

CURRICULUM MAP

Science and Technology 8 (Second Edition)

Dear Teacher,

Greetings from Abiva Publishing House Inc.!

Thank you for adopting our textbook/s. Your chosen series titles come with functional teachers guides (TG) that provide you with a detailed curriculum map (CM) per grade level. For your reference, we are providing you below some important keys to understanding and using the components, terminologies, and abbreviations found in this teacher's companion tool.

We hope you will find the following curriculum map most helpful in your daily planning and teaching tasks. Do suggest other ways we can make your chosen Abiva textbook/s more attuned to your needs as a teacher. You may send us your comments through our official email address at wecare@abiva.com.ph.

Happy teaching!

ABIVA PUBLISHING HOUSE INC.

Curriculum Map Components and Content Sources

Key Stage Standards	Taken from the DepEd Curriculum Guide for Science 8, August 2016
Grade Level Standards	Taken from the DepEd Curriculum Guide for Science 8, August 2016
Content Standards	Taken from the DepEd Curriculum Guide for Science 8, August 2016
Performance Standards	Taken from the DepEd Curriculum Guide for Science 8, August 2016
Content	Taken from the textbook: <i>Science and Technology 8 (Second Edition)</i>
K to 12 Learning Competencies (MELCs included)	Taken from the DepEd Curriculum Guide for Science. The Most Essential Learning Competencies (MELCs) mandated by the DepEd are identified to guide teachers as they address the instructional needs of the learners while ensuring that curriculum standards are developed among home-schooling students in the new normal.
21st-Century Skills	Taken from "New Vision for Education: Unlocking the Potential of Technology," World Economic Forum® (2015)
Teaching Strategies/Differentiated Instruction	A variety of author-suggested instructional strategies to help the teacher deliver the lessons at varying levels of difficulty based on the students' learning styles.
Assessment	Assessment tools and strategies categorized as either Formative or Summative
Values Integration	A list of values that are inherent in the subject and developed through lesson discussions and skills exercises. The teacher, however, is encouraged to emphasize values that are aligned with the school's own core values.
Resources	A rundown of suggested instructional materials that may take the form of traditional resources, teacher-made resources, educational software, and other digital learning resources.



LEARNING SKILLS (Competencies): Communication • Collaboration • Critical thinking/problem solving • Creativity
LITERACY SKILLS (Foundation Literacies): Literacy and numeracy • Scientific literacy • ICT literacy • Financial literacy • Cultural literacy • Civic literacy
LIFE SKILLS (Character Qualities): Initiative • Persistence • Adaptability • Curiosity • Leadership • Social and cultural awareness • Career • Work ethics

CURRICULUM MAP

Science and Technology 8 (Second Edition)

Key Stage Standards (7–10)

At the end of grade 10, the learners should have developed scientific, technological, and environmental literacy and can make analyses and formulate conclusions that would lead to rational choices on issues confronting them. Having been exposed to scientific investigations related to real life, they should recognize that the central feature of an investigation is that if one variable is changed (while controlling all others), the effect of the change on another variable can be measured. The context of the investigation can be problems at the local or national level to allow them to communicate with learners in other parts of the Philippines or even from other countries using appropriate technology.

The learners should demonstrate an understanding of science concepts and apply science inquiry skills in addressing real-world problems through scientific investigations.

Grade-Level Standards

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 behavior 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 the 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.

1st Quarter

Unit 1: Force, Motion, and Energy		Time Frame: 27 hours	
Content Standards*	<p>The learners demonstrate an understanding of . . .</p> <ul style="list-style-type: none"> Newton’s three laws of motion and uniform circular motion; work using constant force, power, gravitational potential energy, kinetic energy, and elastic potential energy; the propagation of sound through solid, liquid, and gas; some properties and characteristics of visible light; heat and temperature, and the effects of heat on the body; current-voltage-resistance relationship, electric power, electric energy, and home circuitry; and <i>the kinds, properties, and uses of electricity.</i> 	Performance Standards*	<p>The learners shall be able to . . .</p> <ul style="list-style-type: none"> develop a written plan and implement a “Newton’s Olympics”; <i>observes road safety as a motorist or a pedestrian;</i> <i>maximize the benefits of energy and minimize the use of its resources;</i> discuss phenomena such as blue sky, rainbow, and red sunset using the concept of wavelength and frequency of visible light; <i>demonstrate care for the eyes;</i> <i>choose appropriate materials for a specific function;</i> and <i>create a model for electrical quantities.</i>

**Italicized text for Content Standards and Performance Standards are add-on ones from the TG. This is applied throughout the CM.*

Chapter 1: Laws of Motion			
Essential Questions**	<ul style="list-style-type: none"> Why does your body tend to move backward when the vehicle you are riding suddenly moves forward? Which group would likely win in a tug of war, the one that pushes the ground harder or the one that pulls the rope harder? Why? 	Enduring Understandings**	<ul style="list-style-type: none"> Force can be in the same or opposite direction. If several forces act on an object simultaneously, the object may not move at all. The mass of an object is the measure of inertia, so all objects possess inertia. The acceleration of an object is directly proportional to the force acting on it, but is inversely proportional to its mass. The greater the force, the greater the acceleration of the body with the same mass.

CURRICULUM MAP

Science and Technology 8 (Second Edition)

			<ul style="list-style-type: none"> Action force and reaction force always occur in pairs and happen at the same time.
--	--	--	--

** Contents for **Essential Questions (EQ)** and **Enduring Understandings (EU)** are set per unit in the textbook and by chapter in the teachers guide. The text under *Big Ideas* in the TG were considered for EU. Hence, these were integrated in the table above and not within each lesson in the CM. Furthermore, some EQs and EUs have come from the WT or are author-provided; these were considered as long as they are developed in the WT/TG content.

Content	DepEd K to 12 Learning Competencies*** (MELCs included)	21st-Century Skills	Teaching Strategies/ Differentiated Instruction	Assessment	Values Integration	Resources
<p><i>Relationship Between Force and Motion</i></p> <p><i>Sir Isaac Newton and the Laws of Motion</i></p>	<p>S8FE-Ia-15 MELC Investigate the relationship between the amount of force applied and the mass of the object to the amount of change in the object's motion.</p> <p>S8FE-Ia-16 MELC Infer that when a body exerts a force on another, an equal amount of force is exerted back on it.</p> <p>S8FE-Ib-17 Demonstrate how a body responds to changes in motion.</p> <p>S8FE-Ib-18 Relate the laws of motion to bodies in uniform circular motion.</p>	<p>Critical Thinking or Problem Solving</p> <ul style="list-style-type: none"> Finding applications and implications of the different laws of motions in day-to-day activities Giving the operational definition of inertia, acceleration, and interaction Solving problems Relating the effects of force and mass to acceleration, and of action and reaction forces on an object in contact <p>Collaboration Working with others in solving a problem and doing activities or experiments</p>	<ul style="list-style-type: none"> Motivational activity to introduce concepts Simulation of real-life situations where concepts to be discussed are applicable Deductive approach Brainstorming Problem-based learning Discovery approach Demonstration Digital simulation and demonstration Problem solving activities Flexible grouping in performing experiment Class discussion Doing laboratory activities 	<p>Diagnostic (optional) Nongraded test on prior knowledge on the topics to be discussed</p> <p>Formative</p> <ul style="list-style-type: none"> Questions in Follow-Up Identification Laboratory reports <p>Summative</p> <ul style="list-style-type: none"> Essential Questions Long test Chapter test Performance tasks 	<ul style="list-style-type: none"> Appreciation of the orderliness and logical explanations of the physical observations in nature Concern for the safety of people in terms of the precautionary measures in riding vehicles and in doing laboratory activities Diligence in solving problems Integrating the value of coordination in the concept of force Relating the 	<ul style="list-style-type: none"> drinking glass small piece of cardboard five-peso coin activity or experiment materials sheet of paper pictures of seatbelt, headrest, airbag, and automotive glass

CURRICULUM MAP

Science and Technology 8 (Second Edition)

	<p>S8FE-Ib-19 Infer that circular motion requires the application of constant force directed toward the center of the circle.</p>	<p>Communication</p> <ul style="list-style-type: none"> • Showing the effects of force and mass to acceleration, and of action and reaction forces on an object in contact • Giving own examples of the law of inertia • Citing own examples of situations where law of acceleration is applied • Identifying and sharing the different precautionary measures in riding vehicles <p>Scientific Literacy Demonstrating the scientific habit of mind by understanding the scientific relevance and connections of the different laws of motion to day-to-day observations</p> <p>Literacy and Numeracy Performing mathematical calculations involving force, mass, and acceleration</p>	<ul style="list-style-type: none"> • Open-ended situational problems • Concept mapping • Pair work activity on doing fishbone diagram linking the chapter's big idea to the concepts and principles discussed 		<p>significance of a give-and-take relationship to action and reaction forces against the significance of understanding, harmony, and unity among individuals</p>
--	--	---	--	--	---

CURRICULUM MAP

Science and Technology 8 (Second Edition)

		<p>ICT Literacy Using digital applications in understanding and simulating the concept of motion</p>			
--	--	---	--	--	--

****Italicized texts under K to 12 Learning Competencies column are add-ons. Such marking is applied throughout the CM.*

Chapter 2: Work, Power, and Energy			
Essential Questions	<ul style="list-style-type: none"> Why does carrying a sack of rice on the shoulder not considered work in science? Who is more efficient between the employees who did the same work but at different lengths of time, the one who finished the work within a shorter time or the one who did it over a longer period? <i>Why?</i> Which is more important in life, potential energy or kinetic energy? <i>Why?</i> 	Essential Understandings	<ul style="list-style-type: none"> Work is the product of force and a distance parallel to the force. More work is done if more force is used for a longer distance covered. Power is the rate of doing work. Power increases as more work is done over a shorter time, while power decreases as less work is done over a longer time. Energy is the capacity to do work. The amount of energy a body possesses determines the amount of work that can be done.

CURRICULUM MAP

Science and Technology 8 (Second Edition)

Content	DepEd K to 12 Learning Competencies (MELCs included)	21st-Century Skills	Teaching Strategies/ Differentiated Instruction	Assessment	Values Integration	Resources
<p><i>Work</i></p> <p><i>Power</i></p> <p><i>Energy</i></p>	<p>S8FE-Ic-20 Identify situations in which work is done and in which no work is done.</p> <p>S8FE-Ic-21 Describe how work is related to power and energy.</p> <p>S8FE-Id-22 Differentiate potential and kinetic energy.</p> <p style="background-color: #000080; color: white; padding: 2px; display: inline-block;">MELC</p> <p>Identify and explain the factors that affect potential and kinetic energy.</p> <p>S8FE-Id-23 Relate the speed and position of an object to the amount of energy possessed by a body.</p>	<p>Communication</p> <ul style="list-style-type: none"> Articulating thoughts and ideas on given essential questions Citing examples in everyday life that show energy at rest and energy in motion Presenting group's outputs to the class <p>Critical Thinking</p> <ul style="list-style-type: none"> Analyzing how parts of a whole interact with each other to explain the concept of mechanical power output Effectively analyzing the meaning of "with great power comes great responsibility" and its relation to the lesson Effectively analyzing and evaluating the pictures that exhibit the concept of energy Calculating the work 	<ul style="list-style-type: none"> Brainstorming Picture analysis Flexible grouping in performing an experiment Virtual simulation Inquiry-based learning Problem-based learning Virtual simulation of potential and kinetic energy Deductive approach Lecture discussion Laboratory activities and reports Open-ended situational problems Concept mapping 	<p>Diagnostic Nongraded test on prior knowledge on work, power, and energy</p> <p>Formative</p> <ul style="list-style-type: none"> Questions in Follow-Up Problem Solving Peer and self evaluation in group activity <p>Summative</p> <ul style="list-style-type: none"> Essential questions Quiz Chapter test Performance task 	<ul style="list-style-type: none"> Being understanding and appreciative of the different roles of people in society Ability to negotiate and encourage empathy among group members while working in team Appreciation for the gift of the different forms of energy in the environment Being aware of the safety precautions when doing activities or experiments Integrating the value of efficiency Realizing the essence of competency in 	<ul style="list-style-type: none"> pictures of the following: <ul style="list-style-type: none"> a man carrying a sack of rice on his shoulder a woman picking up a pen a basketball player doing a jump shot a coach standing and giving instruction to players a beggar a triathlete a sick person a soccer player an elderly a swimmer a man pushing a cart a man pushing a concrete wall

CURRICULUM MAP

Science and Technology 8 (Second Edition)

		<p>done in lifting</p> <ul style="list-style-type: none"> • Determining the work done on an inclined plane, and comparing the amount of work done on an inclined plane with the amount of work done without using an inclined plane • Differentiating one kind of energy from another • Estimating the power output in lifting an object <p>Collaboration</p> <ul style="list-style-type: none"> • Working effectively and respectfully with others in accomplishing the given activity • Exercising helpfulness, flexibility, and willingness in making necessary compromises to accomplish the activity • Working with others in solving problems or doing activities 			<p>performing and accomplishing tasks in a short time and with minimal effort</p> <ul style="list-style-type: none"> • Awareness of the measures to help protect the environment 	<ul style="list-style-type: none"> ○ a woman carrying a bag while walking ○ a woman with a backpack climbing the stairs ○ a woman throwing a ball upward ○ a man lifting a chair ○ a book on top of a table ○ a mechanical alarm clock ○ a firecracker • activity or experiment materials
--	--	--	--	--	---	---

		<p>Problem Solving Solving word problems involving the variables of potential and kinetic energy, and on other topics discussed</p> <p>Literacy and Numeracy Relating the concept of linear equations in learning how to derive equations for missing quantities</p>			
--	--	--	--	--	--

Chapter 3: Forms of Energy			
Essential Questions	<ul style="list-style-type: none"> How do sound energy, light energy, heat energy, and electrical energy affect your everyday life? Why do birds perching on high-tension electric wires not get electrocuted? 	Essential Understandings	<ul style="list-style-type: none"> Sound is produced by the vibration of bodies. Sound travels fastest in solids, where the molecules are tightly arranged. Light travels in a straight line. Heat is produced due to the movement of molecules. Heat is transferred by conduction, convection, or radiation. Electricity is produced from the movement of electrons or charged particles. Electromagnets exhibit magnetic properties in the presence of an electric current.

CURRICULUM MAP

Science and Technology 8 (Second Edition)

Content	DepEd K to 12 Learning Competencies (MELCs included)	21st-Century Skills	Teaching Strategies/ Differentiated Instruction	Assessment	Values Integration	Resources
<p><i>Sound</i></p> <p><i>Light</i></p> <p><i>Heat</i></p> <p><i>Electricity</i></p>	<p>S8FE-Ie-24 Infer how the movement of the particles of an object affects the speed of sound through it.</p> <p>S8FE-Ie-25 Investigate the effect of temperature to the speed of sound through fair testing.</p> <p>MELC Investigate the effect of temperature to the speed of sound.</p> <p>S8FE-If-26 Demonstrate the existence of the color components of visible light using a prism or diffraction grating.</p> <p>S8FE-If-27 MELC Explain the hierarchy of colors in relation to energy.</p> <p>S8FE-If-28 Explain that red is the least bent and violet the most bent</p>	<p>Communication</p> <ul style="list-style-type: none"> Sharing insights on given situations related to the topic Identifying the different sources of light Sharing knowledge in computing electric bills <p>Critical Thinking</p> <ul style="list-style-type: none"> Analyzing the similarities of guitar and vocal chords as sources of sound Comparing the sun and the firefly as sources of light Differentiating transparent, translucent, and opaque materials and giving examples for each Differentiating light reflection and light refraction Comparing the sound 	<ul style="list-style-type: none"> Picture analysis Lecture/ discussion including unlocking of terms Situational analysis Demonstration Multimedia presentation Virtual simulation (prism) Deductive approach Inquiry-based learning Problem-based learning Picture analysis or video watching to differentiate methods of heat transfer Brainstorming Flexible grouping in conducting experiment Group presentations Open-ended conceptual questions Laboratory activities and reports Concept mapping 	<p>Formative</p> <ul style="list-style-type: none"> Questions in Follow-Up Laboratory reports Quiz <p>Summative</p> <ul style="list-style-type: none"> Essential questions Chapter test Performance task 	<ul style="list-style-type: none"> Awareness of the safety precautions when doing activities or experiments Appreciation for the role of light energy in the environment and in everyday lives Appreciation for the importance of heat in day to day living Obedience Realizing the importance of conserving energy as one of the ways of loving the environment Appreciation for the benefits of electricity in the society and emphasizing its limitations at the same time 	<ul style="list-style-type: none"> pictures of theaters, auditoriums, and convention centers with heavy carpets and curtains samples of series and parallel circuits realistic examples and vivid representations through recordings, video clips, PowerPoint presentation, or other means activity or experiment materials pictures of various sources of heat such as geysers, hot springs, and nuclear explosions

	<p>according to their wavelengths or frequencies.</p> <p>S8FE-Ig-29 MELC Differentiate between heat and temperature at the molecular level.</p> <p>S8FE-Ih-30 Infer the relationship between current and charge.</p> <p>MELC Infer the relationship between current and voltage.</p> <p>S8FE-li-31 MELC Explain the advantages and disadvantages of series and parallel connections in homes.</p> <p>S8FE-li-32 Differentiate electrical power and electrical energy.</p> <p>S8FE-li-33 MELC Explain the functions of circuit breakers, fuses, earthing, double insulation, and other safety devices in the home.</p>	<p>of speed and speed of light</p> <ul style="list-style-type: none"> Evaluating the observations and claims about the concept of heat Synthesizing the relationships of voltage, resistance, and current as well as analyzing electric bills <p>Collaboration and Critical Thinking</p> <ul style="list-style-type: none"> Exercising flexibility and willingness to be helpful in making necessary compromises to accomplish the activity Determining how sound is produced Identifying the properties of sound Identifying the materials that allow light to pass through Determining how heat energy is transferred in solids, liquids, or gases Determining the 	<ul style="list-style-type: none"> Slogan making 			<ul style="list-style-type: none"> sample electric bill real fuse circuit breaker rubber gloves electrical tape online sources <ul style="list-style-type: none"> “Energy and Waves Quiz” https://www.proprofs.com/quiz-school/story.php?title=energy-waves-quiz
--	--	---	---	--	--	---

CURRICULUM MAP

Science and Technology 8 (Second Edition)

		<p>effect of heat on solids, liquids, or gases</p> <ul style="list-style-type: none"> • Constructing a simple electromagnet <p>Scientific Literacy Demonstrating scientific habit of mind by understanding the scientific relevance and effect of light, heat, and energy to day-to-day observations</p> <p>Social and Cultural Awareness Realizing the importance of energy conservation in society</p> <p>Civic Literacy Exploring the role and telling the importance of electric companies or corporations in communities</p>				
--	--	--	--	--	--	--

2nd Quarter

Unit 2: Earth and Space		Time Frame: 50 hours	
Content Standards*	<p>The learners demonstrate an understanding of...</p> <ul style="list-style-type: none"> the relationship between faults and earthquakes; the formation of typhoons and their movement within the Philippine Area of Responsibility (PAR); and characteristics of comets, meteors, and asteroids. 	Performance Standards*	<p>The learners shall be able to...</p> <ul style="list-style-type: none"> participate in decision making regarding where to build structures based on their knowledge of the location of active faults in the community; make an emergency plan and prepare an emergency kit for use at home and in school; demonstrate precautionary measures before, during, and after a typhoon, including following advisories, storm signals, and calls for evacuation given by government agencies in charge; participate in activities that lessen the risks brought by typhoons; and discuss whether or not beliefs and practices about comets and meteors have scientific basis.

**Italicized text for Content Standards and Performance Standards are add-on ones from the TG. This is applied throughout the CM.*

Chapter 4: Earthquakes and Faults			
Essential Questions**	<ul style="list-style-type: none"> Why do earthquakes occur? How do faults cause earthquakes? How do scientists measure seismic waves? What is the difference between an epicenter and a hypocenter of an earthquake? How do magnitude and intensity differ from each other? Is it important to identify fault lines in the community? Why? 	Enduring Understandings**	<ul style="list-style-type: none"> High pressure and intense temperature within the Earth cause geological evolution to take place on its crust. When solid rocks in Earth's crust break, faults are formed. Earthquakes occur when active faults move. Some natural phenomena such as typhoons and droughts can be predicted but earthquake cannot be predicted. Disaster preparedness is very important especially for unforeseen natural calamities like earthquakes.

*** Contents for Essential Questions (EQ) and Enduring Understandings (EU) are set per unit in the textbook and by chapter in the teachers guide. The text under Big Ideas in the TG were considered for EU. Hence, these were integrated in the table above and not within each lesson in the CM. Furthermore, some EQs and EUs have come from the WT or are author-provided; these were considered as long as they are developed in the WT/TG content.*

CURRICULUM MAP

Science and Technology 8 (Second Edition)

Content	DepEd K to 12 Learning Competencies*** (MELCs included)	21st-Century Skills	Teaching Strategies/ Differentiated Instruction	Assessment	Values Integration	Resources
<p><i>Faults</i></p> <p><i>Earthquakes</i></p> <p><i>Earthquake Preparedness</i></p>	<p>S8ES-IIa-14 MELC Use models or illustrations to explain how movements along faults generate earthquakes.</p> <p>S8ES-IIa-15 MELC Differentiate the following: - epicenter of an earthquake from its focus; - intensity of an earthquake from its magnitude; and - active and inactive faults.</p> <p>S8ES-IIb-16 Demonstrate how underwater earthquakes generate tsunamis.</p> <p>S8ES-IIc-17 MELC Explain how earthquake waves provide information about the interior of Earth.</p>	<p>Critical Thinking</p> <ul style="list-style-type: none"> • Doing a group research on earthquakes that recently hit the Philippines • Interpreting information about the data on earthquakes that hit the Philippines in relation to the location of the epicenter • Identifying the necessary materials to use during an emergency • Graphing the distribution of active faults in the Philippines <p>Communication and Creativity</p> <ul style="list-style-type: none"> • Using multiple media to convey information about earthquakes • Writing and performing a rap on 	<ul style="list-style-type: none"> • Lecture/discussion including describing or defining terms discussed • Model building and simulation with manipulatives • Role-playing or simulation of scenarios related to the topic • Cooperative learning • Demonstration • Virtual simulation • Group laboratory activities and reports or presentations • Situational analysis • Open-ended questions 	<p>Diagnostic Nongraded pretest</p> <p>Formative</p> <ul style="list-style-type: none"> • Assignment • Seatwork <p>Summative</p> <ul style="list-style-type: none"> • Essential questions • Chapter test • Oral test • Performance task 	<ul style="list-style-type: none"> • Attentiveness and vigilance in relation to emergency preparedness • Awareness on one's role in disaster risk management in the community 	<ul style="list-style-type: none"> • picture of the different layers of the earth • pictures or PowerPoint presentations of faults • actual model of the different types of faults (shoeboxes may be used) • picture of buildings destroyed by an earthquake • sound effects for role-plays • small pieces of paper in a box • activity or experiment materials • materials such as maps, whistle, first aid kit, compass, flashlight, multi-purpose knife,

CURRICULUM MAP

Science and Technology 8 (Second Edition)

		<p>earthquake preparedness as theme</p> <ul style="list-style-type: none"> • Demonstrating originality in presenting the gathered data about earthquakes that hit the Philippines <p>Collaboration Demonstrating ability to work with diverse teams</p> <p>Civic Literacy Emphasizing the importance of earthquake preparedness in the community</p>				<p>candles, matches or lighter, radio transistor, ropes, hand sanitizer or alcohol, drinking water, nonperishable foods, medicines</p> <ul style="list-style-type: none"> • videos, animations, or articles from online sources <ul style="list-style-type: none"> ○ “How does Earthquake occur with explanation – Social Science 3D animation video in HD” http://www.youtube.com/watch?v=T0AEtX-uPLA ○ “Kids Earthquake Safety Tips” http://www.youtube.com/watch?v=FSnWlcNRzKc ○ picture of a fault https://bio4esobi12010.files.wordpress.com/2010
--	--	---	--	--	--	---

CURRICULUM MAP

Science and Technology 8 (Second Edition)

						<p><i>/12/parts-of-a-fault3.jpg</i></p> <ul style="list-style-type: none"> ○ a map showing the location of active fault lines in the Philippines <p><i>https://www.researchgate.net/figure/Distribution-of-Active-Faults-and-Trenches-in-the-Philippines-Source-9_fig10_317064991</i></p>
--	--	--	--	--	--	---

****Italicized texts under K to 12 Learning Competencies column are add-ons. Such marking is applied throughout the CM.*

Chapter 5: Typhoons

Essential Questions	<ul style="list-style-type: none"> • How do typhoons form and develop? • What makes the Philippines prone to typhoons? • How do bodies of water contribute to the formation and development of typhoons? • In what ways do mountain ranges help in minimizing the strength of a typhoon? • How are weather disturbances forecasted? • What do public storm warning signals imply? • Is it necessary to name typhoons? Why or why not? 	Enduring Understandings	<ul style="list-style-type: none"> • Warm ocean temperature is one of the factors that influence the formation and development of typhoons. Typhoons also get their energies from warm ocean waters. • The vast bodies surrounding the Philippine archipelago are the primary reason the country usually experiences an average of 20 typhoons a year. • Unlike other natural phenomena, typhoons can be predicted. There are various instruments and naming conventions that can be used to measure and describe typhoons and other weather conditions.
----------------------------	--	--------------------------------	---

Content	DepEd K to 12 Learning Competencies (MELCs included)	21st-Century Skills	Teaching Strategies/ Differentiated Instruction	Assessment	Values Integration	Resources
<p><i>Typhoon Formation</i></p> <p><i>Why the Philippines Is Prone to Typhoons</i></p> <p><i>Describing Typhoons and Other Weather Conditions</i></p> <p><i>Effect of Landforms and Bodies of Water on Typhoons</i></p>	<p>S8ES-IId-18 MELC Explain how typhoons develop.</p> <p>MELC Explain how a typhoon is affected by landmasses and bodies of water.</p> <p>S8ES-IId-19 Infer why the Philippines is prone to typhoons.</p> <p>S8ES-IIf-21 MELC Trace the path of typhoons that enter the Philippine Area of Responsibility (PAR) using a map and tracking data.</p> <p>S8ES-Ile-20 Explain how landmasses and bodies of water affect typhoons.</p>	<p>Communication</p> <ul style="list-style-type: none"> Giving constructive criticisms about other groups' outputs or presentations Expressing initial ideas on why the Philippines is prone to typhoons and how weather forecasters know if a typhoon is approaching the country <p>Critical Thinking</p> <ul style="list-style-type: none"> Effectively analyzing and evaluating the different factors affecting typhoons Interpreting information about the topographical profiles of places that have an impact in the development of typhoons <p>Creativity Constructing an</p>	<ul style="list-style-type: none"> Role-playing of scenarios before, during, and after typhoon Video presentaion Lecture/discussion including defining or describing terms learned in the chapter Picture/Photo analysis Direct instruction Topographic map analysis Cooperative learning Roundtable discussion Simulation or animation Review activity on identifying different weather instruments and respective functions Creating an improvised weather vane Group discussion and presentation 	<p>Diagnostic Nongraded pretest on typhoons</p> <p>Formative</p> <ul style="list-style-type: none"> Short quiz Questions in Follow-Up Seatwork Assignment <p>Summative</p> <ul style="list-style-type: none"> Essential questions Chapter test Performance task 	<ul style="list-style-type: none"> Being updated on the current status of typhoons in the Philippines for the current year Volunteerism during calamities Recognizing the importance of safety and concern for the fellowmen Bayanihan spirit or helpfulness toward others Symphathy and understanding for people who live near the bodies of water and how they respond to the effects of typhoon Importance of appropriate and accurate information dissemination during a calamity 	<ul style="list-style-type: none"> pictures of typhoon-related incidents (if electronic or online media are not available) picture of typhoon Yolanda enlarged pictures of images, or online images similar to those in the book pictures showing the stages of typhoon formation and development (if electronic or online media are not available) pictures or examples of different weather instruments small pieces of paper for drawing lots online sources

CURRICULUM MAP

Science and Technology 8 (Second Edition)

		<p>improvised weather vane</p> <p>Collaboration Making a weather forecast</p> <p>Adaptability Responding to the changes in the environment</p>	<ul style="list-style-type: none"> • Collaborative Activities 			<ul style="list-style-type: none"> ○ “Typhoon Ondoy video” http://www.youtube.com/watch?v=923IKL9Lij4 ○ “Typhoon Pablo (Bopha) hits Davao Oriental in Mindanao (aftermaths)” http://www.youtube.com/watch?v=9tYDOR562EE ○ “Animation- Typhoon Guide” http://www.youtube.com/watch?v=_1jEI0iHHOM ○ map of Southeast Asia http://nationsonline.org/oneworld/map_of_southeast_asia.htm ○ “How to Make a Wind Vane” https://www.how.com/how_2154709_makewind-vane.html ○ animated satellite image
--	--	--	--	--	--	---

CURRICULUM MAP

Science and Technology 8 (Second Edition)

						<p>of typhoons (e.g., typhoon Yolanda https://commons.wikimedia.org/wiki/File:Typhoon_Haiyan_2013_making_landfall.gif</p>
--	--	--	--	--	--	---

Chapter 6: Heavenly Bodies

Essential Questions	<ul style="list-style-type: none"> • How do asteroids, comets, and meteoroids differ? How are they similar to each other? • Would it be possible for asteroids, comets, and meteoroids to hit the Earth? Why or why not? • How do comets and meteors form their tails? • Where do meteor showers come from? • What lies beyond the solar system? • How vast is the universe? • How important are space exploration to humans? 	Essential Understandings	<ul style="list-style-type: none"> • Aside from the sun, planets, and satellites, the solar system also consists of minor members such as asteroids, comets, and meteoroids. • The appearance and composition of asteroids, comets, and meteoroids vary. • Even with a diameter of billions of kilometers, the solar system is just a speck in the universe. • Space explorations have been yielding significant information not only about Earth but also about other celestial bodies and mysteries beyond the solar system.
----------------------------	--	---------------------------------	--

Content	DepEd K to 12 Learning Competencies (MELCs included)	21st-Century Skills	Teaching Strategies/ Differentiated Instruction	Assessment	Values Integration	Resources
<p><i>Minor Members of the Solar System</i></p> <p><i>Beyond the Solar System</i></p>	<p>S8ES-IIg-22 MELC</p> <p>Compare and contrast comets, meteors, and asteroids.</p>	<p>Communication</p> <ul style="list-style-type: none"> • Sharing experiences of expressing wishes when seeing falling stars • Sharing own 	<ul style="list-style-type: none"> • Question-and-answer motivational to start the chapter discussion • Taking the students to a planetarium within or outside the school, if 	<p>Diagnostic</p> <p>Nongraded pretest about the solar system and its members</p>	<ul style="list-style-type: none"> • Awareness of safety precautions in doing activities • Appreciation for the work of 	<ul style="list-style-type: none"> • pictures of the solar system, constellations, galaxies, or the universe (in the

CURRICULUM MAP

Science and Technology 8 (Second Edition)

<p><i>Science and Technology for Space Exploration</i></p>	<p>S8ES-IIh-23 Predict the appearance of comets based on recorded data of previous appearances.</p> <p>S8ES-IIi-j-24 Explain the regular occurrence of meteor showers.</p> <p><i>Discuss whether or not beliefs and practices about comets and meteors have scientific bases.</i></p> <p><i>Create an improvised constellation.</i></p>	<p>imagination about the vastness of the universe and the possibility of life existing beyond the solar system</p> <ul style="list-style-type: none"> • Sharing stories about the universe, space travels, or even science fiction movies watched • Interviewing a planetarium or observatory curator about the members of the solar system • Sharing own learnings about John Glenn's space exploration <p>Collaboration, Communication, and Critical Thinking</p> <ul style="list-style-type: none"> • Doing the "Jigsaw" and "Ask the Astronomers" activities to answer questions in Follow-Up • Exploring the parts of a comet, its movement in the solar system, and the 	<p>possible</p> <ul style="list-style-type: none"> • Use of video clip • Animations • Direct instruction • Lecture and discussion including correction of misconceptions, defining or describing key terms learned, and demonstrating or illustrating learned concepts or statements • Inquiry approach • Cooperative learning • ICT integration in activities • News analysis about the hazards that meteorites might bring • Collaborative activity • Research work on the minor members of the solar system 	<p>Formative</p> <ul style="list-style-type: none"> • Short quizzes • Questions in Follow-Up through the jigsaw activity <p>Summative</p> <ul style="list-style-type: none"> • Essential questions • Chapter test • Performance task 	<p>astronomers in calculating and predicting the time that comets may pass by the Earth.</p> <ul style="list-style-type: none"> • Integration of the value of equality, respect, and fairness in discussion of heavenly bodies • Using the concepts of celestial bodies to relate the advantages and disadvantages of living closely with immediate family members 	<p>absence of electronic media)</p> <ul style="list-style-type: none"> • enlarged images of pictures found in the textbook (or similar images from the internet) • pictures of meteoroids, meteors, and meteorites • picture of a meteor shower • rolled pieces of paper for drawing lots • activity or experiment materials • sheets of paper for "Round Table" activity • telescope • sheets of light-colored cartolina • enlarged images of an asteroid, a comet, and a meteor • pictures of space shuttles <p>Online</p>
--	---	---	--	---	--	---

CURRICULUM MAP

Science and Technology 8 (Second Edition)

		<p>effect of its trail on Earth by making a model of a comet</p> <ul style="list-style-type: none"> • Determining what causes the “twinkling” of stars • Identifying some constellations in the sky • Constructing an improvised constellarium • Conducting a panel discussion on space travel <p>Critical Thinking Comparing star maps for the different months of the year</p> <p>ICT Literacy</p> <ul style="list-style-type: none"> • Visiting websites to know about the hazards that meteorites might bring when they make a catastrophic impact on Earth • Integrating the use of computer applications in doing activities • Surfing the internet 				<ul style="list-style-type: none"> • video clips or animations about the solar system (from http://www.solarsystemscope.com/), or animations of constellations, galaxies, or the universe • video clips or animations from about asteroids, comets and meteors (https://www.nasa.gov/mission_pages/asteroids/videos/index.html) • “Large meteor fragment lands in Russia lake, say police” (https://www.bbc.com/news/av/world-europe-21480497/large-meteor-fragment-lands-in-russia-lake-say-police) • “NASA video gallery” (https://www.nasa.gov/multimedia/
--	--	--	--	--	--	--

CURRICULUM MAP

Science and Technology 8 (Second Edition)

		<p>for the latest information on comets and preparing a PowerPoint presentation or report on them</p> <p>Career Knowing the importance of geologists, meteorologists, and volcanologists all over the world</p>				<p>videogallery/index.html?collection_id=77341&media_id=160311941)</p>
--	--	--	--	--	--	--

3rd Quarter

Unit 3: Matter		Time Frame: 50 hours	
Content Standards*	<p>The learners demonstrate an understanding of . . .</p> <ul style="list-style-type: none"> the particle nature of matter as basis for explaining properties, physical changes, and structure of substances and mixtures; the identity of a substance according to its atomic structure; and the periodic table of elements as an organizing tool to determine the chemical properties of elements. 	Performance Standards*	<p>The learners shall be able to . . .</p> <ul style="list-style-type: none"> present how water behaves in its different states within the water cycle; <i>interpret the Nutritional Facts labels of food products in terms of the amount of ions/atoms/compounds in relation to the Recommended Daily Intake (RDI); and</i> <i>apply the concept of the periodic table of elements through the construction of an educational board game that utilizes the familiarization of the elements and their groupings in the periodic table.</i>

**Italicized text for Content Standards and Performance Standards are add-on ones from the TG. This is applied throughout the CM.*

CURRICULUM MAP

Science and Technology 8 (Second Edition)

Chapter 7: Particulate Nature of Matter

Essential Questions**	<ul style="list-style-type: none"> What makes up matter? How are the different kinds of matter represented microscopically? What makes up an atom? How is the structure of an atom developed? How is the understanding of the particulate nature and the classification of matter help in the development of responsible consumers and in the protection of the environment? How does the development of the periodic table of elements emerge as an important tool in grouping the elements based on their properties? 	Enduring Understandings**	<ul style="list-style-type: none"> Matter is made up of particles. Atoms are the building blocks of all types of matter. Knowledge of the atom's characteristics and properties provides the foundation for understanding the nature of matter. Learning the particulate nature of matter provides the foundation for understanding the changes in and the uses of matter.
------------------------------	---	----------------------------------	--

** Contents for **Essential Questions (EQ)** and **Enduring Understandings (EU)** are set per unit in the textbook and by chapter in the teachers guide. The text under *Big Ideas* in the TG were considered for EU. Hence, these were integrated in the table above and not within each lesson in the CM. Furthermore, some EQs and EUs have come from the WT or are author-provided; these were considered as long as they are developed in the WT/TG content.

Content	DepEd K to 12 Learning Competencies*** (MELCs included)	21st-Century Skills	Teaching Strategies/ Differentiated Instruction	Assessment	Values Integration	Resources
<i>Building Blocks of Matter</i> <i>Submicroscopic Classification of Matter</i> <i>Energy and Phase Changes of Matter</i>	S8MT-IIIa-b-8 MELC Explain the properties of solids, liquids, and gases based on the particle nature of matter. S8MT-IIIc-d-9 MELC Explain physical changes in terms of the arrangement and	Collaboration and Critical Thinking <ul style="list-style-type: none"> Working with others in presenting a chosen scientist's contribution to the early ideas on the structure of matter Observing matter in 	<ul style="list-style-type: none"> Motivational activity as chapter introduction Cooperative learning Direct instruction and discussion including defining or describing key terms learned Inquiry approach 	Formative <ul style="list-style-type: none"> Homework Seatwork Questions in Follow-Up Reports Short quiz Online quiz Short reflections 	<ul style="list-style-type: none"> Awareness of safety precautions in doing activities Sense of belongingness and relationship in relation to the concept of 	<ul style="list-style-type: none"> strips of paper with names of scientists written on them pieces of paper activity or experiment materials

CURRICULUM MAP

Science and Technology 8 (Second Edition)

<p><i>Classification of Matter According to Composition</i></p> <p><i>Representations of the Classifications of Matter</i></p>	<p>motion of atoms and molecules.</p> <p><i>Trace the origin of the concept of the particulate structure of matter.</i></p> <p><i>Recognize atoms and molecules as particles of matter.</i></p>	<p>its solid and liquid states</p> <ul style="list-style-type: none"> • Determining what solids and liquids are made of • Observing and proving that matter is particulate • Verifying the law of conservation of mass • Constructing a model or representation of atoms and molecules using recyclable materials and presenting the usefulness of the constructed model • Relating the macroscopic properties of each state of matter to their submicroscopic properties • Finding out what happens when gases, liquids, and solids are compressed • Demonstrating the effect of temperature on the behavior of the particles of a substance • Demonstrating the differences between 	<ul style="list-style-type: none"> • Picture analysis • Using analogies for the states of matter • Laboratory instruction • Concept mapping • Model analysis • Group activity or laboratory • Group presentation • Advance research on the classifications of matter • Concept mapping • Graphic or symbolic representations of responses 	<p>on solving environmental problems in relation to concepts learned</p> <ul style="list-style-type: none"> • Peer evaluation or critiquing <p>Summative</p> <ul style="list-style-type: none"> • Essential questions • Chapter test • Performance task 	<p>particulate nature of matter such as molecular interaction</p> <ul style="list-style-type: none"> • Awareness of proper waste disposal • Recognizing the impact of the submicroscopic nature of atom in a larger scale such as in some environmental problems like pollution and climate change • Realizing that even small steps have an impact and contribution to the larger scale 	<ul style="list-style-type: none"> • pictures of the following: <ul style="list-style-type: none"> ○ people watching quietly in a cinema ○ people lining up to buy tickets ○ people going out of a movie house after seeing a movie • balloon • block of wood • water inside a plastic bag • pictures showing the following: <ul style="list-style-type: none"> ○ air pollution ○ water (river) pollution ○ soil erosion ○ garbage dump
--	---	---	---	--	---	---

CURRICULUM MAP

Science and Technology 8 (Second Edition)

		<p>substances and mixtures</p> <ul style="list-style-type: none"> Constructing two-dimensional molecular models of common substances and mixtures using different figures and icons from magazines <p>Communication</p> <ul style="list-style-type: none"> Relating the different states of matter with the given scenarios Utilizing multiple media and technologies in exploring the particulate nature of matter <p>Critical Thinking</p> <ul style="list-style-type: none"> Analyzing how the particulate of matter interact to produce the overall nature of materials Visualizing the “spatial” dimension of the particles that make up different materials in the environment 			
--	--	---	--	--	--

		Environmental Awareness Highlighting the impact of the nature of different materials to the environment			
--	--	---	--	--	--

****Italicized texts under K to 12 Learning Competencies column are add-ons. Such marking is applied throughout the CM.*

Chapter 8: Atomic Structure

Essential Questions	<ul style="list-style-type: none"> Why is there a need to understand the structure of atoms? How can understanding the atomic structure help in determining the characteristics and properties of different substances? 	Essential Understandings	<ul style="list-style-type: none"> Atoms are the building blocks of all types of matter. Knowledge of the atoms' characteristics and properties provides the foundation for understanding the nature of matter. Learning the particulate nature of matter provides the foundation for understanding the changes in and the uses of matter. The characteristics and properties of a substance are determined by its atomic structure.
----------------------------	---	---------------------------------	--

Content	DepEd K to 12 Learning Competencies (MELCs included)	21st-Century Skills	Teaching Strategies/ Differentiated Instruction	Assessment	Values Integration	Resources
<i>Subatomic Particles</i> <i>Atomic Number and Mass Number</i>	S8MT-IIIe-f-10 MELC Determine the number of protons, neutrons, and electrons in a particular atom. <i>Name and describe the subatomic particles.</i> <i>Recognize that an element is identified by the number of protons in its nucleus.</i>	Communication Stating words or phrases related to the word <i>atom</i> Collaboration and Critical Thinking <ul style="list-style-type: none"> Doing a research and making a creative timeline of the development of the concept of atomic 	<ul style="list-style-type: none"> Direct instruction and discussion including advance reading assignment for the topic and defining or describing key terms learned Concept mapping Review of the periodic table Cooperative learning 	Diagnostic Test to assess prior knowledge Formative <ul style="list-style-type: none"> Questions in Follow-Up Activity or Laboratory reports 	<ul style="list-style-type: none"> Awareness of safety precautions when doing activities Recognizing the valuable contributions of the different scientists and their scientific attitudes in the 	<ul style="list-style-type: none"> activity or experiment materials picture of Henry Moseley periodic table online source: https://www.khanacademy.org/science/biology/chem <i>istry--of-</i>

CURRICULUM MAP

Science and Technology 8 (Second Edition)

	<p><i>Explain how ions are formed.</i></p> <p><i>Determine the number of protons, neutrons, and electrons in an ion.</i></p> <p><i>Write the formula of common ions</i></p>	<p>structure and presenting it to the class</p> <ul style="list-style-type: none"> Identifying the colors of the flames emitted by solid samples Comparing flame colors observed in different solid samples <p>Critical Thinking</p> <ul style="list-style-type: none"> Defining and differentiating terms learned Finding from the periodic table the elements that form cations and anions Giving constructive criticisms of others' outputs Making connections about the different theoretical innovations made by scientists in developing the concept of the atom. <p>Environmental Awareness Suggesting ways to manage e-wastes in the</p>	<ul style="list-style-type: none"> Comparison of the subatomic particles Research and reflection on importance of understanding the atomic structure to different disciplines and constructive critiquing of others' outputs 	<p>Summative</p> <ul style="list-style-type: none"> Essential qQuestions Chapter test Performance task Research output 	<p>evolution of atomic structure</p> <ul style="list-style-type: none"> Integration of the virtue of discipline in one's lifestyle by considering the nutritional composition of the foods Appreciating the importance of the atomic structure to different disciplines Protecting the environment by managing e-wastes 	<p><i>life/elements-and-atoms/e/atomic-structure</i></p>
--	---	--	--	---	--	--

CURRICULUM MAP

Science and Technology 8 (Second Edition)

		community				
		Collaboration Demonstrating ability to work with peers in validating the different claims of atomic theory				

Chapter 9: Periodic Table of Elements

Essential Questions	How does the understanding of the periodic table of elements emerge as an important tool in grouping the elements based on their properties?	Essential Understandings	<ul style="list-style-type: none"> The periodic table is an important tool that arranges the chemical elements in a systematic order. There is a repeating and recurring pattern among the different periodic properties of elements in the periodic table.
----------------------------	--	---------------------------------	---

Content	DepEd K to 12 Learning Competencies (MELCs included)	21st-Century Skills	Teaching Strategies/ Differentiated Instruction	Assessment	Values Integration	Resources
<i>Historical Development of the Periodic Table of Elements</i> <i>Periodic Classification of Elements</i> <i>Periodic Trends</i>	S8MT-IIIg-h-11 Trace the development of the periodic table from observations based on similarities in the properties of elements. <i>Describe the arrangement of the elements in the periodic table.</i> <i>Gather information on the elements in the periodic table.</i>	Collaboration Presenting a skit to show the historical development of the periodic table of elements Collaboration, Creativity, and Critical Thinking Constructing a comic strip that compares five elements and presents different trends	<ul style="list-style-type: none"> Direct instruction and discussion including defining or describing key terms learned Role-playing Comparing and contrasting models Class activity on given physical characteristics Simulation activity Animation of trends Skits or group presentation Research work and 	Diagnostic Periodic table acoustic activity Formative <ul style="list-style-type: none"> Questions in Follow-Up Group activity reports Homework Short quiz Online quiz 	<ul style="list-style-type: none"> Integrating the value of being organized in relation to the concept of systematic arrangement of elements in the periodic table Appreciation for the use of periodic table in describing the properties of 	<ul style="list-style-type: none"> periodic table activity or experiment materials online source such as https://www.khanacademy.org/science/chemistry/periodic-table/copy-of-periodic-table-of-elements/v/period

CURRICULUM MAP

Science and Technology 8 (Second Edition)

	<p>S8MT-III-j-12 MELC</p> <p>Use the periodic table to predict the chemical behavior of an element.</p>	<p>Critical Thinking</p> <ul style="list-style-type: none"> • Comparing and contrasting models used by different scientists in constructing the periodic table of elements • Tracing the historical development of the periodic table in terms of the properties that served as the bases for the arrangement of the elements • Analyzing how the different parts of the periodic table account for the overall use of the logical and systematic arrangement of elements • Identifying the given element's period, family, and classification • Identifying the materials found in the home that are <i>metals</i>, <i>nonmetals</i>, and <i>metalloids</i> and explaining the bases for classifying such materials based on their properties 	<p>reflection on the latest trends or uses of transition metals in different fields</p> <ul style="list-style-type: none"> • Concept mapping • Group/pair work on constructing a comic strip on comparing five elements, presenting different trends, and comparing them with those of other elements • Post-laboratory discussions and extended research work 	<p>Summative</p> <ul style="list-style-type: none"> • Essential questions • Chapter test • Performance task 	<p>elements that comprise the different materials around</p> <ul style="list-style-type: none"> • Promoting the benefits of solid waste management system by considering the characteristic of the substances present in the waste and recycling those that can be recycled 	<p style="text-align: center;"><i>ic-table-introduction</i></p>
--	--	--	---	---	--	---

CURRICULUM MAP

Science and Technology 8 (Second Edition)

		<ul style="list-style-type: none"> • Describing and grouping elements as highly reactive metals, less reactive metals, highly reactive nonmetals, and nonreactive gases • Identifying the importance of certain elements in the human body, in technology, and in the environment • Describing and identifying some metals in leaves • Observing the chemical properties of some metals • Graphically presenting the periodic trends of the first 20 elements <p>Scientific Literacy</p> <ul style="list-style-type: none"> • Choosing an element and doing a research about its different periodic properties that correspond to its uses • Visualizing how electrons are being removed from the outer shell of the atom and comparing the ionization energies of common 				
--	--	---	--	--	--	--

		<p style="text-align: center;">elements</p> <p>Career Examining information on the work of nanoscientists</p>			
--	--	--	--	--	--

4th Quarter

Unit 4: Living Things and Their Environment		Time Frame: 50 hours	
Content Standards*	<p>The learners demonstrate an understanding of...</p> <ul style="list-style-type: none"> the digestive system and its interaction with the circulatory, respiratory, and excretory systems in providing the body with nutrients for energy; diseases that result from nutrient deficiency and ingestion of harmful substances, and their prevention and treatment; how cells divide to produce new cells; meiosis as one of the processes that produces genetic variations of the Mendelian Pattern of Inheritance; the concept of a species; the species as being further classified into a hierarchical taxonomic system; and the one-way flow of energy and the cycling of materials in an ecosystem. 	Performance Standards*	<p>The learners should be able to...</p> <ul style="list-style-type: none"> present an analysis of the data gathered on diseases resulting from nutrient deficiency; report on the importance of variation in plant and animal breeding; report (e.g., through a travelogue) on the activities that communities engage in to protect and conserve endangered and economically important species; and make a poster comparing food choices based on the trophic levels.

**Italicized text for Content Standards and Performance Standards are add-on ones from the TG. This is applied throughout the CM.*

Chapter 10: Human Digestive System			
Essential Questions**	<ul style="list-style-type: none"> What happens to food during mechanical digestion? What about during chemical digestion? How would you describe absorption? 	Enduring Understandings**	<ul style="list-style-type: none"> The human digestive system consists of organs with interrelated functions for ingestion and digestion of food, absorption of nutrients, reabsorption of water, and elimination of wastes.

CURRICULUM MAP

Science and Technology 8 (Second Edition)

	<ul style="list-style-type: none"> What is the role of the stomach in digestion? How do foods affect the normal functioning of the parts of the digestive system? Is biotechnology important? Why or why not? Which do you prefer, organic or nonorganic foods? Why? 		<ul style="list-style-type: none"> Observing proper hygiene and healthy lifestyle promotes overall wellness. Proper nutrition enhances overall physical condition and prevents diseases.
--	--	--	--

*** Contents for Essential Questions (EQ) and Enduring Understandings (EU) are set per unit in the textbook and by chapter in the teachers guide. The text under Big Ideas in the TG were considered for EU. Hence, these were integrated in the table above and not within each lesson in the CM. Furthermore, some EQs and EUs have come from the WT or are author-provided; these were considered as long as they are developed in the WT/TG content.*

Content	DepEd K to 12 Learning Competencies*** (MELCs included)	21st-Century Skills	Teaching Strategies/ Differentiated Instruction	Assessment	Values Integration	Resources
<p><i>Human Digestive System: Structure and Functions</i></p> <p><i>Accessory Digestive Organs</i></p> <p><i>Coordinated Functions of the Digestive, Respiratory, Circulatory, and Excretory Systems</i></p> <p><i>Digestive System Diseases</i></p> <p><i>Contemporary Health Issues</i></p>	<p>S8LT-IVa-13 MELC Explain ingestion, absorption, assimilation, and excretion.</p> <p><i>Describe the coordinated functions of the digestive organs.</i></p> <p><i>Explain the functions of enzymes in digestion.</i></p> <p><i>Describe how the diseases of the digestive system develop.</i></p> <p>S8LT-IVb-14 Explain how diseases of the digestive system are prevented, detected, and treated.</p>	<p>Critical Thinking</p> <ul style="list-style-type: none"> Tracing the pathway of food digestion using a model of the human digestive system Creating a mind map about the interconnectedness of the different body systems, with focus on the importance of these connections Constructive critiquing of other groups' outputs Determining the importance of technology in keeping 	<ul style="list-style-type: none"> Inquiry approach Presentation of video clip Use of PowerPoint presentations or enlarged images from the book Direct instruction and interactive discussion including misconception correction and review of prerequisite topics Diagram analysis Collaborative learning Group laboratory activities Mind mapping Further research and 	<p>Diagnostic Nongraded pretest about the digestive system</p> <p>Formative</p> <ul style="list-style-type: none"> Questions in Follow-Up Seatwork Oral recitation Short quizzes (including online tests, if possible) Role-play activity <p>Summative</p> <ul style="list-style-type: none"> Essential questions Chapter test 	<ul style="list-style-type: none"> Awareness of safety precautions when doing activities Integrating patience and care in the discussion of digestive system diseases Caring for persons with diseases or disorders, especially family members or close friends Proper waste management 	<ul style="list-style-type: none"> slides or PowerPoint presentation of the parts of the human digestive system (or enlarged images of those found in the textbook, or flash cards) model of the human digestive system activity or laboratory materials image of the digestive, respiratory,

CURRICULUM MAP

Science and Technology 8 (Second Edition)

	<p>S8LT-IVc-15 Identify healthful practices that affect the digestive system.</p> <p><i>Discuss contemporary health issues on nutrition and overall wellness.</i></p> <p><i>Research on technologies that are used to promote the proper functioning of the digestive system.</i></p>	<p>the digestive system healthy</p> <ul style="list-style-type: none"> • Analyzing how different parts of the digestive system interact and work together to help the human body ingest and digest food <p>Critical Thinking, Collaboration, and Communication</p> <ul style="list-style-type: none"> • Dissecting a frog, identifying the different organs of a dissected frog, using the dissected frog to demonstrate the process of digestion, and relating the frog's organ system to that of humans • Explaining the importance of cleaning the mouth properly, presenting the negative effects of not doing so, and demonstrating how to clean the mouth properly • Identifying the internal structures of the stomach and the small intestine 	<p>role-playing about a digestive system disease</p> <ul style="list-style-type: none"> • Individual or group concept mapping using a graphic organizer • Activities: <ul style="list-style-type: none"> ○ Identifying the digestive part shown, its function, and diseases specific to the part ○ Defining or describing key terms learned 	<ul style="list-style-type: none"> • Performance task 	<ul style="list-style-type: none"> • Helping others get proper nutrition • Appreciation for the gift of the human body and the different parts that play specific functions. • Relating the Importance of healthy lifestyle to the foods that people eat • Sympathy for children in the streets who lack vitality and are suffering from malnutrition • Recognizing the importance of moral support and encouragement to people who are suffering from diseases 	<p>circulatory, and excretory systems</p> <ul style="list-style-type: none"> • slides or PowerPoint presentations of the different digestive systems • small pieces of paper and a box for drawing lots • online sources: <ul style="list-style-type: none"> ○ "Quiz: Digestive System" http://kidshealth.org/kid/htbw/DSquiz.html ○ "Body Systems: Human Body-Digestive System Quiz" http://www.softschools.com/quizzes/science/digestive_system/quiz751.html ○ "Movie: Digestive System" http://kidshealth.org/kid/htbw/DSquiz.html
--	--	--	--	--	--	---



CURRICULUM MAP

Science and Technology 8 (Second Edition)

TEL. (632) 87120245 to 49 / 87406603
 Locals 226 / 228
 EMAIL: wecare@abiva.com.ph
 Copyright 2021
 ABIVA PUBLISHING HOUSE, INC.
 All rights reserved.

		<ul style="list-style-type: none"> • Describing the processes involved in nutrient absorption • Researching about a digestive system disease and role playing about it • Determining the nutrients in foods found at home, differentiating foods in terms of their nutritional composition, and relating the nutritional composition of foods in terms of the family diet • Compare organic and nonorganic vegetables • Collecting samples of herbal plants in the community and presenting the medicinal uses of herbal plants • Determining how herbs add flavor to recipes • Presenting to the class the group's activity outputs <p>Collaboration Having a shared responsibility in doing group work which value individual contributions</p>			<p><i>h.org/kid/htbw/DSmovie.html</i></p> <ul style="list-style-type: none"> ○ “Digestive System” http://www.neok12.com/Digestive-System.htm ○ “Problems in the Upper Digestive Tract” http://digestive-system.emedtv.com/egd-(upper-endoscopy)-video/problem-s-in-the-upper-digestive-tract-video.html ○ “Appendicitis” http://www.webmd.com/digestive-disorders/video/appendectomy
--	--	--	--	--	--

CURRICULUM MAP

Science and Technology 8 (Second Edition)

****Italicized texts under K to 12 Learning Competencies column are add-ons. Such marking is applied throughout the CM.*

Chapter 11: Heredity and Variations of Traits			
Essential Questions	<ul style="list-style-type: none"> Why are organisms different from one another? In what features do they differ? What factors affect the transmission of traits from the parents to the offspring? How do deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) differ? In what ways do mitosis and meiosis differ? How are they similar? How do gametes form, develop, and mature? How will you justify the concept that the union of sperm cell and egg cell would result in variations of traits? 	Essential Understandings	<ul style="list-style-type: none"> Similarities and differences exist among organisms with respect to traits. Cells make up the body of living things. They consist of hereditary materials that are involved in the growth and development of living organisms. Cell division makes the transmission of chromosome from parent cells to daughter cells possible. The DNA is a nucleic acid present in chromosomes, which carries the genetic code and determine the traits of each living thing. Sperm cells and egg cells undergo a development process called <i>gametogenesis</i>.

Content	DepEd K to 12 Learning Competencies (MELCs included)	21st-Century Skills	Teaching Strategies/ Differentiated Instruction	Assessment	Values Integration	Resources
<p><i>Genetics</i></p> <p><i>Heredity-Associated Structures</i></p> <p><i>Cell Division</i></p> <p><i>Genetic Variation via Sexual Reproduction</i></p>	<p>S8LT-IVd-16 MELC</p> <p>Compare mitosis and meiosis, and their role in the cell-division cycle.</p> <p><i>Identify the organelles involved in cell division.</i></p> <p><i>Tell the importance of mitosis in the growth, development, and repair of somatic cells.</i></p>	<p>Collaboration and Critical Thinking</p> <ul style="list-style-type: none"> Examining prepared slides of mitosis and meiosis Identifying the different stages of mitosis and meiosis Comparing and contrasting mitosis and meiosis Identifying the events that occur in spermatogenesis and oogenesis 	<ul style="list-style-type: none"> Picture analysis Inquiry approach Motivational game (Message Relay) Direct instruction and discussion including misconception correction and defining or describing key terms learned Using a Venn diagram to compare and contrast 	<p>Diagnostic</p> <p>Nongraded pretest on heredity and variation of traits</p> <p>Formative</p> <ul style="list-style-type: none"> Homework Short quiz Seatwork Group activities <p>Summative</p> <ul style="list-style-type: none"> Essential 	<ul style="list-style-type: none"> Awareness of safety precautions when doing activities Engaging in planting activities and observing variations in plant growth and appearance Recognizing individuality in relation to 	<ul style="list-style-type: none"> students' pictures of respective parents and siblings piece of paper with the statement "Gregor Johann Mendel is an Austrian Augustinian friar who formulated the basic

CURRICULUM MAP

Science and Technology 8 (Second Edition)

	<p>S8LT-IVe-17 MELC Explain the significance of meiosis in maintaining the chromosome number.</p> <p>S8LT-IVf-18 MELC Predict phenotypic expressions of traits following simple patterns of inheritance.</p> <p><i>Differentiate oogenesis from spermatogenesis.</i></p>	<ul style="list-style-type: none"> • Synthesizing and making connections of the concept of genetics to real-life settings • Interpreting information and drawing conclusions <p>Communication</p> <ul style="list-style-type: none"> • Constructive critiquing of others' presentations or answers • Answering the given question based on the image shown • Sharing with others the group's outputs or answers <p>Social and Cultural Awareness Understanding the differences among people in terms of physical traits</p>	<ul style="list-style-type: none"> • Use of mnemonics • Presentation of video clip • Collaborative learning • Cooperative learning <ul style="list-style-type: none"> ○ Round Robin ○ Numbered Heads Together • Flexible grouping or regrouping • Question-and-Answer 	<p>questions</p> <ul style="list-style-type: none"> • Chapter test • Performance task 	<p>concepts of heredity and variation of traits</p> <ul style="list-style-type: none"> • Respect for others in terms of individual differences • Appreciation for the natural unique physical traits and characteristics • Promoting equality amidst differences 	<p>principles of genetics.”</p> <ul style="list-style-type: none"> • PowerPoint presentation or flash card with enlarged picture of Gregor Johann Mendel • figure of a Venn diagram for use in comparing mitosis and meiosis • activity or experiment materials • small pieces of paper (for drawing lots) and a box • slides or PowerPoint presentation (or flash cards) of the images used in the chapter • online sources: <ul style="list-style-type: none"> ○ “Heredity & Variation: Lesson for Kids” https://study.com/academy/lesson/heredity-
--	--	--	--	---	---	--

CURRICULUM MAP

Science and Technology 8 (Second Edition)

						<p><i>variation-lesson-for-kids.html</i></p> <ul style="list-style-type: none"> ○ “Genetics: Heredity, Traits & Chromosomes” <i>https://study.com/academy/lesson/overview-of-genetics.html</i> ○ “Cell Division” <i>http://www.neok12.com/Cell-Division.htm</i> ○ “Spermatogenesis and Oogenesis” <i>http://www.youtube.com/watch?v=xFFMoYPnVP0</i>
--	--	--	--	--	--	--

Chapter 12: Biodiversity and Interactions in the Environment

Essential Questions	<ul style="list-style-type: none"> • What causes biodiversity in the environment? • How do organisms interact in an ecosystem? • What is the significance of classifying living things? • Have you heard of endangered species? Why are they endangered? • How do human activities affect ecological balance? • How can you conserve biodiversity and ecosystems? 	Enduring Understandings	<ul style="list-style-type: none"> • An ecosystem is composed of living and nonliving things that work together. • Organisms in an ecosystem have roles to play. They are closely interdependent in order to survive. Loss of one species affects the other. • All organisms, especially those considered as rare or endangered species, including their habitats, must be conserved and protected to ensure ecological balance.
----------------------------	---	--------------------------------	---

			<ul style="list-style-type: none"> Carbon, nitrogen, oxygen, and water move within biotic and abiotic components of the biosphere through biogeochemical cycles.
--	--	--	---

Content	DepEd K to 12 Learning Competencies (MELCs included)	21st-Century Skills	Teaching Strategies/ Differentiated Instruction	Assessment	Values Integration	Resources
<p><i>Biodiversity</i></p> <p><i>Classification of Living Things</i></p> <p><i>Biological Interactions</i></p> <p><i>Protection and Conservation of Rare and Economically Important Species</i></p> <p><i>Energy Flow in an Ecosystem</i></p> <p><i>Biogeochemical Cycles</i></p> <p><i>Impact of Human Activities on Ecosystems</i></p>	<p>S8LT-IVg-19 MELC Explain the concept of a species.</p> <p>S8LT-IVh-20 MELC Classify organisms using the hierarchical taxonomic system.</p> <p>S8LT-IVh-21 MELC Explain the advantage of high biodiversity in maintaining the stability of an ecosystem.</p> <p>S8LT-IVi-22 MELC Describe the transfer of energy through the trophic levels.</p> <p>S8LT-IVi-23 MELC Analyze the roles of organisms in the cycling of</p>	<p>Critical Thinking</p> <ul style="list-style-type: none"> Reflecting on the message of a given song Finding the word or phrase corresponding to another word or phrase via a group game Detecting and rectifying misconceptions Preparing a PowerPoint presentation on the four biogeochemical cycles Observing biological interactions in the environment Identifying which interacting organism is harmed or benefited Identifying the variety of organisms in different ecosystems Tracing the flow of energy in a food chain 	<ul style="list-style-type: none"> Song analysis Group games Direct instruction and discussion including <ul style="list-style-type: none"> Review of previous chapter's topics Vocabulary unlocking Defining or describing key terms learned Taking note of the unique characteristics, population, and behavior of the species that you see in museums, orchidariums, zoological parks, botanical gardens, garden centers, or plant nurseries Collaborative learning 	<p>Diagnostic Nongraded pretest on biodiversity and interactions in the environment</p> <p>Formative</p> <ul style="list-style-type: none"> Seatwork Homework Oral recitation Short quizzes PowerPoint presentations on the direction of energy flow between trophic levels Questions in Follow-Up <p>Summative</p> <ul style="list-style-type: none"> Individual reaction paper about an article read 	<ul style="list-style-type: none"> Awareness of safety precautions while doing activities Integrating the value of being nationalistic and conservationist in discussing biodiversity Pride in the country's natural heritage and help them realize the value of the environment in maintaining ecological balance Appreciation for the gift of nature Preservation of the environment Respect for the different forms of 	<ul style="list-style-type: none"> DVD or CD player, if available flash cards with sets of words or phrases written on them pictures of the following: <ul style="list-style-type: none"> sea teeming with different kinds of fish a forest full of plants and animals white cartolina small pieces of paper (for drawing lots) and a box slides or PowerPoint presentation of the images used in the chapter (or flash cards as alternative) online sources

CURRICULUM MAP

Science and Technology 8 (Second Edition)

	<p>materials.</p> <p>S8LT-IVi-24 MELC Explain how materials are recycled in an ecosystem.</p> <p>S8LT-IVj-25 MELC Suggest ways to minimize human impact on the environment.</p> <p><i>Participate in activities that protect and conserve rare and endangered species.</i></p>	<p>Creativity and Collaboration</p> <ul style="list-style-type: none"> Working with others in interpreting a song through a dance Drawing an editorial cartoon portraying the message of the article read, with clarity and appropriateness Making a poster with corresponding slogan based on the given theme <p>Communication</p> <ul style="list-style-type: none"> Stating the importance of the different biogeochemical cycles Sharing own research output on the life and achievements of Linnaeus, and on Philippine biodiversity Constructive critiquing of others' outputs or reports <p>Collaboration Assuming shared responsibility for collaborative work</p> <p>Career Examine careers related to the conservation of the</p>	<ul style="list-style-type: none"> Think-Pair-Share Article reading Flexible grouping and regrouping Video clip presentation Documentary analysis Picture analysis Research work on the life and achievements of Linnaeus and on Philippine biodiversity Pair or group activities and reports Extended research about applications of activities done Question-and-Answer based on images shown Group discussions on statements in Big Ideas 	<ul style="list-style-type: none"> Reflection paper Group posters with slogans based on the given theme Essential Questions Chapter test Performance task 	life	<ul style="list-style-type: none"> “Magkaugnay” song lyrics http://www.lyricsmode.com/lyrics/j/joey_ayala/magkaugnay.html video clips on marine or forest biodiversity video clips on biological interactions from http://www.youtube.com/watch?v=zSmL2F1t81Q or other online documentary collection sources article on Philippine biodiversity http://newsinfo.inquirer.net/283192/denr-report-admits-philippines-is-way-behind-biodiversity-protection video clips on biogeochemical cycles from http://www.youtube.com/watch
--	--	---	---	--	------	---



CURRICULUM MAP

Science and Technology 8 (Second Edition)

TEL. (632) 87120245 to 49 / 87406603
Locals 226 / 228
EMAIL: wecare@abiva.com.ph
Copyright 2021
ABIVA PUBLISHING HOUSE, INC.
All rights reserved.

		environment, such as those in environmental science, marine biology, wildlife studies, and other similar courses				<i>h?v=WDHwD Ublk0k</i> or other online documentary collection sources
--	--	--	--	--	--	--