paths human kind pass over time

3. Overview

Archaeology is the science in which archaeologists dig out material objects and fossils of the past. It helps us in the study of pre-history. With regard to the origin of human beings, there are two theories suggested. These are: Creationist theory Scientific (Evolution) theory.

4. Teaching –learning Process

4.1Suggested teaching aid

- Figures to show fossil and artifacts and human evolution
- Use map of Africa to show sites where fossils are discovered

4.2 Suggested teaching method

- Brainstorm students on the origin of human beings.
- Discussion on definition of archeology and list the sites where the fossils of homo erectus were discovered in Ethiopia
- Using brief explanation, the teacher will briefly explain about human evolution.

4.3 Pre lesson Preparation

Before starting the discussion, you have to make necessary preparations such as identifying the main issues included in the lesson and display in the class the suggested teaching aids, figures and maps to show fossil and artifacts in human evolution.

4.4 Presentation of the lesson

A. Introducing the lesson

To start the lesson, it is important to invite students to share their prior knowledge by asking them the following questions:

- What is fossil?
- Define prehistory

B. Body of the lesson

Let the students discuss in group, based on the following questions:

- What is archeology?
- List the sites where the fossils of Homo erectus were discovered in Ethiopia.

C. Stabilization

Archeology is the science in which archeologists dig out material objects and fossils of the past. With regard to the origin of human beings, there are two theories suggested. These are: creationist theory, and scientific (evolution) theory. There are three stages through which the Homo species passed before the emergence of modern humans. These are:-homo habilis-i.e. able to make tools, homo erectus-i.e. able to erect upright and walk, homo sapiens-i.e. knowledge is the distinctive feature of modern human.

4.5 Evaluation and follow up

A. Evaluation

Ask oral questions to discuss like

- What is Archeology?
- Distinguish the difference between the Creationist theory and the scientific theory?

B. Follow up

- Motivate students to discuss in group in activity 2.1, facilitate and coordinate the discussion finally Provide constructive feedback

4.6 Expected answers for activities

Activity 2.1

A. Individual work

1. Archeology is the science in which archeologists dugout material object and fossils of the past.

2. Fossils are remain of dead plants, human beings and animals.
3. Hominids is a member of the scientific family made up of a human being and a human being and prehistoric humanlike creatures.
4. Creationist theory believed that human being were created by "God".
5. Evolutionary theory explain that human being developed from lower being though a gradual change.

B. Group discussion

1, Omo basin, Melka-kunture, Konso-gardula, and Middle Awash.

2, Olduvai Gorge in Tanzania, lake Turkana in Kenya, and Omo valley in Ethiopia.

2.2 Trends of world population

Period allotted for the lesson:10

1. Competencies:

At the end of this lesson, students will be able to:

- ✓ Predict future world population growth pattern on the basis of present and past population growth rate
- ✓ Calculate different demographic rates such as growth, mortality, fertility, net-migration and etc.;

2. Contents

2.2.1. Components of population dynamics

2.2.2. Population Characteristics

3. Overview

Human population is the number of people living in a definite area. The numbers of human population were growing gradually in history world population. There are different factors that influence the trend of world population. For instance high rate of infant and childhood death and

short life spans are main factors to limit population growth in the past. But today, improvements in nutrition, water, medical care and other technological advancements have contributed to a sharp decline in deaths, while births continue to increase, resulting in population growth.

A change in the overall size of a population is the result of the collective effects of changes in fertility, mortality and migration. The numbers of births, deaths, immigrants, and emigrants over specified time intervals determine the change in population size, and they are collectively known as dynamics, or determinants, or components of population change. Both fertility (birth) and mortality (death) are biological factors, while migration is purely non–biological in nature

The population pyramid is useful to show the proportion of different age-groups which are dependent (i.e., the old and young ones) and economically active adult age group. Its shape is varies between developing and developed countries.

4. Teaching –learning Process

4.1 Suggested teaching aids

- Map of the world to show population distribution
- Diagrams and tables to show trend of world population
- Figure and photographs that shows components of population change

4.2 Pre lesson Preparation

Before starting the discussion, to teach about trend of world population, teachers may bring to the class a figure showing the trend of world population growth and you have to make necessary preparations such as identifying the main points included in the lesson.

4.3. Suggested teaching methods

- Brainstorming let the students guess and forward their ideas and facts and share experiences in class about human population.
- Discussion on table 2.1 and 2.2 in the text
- Explanation Give a brief explanation on concept of human population

4.4. Presentation of the lesson

A. Introducing the lesson

To start the lesson, it is important to invite students to share their prior knowledge by asking them the following questions:

- What is human population?
- Why was the growth of world population very slow in the early periods?

- What were the main causes of population change?

Motivate the students to review what they learnt previously and then ask the following questions as a brainstorming activity to introduce the new lesson:

- What are the three age groups of a population?
- Which age group is the dominant one in your locality? Why?
- What is a population pyramid?

B. Body of the lesson

Now give the students a chance to critically observe table 2.1 and 2.2, on text book and to ask them the following questions:

- What did you understand from table 2.1and 2.2?
- What factors contributed to the growth of world population from the 17th century onwards?
- What are the three components that affect the of population change?
- How should fertility, mortality and migration of a human population be measured?

Give a brief explanation on population characteristics and how to calculate fertility, mortality, migration and growth rates in the class.

Let the students see figure 2.3 and discuss in pairs or in small groups and forward their views, based on the following questions.

- In economic terms, how many age groups did you observe?
- Describe their names as age groups.

C. Stabilization

After discussions, draw the attention of students to the following main points:

- Since 5000 B.C. the growth of world population was not changed, but was marked by great fluctuations dictated by climate, food supply, diseases and war.
- From the 17th century onwards, due to advancements in science and technology (especially after the industrial revolution), world population started to grow rapidly.
- The main components of population changes are fertility, mortality, and migration.
- Population structure is the distribution of males and females within different age groups.
- A population pyramid shows the distribution of various age groups to different sex in a human population.
- The population pyramid of developing countries is wider at the base and narrow at the apex.
- Sex ratio is the number of males per females (or vice versa). It is expressed in percentage or ratio form.

4.5. Evaluation and follow up

A. Evaluation

Ask the following question

- What are the factors that contribute rapid population growth in the world?
- What are the components or determinants of population changes?

B. Follow up

- Motivate students to discuss in group in activities (2.2 and 2.3) in text book.
- Facilitate and coordinate the discussion.
- Observe and assess the contribution of each members of the group.

4.6Expected answers for activity

Activity 2.2

1. Africa and Europe

2. Environmental degradations, resource depletions, housing problems, accelerated soil erosion, etc.

The corrective measures may include:

- Applications of family planning
- Awareness creation (education)
- Empowering of women
- Wise use of resources, etc.

3. The distribution of Ethiopia's population generally is related to altitude, climate, and soil. These physical factors explain the concentration of population in the highlands, which are endowed with moderate temperatures, rich soil, and adequate rainfall.

Activity 2.3

A. individual work

1. Factors affecting fertility in developing and developed countries

Developed countries	Developing countries
• Late marriage	early marriage
• High status of women	low status of women
• Strong financial capacities	weak financial capacity

2. Major factors that attributed for high death rate are the following:

- Low standard of living
- Low access to health facilities
- Poor nutrition and sanitation practice.
- Civil war and political instability
- High incidence of disease and infections

B. Group work

1. $BR=\frac{B}{P}\times K=\frac{2400}{160,000}1000=15$
2. $DR=\frac{D}{P}\times K=\frac{219,300}{19,297,000}1000=11.3$
3. $NMR=\frac{Immigrant-Emigrant}{total\ population}\times K=\frac{150,000-30,000}{100,000,000}1000=1.2$

Activity 2.4

1. $Sex\ Ratio=\frac{Male}{Female}\times 100=\frac{1350}{1650}\times 100=81.8$
2. $ADR=\frac{Young\ Age+Old\ Age}{Adult\ Population}\times 100=\frac{12,191,000+5,127,000}{29,120,000}100=59.47$

2.2.3 Population distribution

Periods allotted for the lesson: 4

1. Competencies:

At the end of this lesson, students will be able to:

- ✓ Identify types and causes population movement;
- ✓ Locate densely and sparsely populated regions on world population map;

2. Contents

2.2.3. Population distribution

- ➲ Factors of population distribution
- ➲ Spatial distribution of world population

2.2.4. Population movement (national and intra-national)

2.2.5. Population settlement (rural and urban)

3. Overview

- Population distribution describes the way in which people are spread out across the earth's surface.

- Due to positive and negative factors, human populations are not equally distributed throughout the world. Such uneven distributions of population can be measured by using crude and agricultural densities.
- Human migrations (both internal and external) are induced by push and pull factors which create the re-distribution of population in different areas.
- Another important issue that we have to give due attention is settlement. A settlement is a process of inhabiting a place. Human settlements are classified as rural or urban depending on the density of human-created structure and resident people in a particular area.

4. Teaching learning process

4.1 Suggested teaching aids

- Map of the world to show population distribution (densely and sparsely populated areas)
- Map that shows major urban centres of the world.
- A diagram that shows the hierarchy of settlement.

4.2 Suggested teaching methods

- Brainstorming - let the students guess and forward their ideas in class on the factors that affect population distribution.
- **Discussion** in small groups let students discuss the importance of knowing the number and distribution pattern of the world population.
- **Explanation** teacher briefly explain about the distribution pattern of the world population.

4.3 Pre lesson Preparation

Before starting the discussion, teachers may bring to the class a map of the world to show population distribution (densely and sparsely populated areas)and you have to make necessary preparations such as identifying the main points included in the lesson

4.4 Presentation of the lesson

A. Introducing the lesson

Ask your students to discuss in groups the importance of knowing the number and distribution pattern of the world population, and ask these questions by way of starting the lesson

- Why some places in their Wereda are densely populated, while others are sparely populated
- How do environmental factors influence the distribution of world population?
- What are the main causes of migration?

B. Body of the lesson

Let the students refer to figure 2.4 and seek to answer the following questions:

- Which regions or areas of the world are densely or sparsely populated?
- What are the push and pull factors of migration?
- How do they affect the densities of population at the areas of origin and at destination?

C. Stabilization

Summarize the main ideas and concepts of the lesson.

- Population distribution of the world is uneven due to physical (ecological), socio-economic, political and demographic factors.
- Both the push (forcing out) and pull (attracting) factors affect internal as well as external migrations.
- The density populated areas of the world include the Asiatic population belt, Europe and American cluster.
- The sparsely populated areas include tundra, hot dry, hot-wet lands, high relief and areas with poor soils.
- Migration is a process of movements in which population are involving in permanent change of their original residential areas. It can take place in the form of internal or external (international) migrations, where both push and pull factors have played an important role.
- Settlements may broadly be divided into rural and urban, based on the density of man-made structures, population concentration and dominant economic activity.

4.5 . Evaluation and follow up

A. Evaluation

Ask the following questions

- What are the main factors that affect population distribution?
- Locate and identify densely and sparsely populated areas of the world based on figure 2.4 on text book

B. Follow up

To help your students give more knowledge on the lesson you have taught, give them the activity (activity 2.5) in the text book.

4.6 Expected answers for

Activity 2.5

1. Some part of the world which are endowed in natural resource and have suitable climate, they are densely populated. But areas with scarce resource availability and harsh climatic condition will be sparsely populated.

2. Population distribution refers to the way people inhabit and occupy the earth's surface.

3. Natural factor includes, favorable climate, fertile soil, nature of topography and social factor includes, job opportunity, security, peace and level of technology

Activity 2.6

1. No, because Migration is the physical movement of people from one place to another; it may be over long distances, such as moving from one country to another, and can occur as individuals, family units, or large groups, While movement is relocation of goods or encompasses a hierarchy of displacements, ranging from a few meters to thousands of kilo meters.

2. Migration can have both positive and negative impacts on countries of origin as well as those of destination. For instance in destination: cheap labour, skilled labour with minimum wages, cultural diversity, and negatively resource degradation.

Activity 2.7

1. **Urban**

A. style of buildings infrastructures and buildings are made in plan

B. density of population is high

C. dominant economic activity is non-agricultural activity. Secondary, tertiary, quaternary economic activity

Rural

A. style of buildings and infrastructures are made without plan

B. density of population is low

C. dominant economic activity is agricultural activity – primary economic activity

"Teachers add more explanation based on the fact and observation of the students".

2. Peoples live in city can prefer because of
More job opportunity, better infrastructure and education, more overall facilities in service, and good connectivity and public transport.

2.3 People and the Development of Transportation

Periods allotted for the lesson: 5

1. Competencies:

At the end of this lesson, students will be able to:

- ✓ Explain basic terms and concepts related to transport activities;
- ✓ Describe the historical development of means of transportation;
- ✓ Evaluate the role of transportation by using the different modes of transport system;
- ✓ Compare the different modes of transportation on the basis their use;

2. Contents

2.3.1. The concept and historical development of transport

2.3.2. The role of transport for socio economic Development

2.3.3. Modes of transport

- ➲ Land transport
- ➲ Air transport
- ➲ Water transport

3. Overview

Transportation refers to the movement of passengers, animals and goods from one place to another place. In the earlier time there was no means of transportation other than walking, but gradually the development began to uses animals to travel and transport things on land, and invented wooden cart with four legs as means of land transport.

Transportation plays a vital role in the activity of a community. There are three modes of transport, these are land, water and air transport.

4. Teaching –learning Process

4.1 Suggested teaching aids

- Different figures and diagrams to show historical development of transport
- Show diagrams of different modes of transport

4.2 Suggested teaching methods

- **Brainstorming** let the students guess and forward their ideas and facts and share experiences in class.

- **Group discussion: -** discuss in group, in historical development of transportation and share ideas.
- **lecture** Give a brief lecture on historical development of transport, role of transport for socio economic development and modes of transport

4.3 Pre lesson Preparation

Before starting the discussion, teachers may bring to the class figures and diagrams to show historical development of transport and you have to make necessary preparations such as identifying the main points included in the lesson.

4.4 Presentation of the lesson

A. Introducing the lesson

You may begin the lesson by the following brainstorm questions:

- Can you name traditional and modern means of transport?
- Did you know the mode of transport used in previous and now in Ethiopia?
- What are the roles of transport in your locality?

Through such introductory questions, students can be motivated to know more about the main concepts of transportation

B. Body of the lesson

Let the students discuss in group, based on the following questions:

- List means of transport available in your locality?
- What are modes of transport?

Give a brief lecture on historical development of transport, role of transport for socio economic development and modes of transport.

C. Stabilization

After discussions, summarize the following main points:

There are different means of transportation system that are available in different area like human powered and pack animal transports.

Nowadays transportation enables people to travel longer distances in shorter times than the previous.

Good transportation systems are needed to move goods within a country and abroad. They are also essential to spreading the benefits of health care and education.

The modes of transport can be classified into three major groups. These are Land (road, railway) transport, Water transport and Air transport

4.5 Evaluation and follow up

A. Evaluation

Ask the following questions

What do you mean by transportation and what are the three modes of transport?
Write down some role of transportation?

B. Follow up

- Motivate students to discuss activity 2.8 in group
- Facilitate and coordinate the discussion

2.3.4 Road safety, road traffic accidents and its socio economic implication

Periods allotted for the lesson: 3

1. Competencies:

At the end of this lesson, students will be able to:

- ✓ Identify significant road signs in class room;
- ✓ Explain basic road safety rules.

2. Contents

2.3.4. Road safety, road traffic accidents and its socio economic implication

3. Overview

Road traffic safety refers to the method and measures used to prevent road users from being killed and injured. More than half of all road traffic deaths and injuries involve vulnerable road users. Road traffic injuries cause different economic losses to individuals and their families and countries all over the world. These losses may be associated with cost of treatment, loss of productivity and valuable working time for victims and relatives, loss of skilled labor force, and loss of school hours.

4. Teaching –learning Process

4.1 Suggested teaching aids

Different figures and diagrams to show road traffic collision

- Use different figures to show road safety signs and symbols

4.2 Suggested teaching methods

- **Discussion** discuss in group on causes of road traffic accident
- **Explanation** teachers give brief explanation on the lesson (Road safety, road traffic accidents and its socio economic implication)

4.3 Pre lesson Preparation

Before starting the discussion, teachers may bring to the class figures and diagrams to show road traffic collision, and different figures to show road safety signs and symbols and you have to make necessary preparations such as identifying the main points included in the lesson

4.4 Presentation of the lesson

A. Introducing the lesson

To start the lesson, you may ask students

- What are the issues raised in the previous lesson? And

Give discussion on the lesson;

- What is the effect of road traffic accident on economic growth in Ethiopia?

The above questions, which can be used as a brainstorming activity, enable you to identify the prior knowledge of the students on the issues and to guide the discussion accordingly.

B. Body of the lesson

- Who are vulnerable by road accidents?
- Did you know road safety rules and sign and symbols?

Give a brief explanation on road traffic accident and its socio-economic implication.

C. Stabilization

After discussions, summarize the following main points:

Road traffic accidents are a serious problem worldwide. Road accident is most unwanted thing which happens to road user. Road accident causes loss of lives, increase of dependency, and destruction of property, increase of poverty, injuries and permanent disability.

4.5 Evaluation and follow up

A. Evaluation

Ask students to do the questions

- Why is road safety importance?

- What are the most important road safety rules?

B. Follow up

- Encourage students to participate in group discussion to do activity 2.8 and review questions.
- Coordinate the discussions and encourage the students to be an active participant.

4.6Expected answers for activity

Activity 2.8

A. Individual work

1. List means of transports used in different locality then compare by

Uses. E.g. in Addis Ababa road transport is more useful Accessibility

road transport is more accessible

Compatibility Addis Ababa light train is more compatible “please add more based on the students finding”.

2.

Modes of transport	Advantage	Disadvantage
Land	Door-door service	High price in construction
Water	Less maintenance cost	Low speed
Air	Fast and suitable	High Cost

B. Group work

1. Socio-economic impact includes like loss of lives, increase of dependency, destruction of property, increase of poverty, injuries and permanent disabilities.
2. The most important road safety rules for pedestrians

- Know your safety signal
- Take extra care in crossing curve road.
- Be careful while crossing the road
- Always use sidewalks
- Never jump over the divider railings
-

Answer key for Unit 2 Review Question

I. True or False Items

1. True 2. False 3. False 4. True

II. Multiple-choice Items

1. B 2. B. 3. D 4. D 5. A

III. Fill in the Blank Items

1. Fossils 3. Homo sapiens5. Land transport

2. Fertility4. An emigrants

IV. Short Answer Items

1. The three main factors that control change in population size are
   A. Fertility B. Mortality and C. Migration
2. Factors affecting fertility distribution are:
   - Less access to contraceptives;
   - Backwardness and poverty;
   - Low status of women
   - Need of child labor
   - Low educational background
   - Religious taught.
3. The two important statistical tools to understanding age structure are;
   - Age groups include age structures, Young age, (0-14), Working age, (15-64) Old age, 65+.
   - Population pyramids is the graphic representation of the age distribution of a given population by sex.
4. Rural settlements are peoples live in places far from urban centers and engaged in agricultural activities. While urban settlements are peoples live in city and town and engaged in non-agricultural activities.
5. The socio-economic implication of road traffic accident includes loss of lives, increase of dependency, and destruction of property, increase of poverty, injuries and permanent disability. Road traffic injuries caused significant economic losses to individuals and their family and countries all over the world.

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Unit Three

Human and Natural Resources

Total periods allotted for the unit: 7

1. Unit Introduction

In this s unit the students are supposed to learn about the human and natural resources.

You are expected to guide the students to understand the reciprocal relationship existing between humans and the environment. This unit also addresses the Population- resource relationship focusing on (over population, optimal population and under population). Further, in the unit students are going to learn about the types of natural resources and the factors affecting natural resources in Ethiopia.

2. Unit learning outcomes

After completing this unit, students will be able to:

- ✓ Describe the reciprocal relationships between humans and nature;
- ✓ Categorize natural resources on the basis of their degree of permanency;
- ✓ List factors affecting the utilization of natural resources;
- ✓ Describe what is meant by over population, optimal population and under population

3. Main Contents

3.1 Human-Environment relationships (reciprocal relationship)

3.2 Population- resource relationship (over population, optimal population and under population)

3.3 Types of Natural Resources

3.4 Factors affecting natural resources in Ethiopia

3.1 Human-Environment relationships (reciprocal relationship)

Periods Allotted: 1

1. Competencies:

At the end of this lesson, students will be able to:

- ✓ Examine the reciprocal relationships between human and the environment;

2. Contents

- Human – environment relationship

3. Overview

Every single living thing on the earth is dependent on the environment it lives in. Environment can simply defined as all of the external factors affecting an organism. These factors may be other living organism (biotic factors) and nonl iving variables (abiotic factors). Humans' biological and cultural evolution is closely tied to the interaction between humans and their environment. The natural environment is humans' sole material base for the creation of material wealth. The relationship between humans and the environment is highly reciprocal (both affect each other).

4. Teaching-learning Process

4.1 Suggested Teaching Aids

You are expected to use different pictures and photographs that may show the influence of the environment on humans and the way humans modify (influence) their environment using their knowledge, skill, and technology.

4.2 Suggested Teaching Methods

You must use the active-learning methods of various techniques to achieve the sub unit's competencies. The following methods are suggested:

- **Brainstorming** – to assess students' abilities and their prior knowledge about the topic, you are advised to ask questions then, let the students guess and forward their ideas/ facts and share experiences in class. In doing so, list what they guess on the black board and add your own points while clarifying concepts.
- **Explanation** – Introduce the lesson.

- **Discussion** - Help students to actively participate and share ideas and experiences on the human and environment relationships.
- **Questions and answers**: You are supposed to ask questions stated in the evaluation part of lesson presentation or any question you developed based on the content. Finally, students will give answers. You are also supposed to facilitate students to raise questions on the topic they have learnt and you need to respond rightly.

4.3 Pre-lesson Preparation

- Plan the most appropriate teaching method for the lesson.
- Get ready in advance with the teaching aids that show the human environment relationship.
- Refer the materials that are relevant to the topic you are teaching.
- Prepare notes, activities and exercises.

4.4 Presentation of the Lesson

A. Introduction of the lesson

- Introduce students to what they are going to learn
- To start the lesson brainstorms them by asking questions.
- Be sure that the students are clear about the competencies of the lesson.

B. Body of the lesson

Define the meaning of human population and the environment. Explain the reciprocal relationship existing between humans and the environment. Encourage student discussion by asking them open-ended questions at different points during your explanation. For example, you can have them conduct discussions in pairs or groups. You can use the following points as discussions points.

- Do you think the elements of the physical environment such as climate, relief, soil and the like influences peoples mode of life?
- How can peoples modify (influence) their environment?

Give the students sufficient time to prepare and organize their notes (documentation).Finally, harmonize the lesson by reviewing key ideas and concepts

C. Stabilization

You may stabilize the lesson by reviewing the key ideas and concepts of the lesson such as:

- The influence of environment on humans' activity is unavoidable.
  - Humans can also modify (influence) their environment with the help of their skill, knowledge and experience.
  - The relationship existing between humans and the environment is highly reciprocal (both affect each other).

4.5 Evaluation and Follow up

A. Evaluation

In your evaluation for this lesson, check your students' understanding of the subject matter by asking oral questions and giving class work.

B. Follow up

Let the students work on the activities (Activity 3.1) with your supervision and assistance.

4.6 Expected Answers for Activities

Activity 3.1

A. Group discussion

1. **A. Traditional methods:**
   - **Drying** or "dehydrating" food is a method of food preservation that removes enough moisture from the food so bacteria and yeasts cannot grow.
   - **Salting** was the most common way to preserve any type of meat or fish, as it drew out the moisture and killed the bacteria.

B. Modern methods:

- Freezing in refrigerator,
- Canning, and
- The addition of chemicals etc

2. The climatic conditions of the environment may be forced people to use different food preservation methods. For example areas with high temperature results food items to be easily spoiled. The primary objective of food preservation is to prevent food spoilage until it can be consumed. So, the highest temperature of the environment influences humans to practice different traditional and modern methods of food preservation.
3. Wrap up their group work by providing constructive feed backs and summary of what

they have been performing.

4. The elements of the physical environment such as climate, relief, soil and the like influences peoples mode of life. The influence of environment on humans' activity is unavoidable. But peoples can modify (influence) their environment with the help of their skill, knowledge and experience. The advancement of technology enables human beings to create conducive environments so that they can exploit natural resource in a way they seek. The relationship existing between humans and the environment is reciprocal (both affect each other).

3.2 Population- resource relationship (over population, optimal population and under population)

Periods Allotted for the lesson: 2

1. Competencies:

At the end of this lesson, students will be able to:

- Examine the reciprocal relationships between human and the environment;

2. Contents

✓ Population- resource relationship (over population, optimal population and under population)

3. Overview

Human population and resources have a strong relationship with one another. The growth and decline of population affects the availability of natural resources. At the same time, the availability of natural resources affects the trends of population. Overpopulation is characterized by low per capita income, high unemployment and under employment, malnutrition and famine, low standards of living, and outward migration. Under population is characterized by high per capita income, low unemployment and inward migration. Optimum population is a term which denotes balanced population resource relationship in an area.

4. Teaching-learning Process

4.1 Suggested Teaching Aids

Use the following as a main teaching aid material:

A picture that shows the relationship between population and resources

4.2 Suggested Teaching Methods

You are required to implement the following teaching methods;

Brainstorming – Ask students to guess and forward their ideas on the relationship between population and resources. List what they guess on the black board and add your own points while clarifying concepts.

-What is meant by overpopulation, optimal population and under population?

Explanation – Introduce the lesson.

Discussion – Help students to actively participate and share ideas and experiences on the relationship between population and resources.

Demonstration

-Show a picture/diagram on the relationship between population and resources in the textbook or any other diagram showing this relationship.

Questions and answers: You are supposed to ask questions stated in the evaluation part of lesson presentation or any question you developed based on the content. Finally, students will give answers. You are also supposed to facilitate students to raise questions on the topic they have learnt and you need to respond rightly.

4.3 Pre-lesson Preparation

- Plan the most appropriate teaching method for the lesson.
- Get ready in advance with the suggested teaching aids.
- Pictures/maps that shows the human – resource relationship.
- Refer the materials that are relevant to the topic you are teaching.
- Prepare notes, activities and exercises.

4.4 Presentation of the Lesson

B. Introduction of the lesson

- Introduce students to what they are going to learn
- To start the lesson brainstorms them by asking questions.
- Be sure that the students are clear about the competencies of the lesson.

C. Body of the lesson

Let the students refer to (figure 22) and seek to answer the following questions:

- What type of relationship exists between population and resources?

After discussing the relationship existing between population and resources, motivate the students to identify the concepts of overpopulation, optimum population and under population.

D. Stabilization

- You may stabilize the lesson by reviewing the key ideas and concepts of the lesson such as:
  - Population and resources have a strong relationship with one another. The growth and

decline of population affects the availability of natural resources. At the same time, the availability of natural resources affects the trends of population.

- Overpopulation refers to an excess of population in an area in relation to the available resources.
- Optimum population is a term which denotes balanced population resource relationship in an area.
- Under population occurs when the population of an area is too small for full utilization of its resources.

4.5 Evaluation and Follow up

A. Evaluation

To know the level of understanding of the students and whether the expected competencies are achieved, ask the students questions about the topic you taught.

You can ask the students' questions like the following:

- What is population?
- What is resource?
- How do you explain the relationship between population and resources?
- What is meant by overpopulation, optimum population and under population
- Give the students appropriate feedback for their responses and activities.

B. Follow up

Let the students work on the following activities (Activity 3.2) with your supervision and assistance.

4.6 Expected Answers for Activities

Activity 3.2

A. Individual work

1. **A.** Over population refers to an excess of population in an area in relation to the available resources.

   B. Under population occurs when the population of an area is too small for full utilization of its resources.

   C. Optimum population is a term which denotes balanced population resource relationship in an area.

B. Group discussion

1) Pronatalist and antinatalist are the population policies adopted by several countries aimed at managing or balancing the relationship between the level of population and resources.

   Antinatalist population policy is a policy which aims to reduce birth rate and slow

population growth while Pronatalist population policy is a policy which aims to increase birth rate and rate of population growth.

2) Wrap up their group discussion by providing constructive feed backs and summary of what they have been performing.

3.3. Types of Natural Resources

Periods allotted for the lesson: 1

1. Competency:

At the end of this lesson, students will be able to:

- ✓ Distinguish between renewable and non-renewable natural resources;
- ✓ Predict the consequences of the destruction of non-renewable resources;
- ✓ Evaluate the relationship between population density and natural resource;

2. Contents

i. Renewable resources

ii. Non-renewable resources

3. Overview

There are two major natural resources that can be classified based on renewability. These are renewable and non-renewable natural resources.

4. Teaching –learning Process

4.1 Suggested teaching aid

- Photographs that show different types of natural resources.
- Video (optional - tap this link https://www.youtube.com/watch?v=PLBK1ux5b7U)-that shows the difference between renewable and non-renewable natural resources.

4.2 Suggested teaching method

- Brainstorming by asking different question like write at list three renewable andnon-renewable resources that you ever know?
- Discussion students discuss in group about types of natural resources
- Presentation introduce the lesson and explain main points on natural resources

4.3 Pre lesson Preparation

Before starting the discussion, teachers may bring to the class photographs that show different

types of natural resources and you have to make necessary preparations such as identifying the main points included in the lesson

4.4 Presentation of the lesson

A. Introducing the lesson

Start the lesson with brainstorming questions.

- What are natural resources?
- What are the two types of natural resources?
- What do we mean when we say renewable and non- renewable natural resources?

B. Body of the lesson

Let students be arranged into groups and discuss the concept of natural resources and classify natural resources into renewable and non-renewable resources then present to the whole class.

C. Stabilization

Stabilize the lesson with a review of key ideas and concepts such as:

Considering renewability, natural resources can be categorized renewable and non-renewable resources.

- Renewable resources are ones that can be replenished or reproduced easily, like sunlight, air, wind, etc.
- Non-renewable resources are that cannot be replenished after used, like fossil fuels, natural gas, and petroleum oil.

4.5 Evaluation and follow up

A. Evaluation

Ask students questions like the following:

- What is a natural resource?
- List renewable natural resources.
- List non-renewable natural resources.

B. Follow up

- Organize students into small groups and ask question, observe their participation and give feedback.

4.6 Expected answers for Activity 3.3

A. Individual work

1. Natural resources are resources that are occupy in nature.
2. Natural resources are used to make food, fuel and raw materials for the production of goods. All of the food that people eat comes from plants or animals. Natural resources such as coal, natural gas and oil provide heat, light and power.

B. Group discussion

1. List the resources and
2. categorized those resources into renewable and non-renewable resources
3. Peoples can conserve and manage these resources with different methods like

A. If petroleum oil became depleted; nothing can be moved, manufactured, transported, built, planted, mined or harvested without the liquid fuels that we get from petroleum

Rising Prices: When natural resources become scarce, food, fuel and energy prices rise. Even the price of renewable resources increases if they need to be shipped to reach areas where these have been depleted.

B. Metallic minerals are vital to the machinery and technology of modern civilization. If these minerals are depleted exhaustively, industries cannot produce machineries and goods.

C. In addition, depletion of nonmetallic minerals also causes enormous environmental effect. For example, Phosphorus is a vital nutrient for plant and algae growth. If there was no phosphorus, our plants would not be able to grow. Without plants, the Earth would not be able to produce oxygen. Without the production of oxygen, humans and other forms of life would cease to survive

3.4 Factors affecting natural resource in Ethiopia

Period allotted for the lesson 3

1. Competencies:

At the end of this lesson, students will be able to:

- ✓ State major human activities affecting the natural resources in Ethiopia;
- ✓ Develop sketch map to locate natural resources in their locality.

2. Contents

3.4 Factors affecting natural resources in Ethiopia

- Population pressure
- Agricultural expansion
- Rapid urbanization

3. Overview

- Resettlement

The resources of Ethiopia are not properly identified, well managed, and fully exploited, and these natural resources are under the influence of various interconnected factors. These are; population pressure, agricultural expansion, rapid urbanization, and resettlement.

4. Teaching –learning Process

4.1 Suggested teaching aid

- Figures and photographs to show resettlement and deforestation, agricultural expansion.

4.2 Suggested teaching method

- Brainstorming by asking different question on the lesson
- Discussion students discuss in group on factors affecting natural resources in Ethiopia.
- Presentation introduces the lesson and explains main points on the lesson.

4.3 Pre lesson Preparation

Before starting the discussion, teachers may bring to the class figures and photographs to show resettlement and deforestation, agricultural expansion and you have to make necessary preparationssuch as identifying the main points included in the lesson

4.4Presentation of the lesson

A. Introducing the lesson

Start the lesson with brainstorming questions. The following questions might serve this purpose:

- What are the factors that affect natural resources in Ethiopia?
- How rapid urbanization affects forest resource?

B. Body of the lesson

Let students be arranged into groups and discuss the factors that affect natural resources in Ethiopia, (Population pressure, rapid urbanization, resettlement, and agricultural expansion)?

C. Stabilization

After discussions, summarize the following main points:

The major factors that affect natural resources in Ethiopia includes population pressure, agricultural expansion, rapid urbanization, and resettlement.

Rising number of population in Ethiopia leads to enormous production of wastes, increased pressure on arable lands, losses of biodiversity, pollution of air and water.

Today in Ethiopia agricultural sector is to be a major cause of environmental pollution and affects natural resource. Rapid urbanization in Ethiopia has always been related to remarkable environmental problems such as, degradation of land, forest, large scale quarrying and excavation of sand, gravel, and other building materials.

4.5Evaluation and follow up

A. Evaluation

Ask questions

- Write factors affecting natural resources in Ethiopia?
- How agricultural expansion and population pressure can causes deforestation?
- What is resettlement?

B. Follow up

- Motivate the students to share their knowledge and experiences through group work and activity 3.4 then observe their participation and give feedback.

4.6Expected answers for Activity 3.4

1, Natural resources destruction caused different types of environmental damages which include ecological disturbances, destruction of natural flora and fauna, pollution of air, water and land, instability of soil and rock masses, landscape degradation, desertification and global warming.

2, Overpopulation resulted in land resource scarcity, fragmentation of farm plots, and ecological degradation such as increasing emissions, soil erosion, deforestation, and the overuse of natural resources.

3, Resettlement is the transportation of a group of people to a new settlement

Resettlement is a tool to provide international protection and meet the specific needs of refugees

Answer key for Unit 3 Review Question

I. True or False Items

1. False 2. False 3. True 4. True 5. False

II. Matching Items

1. D 2. C 3. E 4. A 5.B

III. Multiple-choice Items

1. D 2.D 3. C 4. A

IV. Fill in the Blank Items

1. Agricultural expansion
2. Resettlement
3. Non renewable
4. Carrying capacity

V.Short Answer Items

1. Agro forestry, social forestry and Apply upward growing of urban centers.

2. The elements of the physical environment such as climate, relief, soil and the like influences peoples mode of life. The influence of environment on humans' activity is unavoidable. But peoples can modify (influence) their environment with the help of their skill, knowledge and experience. The advancement of technology enables human beings to create conducive environments so that they can exploit natural resource in a way they seek. The relationship existing between humans and the environment is reciprocal (both affect each other).

3.The human population grows our consumption of natural resources increases. Therefore, population pressure results in, loss of soil fertility, low vegetative cover, unsustainable farming practice, overgrazing, and migration of wildlife.

4. Renewable resources can be replenishing itself after use easily, and they are unlimited in supply. e.g.Sun light, forest wind energy etc.

Non-renewable resources cannot replenish after use, and they are limited in supply.

E.g. fossil fuel, natural gas, opal, and petroleum oil etc.

5. Non-renewable sources can be used for all kinds of things. Over 70% of the energy used in industrial processes comes from non-renewable sources, while fossil fuels are also used for many household purposes. Renewable resources also produce clean energy, less pollution and greenhouse gas emissions, which contribute to climate change.

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