

K to 12 BASIC EDUCATION CURRICULUM

GRADE 9

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
Grade 9 – Living Things and Their Environment FIRST QUARTER/ FIRST GRADING PERIOD						
1. Respiratory and Circulatory Systems Working with the other Organ Systems	<i>The learners demonstrate an understanding of:</i> <ol style="list-style-type: none"> 1. how the different structures of the circulatory and respiratory systems work together to transport oxygen-rich blood and nutrients to the different parts of the body 2. the prevention, detection, and treatment of diseases affecting the circulatory and respiratory systems 	<i>The learners should be able to:</i> <p>conduct an information dissemination activity on effective ways of taking care of the respiratory and circulatory systems based on data gathered from the school or local health workers</p>	<i>The learners should be able to...</i> <ol style="list-style-type: none"> 1. explain how the respiratory and circulatory systems work together to transport nutrients, gases, and other molecules to and from the different parts of the body; 	S9LT-la-b-26	<ol style="list-style-type: none"> 1. BEAM II. 4 Organ Systems. Circulatory System. June 2008. 2. EASE Biology. Module 11. Lessons 2 and 3. 3. NFE. Ang Respiratory System. 2001. pp. 3-5. 	Human torso model
			<ol style="list-style-type: none"> 2. infer how one's lifestyle can affect the functioning of respiratory and circulatory systems; 	S9LT-lc-27	<ol style="list-style-type: none"> 1. APEX. Biology Unit 4. Lessons 11 and 12. 2. NFE. Ang Respiratory System. 2001. pp. 16-24. 3. Science for Daily Use 5. Tan, Conchita T. 2012. pp. 34-35 and 38-39. * 	

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CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
2. Heredity: Inheritance and Variation 2.1 Location of genes on chromosomes 2.2 Non-Mendelian inheritance 2.2.1 Incomplete dominance 2.2.2 Sex-linked traits 2.2.3 Multiple alleles 2.3 Multiple genes	<i>The learners demonstrate an understanding of:</i> 1. how genetic information is organized in genes on chromosomes 2. the different patterns of inheritance	<i>The learners should be able to:</i> conduct an information dissemination activity on effective ways of taking care of the respiratory and circulatory systems based on data gathered from the school or local health workers	3. describe the location of genes in chromosomes;	S9LT-Id-28	1. BEAM II. Your Genetic Book of Life. 2. APEX. Unit 6. Lesson 3. 3. Science and Technology II: Biology Textbook. NISMED. 2012. pp. 184-185. 4. Science and Technology II: Biology Textbook. NISMED. 2004. pp. 184-185.	
			4. explain the different patterns of non-Mendelian inheritance ;	S9LT-Id-29	1. EASE Biology. Module 14. Lesson 3. 2. Science and Technology: Biology Textbook. NISMED. 2012. pp. 179-182. 3. Science and Technology II: Biology Textbook. NISMED. 2004. PP. 179-182.	

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3. Biodiversity and Evolution 3.1 Causes of Species Extinction 3.1.1 natural 3.1.2 anthropogenic	<i>The learners demonstrate an understanding of:</i> how changes in the environment may affect species extinction	<i>The learners should be able to:</i> make a multimedia presentation of a timeline of extinction of representative microorganisms, plants, and animals	5. relate species extinction to the failure of populations of organisms to adapt to abrupt changes in the environment; and	S9LT-Ie-f-30	1. EASE Science I. Module 11. Lesson 6. 2. Science and Technology II: Biology Textbook. NISMED. 2012. pp. 328-329. 3. Science and Technology II: Biology Textbook. NISMED. 2004. 328-329. 4. Science and Technology I: Integrated Science Textbook. NISMED. 2012. pp. 146-147.	

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CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
4. Ecosystems 4.1 Flow of Energy and Matter in Ecosystems 4.1.1 Photosynthesis 4.1.2 Respiration	<i>The learners demonstrate an understanding of:</i> 1. the structure and function of plant parts and organelles involved in photosynthesis 2. the structure and function of mitochondrion as the main organelle involved in respiration	<i>The learners should be able to:</i> design and conduct an investigation to provide evidence that plants can manufacture their own food	6. differentiate basic features and importance of photosynthesis and respiration.	S9LT-Ig-j-31	1. BEAM Learning Guide Biology Food for Life 2. BEAM Learning Guide Biology Creating Energy for Life 3. EASE Biology Module 4 Photosynthesis 4. EASE Biology Module 5 Cellular Respiration 5. APEX Biology Unit 3 Life Energy 6. Science for Daily Use 5. Tan, Conchita T. 2012. pp. 96-99. * 7. Science and Technology II: Biology Textbook. NISMED. 2012. pp. 58-66 and 70-72. 8. Science and Technology II: Biology	1. Beaker 2. Funnel 3. Test tube 4. Thermometer 5. Tripod 6. Alcohol lamp 7. Wire gauze 8. Test tube rack 9. pH paper

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4. Ecosystems 4.1 Flow of Energy and Matter in Ecosystems 4.1.1 Photosynthesis 4.1.2 Respiration	<i>The learners demonstrate an understanding of:</i> 1. the structure and function of plant parts and organelles involved in photosynthesis 2. the structure and function of mitochondrion as the main organelle involved in respiration	<i>The learners should be able to:</i> design and conduct an investigation to provide evidence that plants can manufacture their own food	6. differentiate basic features and importance of photosynthesis and respiration.	S9LT-Ig-j-31	Textbook. NISMED. 2004. pp. 58-66 and 70-72. 9. NFE. Food Production and Utilization in Plants. 2001. pp. 4-25.	
Grade 9 – Matter SECOND QUARTER/SECOND GRADING PERIOD						
1. Chemical Bonding 1.1 Ionic and Covalent Bonding 1.2 Metallic Bonding	<i>The learners demonstrate an understanding of...</i> 1. how atoms combine with other atoms by transferring or by sharing electrons 2. forces that hold metals together	<i>The learners shall be able to:</i> analyze the percentage composition of different brands of two food products and decide on the products' appropriate percentage composition	1. explain the formation of ionic and covalent bonds;	S9MT-IIa-13	1. EASE II. Chemistry Module 14. Lesson 1. 2. BEAM III. Unit 7. 18 Demonstrate Understanding of the Processes. Bonding. Module 1. March 2009. 3. EASE Science 1. Module 6. Lesson 1.	1. Improvised covalent bonding model (H ₂ , O ₂ , N ₂) 2. Improvised ionic bonding model (NaCl) 3. Molecular Models (Inorganic/organic) 4. VSEPR kit

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1. Chemical Bonding 1.1 Ionic and Covalent Bonding 1.2 Metallic Bonding	<i>The learners demonstrate an understanding of...</i> 1. how atoms combine with other atoms by transferring or by sharing electrons 2. forces that hold metals together	<i>The learners shall be able to:</i> analyze the percentage composition of different brands of two food products and decide on the products' appropriate percentage composition	1. explain the formation of ionic and covalent bonds;	S9MT-IIa-13	4. Science and Technology III: Chemistry Textbook for Third Year. Mapa, Amelia P., Ph.D., et al. 1999. pp. 111-115. * 5. Chemistry III Textbook. Mapa, Amelia P., Ph.D., et al. 2001. pp. 107-112. * 6. Science and Technology III. NISMED. 1997. pp. 270-273. 7. Science and Technology III: Chemistry Textbook. NISMED. 2012. pp. 329-333.	
			2. recognize different types of compounds (ionic or covalent) based on their properties such as melting point, hardness, polarity, and electrical and thermal conductivity;	S9MT-IIb-14	1. EASE Science II. Chemistry Module 14. Lesson 1. 2. Chemistry III Textbook. Mapa, Amelia	

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1. Chemical Bonding 1.1 Ionic and Covalent Bonding 1.2 Metallic Bonding	<i>The learners demonstrate an understanding of...</i> 1. how atoms combine with other atoms by transferring or by sharing electrons 2. forces that hold metals together	<i>The learners shall be able to:</i> analyze the percentage composition of different brands of two food products and decide on the products' appropriate percentage composition	2. recognize different types of compounds (ionic or covalent) based on their properties such as melting point, hardness, polarity, and electrical and thermal conductivity;	S9MT-IIb-14	P., Ph.D., et al. 2001. pp. 117-120. 3. Science and Technology III. NISMED. 1997. p. 283.	
			3. explain properties of metals in terms of their structure;	S9MT-IIc-d-15	1. BEAM III. Unit 8. 20 Demonstrate Understanding of Chemical Bonds. Metallic Link. Module 3. 2. Chemistry III Textbook. Mapa, Amelia P., Ph.D., et al. 2001. pp. 113-115. 3. Science and Technology III. NISMED. 1997. pp. 279-280. 4. Science and Technology III: Chemistry Textbook. NISMED. 2012. pp. 333-33.	

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CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
1. Chemical Bonding 1.1 Ionic and Covalent Bonding 1.2 Metallic Bonding	<i>The learners demonstrate an understanding of...</i> 1. how atoms combine with other atoms by transferring or by sharing electrons 2. forces that hold metals together	<i>The learners shall be able to:</i> analyze the percentage composition of different brands of two food products and decide on the products' appropriate percentage composition	4. explain how ions are formed;	S9MT-IIe-f-16	1. EASE Science I. Module 6. 2. EASE Science II. Module 14. Lesson 1. 3. Chemistry III Textbook. Mapa, Amelia P., Ph.D., et al. 2001. pp. 92-94. * 4. Science and Technology III. NISMED. 1997. pp. 277-279. 5. Science and Technology III: Chemistry Textbook. NISMED. 2012. pp. 293-294. 6. Science and Technology III: Chemistry Textbook for Third Year. Mapa, Amelia P., Ph.D., et al. 1999. P. 110. *	

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CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
2. The Variety of Carbon Compounds 2.1 Carbon Atoms 2.2 Organic Compounds	<i>The learners demonstrate an understanding of...</i> the type of bonds that carbon forms that result in the diversity of carbon compounds	<i>The learners shall be able to:</i> analyze the percentage composition of different brands of two food products and decide on the products' appropriate percentage composition	5. explain how the structure of the carbon atom affects the type of bonds it forms;	S9MT-IIg-17	1. EASE II. Module 14. 2. Chemistry III Textbook. Mapa, Amelia P., Ph.D., et al. 2001. pp. 343-356. * 3. Science and Technology. NISMED. 1997. pp. 334-340. 4. Science and Technology III: Chemistry Textbook for Third Year. Mapa, Amelia P., Ph.D., et al. 1999. pp. 349-353. *	
			6. recognize the general classes and uses of organic compounds;	S9MT-IIh-18	1. Chemistry III Textbook. Mapa, Amelia P., Ph.D., et al. 2001. pp. 356-367. * 2. Science and Technology III. NISMED. 1997. pp. 331-340. 3. Science and Technology	Improvised Hydrocarbons model

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2. The Variety of Carbon Compounds 2.1 Carbon Atoms 2.2 Organic Compounds	<i>The learners demonstrate an understanding of...</i> the type of bonds that carbon forms that result in the diversity of carbon compounds	<i>The learners shall be able to:</i> analyze the percentage composition of different brands of two food products and decide on the products' appropriate percentage composition			III: Chemistry Textbook for Third Year. Mapa, Amelia P., Ph.D., et al. 1999. pp. 367-373. *	
3. Mole Concept 3.1 Mass 3.2 Moles 3.3 Percentage Composition of a Compound	the unit, mole , that quantitatively measures the number of very small particles of matter		7. use the mole concept to express mass of substances; and	S9MT-III-19	1. EASE Science II. Chemistry Module 16. Lesson 2. 2. OHSP. Chemistry Module 16. Lesson 2. 3. Science and Technology III: Chemistry Textbook. NISMED. 2012. pp. 84-91. 4. Chemistry III Textbook. Mapa, Amelia P., Ph.D., et al. 2001. pp. 174-183. * 5. Science and Technology III. NISMED. 1997. pp. 112-123.	Triple beam balance

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CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
3. Mole Concept 3.1 Mass 3.2 Moles 3.3 Percentage Composition of a Compound	<i>The learners demonstrate an understanding of...</i> the unit, mole , that quantitatively measures the number of very small particles of matter	<i>The learners shall be able to:</i> analyze the percentage composition of different brands of two food products and decide on the products' appropriate percentage composition	8. determine the percentage composition of a compound given its chemical formula and vice versa.	S9MT-IIj-20	1. EASE Science II. Chemistry Module 16. Lesson 4. 2. OHSP. Chemistry Module 16. Lesson 4. 3. Chemistry III Textbook. Mapa, Amelia P., Ph.D., et al. 2001. pp. 174-183. * 4. Science and Technology III. NISMED. 1997. pp. 112-123. 5. Science and Technology III: Chemistry Textbook for Third Year. Mapa, Amelia P., Ph.D., et al. 1999. pp. 157-158. *	

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Grade 9 – Earth and Space THIRD QUARTER/THIRD GRADING PERIOD						
1.Volcanoes 1.1 Type of volcanoes 1.2 Volcanic Eruption 1.3 Energy from volcanoes	<i>The learners demonstrate an understanding of:</i> volcanoes found in the Philippines	<i>The learners shall be able to:</i> participate in activities that reduce risks and lessen effects of climate change	<i>The learners should be able to...</i> 1. describe the different types of volcanoes;	S9ES -IIIa-25	EASE Science I. Module 12. p. 24.	
			2. differentiate between active and inactive volcanoes;	S9ES -IIIa-27	MISOSA 6. Active and Inactive Volcanoes.	
			3. explain what happens when volcanoes erupt;	S9ES -IIIb-28	1. MISOSA 6. Module 29. 2. BEAM 6. Unit 5. 12 Volcanic Eruptions. Volcano Mania. Module 12. Activity 3.2. 3. Science and Technology I: Integrated Science Textbook. NISMED. 2012. pp. 189-191.	
			4. illustrate how energy from volcanoes may be tapped for human use;	S9ES –IIIc-d-29	MISOSA 6. Module 30. p. 8.	

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2.Climate 2.1 Factors that affect climate 2.2 Global climate phenomenon	<i>The learners demonstrate an understanding of:</i> factors that affect climate, and the effects of changing climate and how to adapt accordingly	<i>The learners shall be able to:</i> participate in activities that reduce risks and lessen effects of climate change	5. explain how different factors affect the climate of an area;	S9ES-IIIe-30	1. BEAM 6. Unit 5. Module 13. 2. Science and Technology I: Integrated Science Textbook. NISMED. 2012. pp. 275-282. 3. Science and Technology I: Integrated Science Textbook for First Year. Villamil, Aurora M., Ed.D. 1998. pp. 185-202. *	Thermocline
			6. describe certain climatic phenomena that occur on a global level;	S9ES-IIIIf-31	1. BEAM 6. Unit 5. Module 13. 2. Science and Technology I: Integrated Science Textbook. NISMED. 2012. pp. 300-301.	

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CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
3. Constellations 3.1 Characteristics of stars 3.2 Arrangement of stars in a group 3.3 Changing position of constellations during the night and at different times of the year 3.4 Beliefs and practices about constellations and astrology	<i>The learners demonstrate an understanding of:</i> the relationship between the visible constellations in the sky and Earth's position along its orbit	<i>The learners shall be able to:</i> discuss whether or not popular beliefs and practices with regard to constellations and astrology have scientific basis	7. infer the characteristics of stars based on the characteristics of the Sun;	S9ES-IIIg-32	1. BEAM 5. Unit 7. 20 The Sun. 2. EASE Science I. Module 18. 3. Science and Technology I: Integrated Science Textbook. Villamil, Aurora M., Ed.D. 1998. pp. 268-270. *	Celestial globe
			8. infer that the arrangement of stars in a group (constellation) does not change;	S9ES-IIIh-33	1. EASE Science I. Module 18. 2. Science and Technology I: Integrated Science Textbook. Villamil, Aurora M., Ed.D. 1998. p. 272. *	
			9. observe that the position of a constellation changes in the course of a night; and	S9ES-IIIi-34	EASE Science I. Module 18.	

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3. Constellations 3.1 Characteristics of stars 3.2 Arrangement of stars in a group 3.3 Changing position of constellations during the night and at different times of the year 3.4 Beliefs and practices about constellations and astrology	<i>The learners demonstrate an understanding of:</i> the relationship between the visible constellations in the sky and Earth's position along its orbit	<i>The learners shall be able to:</i> discuss whether or not popular beliefs and practices with regard to constellations and astrology have scientific basis	10. show which constellations may be observed at different times of the year using models.	S9ES-IIIj-35	EASE Science I. Module 18.	Celestial globe
Grade 9 – Force, Motion, and Energy FOURTH QUARTER/FOURTH GRADING PERIOD						
Motion in Two Dimensions 1. Projectile Motion 1.2.Impulse, Momentum and Impulse 1.3.Conservation of Linear Momentum	<i>The learners demonstrate an understanding of:</i> projectile motion, impulse and momentum, and conservation of linear momentum	<i>The learners shall be able to:</i> propose ways to enhance sports related to projectile motion	<i>The learners should be able to...</i> 1. describe the horizontal and vertical motions of a projectile;	S9FE-IVa-34	1. OHSP Integrated Science. Quarter 2. Module 3. pp. 4-5. 2. EASE Physics. Module 9. Lesson 3. 3. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 93-109. *	

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Motion in Two Dimensions 1. Projectile Motion 1.2.Impulse, Momentum and Impulse 1.3.Conservation of Linear Momentum	<i>The learners demonstrate an understanding of:</i> projectile motion, impulse and momentum, and conservation of linear momentum	<i>The learners shall be able to:</i> propose ways to enhance sports related to projectile motion	2. investigate the relationship between the angle of release and the height and range of the projectile;	S9FE-IVa-35	1. EASE Physics. Module 9. Lesson 3. 2. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 93-109. *	
			3. relate impulse and momentum to collision of objects (e.g., vehicular collision);	S9FE-IVb-36	Science and Technology IV: Physics Textbook. NISMED. 2012. pp. 298-301.	
			4. infer that the total momentum before and after collision is equal;	S9FE-IVb-37	1. BEAM IV. Unit 5. 12 Force and Motion. Energy in Transportation. August 2008. 2. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp.	NSTIC SciKit Basic and Mechanics: Cart-Rail System; Cylindrical Masses; Meter Stick

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Motion in Two Dimensions 1. Projectile Motion 1.2.Impulse, Momentum and Impulse 1.3.Conservation of Linear Momentum	<i>The learners demonstrate an understanding of:</i> projectile motion, impulse and momentum, and conservation of linear momentum	<i>The learners shall be able to:</i> propose ways to enhance sports related to projectile motion	4. infer that the total momentum before and after collision is equal;	S9FE-IVb-37	112-114. * 3. Science and Technology IV: Physics Textbook. NISMED. 2012. pp. 301-303 and 306.	
			5. examine effects and predict causes of collision-related damages/injuries;	S9FE-IVc-38	Science and Technology IV: Physics Textbook. NISMED. p. 298.	
2. Work Power and Energy 2.1 Changes in form of mechanical energy 2.2 Conservation of energy	<i>The learners demonstrate an understanding of:</i> conservation of mechanical energy	<i>The learners shall be able to:</i> create a device that shows conservation of mechanical energy	6. explain energy transformation in various activities/events (e.g., waterfalls, archery, amusement rides);	S9FE-IVc-39	1. EASE Science I. Module 8. p. 18. 2. BEAM 5. Unit 5. 11. Electric Circuits. DLP 35. 3. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 170-171. * 4. Science and Technology I: Integrated	

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2. Work Power and Energy 2.1 Changes in form of mechanical energy 2.2 Conservation of energy				S9FE-IVc-39	Science Textbook. NISMED. 2012. pp. 116-119.	
			7. perform activities to demonstrate conservation of mechanical energy;	S9FE-IVd-40	1. BEAM IV. Unit 5. 11 Force, Power, Work and Energy. August 2009. 2. EASE Physics. Module 11. pp. 18-22. 3. OHSP Modules. Module 11. pp. 18-22. 4. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 179-181. * 5. Science and Technology I: Integrated	NSTIC SciKit: Basic and Mechanics: Stand base, Stand support, Stand rods, Lever beam; Pulleys; Cart-Rail System; Hooked Masses; Meter Stick; Spring Balances

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2. Work Power and Energy 2.1 Changes in form of mechanical energy 2.2 Conservation of energy	<i>The learners demonstrate an understanding of:</i> conservation of mechanical energy	<i>The learners shall be able to:</i> create a device that shows conservation of mechanical energy	7. perform activities to demonstrate conservation of mechanical energy;	S9FE-IVd-40	Science Textbook. NISMED. 2012. pp. 119-121. 6. Science and Technology IV: Physics Textbook. NISMED. 2012. pp. 314-316.	
			8. infer that the total mechanical energy remains the same during any process;	S9FE-IVe-41	1. EASE Physics. Module 11. Lesson 2. 2. OHSP Modules. Module 11, Lesson 2. 3. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. p. 177. * 4. Science and Technology I: Integrated Science	

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2. Work Power and Energy 2.1 Changes in form of mechanical energy 2.2 Conservation of energy	<i>The learners demonstrate an understanding of:</i> conservation of mechanical energy	<i>The learners shall be able to:</i> create a device that shows conservation of mechanical energy	8. infer that the total mechanical energy remains the same during any process;	S9FE-IVe-41	Textbook. NISMED. 2012. pp. 121-122. 5. Science and Technology IV: Physics Textbook. NISMED. 2012. p. 315.	
3. Heat, Work, and Efficiency	the relationship among heat, work, and efficiency	analyze how power plants generate and transmit electrical energy	9. construct a model to demonstrate that heat can do work;	S9FE-IVe-42	Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph. D., et al. 2001. pp. 187-188. *	
			10. infer that heat transfer can be used to do work, and that work involves the release of heat;	S9FE-IVf-43	Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph. D., et al. 2001. pp. 187-188. *	
			11. explain why machines are never 100-percent efficient;	S9FE-IVf-44	1. OHSP. Module 11. 2. EASE Physics. Module 11.	

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3. Heat, Work, and Efficiency	<i>The learners demonstrate an understanding of:</i> the relationship among heat, work, and efficiency	<i>The learners shall be able to:</i> analyze how power plants generate and transmit electrical energy	12. explain how heat transfer and energy transformation make heat engines like geothermal plants work; and	S9FE-IVg-45	1. Science and Technology IV: Physics Textbook for Fourth Year. Ragabo, Lilia M., Ph.D., et al. 2001. pp. 188-191. * 2. Science and Technology IV: Physics Textbook. NISMED. 2012. pp. 325-327.	
4. Electricity and magnetism 4.1 Power generation and energy losses 4.2 Transmission and distribution of electrical energy from power plants to homes	<i>The learners demonstrate an understanding of:</i> generation, transmission, and distribution of electrical energy from power plants (hydroelectric, geothermal, wind, nuclear) to home		13. explain how electrical energy is generated, transmitted, and distributed.	S9FE-IVh-j-46	1. BEAM IV. 9 Electrical Energy Generation. Electrical Energy. 2. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 342-343. * 3. Science and Technology I: Integrated Science.	1. DC Ammeter 2. DC Voltmeter 3. Dry Cell Holder Size D (1set= 4 pcs) 4. Dry Cell Size D, 1.5 volts 5. Dry Cell, 9 volts 6. Galvanometer 7. Miniature Light Bulb (1 set = 3 pcs) 8. Miniature Light Bulb Base (1set = 3 pcs)

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4. Electricity and magnetism 4.1 Power generation and energy losses 4.2 Transmission and distribution of electrical energy from power plants to homes	<i>The learners demonstrate an understanding of:</i> generation, transmission, and distribution of electrical energy from power plants (hydroelectric, geothermal, wind, nuclear) to home	<i>The learners shall be able to:</i> analyze how power plants generate and transmit electrical energy	13. explain how electrical energy is generated, transmitted, and distributed.	S9FE-IVh-j-46	NISMED. 2012. pp. 131-134. 4. Science and Technology IV: Physics Textbook. NISMED. 2012. pp. 242-246. 5. NFE. Proper Use of Electricity. 2001. pp. 4-6.	9. Motor-Generator Model 10. Set of Coils 11. Set of Connectors (1 set = 3- red, 3- black, 2- white, 2- blue) 12. Switches, Knife Type 13. Variable Power Supply, AC-DC