

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

SCHOOL: _____

DATE: _____ GENDER

GRADE: 10

BOY S	GIR LS

TOPIC: LIVING ORGANISMS AND LIFE PROCESSES

LESSON: CHARACTERISTICS OF LIVING ORGANISMS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Chart, Video

TERMINAL OBJECTIVES; Explain the characteristics of living organisms correctly.

SURBODINATE OBJECTIVES;

- State some characteristics of living things
- Explain how each of the name characteristics help living things sustains life.
- Illustrate interdependence of living things through basic life processes.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to take pupils for a field trip in the school orchard.	They identify some basic life processes seen in different living organisms.
MIN	DEVELELOPMENT Ask pupils to name basic life characteristics such as feeding, breathing, reproducing, growing, locomotion, sensitivity and excretion as seen from the chart.	Explain how each of the named characteristics such as feeding, breathing, reproducing, growing, locomotion, sensitivity and excretion Help living things sustain their life. They present their work from their respective groups.
MIN	CONCLUSION- Class Exercise Illustrate interdependence of living things through basic life processes.	They write the class work, take books for marking and do some correction from the revised work in the video clip.

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LESSON: CHARACTERISTICS OF LIVING ORGANISMS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Chart, Video

TERMINAL OBJECTIVES; Distinguish between living organisms and non-living things.

SURBODINATE OBJECTIVES;

- Identify some characteristics of living things
- Explain how each of the name characteristics differentiates a living organism from a nonliving organism
- Discuss interdependence of living and nonliving organisms.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to take pupils for a field trip in the school orchard.	They identify some characteristics of living things from what they have seen in the garden.
MIN	DEVELELOPMENT Ask pupils explain how each of the named characteristics differentiates a living organism from a nonliving organism as seen from the chart and video clip.	Explain how each of the named characteristics such as feeding, breathing, reproducing, growing, locomotion, sensitivity and excretion Help to differeciate living organism from nonliving ones. They present their work from their respective groups.

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MIN	CONCLUSION- Class Exercise Discuss interdependence of living and nonliving organisms from the local school environment. .	They write the class work, take books for marking and do some correction from the revised work in the video clip.
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TOPIC: LIVING ORGANISMS AND LIFE PROCESSES

LESSON: CHARACTERISTICS OF LIVING ORGANISMS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Chart, Video

TERMINAL OBJECTIVES; Describe life processes of living organisms correctly.

SURBODINATE OBJECTIVES;

- Identify some characteristics of living things
- Discuss interdependence of living and nonliving organisms.
- Describe anabolic and catabolic reaction using good examples.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to take pupils for a field trip in the school orchard.	They identify some characteristics of living things from what they have seen in the garden.
MIN	DEVELEOPMENT Ask pupils explain how each of the name characteristics differentiates a living organism from a nonliving organism as seen from the chart and video clip in relation to Metabolism (Catabolism and anabolism). Include the role of enzymes.	They discus life processes of living organisms: Metabolism (Catabolism and anabolism). Include the role of enzymes.

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MIN	CONCLUSION- Class Exercise Discuss using how photosynthesis and respiration can be classified to be Catabolism and anabolism. .	They write the class work, take books for marking and do some correction from the revised work in the video clip.
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BOY S	GIR LS

TOPIC: CELL STRUCTURE AND ORGANISATION

LESSON: MICROSCOPES

REFERENCE: BIOLOGICAL SCIENCE,LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Chart, onion

TERMINAL OBJECTIVES ; Demonstrate the correct use of a microscope.

SURBODINATE OBJECTIVES;

- Define a microscope.
- Name the parts of the microscope and explain the function of each of the named part.
- Observe specimen on the microscope

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to name instruments used to magnify sizes of a specimen in school lab	They identify the instrument such as a microscope and define a microscope.
MIN	DEVELELOPMENT Ask pupils to be in their respective groups to name the parts of the	They name the parts of a microscope

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	microscope.	and explain how each of the named part help to ensure good magnification of specimen.
MIN	CONCLUSION- Class Exercise Discuss how a microscope works and gives pupils some specimen to prepare and observe on a microscope. .	They observe objects ad write how the said instrument multiply size of image .

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TOPIC: CELL STRUCTURE AND ORGANISATION

LESSON: MICROSCOPES

REFERENCE: BIOLOGICAL SCIENCE,LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Chart, onion

TERMINAL OBJECTIVES ; Calculate magnification of specimen

SURBODINATE OBJECTIVES;

- Define magnification.
- Observe specimen on the microscope and draw a well labelled diagram of a microscope.
- Calculate magnification of an object.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
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MIN	INTRODUCTION Teacher to pupils use of a microscope	Answers that it magnify size of objects. They define magnification of an image.
MIN	DEVELOPMENT Ask pupils to be in their respective groups and go round to check group works. Give necessary materials to the pupils	They observe specimen on the microscope and draw a well labelled diagram of a microscope with all its related parts correctly.
MIN	CONCLUSION- Class Exercise Ask pupils to draw and label details of the object as seen under a microscope.	They calculate magnification using size of drawing divided by size of object

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BOYS	GIRLS

TOPIC: CELL STRUCTURE AND ORGANISATION

LESSON: CELLS AS THE BASIC UNITS OF LIVING ORGANISMS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Chart, onion

TERMINAL OBJECTIVES ; Calculate magnification of specimen

SUBORDINATE OBJECTIVES;

- Describe a typical cell.
- Distinguish between a plant and an animal cell.
- Draw typical plant and animal cells.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
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MIN	INTRODUCTION Teacher to ask pupils to define a cell.	They define a cell and name some examples of cells.
MIN	DEVELOPMENT Ask pupils to be in their respective groups and give some cell slides to study, Give necessary materials to the pupils	They observe specimen on the microscope to compare animal and plant cells Name organelles found in the cell; nucleus, cytoplasm, membrane, organelles, (ribosome, golgi bodies and endoplasmic reticulum).
MIN	CONCLUSION- Class Exercise Ask pupils to draw and label details of the object as seen under a microscope.	They draw and label a typical plant and animal cells respectively.

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TOPIC: CELL STRUCTURE AND ORGANISATION

LESSON: CELLS AS THE BASIC UNITS OF LIVING ORGANISMS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Chart, onion

TERMINAL OBJECTIVES ; discuss cell organization.

SUBORDINATE OBJECTIVES;

- Describe a typical cell.
- Describe how a cell is organized.

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- Explain the importance of cell organization to an organism.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to describe any cell they have seen.	They describe a cell and name some examples of a cell they have described.
MIN	DEVELOPMENT Ask pupils to describe how cells they have seen are organized to perform important functions of an organism with reference to a video clip.	They observe cells, tissues, organs, systems. They define cells, tissues, organs. Systems and give an example in each case. They then describe cell organization.
MIN	CONCLUSION- Class Exercise Ask pupils to explain the importance of cell organization to an organism.	They write the exercise and have it marked.

EVALUATION: _____

SCHOOL: _____

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BOYS	GIRLS

TOPIC: CLASSIFICATION.

LESSON: CLASSIFICATION OF PLANTS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: plant varieties.

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TERMINAL OBJECTIVES ; Describe ways of classifying organisms.

SURBODINATE OBJECTIVES;

- Define plant classification in relation to various types of plants.
- Formulate a simple key for Classification of plants.
- Use a simple classification key to identify plants.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to display various types of plants and then ask pupils to define plant classification in relation to various types of plants	They define plant classification in relation to various types of plants
MIN	DEVELEOPMENT Ask pupils to observe plants and formulate a simple key for Classification of plants. .	They compare and contrast characteristics of various plants to formulate a simple key for Classification of plants.
MIN	CONCLUSION- Class Exercise Ask pupils to use a simple classification key to identify plants	They write the exercise and have it marked.

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SCHOOL: _____

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BOY S	GIR LS

TOPIC: CLASSIFICATION.

LESSON: CLASSIFICATION OF ANIMALS

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BIOLOGY LESSON PLAN

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Animal varieties.

TERMINAL OBJECTIVES ; Describe ways of classifying organisms.

SURBODINATE OBJECTIVES; PSBAT

- Define animal classification in relation to various types of animals.
- Formulate a simple key for Classification of animals.
- Use a simple classification key to identify animals.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to display various types of animals and then ask pupils to define animals classification in relation to various types of animals	They define animals classification in relation to various types of animals
MIN	DEVELEOPMENT Ask pupils to observe animals and formulate a simple key for Classification of animals. .	They compare and contrast characteristics of various animals to formulate a simple key for Classification of animals.
MIN	CONCLUSION- Class Exercise Ask pupils to use a simple classification key to identify animals.	They write the exercise and have it marked.

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BOY S	GIR LS

TOPIC: NUTRITION.

LESSON: NUTRITION IN PLANTS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Animal varieties.

TERMINAL OBJECTIVES ; Describe the process of nutrition in plants.

SURBODINATE OBJECTIVES;**PSBAT**

- Define nutrition.
- Describe the nutritional requirements of plants.
- Explain the process of photosynthesis.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to take pupils to the school garden to observe plants and ask them to define plant nutrition.	They define plant nutrition
MIN	DEVELELOPMENT Ask pupils to describe the nutritional requirements of plants.	Refer to mineral salts, water and CO_2 . Refer to dark and light reactions. Refer to the need of chlorophyll and light energy.
MIN	CONCLUSION- Class Exercise Ask pupils to explain the process of photosynthesis.	Mention raw materials and products. Including role of enzymes and light energy. (Names of enzymes are not required).

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BOY S	GIR LS

TOPIC: NUTRITION.

LESSON: NUTRITION IN PLANTS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Animal varieties.

TERMINAL OBJECTIVES ; Describe the process of nutrition in plants.

SURBODINATE OBJECTIVES;**PSBAT**

- Demonstrate how to test a leaf for starch.
- Explain how leaves are adapted to carry out photosynthesis.
- Demonstrate the conditions necessary for photosynthesis.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to take pupils define the term destarching.	They define destarching.
MIN	DEVELELOPMENT Ask pupils to demonstrate how to test a leaf for starch.	They carry out a test for starch in a leaf following the step; boiling it in water, then in alcohol, dipping it in warm water finally adding two drops of iodine solution.
MIN	CONCLUSION- Class Exercise Ask pupils to demonstrate the conditions necessary for photosynthesis.	Explain how each of the following factors affects rate of photosynthesis. Refer to carbon dioxide, light energy and chlorophyll.

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BOY S	GIR LS

TOPIC: NUTRITION.

LESSON: NUTRITION IN PLANTS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: video clip and plants.

TERMINAL OBJECTIVES ; Describe the process of nutrition in plants.

SURBODINATE OBJECTIVES; PSBAT

- Explain the functions of nitrogen, magnesium and phosphorus in plants.
- State the importance of photosynthesis.
- Identify the food storage organ of the plant

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to define macro-plant nutrients.	They define macro-plant nutrients and give examples. Refer to nitrogen, magnesium and phosphorus
MIN	DEVELELOPMENT Ask pupils to explain the functions of nitrogen, magnesium and phosphorus in plants. They observe growing plants in the field to identify deficient element in the plant.	They observe growing plants in the field to identify deficient element in the plant. They explain why a plant deficient in magnesium and nitrogen stores less starch.
MIN	CONCLUSION- Class Exercise Ask pupils to state the importance of photosynthesis and identify storage organs in a plant. Homework; discuss formation, transport and storage of starch in a plant.	They write the exercise accordingly.

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BOY S	GIR LS

TOPIC: NUTRITION.

LESSON: NUTRITION IN FUNGI.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: plant leaves ,candle, and mucor ,microscope.

TERMINAL OBJECTIVES ; Describe the process of nutrition in plants.

SURBODINATE OBJECTIVES;**PSBAT**

- Describe the structure of Rhizopus or Mucor..
- Describe the effects of pollution on plant nutrition.
- Describe the digestion and absorption of Rhizopus or Mucor.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to get Rhizopus and mucor to observe its structure.	They name the parts they are able to see using a microscope.
MIN	DEVELELOPMENT Ask pupils to describe the structure of Rhizopus or Mucor. Ask pupils to expose the fungi and plant leaves to the soot of a burning candle. .	They observe structure to study the Rhizopus or Mucor microscopically. Describe the effects of pollution on plant and mucor nutrition
MIN	CONCLUSION- Class Exercise Ask pupils to describe the digestion and absorption of Rhizopus or Mucor.	They write the exercise accordingly by emphasizing on extra cellular digestion.

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EVALUATION: _____

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BOY S	GIR LS

TOPIC: NUTRITION.

LESSON: CLASSES OF NUTRIENTS.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: plants .

TERMINAL OBJECTIVES ; Describe the process of nutrition in plants.

SURBODINATE OBJECTIVES; **PSBAT**

- List possible sources of carbohydrates, proteins, fats and oils.
- Describe the importance of proteins, fats, carbohydrates, roughage, water, and vitamins
- State the composition and proportion of elements (carbon, hydrogen and oxygen) in Proteins, carbohydrates and fats.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to state classes of nutrients.	They name the classes of nutrients with reference to food variety given.
MIN	DEVELELOPMENT Ask pupils to list possible sources of carbohydrates, proteins, fats and oils. .	They observe the food variety and list possible sources of carbohydrates, proteins, fats and oils and salts.

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BIOLOGY LESSON PLAN

MIN	CONCLUSION- Class Exercise Ask pupils to state the composition and proportion of elements (carbon, hydrogen and oxygen) in proteins, carbohydrates and fats.	They state elementary composition of (carbon, hydrogen and oxygen) in proteins, carbohydrates and fats. Explain importance each element in nutrition.
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BOY S	GIR LS

TOPIC: NUTRITION.

LESSON: CLASSES OF NUTRIENTS.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: plants .

TERMINAL OBJECTIVES ; Describe the deficiency diseases of the named classes of each nutrient.

SURBODINATE OBJECTIVES; **PSBAT**

- List possible sources of carbohydrates, proteins, fats and oils.
- Describe the importance of proteins, fats, carbohydrates, roughage, water, and vitamins
- State the composition and proportion of elements (carbon, hydrogen and oxygen) in Proteins, carbohydrates and fats.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
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BIOLOGY LESSON PLAN

MIN	INTRODUCTION Teacher to ask the pupils to list possible sources of carbohydrates, proteins, fats and oils.	They list possible sources of carbohydrates, proteins, fats and oils.
MIN	DEVELOPMENT Ask pupils to list state the deficiency disease of the named classes of food.	They refer to refer to malnutrition, kwashiorkor, marasmus goitre, rickets, scurvy, constipation and anaemia.
MIN	CONCLUSION- Class Exercise Ask pupils to state measures to take in order to prevent deficiency diseases.	They state measures to take in order to prevent deficiency diseases.

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BOY S	GIR LS

TOPIC: NUTRITION.

LESSON: ANIMAL NUTRITION.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: plants ,video.

TERMINAL OBJECTIVES ; Describe the macro processes of digestion.

SUBORDINATE OBJECTIVES; **PSBAT**

- Describe holozoic nutrition.
- Describe the digestion and assimilation of proteins, carbohydrates and assimilation of carbohydrates and proteins

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- Identify and illustrate the main regions of the alimentary canal and associated organs.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to name the mode of nutrition in man.	They refer to holozoic nutrition and define it correctly.
MIN	DEVELOPMENT Ask pupils to watch a video clip and describe holozoic nutrition.	They refer to the macro processes of nutrition involving of proteins, carbohydrates and lipids. Ingestion, digestion, absorption, assimilation and egestion.
MIN	CONCLUSION- Class Exercise Ask pupils to explain some diseases of the gut.	Refer to dehydration, loss of mineral salts, and loss of fluids and inflammation of the alimentary canal.

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BOYS	GIRLS

TOPIC: NUTRITION.

LESSON: ANIMAL NUTRITION.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: gut model ,video.

TERMINAL OBJECTIVES ; Describe the macro processes of digestion.

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BIOLOGY LESSON PLAN

SURBODINATE OBJECTIVES; PSBAT

- Identify and illustrate the main regions of the alimentary canal and associated organs.
- State the main functions of the parts of the alimentary canal.
- Describe the extra cellular digestion in the alimentary canal.
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TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to observe the model of the gut.	They observe the model and ask questions for clarity seek.
MIN	DEVELELOPMENT Ask pupils to watch a video clip and describe holozoic nutrition.	Identify and illustrate the main regions of the alimentary canal and associated organs. State the main functions of the parts of the alimentary canal and liver.
MIN	CONCLUSION- Class Exercise Ask pupils to describe the extra cellular digestion in the alimentary canal.	Refer to the involvement of enzymes and draw the gut and its associated parts.

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SCHOOL: _____

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BOY S	GIR LS

TOPIC: NUTRITION.

LESSON: DENTITION IN MAN.

REFERENCE: BIOLOGICAL SCIENCE,LISUBA BORNFACE BIOLOGY TEXT.

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

TEACHING AIDS: model ,video.

TERMINAL OBJECTIVES ; Describe the dentition in various animals.

SURBODINATE OBJECTIVES; **PSBAT**

- Identify the incisors, canines, premolars and molars of mammals.
- Relate the structure of incisors, canines, premolars and molars to their functions.
- Describe the internal structure of the human tooth.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to observe the model of dentition in man.	They observe identify the incisors, canines, premolars and molars of mammals.
MIN	DEVELELOPMENT Ask pupils to watch a video clip and describe the structure of incisors, canines, premolars and molars to their functions.	They watch a video clip to describe the structure of incisors, canines, premolars and molars to their functions.
MIN	CONCLUSION- Class Exercise Ask pupils to describe the internal structure of the human tooth. Explain causes and prevention of tooth decay. .	Refer to the internal structure of the human tooth.

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TOPIC: NUTRITION.

LESSON: DENTITION IN OTHER ANIMALS.

REFERENCE: BIOLOGICAL SCIENCE,LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: models.

TERMINAL OBJECTIVES ; Describe internal and external structure of roots and stems..

SURBODINATE OBJECTIVES; **PSBAT**

- State why roots and stems are organs.
- Observe roots and stem on a microscope.
- Describe with the aid of diagrams the internal and external structure of roots and stems.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to observe the root and stem from dicot and monocot.	They observe the root and stem and state why these are said to be plant organs.
MIN	DEVELELOPMENT Ask pupils to ask pupils to observe roots and stem on a microscope	They section specimen given to observe roots and stem on a microscope to see arrangement of vascular bundle.
MIN	CONCLUSION- Class Exercise Ask pupils describe with the aid of diagrams the internal and external structure of roots and stems	They differentiate arrangement of vascular bundle in monots and dicots.

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BOY S	GIR LS

TOPIC: NUTRITION.

LESSON: TRANSPORT IN PLANTS.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: models.

TERMINAL OBJECTIVES ; Describe transport of materials through roots and stems in plants.

SURBODINATE OBJECTIVES; **PSBAT**

- Describe the transport of water in higher plants.
- Describe the transport of mineral salts from the soil.
- Describe the transport of carbohydrates from leaves to the stem and leaves.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to name transport system in plants.	They refer to xylem and phloem. .
MIN	DEVELEOPMENT Ask pupils to ask pupils to observe how roots and stem transport substances in plants.	They describe the transport of water in higher plants. Refer to osmosis, diffusion.
MIN	CONCLUSION- Class Exercise Ask pupils describe the transport of carbohydrates from leaves to the stem and leaves.	They refer to translocation in the phloem tubes.

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BOY S	GIR LS

TOPIC: NUTRITION.

LESSON: TRANSPORT IN PLANTS.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: models.

TERMINAL OBJECTIVES ; Describe transport of materials through roots and stems in plants.

SURBODINATE OBJECTIVES; **PSBAT**

- Explain the process of transpiration.
- Investigate the effects of environmental factors on transpiration.
- Explain the significance of plasmolysis, osmosis, turgidity, diffusion and transpiration in plants.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to name the process that causes water droplet in a covered potted plant.	They refer to transpiration.
MIN	DEVELEOPMENT Ask pupils to ask to observe potted plant water droplet on the leaves and explain meaning of the process of transpiration Ask pupils to investigate the effects of environmental factors on transpiration.	They refer to evaporation of water from plant leaves. They refer to video clip on: a) Temperature, b) Humidity; refer to effects of deforestation, c) Light intensity, and d) Speed of wind.
MIN	CONCLUSION- Class Exercise Ask pupils to explain the significance of plasmolysis, osmosis, turgidity, diffusion and transpiration in plants.	They refer to plants structural support, cooling, elements absorption.

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EVALUATION: _____

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BOYS	GIRLS

TOPIC: TRANSPORT IN ANIMALS.

LESSON: BLOOD AS MEDIUM OF TRANSPORT.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: CHART/VIDEO.

TERMINAL OBJECTIVES ; Describe transport of materials through blood in human beings.

SURBODINATE OBJECTIVES; **PSBAT**

- Describe the composition of blood.
- Explain the functions of blood.
- Distinguish between the red and the white blood cells.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to state the mode of transport of materials in human.	They refer to blood.
MIN	DEVELELOPMENT Ask pupils to ask to observe composition of blood in a video clip ask them to explain the functions of blood.	Describe the composition of blood and explain the functions of blood in term of; defense ,transport , defense ,manufacture site of heat production. Each group to present its work
MIN	CONCLUSION- Class Exercise Ask pupils to distinguish between the red and the white blood cells. .	They refer to structural and functional differences.

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TOPIC: TRANSPORT IN ANIMALS.

LESSON: BLOOD AS MEDIUM OF TRANSPORT.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: CHART/VIDEO.

TERMINAL OBJECTIVES ; Describe transport of materials through blood in human beings.

SURBODINATE OBJECTIVES; **PSBAT**

- Describe the blood groups of A B O.
- Explain the importance of determining the blood groups and Rhesus factor.
- Explain the donor - recipient compatibility of blood types.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to state the blood groups alleles they know.	They refer to blood group A,B,O. .
MIN	DEVELELOPMENT Ask pupils to go to the nearest health centre to observe procedures of blood transfusion.	Explain the importance of blood screening and determining the blood groups and Rhesus factor.
MIN	CONCLUSION- Class Exercise Ask pupils to explain the donor - recipient compatibility of blood types. .	Refer to antibody and antigen composition and Hepatitis A and AIDS transmission risks.

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

EVALUATION: _____:

SCHOOL: _____
DATE: _____

GRADE: _____
GENDER _____

BOY S	GIR LS

TOPIC: TRANSPORT IN ANIMALS.

LESSON: BLOOD DISORDERS.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: CHART/VIDEO.

TERMINAL OBJECTIVES ; Explain the significance of disorders due to the condition of the blood.

SURBODINATE OBJECTIVES; **PSBAT;**

- Define blood disorders.
- Explain occurrences of named blood disorders
- Explain the remedies of some blood disorders

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to define blood disorders.	They refer to blood cell abnormality.
MIN	DEVELELOPMENT Ask pupils to explain occurrences of named blood disorders.	They refer to Rhesus factor, anaemia and leukaemia.

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

MIN	CONCLUSION- Class Exercise Ask pupils to explain the remedies of some blood disorders	They answer the class work accordingly and have it marked.
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EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

GENDER

BOY S	GIR LS

TOPIC: TRANSPORT IN ANIMALS.

LESSON: THE HEART.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: CHART/VIDEO.

TERMINAL OBJECTIVES ; Explain the role of the heart in circulation of blood in human.

SURBODINATE OBJECTIVES; **PSBAT;**

- Describe the structure of the heart.
- Describe how the heart functions.
- Draw and label the structure of the mammalian heart.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
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MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

MIN	INTRODUCTION Teacher to ask the pupils to place their palm on the left chest for 20 seconds. Ask them their feel.	They refer to rhythmic pump as the heart and its myogenic actions.
MIN	DEVELELOPMENT Ask pupils watch the video clip to describe the structure of the heart and describe how the heart functions	They refer to refer to chambers, valves, vessels, including coronary arteries. Describe how the heart functions with reference to double circulation. Refer to pulse rate and relate to the heart beat (diastole and systole).
MIN	CONCLUSION- Class Exercise Ask pupils to draw and label the structure of the mammalian heart	They answer the class work accordingly and have it marked.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

GENDER

BOY S	GIR LS

TOPIC: TRANSPORT IN ANIMALS.

LESSON: HEART DISEASES.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: CHART/VIDEO.

TERMINAL OBJECTIVES ; Discuss heart diseases in human beings.

SURBODINATE OBJECTIVES; **PSBAT;**

- Name some heart diseases.

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

- Describe causes of the said heart anomalies.
- Explain the prevention of the said heart anomalies in a mammalian heart.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to name some heart diseases	They refer to coronary heart.
MIN	DEVELOPMENT Ask pupils watch the video clip and describe causes of the said heart anomalies.	Refer to include diet, stress, smoking and pollution. (Carbon monoxide from vehicles)
MIN	CONCLUSION- Class Exercise Ask pupils explain the prevention of the said heart anomalies in a mammalian heart.	Refer to controlled diet, stress, smoking and pollution. (Carbon monoxide from vehicles)

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

GENDER

BOYS	GIRLS

TOPIC: TRANSPORT IN ANIMALS.

LESSON: HEART DISEASES.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: CHART/VIDEO.

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

TERMINAL OBJECTIVES ; Discuss the lymphatic system.

SURBODINATE OBJECTIVES; PSBAT;

- Describe the structure of the lymphatic system in relation to blood circulatory system.
- Describe the relationship between tissue fluid, lymph and blood.
- Describe the composition, flow and function of lymph.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to define the lymphatic system.	They define the lymphatic system.
MIN	DEVELELOPMENT Ask pupils watch the video clip and describe the structure of the lymphatic system in relation to blood circulatory system and describe the relationship between tissue fluid, lymph and blood. .	They describe the structure of the lymphatic system in relation to blood circulatory system. Describe the relationship between tissue fluid, lymph and blood.
MIN	CONCLUSION- Class Exercise Ask pupils to draw structure of lymphatic system and describe the composition, flow and function of lymph.	Refer to lymph nodes and their disease prevention. Refer to STD, TB, HIV or injury.

EVALUATION: _____

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

SCHOOL: _____

DATE: _____

GRADE:
GENDER

BOY S	GIR LS

TOPIC: TRANSPORT IN ANIMALS.

LESSON: CIRCULATORY SYSTEM.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: CHART/VIDEO.

TERMINAL OBJECTIVES ; Discuss the circulatory system.

SURBODINATE OBJECTIVES; **PSBAT**;

- Describe the circulatory system.
- Describe the double circulation.
- Differentiate between the single and double circulation.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to define circulatory system.	They define the circulatory system.
MIN	DEVELELOPMENT Ask pupils to do a role play on double circulation.	They describe the double circulation in a mammal. Differentiate between the single and double circulation.
MIN	CONCLUSION- Class Exercise Ask pupils to draw structure of the double circulation in a mammal.	Refer to the chart to illustrate the double circulation in a mammal. .

EVALUATION: _____

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

SCHOOL: _____

GRADE:

GENDER

TOPIC: TRANSPORT IN ANIMALS.

BOY S	GIR LS
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LESSON: CIRCULATORY SYSTEM.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: CHART/VIDEO.

TERMINAL OBJECTIVES ; Discuss the circulatory system.

SURBODINATE OBJECTIVES; **PSBAT**;

- Describe the structure of lymph capillaries, lymph vessels and lymph nodes.
- State the origin and functions of tissue fluid.
- State the functions of lymph.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to define the terms; lymph vessel, lymph nodes and tissue fluid	They define the terms; lymph vessel, lymph nodes and tissue fluid.
MIN	DEVELELOPMENT Ask pupils to watch a video clip to describe the structure of lymph capillaries, lymph vessels and lymph nodes.	They describe the structure of lymph capillaries, lymph vessels and lymph nodes. .
MIN	CONCLUSION- Class Exercise Ask pupils to state the functions of lymph.	They state the functions of lymph.

EVALUATION: _____

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

SCHOOL: _____

GRADE:

GENDER

TOPIC: RESPIRATION.

BOY S	GIR LS
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LESSON: RESPIRATION IN FISH.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: CHART/ INSECT.

TERMINAL OBJECTIVES ; Discuss the respiratory system in fish.

SUBORDINATE OBJECTIVES; **PSBAT;**

- Describe the respiratory system in fish.
- Explain the mechanism of gaseous exchange in fish.
- Draw and label the respiratory tract in fish.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to define the terms; tissue respiration as a basic life process.	They define the term; tissue respiration as a basic life process.
MIN	DEVELOPMENT Ask pupils to give each group of learners sample bone fish.	They section the fish to study and describe the respiratory in of fish. Refer to gills , mouth , operculum and gill arc. Explain the mechanism of gaseous exchange in fish.
MIN	CONCLUSION- Class Exercise Ask pupils to draw and label the respiratory tract of an insect and fish.	They draw and label the respiratory tract of an insect and fish.

EVALUATION: _____

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

SCHOOL: _____

GRADE:

GENDER

TOPIC: RESPIRATION.

BOY S	GIR LS
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LESSON: RESPIRATION IN FISH.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: CHART/ BORNE FISH.

TERMINAL OBJECTIVES ; Discuss the respiratory system in fish.

SURBODINATE OBJECTIVES; **PSBAT;**

- Describe the respiratory system in fish.
- Explain the mechanism of gaseous exchange in fish.
- Draw and label the respiratory tract in fish.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to define the terms; tissue respiration as a basic life process.	They define the term; tissue respiration as a basic life process.
MIN	DEVELELOPMENT Ask pupils to give each group of learners sample bone fish.	They section the fish to study and describe the respiratory in of fish. Refer to gills , mouth , operculum and gill arc. Explain the mechanism of gaseous exchange in fish.
MIN	CONCLUSION- Class Exercise Ask pupils to draw and label the respiratory tract of fish.	They draw and label the respiratory tract of fish.

EVALUATION: _____

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

SCHOOL: _____

GRADE:
GENDER

TOPIC: RESPIRATION.

BOY S	GIR LS

LESSON: RESPIRATION IN INSECTS.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: CHART/ GRASSHOPPER.

TERMINAL OBJECTIVES ; Discuss the respiratory system in insects.

SURBODINATE OBJECTIVES; **PSBAT;**

- Describe the respiratory system in insects.
- Explain the mechanism of gaseous exchange in insects.
- Draw and label the respiratory tract in insects.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to define the terms; open respiration system.	They define the term; open respiratory system.
MIN	DEVELELOPMENT Ask pupils to give each group of learners sample grasshopper.	They section the fish to study and describe the respiratory in insects. Refer to spiracles, trachea and tracheaoles. Explain the mechanism of gaseous exchange in insects.
MIN	CONCLUSION- Class Exercise Ask pupils to draw and label the respiratory tract of an insect.	They draw and label the respiratory tract of an insect.

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

EVALUATION: _____

SCHOOL: _____

GRADE:
GENDER

TOPIC: RESPIRATION.

BOY S	GIR LS
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LESSON: RESPIRATION IN FISH.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: CHART/ BORNE FISH.

TERMINAL OBJECTIVES ; Discuss the respiratory system in human beings.

SURBODINATE OBJECTIVES; **PSBAT**;

- Describe the respiratory system in human beings.
- Explain the mechanism of gaseous exchange in human beings.
- Draw and label the respiratory tract in human beings.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to define the terms; closed tissue respiration process.	They define the term; closed tissue respiration process.
MIN	DEVELELOPMENT Ask pupils to give each group of learners sample a model of respiratory system in human beings. Describe the composition of inspired and expired air.	They study and describe the respiratory in human beings. Refer to nose trachea, bronchus, bronchioles and lungs. Explain the mechanism of gaseous exchange in fish in relation to diffusion. Describe the composition of inspired and expired air.

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BIOLOGY LESSON PLAN

MIN	CONCLUSION- Class Exercise Ask pupils to draw and label the respiratory tract human beings.	They draw and label the respiratory human beings.
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EVALUATION: _____

SCHOOL: _____

GRADE:
GENDER

TOPIC: RESPIRATION.

BOY S	GIR LS
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LESSON: RESPIRATION DISEASES.

REFERENCE: BIOLOGICAL SCIENCE,LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: cigarrates .

TERMINAL OBJECTIVES ; Discuss the respiratory system in human beings.

SURBODINATE OBJECTIVES; **PSBAT;**

- Name the respiratory diseases in human beings.
- Explain how each of the named respiratory disease is caused.
- Discuss preventive measures for the said respiratory diseases.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to name some respiratory diseases in human beings.	They name some respiratory diseases in human beings. Refer to bronchitis , epithsema,TB, influenza and asthma.
MIN	DEVELELOPMENT Ask pupils to explain how each of the named respiratory disease is caused.	They explain how each of the named respiratory disease is caused. Refer to cigarette smoking, carcinogen, nicotine and tar.

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		Refer to lung cancer as well.
MIN	CONCLUSION- Class Exercise Ask pupils discuss preventive measures for the said respiratory diseases.	They discuss preventive measures for the said respiratory diseases. Refer to stopping smoking, ventilating rooms, reducing cigar smoking.

EVALUATION: _____

SCHOOL: _____

GRADE:

GENDER

TOPIC: RESPIRATION.

BOY S	GIR LS
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LESSON: ROLE OF RESPIRATION.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: cigarrates .

TERMINAL OBJECTIVES; Discuss the importance of respiration in human beings.

SURBODINATE OBJECTIVES; **PSBAT**;

- Define respiration.
- Demonstrate respiration in green plants, germinating seeds and soil organism.
- Explain the importance of respiration.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils define respiration to in human beings.	They refer to a chemical process that takes place to release energy in living organism.

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MIN	DEVELOPMENT Ask pupils to demonstrate respiration in green plants, germinating seeds and by wrapping two sets of seeds A is boiled and B un boiled in moist cotton wool. They insert a thermometer in each set and observe temperature changes and discuss results.	They demonstrate respiration in green plants, germinating seeds by observing energy changes in thermometers if any.
MIN	CONCLUSION- Class Exercise Ask pupils to explain the importance of respiration.	Refer to uses of the energy produced in an organism; e.g. cell division, transport of materials. Refer to energy releases, production of alcohol and lactic acid. Refer to both chemical and word equations:

EVALUATION: _____

SCHOOL: _____

GRADE:

GENDER

TOPIC: RESPIRATION.

BOY	GIR
S	LS

LESSON: ROLE OF RESPIRATION.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: cigarrates .

TERMINAL OBJECTIVES; Discuss the importance of respiration in human beings.

SURBODINATE OBJECTIVES; **PSBAT;**

- State the production of A T P.
- Compare and contrast aerobic and anaerobic respiration.
- Compare respiration and photosynthesis.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
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MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

MIN	INTRODUCTION Teacher to ask the pupils to state meaning of acronym A.T.P	They state meaning of acronym A.T.P.
MIN	DEVELELOPMENT Ask pupils to demonstrate ATP molecule by chopping a bar of chocolate into small pieces. Compare and contrast aerobic and anaerobic respiration.	They demonstrate the production of A T P. in terms of energy production is smaller quantities from bigger molecule. Refer to both chemical and word equations.
MIN	CONCLUSION- Class Exercise Ask pupils to Compare respiration and photosynthesis.	Refer to both chemical and word equations:

EVALUATION: _____

SCHOOL: _____

GRADE:

GENDER

TOPIC: EXCRETION.

BOY	GIR
S	LS

LESSON: STRUCTURE OF THE KIDNEY.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: KIDNEY MODEL .

TERMINAL OBJECTIVES; Discuss the structure of the kidney.

SURBODINATE OBJECTIVES; **PSBAT;**

- Define excretion.
- Explain the importance of excretion.
- Describe the structure of the kidney.

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TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to define excretion as a basic life process.	Refer to removal of toxic metabolic waste from lungs, kidneys, skin and liver (removal of urea, CO ₂). Refer to excretion in plants. Refer to toxic nature of products removed.
MIN	DEVELOPMENT Ask pupils to study the model of the kidney and then they explain the importance of excretion.	They demonstrate the production removal of the unwanted substances from the mixture as excretion. They explain the importance of excretion to a living organism with reference to excretion in plants. Refer to toxic nature of products removed.
MIN	CONCLUSION- Class Exercise Ask pupils to describe the structure of the kidney with reference to the video clip.	Refer to the relative position of the organ in the body. Refer to cortex, medulla, pelvis, structure of nephron, inlet and outlet of blood vessels.

EVALUATION: _____

SCHOOL: _____

GRADE:

GENDER

TOPIC: EXCRETION.

BOY S	GIR LS
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LESSON: STRUCTURE OF THE KIDNEY.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: KIDNEY MODEL.

TERMINAL OBJECTIVES ; Discuss how the kidney works to achieve good excretion.

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SURBODINATE OBJECTIVES; PSBAT;

- Explain the mechanism of excretion in the nephron.
- Discuss the common problems and diseases associated with the kidney.
- Draw the structure of the nephron.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to locate the position of the nephron as a basic unit of ultrafiltration.	Refer to the nephron.
MIN	DEVELELOPMENT Ask pupils to watch a video clip to discuss the mechanism of excretion in the nephron.	Refer to pressure filtration and selective reabsorption, osmo regulation to discuss the mechanism of excretion in the nephron. They discuss the common problems and diseases associated with the kidney. (Refer to kidney failure and medication).
MIN	CONCLUSION- Class Exercise Ask pupils to draw the structure of the nephron. .	Draw structure of nephrone and its inlet and outlet associated blood vessels.

EVALUATION: _____

SCHOOL: _____

GRADE:

GENDER

TOPIC: EXCRETION.

BOY S	GIR LS
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LESSON: FUNCTIONS OF LUNGS AND SKIN IN EXCRETION.

REFERENCE: BIOLOGICAL SCIENCE,LISUBA BORNFACE BIOLOGY TEXT.

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

TEACHING AIDS: LUNG/SKIN MODELS.

TERMINAL OBJECTIVES ; Discuss how the lungs and skin works to achieve good excretion.

SURBODINATE OBJECTIVES; **PSBAT;**

- Describe the role of lungs in excretion
- Describe the structure of the skin.
- Describe the role of the skin in excretion.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to locate the position of lungs in the model and observe the structure of their skin.	Refer to the skin of a human being.
MIN	DEVELEOPMENT Ask pupils to describe the structure of the skin and lungs as studied from the model.	They describe the structure of the skin associated with the process of excretion.
MIN	CONCLUSION- Class Exercise Ask pupils to describe the role of the skin in excretion. Describe the role of the lungs in excretion	Refer to removal of salts, urea and water as waste products. Refer to elimination of carbon dioxide.

EVALUATION: _____

SCHOOL: _____

GRADE:

GENDER

TOPIC: HOMEOSTASIS.

BOY S	GIR LS
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MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

LESSON: FUNCTIONS OF LUNGS AND SKIN IN EXCRETION.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: VIDEO.

TERMINAL OBJECTIVES ; Discuss homeostasis .

SURBODINATE OBJECTIVES; **PSBAT**;

- Describe homeostasis.
- List the important organs in homeostasis.
- Describe the role of the kidney in:
 - (i) water balance,
 - (ii) and salt balance

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to define homeostasis.	Refer to constant internal environment (blood temperature, contents of tissue fluid, salts concentration).
MIN	DEVELEOPMENT Ask pupils to list the important organs in homeostasis as seen in the video clip.	Refer to the kidney, skin and the liver.
MIN	CONCLUSION- Class Exercise Ask pupils to describe the role of the kidney in: (ii) water balance, (ii) and salt balance	Make reference to antidiuretic hormone (ADH)

EVALUATION: _____

SCHOOL: _____

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

GRADE:
GENDER

TOPIC: HOMEOSTASIS.

BOY S	GIR LS
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LESSON: FUNCTIONS OF LUNGS AND SKIN IN EXCRETION.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: VIDEO.

TERMINAL OBJECTIVES ; Discuss homeostasis .

SURBODINATE OBJECTIVES; **PSBAT**;

- Define thermoregulation in relation to homeostasis.
- Discuss the mechanism of thermoregulation by the skin.
- Discuss the role of the liver in the regulation of the: blood sugar, and the body temperature.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask the pupils to define thermoregulation in relation to homeostasis.	Refer to constant internal blood temperature
MIN	DEVELELOPMENT Ask pupils to discuss the mechanism of thermoregulation by the skin as seen in the video clip.	Recap, Structure of skin. Emphasise the structures involved in the thermoregulation. Recap on skin structure. Refer to vasodilation, vasoconstriction.
MIN	CONCLUSION- Class Exercise Ask pupils to discuss the role of the liver in the regulation of the: blood sugar, and the body temperature.	Refer to feedback mechanism in regulating the blood sugar level involving insulin and glucagon hormones.

EVALUATION: _____

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

SCHOOOL:

GRADE:

TOPIC: ENZYMES.

BOY S	GIR LS
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LESSON: CHARACTERISTICS OF ENZYMES.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Chart, onion

TERMINAL OBJECTIVES ; Describe the roles of enzymes to man kind.

SURBODINATE OBJECTIVES;

- Define an enzyme.
- Explain some properties of enzymes.
- Discuss domestic and industrial importance of enzymes.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to name organisms that help to catalyse food digestion in man.	They name and define an enzyme accordingly.
MIN	DEVELELOPMENT Ask pupils to explain some properties of enzymes being protein in nature. Compare and contrast biological catalysts and metallic ones.	Explain how temperature , P. H , specificity, lock and key hypothesis affects enzyme activity.
MIN	CONCLUSION- Class Exercise Ask pupils to bring detergents, leather items bun and yeast to class and ask each group to discuss domestic and industrial importance of enzymes.	They write the exercise and have it marked. They refer to bakery, laundry, tanning industry and brewery.

EVALUATION: _____

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

GRADE:
GENDER

TOPIC: ENZYMES.

LESSON: CHARACTERISTICS OF ENZYMES.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Chart, onion

TERMINAL OBJECTIVES ; Describe the roles of enzymes to man kind.

SURBODINATE OBJECTIVES;

- Define an enzyme.
- Explain some properties of enzymes.
- Discuss domestic and industrial importance of enzymes.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to name organisms that help to catalyse food digestion in man.	They name and define an enzyme accordingly.
MIN	DEVELELOPMENT Ask pupils to explain some properties of enzymes being protein in nature. Compare and contrast biological catalysts and metallic ones.	Explain how temperature , P. H , specificity, lock and key hypothesis affects enzyme activity.
MIN	CONCLUSION- Class Exercise Ask pupils to bring detergents, leather items bun and yeast to class and ask each group to discuss domestic and industrial importance of enzymes.	They write the exercise and have it marked. They refer to bakery, laundry, tanning industry and brewery.

EVALUATION: _____

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

SCHOOL: _____

DATE:

GRADE: 10

GENDER

BOY S	GIR LS

TOPIC: CELL STRUCTURE AND ORGANISATION

LESSON: CELL ORGANISATION AND SPECIALISATION

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Chart, onion

TERMINAL OBJECTIVES ; Calculate magnification of specimen

SUBORDINATE OBJECTIVES;

- Define cell specialisation.
- Name specialized cells and explain how each named cell is specialized.
- Draw the structure of the specialized cells named above.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to go in the school field to observe some specialized plants and animal and define cell specialisation.	They to observe some specialized plants and animals define cell specialisation.
MIN	DEVELOPMENT Ask pupils to be in their respective groups and name specialized cells and explain how each named cell is specialized	They observe specimen including nerve cells, spongy cells and blood cells, muscle cells, root hair cells, phloem cells and xylem cells.
MIN	CONCLUSION- Class Exercise Ask pupils to draw and label nerve	They draw and label a typical specialized plant and animal

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

	cells, spongy cells and blood cells, muscle cells, root hair cells, phloem cells and xylem cells.	cells respectively.
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EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

GENDER

BOY S	GIR LS

TOPIC: GROWTH AND DEVELOPMENT

LESSON: GROWTH

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Chart, plants.

TERMINAL OBJECTIVES; Explain the meaning of growth.

SURBODINATE OBJECTIVES;

- Define growth in a living organism.
- Name the regions of growth in a plant.
- Explain how the process of growth in the named regions occurs.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to compare size of plants of the same species growing in th same environment.	They state that a permanent increase in size of a growing organism is because of the process of growth.
MIN	DEVELELOPMENT Ask pupils to be in their respective groups and name the regions of growth in a plant.	They observe specimen of the corrected plant variety to name regions of elongation,

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	Ask pupils to draw regions of elongation, differentiation and meristem in the named plant tissues.	differentiation and meristem the correctly.
MIN	CONCLUSION- Class Exercise Ask pupils to explain how the process of growth in the named regions occurs. .	They explain growth in regions of elongation, differentiation and meristem

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

GENDER

BOY S	GIR LS

TOPIC: GROWTH AND DEVELOPMENT

LESSON: GROWTH

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Chart, plants.

TERMINAL OBJECTIVES; Explain the differentiation of primary and secondary tissues in plants..

SURBODINATE OBJECTIVES;

- Name cells involved in differentiation of primary and secondary tissues in plants.
- Explain how differentiation of primary and secondary tissues in plants occurs.
- Explain the importance of the process of differentiation of primary and secondary tissues in plant.

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BIOLOGY LESSON PLAN

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to compare size of plants of the same species growing in th same environment.	They state some regions such as xylem and phloem as they are involved in differentiation of primary and secondary tissues
MIN	DEVELELOPMENT Ask pupils to be in their respective groups and explain how differentiation of primary and secondary tissues in plants occurs.	They observe specimen of the corrected plant variety under microscope to explain differentiation process into collenchyma, parenchyma, cambium, Sclerenchyma, phloem, xylem.
MIN	CONCLUSION- Class Exercise Ask pupils to watch a video clip on cell differentiation.	Explain the importance of the process of differentiation of primary and secondary tissues in plant.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

GENDER

BOY S	GIR LS

TOPIC: GROWTH AND DEVELOPMENT

LESSON: GROWTH AND GERMINATION

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Chart, plants seeds.

TERMINAL OBJECTIVES; Describe the structure of dicotyledonous and monocotyledonous seed.

SURBODINATE OBJECTIVES;

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BIOLOGY LESSON PLAN

- Define seed germination
- Name the parts of a germinating

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to give each group of the pupils some germinated seeds of different plants.	They name process that is causing swelling of the growing seed as seed germination.
MIN	DEVELELOPMENT Ask pupils to be in their respective groups and name the parts of the germinated seeds	They observe specimen of the corrected plant seed to name the parts of the germinated seeds. They classify the seeds as dicotyledonous and monocotyledonous seed.
MIN	CONCLUSION- Class Exercise Ask pupils to watch a video clip on seed germination	Explain how the named parts of the seed help to attain good seed germination process.

- Explain how the named parts of the seed help to attain good seed germination process.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

GENDER

BOY S	GIR LS

TOPIC: GROWTH AND DEVELOPMENT

LESSON: SEED GERMINATION

REFERENCE: BIOLOGICAL SCIENCE,LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Chart , plants seeds.

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

TERMINAL OBJECTIVES ; Describe conditions necessary of germination.

SURBODINATE OBJECTIVES;

- Name the factors that are necessary for seed germination.
- Explain how each of the named factors affects seed germination.
- Compare and contrast epigeal and hypogeal germination.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to take pupils into the garden to observe germinating seeds.	They name factors that affect the process of seed germination in plants.
MIN	DEVELELOPMENT Ask pupils to be in their respective groups and explain how each of the named factors affects seed germination.	They observe specimen of the corrected plant seed to explain how each of the named factors (temperature , moisture and oxygen) affects seed germination. .
MIN	CONCLUSION- Class Exercise Ask pupils to compare and contrast epigeal and hypogeal germination.	They compare the dicotyledonous and monocotyledonous plants in terms of number of seed cotyledons ,leaf structure and root structure.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

GENDER

BOY S	GIR LS

TOPIC: GROWTH AND DEVELOPMENT

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

LESSON: LIFE HISTORY FOR A MOSQUITO

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: video, House fly.

TERMINAL OBJECTIVES; Describe the life history of a housefly.

SUBORDINATE OBJECTIVES;

- Name the common habitats where house flies are found.
- Explain nutrition of house flies.
- Describe the growth stages of house flies.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to take pupils around the school to see sites where house flies are mainly found.	They name habitats where house flies are found mostly.
MIN	DEVELOPMENT Ask pupils to be in their respective groups and explain how house flies feed by going round to see where house flies are found. Describe the growth stages of house flies.	They observe the feeding habits of the house flies. They observe how disposed off food stuffs and other rotten substances are ingested by house flies. They Describe the growth stages of house flies by referring to the video clip
MIN	CONCLUSION- Class Exercise Ask pupils to draw and label the structure of a house fly and explain how it suits to be the vector of dysentery and other water borne diseases.	They write the exercise have it marked and do corrections where necessary.

EVALUATION: _____

SCHOOL: _____

DATE:

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BIOLOGY LESSON PLAN

GRADE:
GENDER

BOY S	GIR LS

TOPIC: GROWTH AND DEVELOPMENT

LESSON: LIFE HISTORY FOR A HOUSE MOSQUITO.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : video, mosquito.

TERMINAL OBJECTIVES; Describe the life history of a mosquito.

SUBORDINATE OBJECTIVES;

- Name the common habitats where house flies are found.
- Explain nutrition of house flies.
- Describe the growth stages of house flies.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to take pupils around the school to see sites where mosquitoes are mainly found.	They name habitats where mosquitoes are found mostly.
MIN	DEVELOPMENT Ask pupils to be in their respective groups and explain how mosquito feeds by going round to see sites such as toilets corners. Ask pupils to describe the growth stages of mosquito as seen in the video clip.	They explain how mosquitoes feed referring to mosquito bites. They describe the growth stages of mosquito by referring to the video clip. They discuss effective measures to reduce population of mosquitoes.
MIN	CONCLUSION- Class Exercise Ask pupils to draw and label the structure of a mosquito and explain how it suits to be the vector of malaria.	They write the exercise have it marked and do corrections where necessary.

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BIOLOGY LESSON PLAN

EVALUATION: _____

SCHOOL: _____

DATE: _____

GRADE: _____

BOY S	GIR LS

TOPIC: GROWTH AND DEVELOPMENT

LESSON: LIFE HISTORY FOR A HOUSE MOSQUITO.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : video, mosquito.

TERMINAL OBJECTIVES; Describe the life history of a mosquito.

SUBORDINATE OBJECTIVES;

- Name the common habitats where house flies are found.
- Explain nutrition of house flies.
- Describe the growth stages of house flies.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to take pupils around the school to see sites where mosquitoes are mainly found.	They name habitats where mosquitoes are found mostly.
MIN	DEVELOPMENT Ask pupils to be in their respective groups and explain how mosquito feeds by going round to see sites such as toilets corners. Ask pupils to describe the growth stages of mosquito as seen in the video clip.	They explain how mosquitoes feed referring to mosquito bites. They describe the growth stages of mosquito by referring to the video clip. They discuss effective measures to reduce population of mosquitoes.
MIN	CONCLUSION- Class Exercise Ask pupils to draw and label the structure of a mosquito and explain how it suits to be the vector of malaria.	They write the exercise have it marked and do corrections where necessary.

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BIOLOGY LESSON PLAN

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EVALUATION: _____
 SCHOOL: _____
 DATE: _____

GRADE: _____

BOY S	GIR LS

TOPIC: REPRODUCTION

LESSON: **REPRODUCTION IN FUNGI,**

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and video.

TERMINAL OBJECTIVES;. Describe the asexual and sexual reproduction in fungus

SURBODINATE OBJECTIVES;

- Name the mode of reproduction in fungi.
- Describe mode of reproduction fungi
- Explain importance of fungi

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to take pupils around the school to see sites where fungi are mainly found.	They name habitats where mosquitoes are found mostly and name the mode of reproduction in fungi. Refer to Zygosporangium
MIN	DEVELOPMENT Ask pupils to be in their respective groups and check where fungi is mainly found, they then describe mode of reproduction in fungi. Ask pupils to they explain economical, medicinal and domestic uses of fungi	They describe mode of reproduction in fungi with reference to where fungi was mainly found. They compare the growth of fungi from their findings to the video clip. They explain economical, medicinal and domestic uses of fungi.

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MIN	CONCLUSION- Class Exercise Ask pupils to draw and label the structure of a fungi	They write the exercise have it marked and do corrections where necessary.
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EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

BOY S	GIR LS

TOPIC: REPRODUCTION

LESSON: REPRODUCTION IN AMOEBA AND BACTERIA.,

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and video.

TERMINAL OBJECTIVES;. Describe the asexual and sexual reproduction in fungus

SURBODINATE OBJECTIVES;

- Name the mode of reproduction in amoeba and bacteria .
- Describe mode of reproduction amoeba and bacteria
- Explain importance of amoeba and bacteria.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to take pupils around the school to see where amoeba and bacteria can be found.	They name habitats where amoeba and bacteria can mostly be found and name the mode of reproduction.

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MIN	DEVELOPMENT Ask pupils to be in their respective groups and check where fungi is mainly found, they then describe mode of reproduction in fungi. Ask pupils to explain biological importance of amoeba and bacteria.	They describe mode of reproduction in amoeba and bacteria with reference to asexual and sexual reproduction for Amoeba and to budding in yeast cells and bacteria, binary fission in amoeba as seen in the video clip. They explain biological importance of amoeba and bacteria . Refer to the decomposition of organic matter and nutrient recycling. Refer to their disease causing effects e.g. Ringworm and Bacillary dysentery. Refer to production of alcohol.
MIN	CONCLUSION- Class Exercise Ask pupils to draw and label the structure of an Amoeba and Bacteria	They write the exercise have it marked and do corrections where necessary.

EVALUATION: _____

SCHOOL: _____

DATE: _____

GRADE: _____

BOYS	GIRLS

TOPIC: REPRODUCTION

LESSON: REPRODUCTION IN PLANTS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Flowering plants and video.

TERMINAL OBJECTIVES; Describe the structure of a typical flower.

SUBORDINATE OBJECTIVES;

- Name the mode of reproduction in flowering plants.
- Explain the function of each of the named part
- Describe how pollination of a named plant results into fertilization.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to take pupils to the school garden.	They collect sample plant flowers and name the mode of reproduction of each.

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MIN	DEVELOPMENT Ask pupils to be in their respective groups to name the parts of a named plant flower	They explain the function of the named plant flower. Referring to stigma, petal, anther, filament, stamen etc.
MIN	CONCLUSION- Class Exercise Ask pupils to draw and label parts of a plant flower. Explain how pollination leads to fertilisation.	They write the exercise have it marked and do corrections where necessary.

EVALUATION: _____

SCHOOL

DATE:

GRADE:

BOYS	GIRLS

TOPIC: REPRODUCTION

LESSON: REPRODUCTION IN PLANTS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Flowering plants and video.

TERMINAL OBJECTIVES ; Distinguish between self and cross pollination.

SUBORDINATE OBJECTIVES;

- Name the mode of reproduction in the given flowering plants.
- Explain the typical features of a self and cross pollination.
- Compare and contrast characteristics of a self and cross pollination.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to take pupils to the school	They collect sample plant flowers and name the mode of pollination

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	garden.	of each.
MIN	DEVELOPMENT Ask pupils to be in their respective groups to explain the typical features of a self and cross pollination.	They explain the typical features of a self and cross pollination.
MIN	CONCLUSION- Class Exercise Ask pupils to Compare and contrast characteristics of a self and cross pollinated flowers.	They write the exercise have it marked and do corrections where necessary.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

BOY S	GIR LS

TOPIC: REPRODUCTION

LESSON: REPRODUCTION IN PLANTS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Flowering plants and video.

TERMINAL OBJECTIVES ; Distinguish between wind and insect Pollination

SUBORDINATE OBJECTIVES;

- Name the mode of pollination in the given flowering plants.
- Explain the typical features of wind and insect Pollination.
- Compare and contrast characteristics of a wind and insect Pollination.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION	They collect sample plant flowers

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	Teacher to take pupils to the school garden.	and name the mode of Pollination of each.
MIN	DEVELOPMENT Ask pupils to be in their respective groups to explain the typical features of a wind and insect Pollinated flower.	They explain the typical features of a wind and insect Pollinated flowers.
MIN	CONCLUSION- Class Exercise Ask pupils to Compare and contrast characteristics of a wind and insect Pollinated flowers.	They write the exercise, have it marked and do corrections where necessary.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

BOYS	GIRLS

TOPIC: REPRODUCTION

LESSON: REPRODUCTION IN PLANTS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS: Flowering plants and video.

TERMINAL OBJECTIVES ; Explain formation of seeds and fruits.

SUBORDINATE OBJECTIVES;

- Define dispersal
- Explain the adaptation of fruits and seed dispersal.
- Explain the importance of seed dispersal.

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TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils collect different types of fruits.	They define seed dispersal and name the mode of seed dispersal of each of the collected fruit.
MIN	DEVELOPMENT Ask pupils to be in their respective groups to explain how each collected seed is adapted to named seed dispersal.	They explain how each collected seed is adapted to a named mode of seed dispersal. Refer to structural differences including other characteristics (scent, shape, colour) of various parts.
MIN	CONCLUSION- Class Exercise Ask pupils draw and label typical plants' features of each mode of seed dispersal. Explain importance of seed dispersal to plants.	They write the exercise, have it marked and do corrections where necessary.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

BOYS	GIRLS

TOPIC: REPRODUCTION

LESSON: NATURAL AND ARTIFICIAL PROPAGATION.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Flowering plants and video.

TERMINAL OBJECTIVES ; Describe different methods of natural and artificial propagation.

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BIOLOGY LESSON PLAN

SURBODINATE OBJECTIVES;

- Name some methods of propagation of different plant tissues.
- Explain how budding and grafting are carried out.
- Explain the economic importance of vegetative propagation.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils collect different types of plant tissues.	They name the mode of propagation of each of the collected plant tissue. They define natural and artificial propagation.
MIN	DEVELELOPMENT Ask pupils to be in their respective groups to explain how each of the collected plant tissues is propagated. State the advantaged and disadvantages of Vegetative propagation.	They explain how each of the collected plant tissues is propagated state advantaged and disadvantages of vegetative propagation. Refer to vegetative propagation, budding, grafting, corms, bulbs, rhizomes and runners and video clip.
MIN	CONCLUSION- Class Exercise Ask pupils draw and label typical plants' features of each mode propagation. Explain the economic importance of vegetative propagation.	Refer to vegetative propagation, budding, grafting, corms, bulbs, rhizomes and runners Refer to the significance of vegetative propagation in Agriculture – Cultivation of sugarcane, pineapples and bananas

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

BOY S	GIR LS

TOPIC: REPRODUCTION

LESSON: REPRODUCTION IN A FROG.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

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BIOLOGY LESSON PLAN

TEACHING AIDS : frogs and video.

TERMINAL OBJECTIVES. Describe the process of reproduction in a frog.

SURBODINATE OBJECTIVES;

- Name method reproduction in frogs.
- Explain how fertilisation results into grown young ones.
- Explain the disadvantages of external fertilisation as compared to internal one.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to go out to some water pools	They observe some frogs and state mode of reproduction in frogs.
MIN	DEVELEOPMENT Ask pupils to be in their respective groups to explain how fertilisation results into grown young ones.	Explain how fertilisation results into grown young ones with reference to the life cycle of a frog. Emphasize significance of: - number of eggs laid - nature of fertilisation - care of young (Metamorphosis not required).
MIN	CONCLUSION- Class Exercise Ask pupils draw and label a life cycle of the frog. Gives pupils a video clip on external fertilisation.	Explain the disadvantages of external fertilisation as compared to internal one. Illustrate life cycle of a frog.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

TOPIC: REPRODUCTION

LESSON: REPRODUCTION IN FEMALE.

BOY S	GIR LS

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and video.

TERMINAL OBJECTIVES. Describe the process of reproduction in human beings.

SURBODINATE OBJECTIVES;

- State the functions of the different parts of the female reproductive system.
- Explain how fertilisation results into a fully grown foetus.
- Explain the process of labour.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to name parts of the female reproductive system.	Name parts of the female reproductive system with reference to the model.
MIN	DEVELELOPMENT Ask pupils to watch a video clip and explain how fertilisation results into a fully grown foetus.	Explain how fertilisation results into a fully grown foetus. They explain role of placenta during foetus development.
MIN	CONCLUSION- Class Exercise Ask pupils to draw and label a female reproductive system and explain the process of labour.	They write the class exercise, have it marked and do correction when need arises.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

TOPIC: REPRODUCTION

BOY S	GIR LS

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

LESSON: MALE REPRODUCTIVE SYSTEM.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Model and video.

TERMINAL OBJECTIVES. Describe the process of reproduction in human beings.

SURBODINATE OBJECTIVES;

- State the functions of the different parts of the male reproductive system.
- Explain how the structure of a male reproductive system adapts to internal fertilisation.
- Draw and label structure of a male reproductive system.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to name parts of the male reproductive system.	Name parts of the male reproductive system with reference to the model.
MIN	DEVELELOPMENT Ask pupils to watch a video clip and explain how the structure of a male reproductive system adapts to internal fertilisation.	Explain how the structure of a male reproductive system adapts to internal fertilisation.
MIN	CONCLUSION- Class Exercise Ask pupils to draw and label a male reproductive system .	They write the class exercise, have it marked and do correction when need arises.

EVALUATION: _____

SCHOOL: _____

DATE:

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

GRADE:

BOY S	GIR LS

TOPIC: REPRODUCTION

LESSON: MALE REPRODUCTIVE SYSTEM.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Model and video.

TERMINAL OBJECTIVES . Describe the biological changes associate to sexual development in human beings.

SURBODINATE OBJECTIVES;

- State the changes associate to sexual development in human beings.
- Describe menstrual cycle.
- Draw and label the menstrual cycle.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to name changes associate to sexual development in human beings. .	Refer to the primary and secondary characteristics and video clip. Include menopause and formation of gametes.
MIN	DEVELEPMENT Ask pupils to describe the special dietary needs of a Pregnant woman ask pupils to describe the menstrual cycle.	Describe the special dietary needs of a Pregnant woman they describe the menstrual cycle.
MIN	CONCLUSION- Class Exercise Ask pupils to draw and label the menstrual cycle.	They write the class exercise, have it marked and do correction when need arises.

EVALUATION: _____

GRADE:

TOPIC: REPRODUCTION

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

LESSON: MALE REPRODUCTIVE SYSTEM.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Model and video.

TERMINAL OBJECTIVES. Discuss some methods of birth control.

SURBODINATE OBJECTIVES;

- State the different methods of birth control.
- Compare and contrast the reproductive method in a frog and human being.
- Compare and contrast female and male gametes in terms; size, number, cytoplasm and nucleus.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to State the different methods of birth control. .	State the different methods of birth control.
MIN	DEVELELOPMENT Ask pupils to Compare and contrast the reproductive method in a frog and human being.	Compare and contrast the reproductive method in a frog and human being.
MIN	CONCLUSION- Class Exercise Ask pupils to Compare and contrast female and male gametes in terms; size, number, cytoplasm and nucleus.	Compare and contrast female and male gametes in terms; size, number, cytoplasm and nucleus in a table.

EVALUATION: _____

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BIOLOGY LESSON PLAN

SCHOOL: _____

DATE: _____

GRADE: _____

BOY S	GIR LS

TOPIC: REPRODUCTION

LESSON: BIRTH CONTROL METHODS.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and video.

TERMINAL OBJECTIVES. Discuss some methods of birth control.

SURBODINATE OBJECTIVES **PSBAT**;

- State some methods of birth control.
- Describe each of the method of birth control.
- Explain some advantages and disadvantages of the named methods of birth control.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to define birth control. .	They define birth control method and name some methods of birth control.
MIN	DEVELELOPMENT Ask pupils to describe each of the method of birth control.	They describe methods of birth control, referring to example from mechanical, biological and chemical methods as seen in the video clip.
MIN	CONCLUSION- Class Exercise Ask pupils to explain some advantages and disadvantages of the named methods of birth control. .	They write the class exercise, have it marked and do correction when need arises.

EVALUATION: _____

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

SCHOOL: _____

DATE: _____

GRADE: _____

BOY S	GIR LS

TOPIC: HEALTH

LESSON: DISEASES

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and video.

TERMINAL OBJECTIVES. Discuss some methods of birth control.

SURBODINATE OBJECTIVES **PSBAT**;

- Define good health and disease.
- Discuss various types of diseases.
- Explain the measures to take in order to prevent the named diseases.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to define birth control. .	Refer to good health as a state of physical and mental wellbeing, dependent on receiving a balanced diet and an appropriate physical and mental activity.
MIN	DEVELELOPMENT Ask the pupils to be in their respective to discuss various types of diseases.	Refer to nutritional deficiency such as marasmus, kwashiorkor and rickets. Refer to inherited diseases - sickle cell, anaemia. Refer to pathogenic diseases such as schistosomiasis (Bilharzia) AIDS, Malaria, Tuberculosis and Cholera. Refer to disease due to environmental pollutants. Refer to the following diseases: AIDS, cholera, malaria and Bilharsia (schistosomiasis)
MIN	CONCLUSION- Class Exercise Ask pupils to explain the measures to take in order to prevent the named diseases.	They write the class exercise, have it marked and do correction when need arises.

EVALUATION: _____

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

SCHOOL: _____

DATE: _____

GRADE: _____

BOY S	GIR LS

TOPIC: HEALTH

LESSON: DISEASES

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and video.

TERMINAL OBJECTIVES. Discuss causative agent, signs and symptoms, methods of transmission and control.

SURBODINATE OBJECTIVES **PSBAT**;

- Define the terms causative agent, signs and symptoms of diseases.
- Discuss causative agent, signs and symptoms of diseases such schistosomiasis (Bilharzia) AIDS, Malaria, Tuberculosis and Cholera.
- Explain social and economic effects of the said diseases.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils in their respective groups to define terms causative agent, signs and symptoms of diseases.	They define terms causative agent, signs and symptoms of diseases.
MIN	DEVELOPMENT Ask the pupils to be in their respective to discuss causative agent, signs and symptoms of diseases such schistosomiasis (Bilharzia) AIDS, Malaria, Tuberculosis and Cholera.	Refer to pathogenic diseases such as schistosomiasis (Bilharzia) AIDS, Malaria, Tuberculosis and Cholera. Refer to disease due to environmental pollutants. Refer to the following diseases: AIDS, cholera, malaria and Bilharsia (schistosomiasis)
MIN	CONCLUSION- Class Exercise Ask pupils to explain social and economic effects of the said diseases named. .	They write the class exercise, have it marked and do correction when need arises.

EVALUATION: _____

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BIOLOGY LESSON PLAN

SCHOOL: _____

DATE:

GRADE:

BOY S	GIR LS

TOPIC: HEALTH

LESSON: IMMUNITY

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and video.

TERMINAL OBJECTIVES. Explain the term immunity to disease

SURBODINATE OBJECTIVES **PSBAT**;

- Explain the term immunity to disease.
- Explain the importance of the immune system.
- Discuss the factors that reduce immunity to pathogens.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils in their respective groups to define term immunity to diseases.	They define term immunity to diseases.
MIN	DEVELELOPMENT Ask the pupils to watch the video clip on importance of immunity.	They discuss the importance of the immune system. Include active, passive artificial and natural immunity. Refer to control of diseases.
MIN	CONCLUSION- Class Exercise Ask pupils to explain factors that reduce immunity to pathogens. .	They write the class exercise, have it marked and do correction when need arises. Refer to diet, repeated invasions by pathogens and development of resistant strains of the pathogens

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EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

BOY S	GIR LS

TOPIC: RESPONSES

LESSON: TROPIC RESPONSES

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and video.

TERMINAL OBJECTIVES. Demonstrate responses exhibited by plants

SURBODINATE OBJECTIVES **PSBAT**;

- Define tropic response and give examples of each.
- Explain responses exhibited by plants.
- Explain the effects of light energy and gravity on the growth of plants.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to go to the school garden and observe growth pattern of plants.	They observe plant growth, define tropic response and name example of each. Refer to growth responses in plants to water, light, chemicals and gravity.
MIN	DEVELELOPMENT Ask the pupils to watch the video clip on responses exhibited by plants.	They explain responses exhibited by plants. Refer only to phototropism and geotropism of shoots. Hydrotropism, geotropism and chemotropism of roots. .
MIN	CONCLUSION- Class Exercise Ask pupils explain the effects of light energy and gravity on the growth of plants.	They write the class exercise, have it marked and do correction when need arises. Refer to the Auxin theory

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EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

BOY S	GIR LS

TOPIC: RESPONSES

LESSON: TAXIC RESPONSE.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and video.

TERMINAL OBJECTIVES. Demonstrate responses exhibited by invertebrates.

SURBODINATE OBJECTIVES **PSBAT**;

- Define taxic response .
- Demonstrate responses exhibited by invertebrates.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to go to the school garden and observe the animals' behaviour when exposed to different stimuli.	They observe plant growth, define tropic response and name example of each. Refer to growth responses in plants to water, light, chemicals and gravity.
MIN	DEVELELOPMENT Ask the pupils to watch the video clip on responses exhibited by animals.	Demonstrate responses exhibited by invertebrates Refer to earthworms, woodlice and cockroaches. Refer to responses to light, chemicals and moisture.
MIN	CONCLUSION- Class Exercise Ask pupils explain the importance of	They write the class exercise, have it marked and do correction when

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	the named responses to stimuli as a basic life process.	need arises.
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EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

BOY S	GIR LS

TOPIC: RESPONSES

LESSON: THE ENDOCRINE SYSTEM.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and video.

TERMINAL OBJECTIVES. Demonstrate responses exhibited by invertebrates.

SURBODINATE OBJECTIVES **PSBAT**;

- Define a hormone.
- Name some hormones that influences coordination and response in man.
- Explain the importance of the named hormone in the influence of coordination and response in man responses.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to name the biological messenger in human beings.	They name the biological messenger and define it.

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MIN	DEVELOPMENT Ask the pupils to watch the video clip and name some hormones that influences coordination and response in man.	Name the hormones produced by the pancreas, adrenal, thyroid and pituitary Glands. Describe the functions of thyroxine, insulin and adrenaline.
MIN	CONCLUSION- Class Exercise Ask pupils to explain the importance of the named hormone in the influence of coordination and response in man responses.	They write the class exercise, have it marked and do correction when need arises.

EVALUATION: _____

SCHOOL: _____ DATE:

GRADE:

BOYS	GIRLS

TOPIC: RESPONSES

LESSON: BRAIN.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and video.

TERMINAL OBJECTIVES. Describe conditioned reflex in the human being.

SUBORDINATE OBJECTIVES **PSBAT**;

- Describe the spinal, cranial and the conditioned reflex.
- Identify the cerebral hemispheres, cerebellum and the medulla oblongata in the brain of a human being.
- State the functions of the forebrain and the hind brain.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to define a conditioned reflex action in human	They define a conditioned reflex action in human beings giving examples.

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	beings.	Describe the spinal, cranial and the conditioned reflex.
MIN	DEVELOPMENT Ask the pupils to watch the video clip identify the cerebral hemispheres, cerebellum and the medulla oblongata in the brain of a human being.	Identifying from photographs, diagrams and preserved or fresh specimen of a small mammal as well. General reference to major functions of each region is expected
MIN	CONCLUSION- Class Exercise Ask pupils to state the functions of the forebrain and the hind brain.	They explain function of each part named.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

BOY S	GIR LS

TOPIC: RESPONSES

LESSON: BRAIN.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and video.

TERMINAL OBJECTIVES. Describe how the human eye functions.

SUBORDINATE OBJECTIVES **PSBAT**;

- Define accommodation of the eye.
- Explain the functions of the parts of the eye.
- Describe the structure of the eye.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
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MIN	INTRODUCTION Teacher to ask pupils to define sense organ and name the sense organ that deals with sight.	They define a sense organ and explain how an eye fits to be called a sense organ.
MIN	DEVELOPMENT Ask the pupils to watch the video clip and then they state the accommodation of the eye. Ask pupils to look into the mirror and observe some parts of the eye.	Refer to the process of producing a focused image of near and distant objects on the retina to eye accommodation. Explain the functions of the parts of the eye
MIN	CONCLUSION- Class Exercise Ask pupils to describe the structure of the eye.	Refer to mammalian eye. Use of models and charts to describe the structure of the eye.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

BOYS	GIRLS

TOPIC: RESPONSES

LESSON: EYE DEFECTS.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and video.

TERMINAL OBJECTIVES. Describe some eye defects.

SUBORDINATE OBJECTIVES **PSBAT**;

- Describe the short and the long sight.
- State causes of short and long sight.
- Explain the correction of short and long sight

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
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MIN	INTRODUCTION Teacher to ask pupils look at a nearby object and look at a distant object. State why some may not clearly see nearby or distant object.	They state some eye defects and define short and the long sight.
MIN	DEVELOPMENT Ask the pupils to watch the video clip and then describe the short and the long sight of the eye.	Refer to converging of rays beyond retina as long sight and converging of rays before retina as short sight.
MIN	CONCLUSION- Class Exercise Ask pupils to explain the correction of short and long sight. Describe the common causes and the methods of preventing blindness	Refer to use of converging lens to correct long sight and use of divergent lens to correct short sight. Refer to Vitamin A deficiency and river blindness and physical injury

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

BOY S	GIR LS

TOPIC: RESPONSES

LESSON: HUMAN EAR.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and video.

TERMINAL OBJECTIVES. Describe some eye defects.

SUBORDINATE OBJECTIVES **PSBAT**;

- Describe the structure of the ear.
- Explain the functions of the parts of the ear.
- Describe the causes and methods of preventing deafness

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TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils look at their partner's ear.	They name the external parts of the human eye.
MIN	DEVELOPMENT Ask the pupils to describe the structure of the ear. Explain the function of each of the parts of the ear.	Refer to mammalian ear. Use models and charts to describe the structure of the ear. Explain the function of each of the parts of the ear.
MIN	CONCLUSION- Class Exercise Describe the causes and methods of preventing deafness	Include the methods of cleaning the ears. Refer to noise and diseases as causes of deafness.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

BOY S	GIR LS

TOPIC: RESPONSES

LESSON: HUMAN SKIN.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and model.

TERMINAL OBJECTIVES. Describe the role of the skin in co-ordination.

SUBORDINATE OBJECTIVES **PSBAT**;

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- Name the parts of the skin.
- Explain the functions of the parts of the skin.
- Describe the role of the skin in coordination.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to look at their skin and name the parts of the skin they are able to see.	They name the external parts of the human skin.
MIN	DEVELOPMENT Ask the pupils to explain the function of each part of the skin.	Refer to mammalian skin. Use models and charts to explain the structure of the skin.
MIN	CONCLUSION- Class Exercise Ask each pupil to softly prick themselves, put ice droplet of and put a small insect on their skin.	Illustrate by cross section of the skin showing heat, pain, touch and pressure receptors to describe the role of the skin in coordination.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

BOYS	GIRLS

TOPIC: RESPONSES

LESSON: SKELETONS.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and model.

TERMINAL OBJECTIVES. Describe the functions of the skeleton.

SUBORDINATE OBJECTIVES **PSBAT**;

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- Define the term skeleton and name the 3 types of the skeleton.
- Explain the how each of the named type of the skeleton function to promote coordination.
- Draw well labelled diagrams of each type of skeleton.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils stand up and state what framework makes them able to stand uprightly.	They name the name the framework as skeleton and define it correctly.
MIN	DEVELEOPMENT Ask the pupils to explain how each of the named type of the skeleton function to promote coordination.	Refer to mammalian skin. Use models and charts to explain the structure of the skin.
MIN	CONCLUSION- Class Exercise Ask each pupil to softly prick themselves, put ice droplet of water and put a small insect on their skin.	Illustrate by cross section of the skin showing heat, pain, touch and pressure receptors to describe the role of the skin in coordination.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

BOY S	GIR LS

TOPIC: RESPONSE

LESSON: EXOSKELETON

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and video.

TERMINAL OBJECTIVES. Explain the composition and function of exoskeleton.

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SURBODINATE OBJECTIVES PSBAT;

- Describe the exoskeleton.
- Identify joints in the limbs of a Grasshopper.
- Illustrate the way muscles are attached at a joint in a limb of an insect.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils in their respective groups and gives them exoskeletal animals.	They state features of exoskeletal animals' framework.
MIN	DEVELEOPMENT Ask pupils to identify joints in limbs of a grasshopper	They discuss describe structural features of joints in the limbs of a Grasshopper. Illustrate the way muscles are attached at a joint in a limb of an insect.
MIN	CONCLUSION- Class Exercise Ask pupils to draw a well labelled drawing of a Grasshopper.	They write the class exercise, have it marked and do correction when need arises.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

TOPIC: RESPONSE

LESSON: MAMMALIAN SKELETON

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and sample bones/specimens .

BOY S	GIR LS

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TERMINAL OBJECTIVES. Describe the bones of the axial and the appendicular skeletons.

SURBODINATE OBJECTIVES **PSBAT**;

- Identify the bones of the axial and the appendicular skeletons.
- State the reasons why a bone is regarded as a living tissue.
- Draw the structure of the axial and the appendicular skeletons.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils in their respective groups and gives them different bones of the axial and the appendicular skeletons.	They Identify the bones of the axial and the appendicular skeletons. Compare and contrast bones of the axial and the appendicular skeletons.
MIN	DEVELEOPMENT Ask pupils to state the reasons why a bone is regarded as a living tissue and function off the bone.	They discuss reasons why a bone is regarded as a living tissue and explain function off the bone. Refer to living cells in bones production, red blood cells. Refer to bone marrow cancer and TB.
MIN	CONCLUSION- Class Exercise Ask pupils to draw a well labelled drawing of a the appendicular skeletons.	They write the class exercise, have it marked and do correction when need arises.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

TOPIC: RESPONSE

BOY S	GIR LS

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BIOLOGY LESSON PLAN

LESSON: MUSCLES AND JOINTS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and sample bones/specimens .

TERMINAL OBJECTIVES. Describe the structure of a skeletal muscle.

SURBODINATE OBJECTIVES **PSBAT**;

- Describe the structure of a skeletal muscle.
- Explain the action of antagonistic muscles.
- Compare and contrast the ball and socket joint and the hinge joint.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to stretch their muscles of their arm by flexing the arm.	They Identify the muscles involved in the action of arm flexing. .
MIN	DEVELELOPMENT Ask pupils to describe the structure of a skeletal muscle.	They watch video clip to describe the structure of a skeletal muscle. Explain the action of antagonistic muscles.
MIN	CONCLUSION- Class Exercise Compare and contrast the ball and socket joint and the hinge joint.	They write the class exercise, have it marked and do correction when need arises.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

TOPIC: RESPONSE

LESSON: MUSCLES AND JOINTS

BOY S	GIR LS

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and sample bones/specimens .

TERMINAL OBJECTIVES. Explain the functions of parts of the synovial joint.

SURBODINATE OBJECTIVES **PSBAT**;

- Name the parts of the synovial joint.
- Explain how each of the named part help function of the synovial joint.
- Compare and contrast the joints, muscle attachment and movement in an endoskeleton with those of an exoskeleton.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to look at the joint given to each group.	They Identify the muscles involved in the action of arm flexing.
MIN	DEVELELOPMENT Ask pupils to describe the structure of a skeletal muscle.	They watch video clip to describe the structure of a skeletal muscle.
MIN	CONCLUSION- Class Exercise Compare and contrast the ball and socket joint and the hinge joint. They then state function of each of the named parts	They write the class exercise, have it marked and do correction when need arises.

EVALUATION: _____

SCHOOL: _____

DATE:

GRADE:

TOPIC: RESPONSE

BOY S	GIR LS

MINISTRY OF GENERAL EDUCATION
BIOLOGY LESSON PLAN

LESSON: MUSCLES AND JOINTS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and sample bones/specimens .

TERMINAL OBJECTIVES. Describe parts of the synovial joint.

SURBODINATE OBJECTIVES **PSBAT**;

- Compare and contrast the joints, muscle attachment and movement in an endoskeleton with those of an exoskeleton.
- Describe some defects found on the joints.
- Draw and label a synovial joint.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to look at the joint given to each group as revision work.	They Identify the muscles involved in the action of arm flexing.
MIN	DEVELEOPMENT Ask pupils to observe the joints, muscle attachment and movement in an endoskeleton and those of an exoskeleton.	They watch video clip to name defects found on the joints, muscle attachment and movement in an endoskeleton and those of an exoskeleton
MIN	CONCLUSION- Class Exercise Draw and label parts of the synovial joint.	They write the class exercise, have it marked and do correction when need arises.

EVALUATION: _____

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BIOLOGY LESSON PLAN

SCHOOL: _____

DATE: _____

GRADE: _____

BOY S	GIR LS

TOPIC: RESPONSE

LESSON: MUSCLES AND JOINTS

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and sample bones/specimens .

TERMINAL OBJECTIVES. Explain the functions of parts of the synovial joint.

SURBODINATE OBJECTIVES **PSBAT**;

- Name the parts of the synovial joint.
- Explain how each of the named part help function of the synovial joint.
- Compare and contrast the joints, muscle attachment and movement in an endoskeleton with those of an exoskeleton.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to look at the joint given to each group.	They Identify the muscles involved in the action of arm flexing.
MIN	DEVELELOPMENT Ask pupils to describe the structure of a skeletal muscle.	They watch video clip to describe the structure of a skeletal muscle.
MIN	CONCLUSION- Class Exercise Compare and contrast the ball and socket joint and the hinge joint. They then state function of each of the named parts	They write the class exercise, have it marked and do correction when need arises.

EVALUATION: _____

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BIOLOGY LESSON PLAN

SCHOOL: _____

DATE: _____

GRADE: _____

BOY S	GIR LS

TOPIC: GENETICS

LESSON: CONTINUOUS AND DISCONTINUOUS.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and sample bones/specimens .

TERMINAL OBJECTIVES . Explain the functions of parts of the synovial joint.

SURBODINATE OBJECTIVES **PSBAT**;

- Describe the study of genetics.
- Describe the variations in human beings.
- Describe the variations in flowing plants.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to define genetics.	They define genetics.
MIN	DEVELELOPMENT Ask pupils to describe the variations in human beings with reference to difference in skin tone and height of children of the same parent and different parents. Describe the variations in flowing plants with reference to the video clip	They define continuous and discontinuous variations. Include the eye colour, skin colour, finger print, tongue rolling, height. Fruit structure and scent, (taste) Refer to height (tall, dwarf). Include leaf size, shape, weight. Describe the variations in flowing plants
MIN	CONCLUSION- Class Exercise Compare and contrast the continuous and discontinuous variations.	They write continuous and discontinuous variations.

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EVALUATION: _____

SCHOOL: _____

DATE: _____

GRADE: 12

BOY S	GIR LS

TOPIC: GENETICS

LESSON: CONTINUOUS AND DISCONTINUOUS.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and sample bones/specimens .

TERMINAL OBJECTIVES . Describe the factors that causes genetic variation..

SURBODINATE OBJECTIVES **PSBAT**;

- Name the factors that cause variations among plant and animals of the same species.
- Describe the factors that cause variations among plant and animals of the same species.
- Explain some disadvantages and advantages of genetic variation.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to name some factors that cause variations among plant and animals of the same species.	They name the factors that cause variations among plant and animals of the same species.
MIN	DEVELELOPMENT Ask pupils to describe the factors that cause variations among plant and animals of the same species with reference to video clip.	They refer to climatic factors, nutrition, soils (give examples of each)
MIN	CONCLUSION- Class Exercise Explain some disadvantages and advantages of genetic variation.	They look at benefits and draw backs of genetic variations.

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EVALUATION: _____

SCHOOL: _____

DATE: _____

GRADE: 12

TOPIC: GENETICS

BOY S	GIR LS

LESSON: MITOSIS.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and sample bones/specimens .

TERMINAL OBJECTIVES . Describe the process of mitosis.

SURBODINATE OBJECTIVES **PSBAT**;

- Name the stages of mitosis
- Describe the stages of cell division.
- Describe a chromosome and a gene.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to define mitosis. .	They define mitosis and name the progressive stages of mitosis. .
MIN	DEVELELOPMENT Ask pupils to watch a video clip on cell replication and then describe the stages of cell division. .	They refer to mitosis.
MIN	CONCLUSION- Class Exercise Describe structure of a chromosome and a gene	They refer to chromosome and double strand of DNA, on which genes are carried on.

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EVALUATION: _____

SCHOOL: _____

DATE: _____

GRADE: 12

BOY S	GIR LS

TOPIC: GENETICS

LESSON: MEIOSIS.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and sample bones/specimens .

TERMINAL OBJECTIVES . Describe the process of mitosis.

SURBODINATE OBJECTIVES **PSBAT**;

- Name the stages of meiosis
- Describe the stages of meiosis.
- Discuss importance of meiosis and dangers of .

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to define mitosis. .	They define meiosis and name the progressive stages of meiosis. .
MIN	DEVELELOPMENT Ask pupils to watch a video clip on cell replication and then describe the stages of meiosis. .	They refer to meiosis.
MIN	CONCLUSION- Class Exercise Discuss importance of meiosis and explain the cause of cancer.	Refer to growth and reproduction. Refer to uncontrolled cell division.

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EVALUATION: _____

SCHOOL: _____

DATE:

GRADE: 12

BOY S	GIR LS

TOPIC: GENETICS

LESSON: INHERITANCE.

REFERENCE: BIOLOGICAL SCIENCE, LISUBA BORNFACE BIOLOGY TEXT.

TEACHING AIDS : Chart and sample bones/specimens .

TERMINAL OBJECTIVES . Describe monohybrid inheritance.

SURBODINATE OBJECTIVES **PSBAT**;

- Define inheritance.
- Explain a monohybrid cross.
- Explain the importance of and draw backs of monohybrid cross.

TIME	TEACHER'S ACTIVITIES	PUPIL'S ACTIVITIES
MIN	INTRODUCTION Teacher to ask pupils to define inheritance.	They define inheritance and give real life of some heritable attributes in plants and animals.
MIN	DEVELELOPMENT Ask pupils to watch a video clip on heritable attributes and then explain a monohybrid cross.	They refer to the work Mendel and of Morgan. Emphasise simple crossings homozygous, hererozygous recessive, dominant, F_1 , F_2 generation, offspring, ratio, gene, chromosomes, alleles, phenotype and genotype, gamete. Include simple problem solving questions.

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MIN	CONCLUSION- Class Exercise Explain the importance and draw backs of monohybrid cross	They refer to restricted variations
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EVALUATION: _____