SCIENCE

Structuring Competencies in a Definitive Budget of Work

Grade	**EIGHT**
Science Discipline/Component	**Living Things and their Environment**
Grade Level Standard	At the end of Grade 8, learners can describe the factors that affect the motion of an object based on the Laws of Motion. They can differentiate the concept of work as used in science and in layman's language. They know the factors that affect the transfer of energy, such as temperature difference, and the type (solid, liquid, or gas) of the medium. Learners can explain how active faults generate earthquakes and how tropical cyclones originate from warm ocean waters. They recognize other members of the solar system. Learners can explain the behaviour of matter in terms of the particles it is made of. They recognize that ingredients in food and medical products are made up of these particles and are absorbed by the body in the form of ions. Learners recognize reproduction as a process of cell division resulting in growth of organisms. They have delved deeper into the process of digestion as studied in the lower grades, giving emphasis on proper nutrition for overall wellness. They can participate in activities that protect and conserve economically important species used for food.
Domain	In Grade 8, learners gain knowledge of how the body breaks down food into forms that can be absorbed through the digestive system and transported to cells. Learners learn that gases are exchanged through the respiratory system. This provides the oxygen needed by cells to release the energy stored in food. They also learn that dissolved wastes are removed through the urinary system while solid wastes are eliminated through the excretory system. Learners study the process of cell division by mitosis and meiosis. They understand that meiosis is an early step in sexual reproduction that leads to variation. Learners learn that species refers to a group of organisms that can mate with one another to produce fertile offspring. They learn that biodiversity is the collective variety of species living in an ecosystem. This serves as an introduction to the topic on hierarchical taxonomic system. Learners learn how energy is transformed and how materials are cycled in ecosystems.

SCIENCE

Structuring Competencies in a Definitive Budget of Work

Performance Standard	The learners present an analysis of the data gathered on diseases resulting from nutrient deficiency			
Content Standard	The learners demonstrate understanding of the digestive system and its interaction with the circulatory, respiratory, and excretory systems in providing the body with nutrients for energy			
CONTENT	**LEARNING COMPETENCIES**	**CODE**	**NO. OF DAY/S TAUGHT**	**REMARKS**
1. LIVING THINGS AND THEIR ENVIRONMENT				
1. Structure and Functions: Focus on the Digestive System	***1. Explain ingestion, absorption, assimilation, and excretion;***	***S8LT-IVa-13***		
1.1Organs of the digestive system and their interaction with organs of the respiratory, circulatory, and excretory systems	1.1. Describe the functions of each organ of the digestive system and trace the pathway of food through the digestive tract	S8LT-IVa-13.1.1	1	
	1.2 Explain the action of enzymes as catalysts, and how it helps in digestion	S8LT-IVa-13.1.2	1	
	1.3 Discuss how digestive organs work together to carry out digestion of food and assimilation of nutrient	S8LT-IVa-13.3.1.3	1	
	1.4 Illustrate how ingestion, absorption, assimilation, and excretion take place in the interaction of Digestive System with the circulatory, respiratory and excretory systems	S8LT-IVa-13.4.1.4	1	

SCIENCE

Structuring Competencies in a Definitive Budget of Work

Performance Standard	Present an analysis of the data gathered on disease resulting from nutrient deficiency			
Content Standard	Demonstrate an understanding of diseases that result from nutrient deficiency and ingestion of harmful substances, and their prevention and treatment			
1.3Diseases resulting from nutrient deficiency and ingestion of harmful	***2.Explain how diseases of the digestive system are prevented, detected, and treated***	***S8LT-IVb-14***		
	2.1. Make a record of daily food intake and analyze the nutritional value based on the record	S8LT-IVb-14.2.1	1	
	2.2.Identify the common nutritional deficiency and their effects to the body	S8LT-IVb-14.2.2	1	
	2.3. Describe common diseases of the digestive system and their corresponding treatment	S8LT-IVb-14.2.3	1	
	2.4. Gather and analyze data from Barangay Health Centers on diseases resulting from nutrient deficiency , present findings in tables or graphs	S8LT-IVb-14.2.4	1	
	3. Identify healthful practices that affect the digestive system;	***S8LT-IVc-15***		
	3.1.List and describe healthful practices that will benefit the digestive system	S8LT-IVc-15.3.1	1	
	3.2. Make a flyer on the ways to maintain a healthy digestive system and the value of living a healthy life	S8LT-IVc-15.3.2	1	

	SUMMATIVE TEST		1	
Performance Standard	Report on the importance of variation in plant and animal breeding			
Content Standard	Demonstrate an understanding of how cells divide to produce new cells			
2. Heredity: Inheritance and Variation of Traits	***4. Compare mitosis and meiosis, and their role in the cell division cycle***	***S8L—IVd16***		
2.1 Stages of mitosis	4.1 Label and describe the stages of the cell cycle	S8L—IVd16.4.1	1	
2.2 Stages of meiosis	4.2 Describe the changes that occur during each stage of mitosis	S8L—IVd16.4.2	1	
	4.3 Describe the changes that occur in each stage of meiosis	S8L—IVd16.4.3	1	
	4.4 Create an illustration using recyclable materials comparing mitosis and meiosis and their role in the cell cycle	S8L—IVd16.4.4	1	
	5. Explain the significance of meiosis in maintaining the chromosome number	***S8L—IVe17***		
	5.1. State the significance of meiosis in maintaining the chromosome number	S8L—IVe17.5.1	1	
	5.2 Differentiate between spermatogenesis and oogenesis using graphic organizer	S8L—IVe17.5.2	1	
	5.3. Research on the importance of variation in plant and animal breeding	S8L—IVe17.5.4	1	
	SUMMATIVE TEST		1	
Performance Standard	Report on the importance of variation in plant and animal breeding			

SCIENCE

Structuring Competencies in a Definitive Budget of Work

Content Standard	Demonstrate an understanding of how meiosis as one of the processes producing genetic variations of the Mendelian Pattern of Inheritance			
2.3 Mendelian Genetics	***6. Predict phenotypic expressions of traits following simple patterns of inheritance;***	***S8LT-IVf- 18***		
	6.1. Describe the Mendelian principles of inheritance by analyzing Mendel's experiment on garden peas.	S8LT-IVf- 18.6.1	1	
	6.2 Identify the genotypic and phenotypic ratios of offspring in the standard monohybrid	S8LT-IVf- 18.6.2	1	
	6.3 Solve problems involving Mendelian Genetics	S8LT-IVf- 18.6.3	1	
Performance Standard	Report (e.g., through a travelogue) on the activities that communities engage in to protect and conserve endangered and economically important species			
Content Standard	Demonstrate an understanding of the concept of a species			
3.Biodiversity	**7. Explain the concept of a species;**	**S8LT-IVg- 19**		
	7.1 Describe the concept of a species	S8LT-IVg- 19 .7.1	1	
3.1 Species diversity	7.2 Describe the levels of biodiversity as basis for classifying organisms and present examples for each	S8LT-IVg- 19 .7.2	1	
	7.3 Create a simple brochure of endangered and economically important species and show how to protect and conserve them	S8LT-IVg- 19 .7.3	1	
Performance Standard	Report (e.g., through a travelogue) on the activities that communities engage in to protect and conserve endangered and economically important species			

SCIENCE

Structuring Competencies in a Definitive Budget of Work

Content Standard	Demonstrate an understanding of the species as being further classified into a hierarchical taxonomic system			
3.2 Hierarchical taxonomic system of classification 3.3 Protection and conservation of endangered and economically important species	***8. Classify organisms using the hierarchical taxonomic system;***	***S8LT-IVh- 20***		
	8.1 Identify the different levels in the hierarchical taxonomic system	S8LT-IVh- 20.8.1	1	
	8.2 Differentiate Archaeabacteria and Eu	S8LT-IVh- 20.8.2	1	
	8.3 Classify protists, fungi, plants and animals based on their distinguishing characteristics	S8LT-IVh- 20.8.3	1	
	8.4 Make a concept Map to classify organisms using the hierarchical system with examples in each kingdom and economic importance	S8LT-IVh- 20.8.4	1	
	9. Explain the advantage of high biodiversity in maintaining the stability of an ecosystem;	***S8LT-IVh-21***		
	9.1 Describe the advantages of high biodiversity	S8LT-IVh-21.9.1	1	
	9.2 Create a graphic organizer to differentiate high and low biodiversity	S8LT-IVh-21.9.2	1	
	SUMMATIVE TEST		1	
Performance Standard	Make a poster comparing food choices based on the trophic			
Content Standard	Demonstrate an understanding of the one – way flow of energy			
4.Ecosytems	***10. Describe the transfer of energy through the trophic levels;***	***S8LT-IVi22***		

4.2 Cycling of materials in the ecosystem	10.1 Construct a food pyramid and Interpret how energy transfer takes place through the trophic levels	S8LT-IVi22.10.1	1	
	11. Analyze the roles of organisms in the cycling of materials;	***S8LT-IVi23***		
	11.1 Describe the roles of organisms in the cycling of materials	S8LT-IVi23.11.1	1	
	12. Explain how materials cycle in an ecosystem	***S8LT-IVi24***		
	12.1 Trace the flow of materials in the biogeochemical cycles of the ecosystem	S8LT-IVi24.12.1	1	
4.3 Impact of human activities in an ecosystem	***13. Suggest ways to minimize human impact on the environment;***	***S8LT-IVj25***		
	13.1 Explain how human activities affect the environment	S8LT-IVj25.13.1	1	
	13.2 Make a poster showing ways to help lessen environmental problems	S8LT-IVj25.13.2	1	
	17. Conduct investigations to determine environmental conditions needed by living things to survive.	***S4LT-IIi-j-17***		
	17.1. Conduct simple research on the effects on the different environmental conditions on the survival of organisms	S4LT-IIi-j-15.17.1	1	

	17.2. Conclude that there are environmental conditions needed by living things to survive	S4LT-IIi-j-15.17.2	1	
	18. describe the effects of interactions among organism in their environment	***S4LT-IIi-j-18***		
	18.1. infer the effects of interactions among organisms in the environment using short video clip/s	S4LT-IIi-j-15.18.1	1	
	18.2. Construct an essay on the effects both beneficial and harmful effects of organism's interactions	S4LT-IIi-j-15.18.2	1	
	18.3. Draw/illustrate the effects both beneficial and harmful of organism's interactions in their environment	S4LT-IIi-j-15.18.3	1	
	SUMMATIVE TEST		1	
		TOTAL NUMBER OF DAYS	43	
		PERIODICAL TEST	2	
		OVERALL TOTAL NUMBER OF DAYS	**45**	