

Ganado Unified School District

(Science/ Grade 6)

PACING Guide SY 2015-2016

Timeline & Resources	AZ College and Career Readiness Standard	Essential Question (HESS Matrix)	Learning Goal	Vocabulary (Content/Academic)
Integrated Science: McGraw Hill Understanding Science Lesson 1 Page NOS 6	Concept 1: Observations, Questions, and Hypotheses Formulate predictions, questions, or hypotheses based on observations. Locate appropriate resources. PO 1. Differentiate among a question, hypothesis, and prediction.	<ul style="list-style-type: none"> What are the steps of the scientific method? What is the difference between a hypothesis and a prediction? Why is using the scientific method important to research? 	I will be able to: <ul style="list-style-type: none"> Formulate a hypothesis based on observations Learn how scientists formulate and test a hypothesis Describe how experiments and investigations use the scientific methods Distinguish between questions, hypotheses, and predictions. 	<ul style="list-style-type: none"> Questions Hypotheses Observation Prediction Investigation Scientific Method Draw conclusion experiment
Integrated Science: McGraw Hill Understanding Science Lesson 1 Page NOS 7	Concept 1: Observations, Questions, and Hypotheses Formulate predictions, questions, or hypotheses based on observations. Locate appropriate resources. PO 2. Formulate questions based on observations that lead to the development of a hypothesis. (See M06-S2C1-01)	<ul style="list-style-type: none"> What is the scientific method? How the scientific method is used? What is inquiry skills? 	I will be able to: <ul style="list-style-type: none"> Explain the scientific method Describe how experiments and investigations use the scientific method Identify the steps in the scientific method Explain how scientist test hypothesis 	<ul style="list-style-type: none"> Scientific Method Hypothesis Prediction Variable Independent variable Dependent variable

		<ul style="list-style-type: none"> • What is prediction outcome? • What is predictions from data? • How is relevant questions formed through observations that may lead to a hypothesis? 	<ul style="list-style-type: none"> • Explain prediction outcome. • Identify predictions from data. • Form relevant questions through observations that may lead to a hypothesis? 	<ul style="list-style-type: none"> • Controlled variables • Prediction outcome • Prediction data
Integrated Science: McGraw Hill Methods of Science Lesson 2 NOS 12	Concept 1: Observations, Questions, and Hypotheses Formulate predictions, questions, or hypotheses based on observations. Locate appropriate resources. PO 3. Locate research information, not limited to a single source, for use in the design of a controlled investigation. (See W06-S3C6-01, R06-S3C1-06, and R06-S3C2-03)	<ul style="list-style-type: none"> • What are the selected resources use for designing an investigation or experiment? • Why is conducting research important to designing an investigation or experiment? 	<ul style="list-style-type: none"> • Select appropriate resources for use in designing an investigation or experiment. • Analyze Date • Organize data • Draw conclusion • Share results • Ask questions • Conduct research • Formulate a hypothesis • Plan and conduct an experiment 	<ul style="list-style-type: none"> • Formula • Locate research information • Controlled investigation • Prediction • Questions • Hypotheses
Integrated Science: McGraw Hill Measurement and Scientific Tools Lesson 2	Concept 2: Scientific Testing (Investigating and Modeling) Design and conduct controlled investigations. <i>PO 1. Demonstrate safe behavior and appropriate procedures (e.g., use</i>	<ul style="list-style-type: none"> • What are some tools used in scientific investigation? • Explain and observe proper safety procedures 	I will be able to: <ul style="list-style-type: none"> • Describe some tools used in scientific investigations 	<ul style="list-style-type: none"> • Inquiry • Pan balance • Microscope • Metric ruler • Dropper • Beakers • Stopwatch

Page NOS 12 - 13	<i>and care of technology, materials, organisms) in all science inquiry.</i>	during investigations	<ul style="list-style-type: none"> • Explain and observe proper safety procedures during investigations • Demonstrate Safe Behavior and appropriate procedures in all science inquiry 	<ul style="list-style-type: none"> • Measurement • Organisms
Integrated Science: McGraw Hill Case Study Lesson 3 Page NOS 20	Concept 2: Scientific Testing (Investigating and Modeling) Design and conduct controlled investigations. PO 2. Design an investigation to test individual variables using scientific processes.	<ul style="list-style-type: none"> • What is the difference between an independent and dependent variable? • What is design and conduct and investigation to test individual variables are? • What are the types of variables? 	I will be able to: <ul style="list-style-type: none"> • Recognize the independent and dependent variables of a controlled investigation • Present a design and conduct an investigation to test individual variables. • Name different types of variables. 	<ul style="list-style-type: none"> • Variables • Independent variable • Dependent variable • Controlled variables
Integrated Science: McGraw Hill Case Study Lesson 3 Page NOS 21	Concept 2: Scientific Testing (Investigating and Modeling) Design and conduct controlled investigations. PO 3. Conduct a controlled investigation using scientific processes.	<ul style="list-style-type: none"> • What is the difference between a controlled variable and a control group? • What are the two types of variables in a controlled experiment, and how does they 	I will be able to: <ul style="list-style-type: none"> • Display data collected from a controlled investigation in the most optimum format 	<ul style="list-style-type: none"> • Controlled investigation • Scientific processes

		relate to each other?		
Integrated Science: McGraw Hill Methods of Science Lesson 2 Page NOS 12	Concept 2: Scientific Testing (Investigating and Modeling) Design and conduct controlled investigations. PO 4. Perform measurements using appropriate scientific tools (e.g., balances, microscopes, probes, micrometers). (See M06-S4C4-02)	<ul style="list-style-type: none"> What is the difference between qualitative and quantitative? What is metric system 	I will be able to: <ul style="list-style-type: none"> Understand the basics of the metric system 	<ul style="list-style-type: none"> Balances Microscopes Probes Micrometers Metric System SI units Measurement
Integrated Science: McGraw Hill Methods of Science Lesson 2 Page NOS 12	Concept 2: Scientific Testing (Investigating and Modeling) Design and conduct controlled investigations. PO 5. Keep a record of observations, notes, sketches, questions, and ideas using tools such as written and/or computer logs. (See W06-S3C2-01 and W06-S3C3-01)	<ul style="list-style-type: none"> How to graph both descriptive and continuous data? Explain the comparison and contrast descriptive data and continuous data 	I will be able to: <ul style="list-style-type: none"> Explain the role and importance of observation in the empirical nature of science Explain how observation are made Compare and contrast the two basic models of observation 	<ul style="list-style-type: none"> Observations Notes Sketches Questions Logs
Integrated Science: McGraw Hill Case Study Lesson 3 Page NOS 21	Concept 3: Analysis and Conclusions Analyze and interpret data to explain correlations and results; formulate new questions. PO 1. Analyze data obtained in a scientific investigation to identify trends. (See M06-S2C1-03)	<ul style="list-style-type: none"> How to demonstrate the ability to identify and name basic trends between variables from graphed data? 	I will be able to: <ul style="list-style-type: none"> Identify both appropriate and inappropriate interpretations drawn from a given set of data 	<ul style="list-style-type: none"> Analyze Data Scientific investigation Trends
Integrated Science: McGraw Hill	Concept 3: Analysis and Conclusions	<ul style="list-style-type: none"> How does a relevant questions 	I will be able to:	<ul style="list-style-type: none"> Logical Argument

Case Study Lesson 3 Page NOS 28	Analyze and interpret data to explain correlations and results; formulate new questions. PO 2. Form a logical argument about a correlation between variables or sequence of events (e.g., construct a cause-and-effect chain that explains a sequence of events).	through observation may lead to a hypothesis? <ul style="list-style-type: none">How is resources use to design an investigation or experiment?What is Reasoning in science?	<ul style="list-style-type: none">Observe which will lead to identify a hypothesis.Find the differences between an experiment and investigation.	<ul style="list-style-type: none">Sequence of eventsCause – and - effect
Integrated Science: McGraw Hill Launch Lab Page 157	Concept 3: Analysis and Conclusions Analyze and interpret data to explain correlations and results; formulate new questions. PO 3. Evaluate the observations and data reported by others.	<ul style="list-style-type: none">What is observations and data created by others?	I will be able to: <ul style="list-style-type: none">Evaluate observation and data created by others	<ul style="list-style-type: none">EvaluateObservationDataEvaluateobservation
Integrated Science: McGraw Hill Launch Lab Page 87	Concept 3: Analysis and Conclusions Analyze and interpret data to explain correlations and results; formulate new questions. PO 4. Interpret simple tables and graphs produced by others.	<ul style="list-style-type: none">How do simple tables help to interpret dataHow does graph give information for others to use?	I will be able to: <ul style="list-style-type: none">Analyze data to explain results.Interpret simple tables produced by others.Interpret simple graphs produced by others	<ul style="list-style-type: none">InterpretationTablesGraphsFormulate new questions
Integrated Science: McGraw Hill Launch Labe Page 87	Concept 3: Analysis and Conclusions Analyze and interpret data to explain correlations and results; formulate new questions. PO 5. Analyze the results from previous and/or similar investigations to	<ul style="list-style-type: none">How does explaining data correlate with results?How does interpret data help to explain	I will be able to: <ul style="list-style-type: none">Interpret data to explain new questions.Analyze data to explain correlations and results.	<ul style="list-style-type: none">AnalyzeResultsInvestigationsCurrent investigation

	verify the results of the current investigation.	and formulate new questions?	<ul style="list-style-type: none"> Compare previous and/or similar investigations to verify the results of the current investigation. 	<ul style="list-style-type: none"> Correlations and results
Integrated Science: McGraw Hill Lesson 2 Page NOS 12	Concept 3: Analysis and Conclusions Analyze and interpret data to explain correlations and results; formulate new questions. PO 6. Formulate new questions based on the results of a completed investigation.	<ul style="list-style-type: none"> How does new questions is based on the results of a completed investigation? 	I will be able to: <ul style="list-style-type: none"> Describe how new questions is based on the results of a completed investigation. 	<ul style="list-style-type: none"> Analyze Results Investigations Current investigation Correlations and results
Integrated Science: McGraw Hill Technology and Mapmaking Lesson 2 Page 22 Inquiry Lab Page 174	Concept 4: Communication Communicate results of investigations. PO 1. Choose an appropriate graphic representation for collected data: <ul style="list-style-type: none"> line graph double bar graph stem and leaf plot histogram (See M06-S2C1-02)	<ul style="list-style-type: none"> When is the appropriate time to use a line graph? When is the appropriate time to use a bar graph? What is the difference between a bar graph and a histogram? 	I will be able to: <ul style="list-style-type: none"> Examine graphed data to determine if a given prediction is interpolated or extrapolated Create a line graph Create a bar graph 	<ul style="list-style-type: none"> Graphic representation Line graph Double bar graph Stem and leaf plot
Integrated Science: McGraw Hill Technology and Mapmaking Lesson 2	Concept 4: Communication Communicate results of investigations. PO 2. Display data collected from a controlled investigation. (See M06-S2C1-02)	<ul style="list-style-type: none"> How does collected data use for information. 	I will be able to: <ul style="list-style-type: none"> Illustrate written document for communicate results of investigation. 	<ul style="list-style-type: none"> Investigation logs Collected data

Page 22 Inquiry Lab				
Integrated Science: McGraw Hill Technology and Mapmaking Lesson 2 Page 22 Inquiry Lab	Concept 4: Communication Communicate results of investigations. PO 3. Communicate the results of an investigation with appropriate use of qualitative and quantitative information. (See W06-S3C2-01)	<ul style="list-style-type: none"> What is the difference qualitative and quantitative? 	I will be able to: <ul style="list-style-type: none"> Recognize the difference between qualitative and quantitative. 	<ul style="list-style-type: none"> Communicate Results Investigation Qualitative Quantitative

Ganado Unified School District

(Science/Grade 6)

PACING Guide SY 2015-2016 *Skeletal / Muscular System*

Timeline & Resources	AZ College and Career Readiness Standard	Essential Question (HESS Matrix)	Learning Goal	Vocabulary (Content/Academic)
2 nd Quarter Integrated Science: McGraw Hill Plant Process Lesson 3 Page 260	Concept 1: Structure and Function in Living Systems Understand the relationships between structures and functions of organisms. PO 1. Explain the importance of water to organisms.	<ul style="list-style-type: none"> What is water? Why is water important to living organisms? 	I will be able to: <ul style="list-style-type: none"> Find the function of the water. Know the effects of water. 	<ul style="list-style-type: none"> Water organisms
Integrated Science: McGraw Hill Cells Lesson 2 Page 198	Concept 1: Structure and Function in Living Systems Understand the relationships between structures and functions of organisms. PO 2. Describe the basic structure of a cell, including: <ul style="list-style-type: none"> cell wall cell membrane nucleus 	<ul style="list-style-type: none"> What is cell theory? What are the functions of different parts of a cell, including; cell wall, cell membrane, and nucleus. What are the characteristics of plant cells. 	I will be able to: <ul style="list-style-type: none"> Explain cell theory Describe the functions of the various parts of plant cells Explain that cells are the basic units of life. Explain that all organisms are made up of cells. Explain that all new cells come from preexisting cells. 	<ul style="list-style-type: none"> Cell theory Cell wall Cell membrane Nucleus Organs tissues
Integrated Science: McGraw Hill Cells	MS-LS1-1 Conduct an investigation to provide evidence that living things are made of cells; either one cell or many	<ul style="list-style-type: none"> What do all living things have in common? 	<ul style="list-style-type: none"> Summarize the cell cycle. Compare the ways that organisms reproduce. Explain that all cells come from existing cells. 	<ul style="list-style-type: none"> Cell cycle Mitosis Zygote Meiosis Fertilization

Lesson 2 Page 198	different numbers and types of cells. Emphasis is on developing evidence that living things are made of cells, distinguishing between living and non-living things, and understanding that living things may be made of one cell or many and varied cells.	<ul style="list-style-type: none"> • What are all living things made from? • What are cells? • How do cells carry out life processes? • How does one cell become many? 	<ul style="list-style-type: none"> • Describe how cells reproduce. 	
Integrated Science: McGraw Hill Cells Lesson 2 Page 198	Concept 1: Structure and Function in Living Systems Understand the relationships between structures and functions of organisms PO 3. Describe the function of each of the following cell parts <ul style="list-style-type: none"> • cell wall • cell membrane • nucleus 	<ul style="list-style-type: none"> • What are the functions of plant cells? • What are the functions of plant cells membrane/nucleus? • How do organisms grow? 	I will be able to: <ul style="list-style-type: none"> • Distinguish the functions of a plant cell. • Name the parts of a plant cell. • Explain how organisms grow. • Explain why is the nucleus considered the control center of a cell 	<ul style="list-style-type: none"> • Relationship of structures and functions • Organisms • Cell wall • Cell membrane • Nucleus
Integrated Science: McGraw Hill Plant Diversity Lesson 1 Page 244	Concept 1: Structure and Function in Living Systems Understand the relationships between structures and functions of organisms PO 6. Relate the following structures of living organisms to their functions: Plants <ul style="list-style-type: none"> • transpiration – stomata, roots, xylem, phloem • absorption – roots, xylem, phloem 	<ul style="list-style-type: none"> • What is plant transpiration? • What are the plant structures involved in transpiration, including roots, xylem, and stomata? • What are the factors that affect the rate of transpiration? 	I will be able to: <ul style="list-style-type: none"> • Explain plant transpiration • Explain plant structures and how it involves in transpiration. • What are roots, xylem, and stomata. • Explain the factors that affect the rate of transpiration. 	<ul style="list-style-type: none"> • Systems • Organisms • Respiratory and circulatory • Roots • Xylem • stomata

	<ul style="list-style-type: none"> response to stimulus (phototropism, hydrotropism, geotropism) – roots, xylem, phloem 			
Integrated Science: McGraw Hill Cells Lesson 2 Page 202	Concept 1: Structure and Function in Living Systems Understand the relationships between structures and functions of organisms. PO 4. Differentiate between plant and animal cells.	<ul style="list-style-type: none"> What are the difference between plant and animal cell? What are the parts of an animal cell? What are the parts of plant cell? What are the parts of animal cell? 	I will be able to: <ul style="list-style-type: none"> Identify the functions of different organelles in plant and animal cell. Distinguish the difference in animal cell and plant cell. Name the parts of animal cell. Name the parts of plant cell. 	<ul style="list-style-type: none"> structures functions organisms plant cell animal cell
Integrated Science: McGraw Hill Cells Lesson 2 Page 200	Concept 1: Structure and Function in Living Systems Understand the relationships between structures and functions of organisms. PO 5. Explain the hierarchy of cells, tissues, organs, and systems.	<ul style="list-style-type: none"> What are the levels of organization in multicellular organisms? What are the characteristics of cells, tissues organs, and systems? How are cells, tissues, organs, and systems are organized to create organisms? 	<ul style="list-style-type: none"> Identify the levels of organization in multicellular organisms. Explain the characteristics of cells, tissues organs, and systems. Explain how cells, tissues, organs, systems are organized to create organisms. 	<ul style="list-style-type: none"> Hierarchy Tissues Organs Cells Multicellular organisms
Integrated Science: McGraw Hill	Concept 1: Structure and Function in Living Systems	<ul style="list-style-type: none"> What is water? 	I will be able to:	<ul style="list-style-type: none"> Water Organisms

Classifying Living Things Lesson 1 Page 193	Understand the relationships between structures and functions of organisms. PO 1. Explain the importance of water to organisms.	<ul style="list-style-type: none"> • Why is water important to living organisms? • What is the role of water (blood) in regards to respiration? 	<ul style="list-style-type: none"> • Explain the importance of water to organisms. • Illustrate the role of water in regards to respiration. • Demonstrate what is water • Explain that water is important to living organisms. 	<ul style="list-style-type: none"> • Respiration
Harcourt School Publishers How Do Organisms Interact? Page 86	Concept 1: Structure and Function in Living Systems Understand the relationships between structures and functions of organisms. PO 6. Relate the following structures of living organisms to their functions: Animals <ul style="list-style-type: none"> • respiration – gills, lungs • digestion – stomach, intestines • circulation – heart, veins, arteries, capillaries • locomotion – muscles, skeleton 	<ul style="list-style-type: none"> • What the structures of animals? • How the structures are used for the following process: respiration, digestion, circulation? 	I will be able to: <ul style="list-style-type: none"> • Describe the structures of animals. • Describe how the structures used for the following process: respiration, digestion, circulation. 	<ul style="list-style-type: none"> • Organism • Structures • Respiration • Digestion • Circulation • locomotion
Harcourt School Publishers How Do Cells Work Together? Lesson 2 Page 38	Concept 1: Structure and Function in Living Systems Understand the relationships between structures and functions of organisms. PO 7. Describe how the various systems of living organisms work together to perform a vital function: <ul style="list-style-type: none"> • respiratory and circulatory • muscular and skeletal • digestive and excretory 	<ul style="list-style-type: none"> • How the circulatory system an respiratory system work together to allow for respiration ? • How is the respiratory system dependent on the muscular system 	I will be able to: <ul style="list-style-type: none"> • Describe the vital function in muscular and skeletal. • Describe the vital function in respiratory and circulatory. • Describe the vital function in digestive and excretory. 	<ul style="list-style-type: none"> • Function • Respiratory • Circulatory • Muscular • Skeletal • Digestive • Excretory

		<p>to allow for breathing?</p> <ul style="list-style-type: none"> • How is the circulatory system dependent on the excretory system? 		



Ganado Unified School District

(Science/Grade 6)

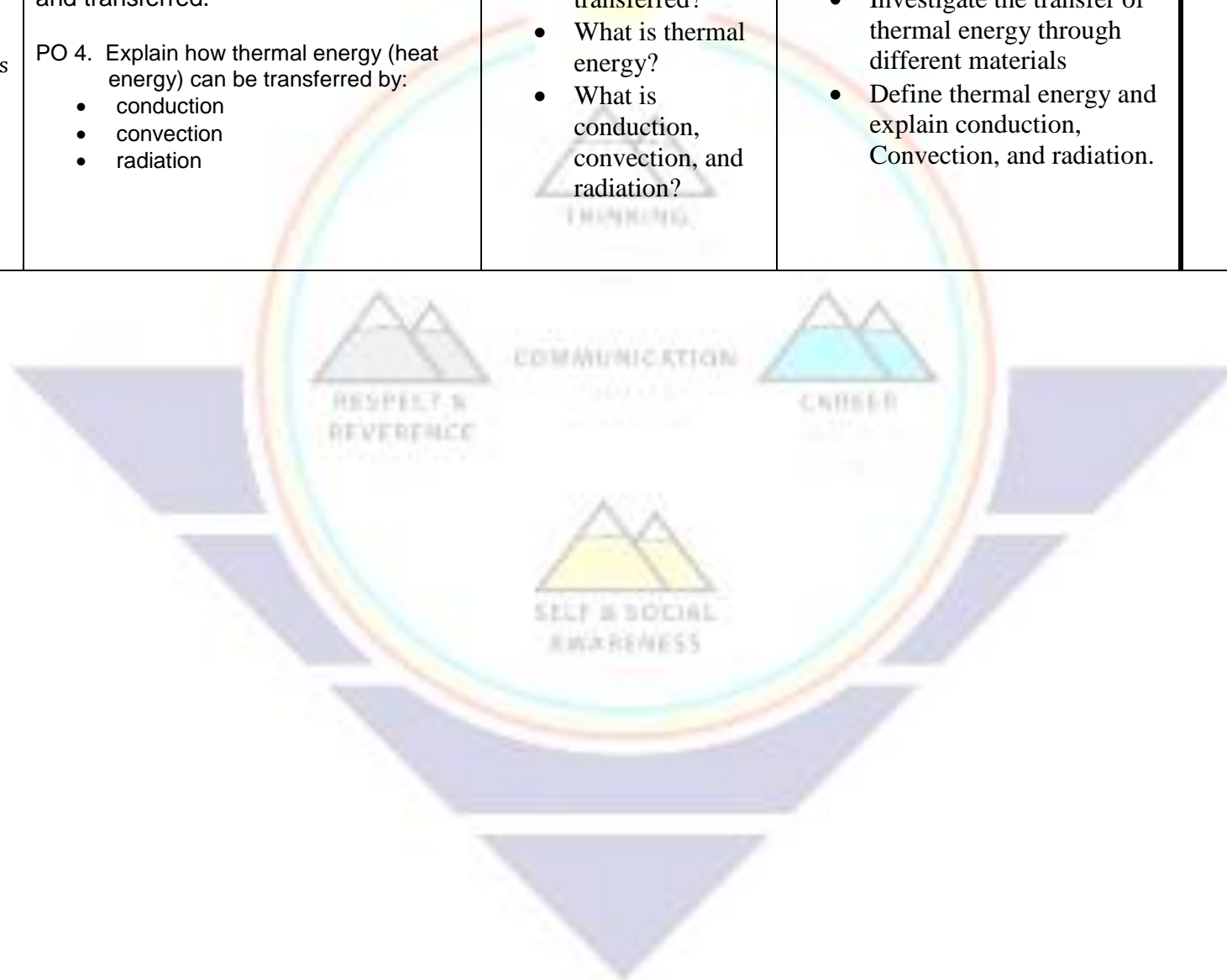
PACING Guide SY 2015-2016

Timeline & Resources	AZ College and Career Readiness Standard	Essential Question (HESS Matrix)	Learning Goal	Vocabulary (Content/Academic)
3 rd Quarter Integrated Science: McGraw Hill Ecosystem Lesson 1 Page 314	Concept 3: Populations of Organisms in an Ecosystem Analyze the relationships among various organisms and their environment. PO 1. Explain that sunlight is the major source of energy for most ecosystems. (See Strand 5 Concept 3 and Strand 6 Concept 2)	<ul style="list-style-type: none"> What the different strategies that animals have evolved in order to obtain energy? What is sunlight's key role in most ecosystems? 	I will be able to: <ul style="list-style-type: none"> Recognize the importance of the sun to an energy pyramid. Understand how every animal/organism occupies a niche within an ecosystem 	<ul style="list-style-type: none"> Sunlight Energy Ecosystem Environment
Integrated Science: McGraw Hill Interactions of Earth Systems Lesson 2 Page 91	Concept 3: Populations of Organisms in an Ecosystem Analyze the relationships among various organisms and their environment. PO 2. Describe how the following environmental conditions affect the quality of life: <ul style="list-style-type: none"> water quality climate population density smog 	<ul style="list-style-type: none"> How does organisms interact in ecosystem? How does climate affects ecosystem diversity? What are the biotic and abiotic parts of an ecosystem? What have changes the 	I will be able to: <ul style="list-style-type: none"> Describe how the following environmental conditions affect the quality of life. <ol style="list-style-type: none"> Water quality Climate Population density Smog Describe evidence that show how environments have changed over time. 	<ul style="list-style-type: none"> Limiting factor Endangered Extinct Water quality Climate Population density Smog

		environment over time?		
Integrated Science: McGraw Hill Energy Resources Lesson 1 Page 144	Concept 3: Transfer of Energy Understand that energy can be stored and transferred. PO 1. Identify various ways in which electrical energy is generated using renewable and nonrenewable resources (e.g., wind, dams, fossil fuels, nuclear reactions).	<ul style="list-style-type: none"> What is electricity, and how is it produced? What are some of the different ways that electricity may be generated? What are renewable and nonrenewable resources? Which sources of energy are better for the environment? 	I will be able to: <ul style="list-style-type: none"> Describe how energy changes from one form to another. Describe what is electricity. Define renewable and nonrenewable resources. Explain the difference of which source of energy is better for the environment. 	<ul style="list-style-type: none"> Energy Electrical energy Renewable resources Nonrenewable resources Fossil Fuels Nuclear reactions
Integrated Science: McGraw Hill Forms of Energy Lesson 1 Page 422	MS-PS3-1 Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object. Emphasis is on descriptive relationships between kinetic energy and mass separately form kinetic energy and speed.	<ul style="list-style-type: none"> What is energy? What are potential and kinetic energy? How is energy related to work? What are different forms of energy? 	I will be able to: <ul style="list-style-type: none"> Explain the differences between kinetic and potential energy Describe different forms of energy 	<ul style="list-style-type: none"> Kinetic energy Speed Potential energy Work Mechanical energy Sound energy Electric energy Radiant energy Nuclear energy
Integrated Science: McGraw Hill	Concept 3: Transfer of Energy Understand that energy can be stored and transferred.	<ul style="list-style-type: none"> How are forms of energy can be stored? 	I will be able to:	<ul style="list-style-type: none"> Energy Potential energy Batteries

<p>Energy Transformations</p> <p>Lesson 2</p> <p>Page 430</p>	<p>PO 2. Identify several ways in which energy may be stored.</p>	<ul style="list-style-type: none"> • How do batteries work? • What are the objects that hold potential energy? 	<ul style="list-style-type: none"> • Identify ways that the different forms of energy can be store: • Potential energy • Batteries • Objects that hold potential energy 	<ul style="list-style-type: none"> • Stored energy
<p>Integrated Science: McGraw Hill</p> <p>Energy Transformations</p> <p>Lesson 2</p> <p>Page 430</p>	<p>MS-PS3-2 Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system</p> <p>Emphasis is on relative amounts of potential energy, not on calculation of potential energy.</p>	<ul style="list-style-type: none"> • How are potential and kinetic energy different • Is energy lost when it changes form? 	<p>I will learn to:</p> <ul style="list-style-type: none"> • Explain energy transformation • How energy change from one form to another 	<ul style="list-style-type: none"> • Friction • Law of conservation
<p>Integrated Science: McGraw Hill</p> <p>Forms of Energy</p> <p>Lesson 1</p> <p>Page 425</p>	<p>Concept 3: Transfer of Energy</p> <p>Understand that energy can be stored and transferred.</p> <p>PO 3. Compare the following ways in which energy may be transformed:</p> <ul style="list-style-type: none"> • mechanical to electrical • electrical to thermal 	<ul style="list-style-type: none"> • What are three forms of energy that can be changed into electrical energy? • How can energy change from one form to another? 	<p>I will be able to:</p> <ul style="list-style-type: none"> • Name the three forms of energy that can be changed into electrical energy. • Construct how energy change from one form to another. 	<ul style="list-style-type: none"> • Transformed • Mechanical • Electrical • Thermal • Stored energy
<p>Integrated Science: McGraw Hill</p>	<p>MS-PS3-3 Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer</p> <p>Examples of devices could include an insulated box, a solar cooker, and a Styrofoam cup</p>	<ul style="list-style-type: none"> • 	<p>I will be able to:</p> <ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •

Integrated Science: McGraw Hill Energy Transformations Lesson 2 Page 429	Concept 3: Transfer of Energy Understand that energy can be stored and transferred. PO 4. Explain how thermal energy (heat energy) can be transferred by: <ul style="list-style-type: none"> • conduction • convection • radiation 	<ul style="list-style-type: none"> • How is thermal energy transferred? • What is thermal energy? • What is conduction, convection, and radiation? 	I will be able to: <ul style="list-style-type: none"> • Investigate the transfer of thermal energy through different materials • Define thermal energy and explain conduction, Convection, and radiation. 	<ul style="list-style-type: none"> • Conduction • Convection • Radiation • Transferred • Energy • Stored energy •
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Ganado Unified School District

(Science/Grade 6)

PACING Guide SY 2015-2016

Timeline & Resources	AZ College and Career Readiness Standard	Essential Question (HESS Matrix)	Learning Goal	Vocabulary (Content/Academic)
4 th Quarter Integrated Science: McGraw Hill Earth Systems Lesson 1 Page78	Concept 1: Structure of the Earth Describe the composition and interactions between the structure of the Earth and its atmosphere. PO 1. Describe the properties and the composition of the layers of the atmosphere.	<ul style="list-style-type: none"> How many layers the atmosphere is divided into? What are the composition and different layers of Earth's atmosphere? What are the names and properties of the layers? 	I will be able to: <ul style="list-style-type: none"> Identify the layers and how many layers the atmosphere is divided into Define the composition and different layers of Earth's atmosphere. Name the properties of the layers 	<ul style="list-style-type: none"> Properties Composition Layers of atmosphere
Integrated Science: McGraw Hill Earth Systems Lesson 1 Page79 Earth Systems Lesson 1 Page89	Concept 1: Structure of the Earth Describe the composition and interactions between the structure of the Earth and its atmosphere. PO 2. Explain the composition, properties, and structure of the Earth's lakes and rivers.	<ul style="list-style-type: none"> What is freshwater ecosystem? How do lakes compare to rivers? What are the processes in cycle water in nature? 	I will be able to: <ul style="list-style-type: none"> Define freshwater ecosystem. Compare lakes to rivers Name the processes in the cycle water in nature. 	<ul style="list-style-type: none"> Structure of the Earth Lakes Rivers Ecosystem composition

Integrated Science: McGraw Hill Earth Systems Lesson 2 Page 88	Concept 1: Structure of the Earth Describe the composition and interactions between the structure of the Earth and its atmosphere. PO 3. Explain the composition, properties, and structures of the oceans' zones and layers.	<ul style="list-style-type: none"> What is water cycle? What are the processes in: <ol style="list-style-type: none"> Evaporation Transpiration Condensation Precipitation Infiltration 	I will be able to: <ul style="list-style-type: none"> Define water cycle Name the process in <ol style="list-style-type: none"> Evaporation Transpiration Condensation Precipitation Infiltration 	<ul style="list-style-type: none"> Ocean zone Ocean layers Evaporation Transpiration Condensation Precipitation Infiltration Water cycle composition
Integrated Science: McGraw Hill Earth Systems Lesson 2 Page 87	Concept 1: Structure of the Earth Describe the composition and interactions between the structure of the Earth and its atmosphere. PO 4. Analyze the interactions between the Earth's atmosphere and the Earth's bodies of water (water cycle).	<ul style="list-style-type: none"> How does Earth's atmosphere and bodies of water affect each other? What are the relationship between Earth's atmosphere and bodies of water? What is the process of the water cycle? What is atmospheric moisture? 	I will be able to: <ul style="list-style-type: none"> Describe how Earth's atmosphere and bodies of water affect each other. Name the relationship between Earth's atmosphere and bodies of water. Describe the process of the water cycle. Define atmospheric moisture. 	<ul style="list-style-type: none"> Composition Interactions Structure Atmosphere Bodies of water Water cycle Atmospheric moisture Process of water cycle
Integrated Science: McGraw Hill Earth Systems Lesson 1	Concept 1: Structure of the Earth Describe the composition and interactions between the structure of the Earth and its atmosphere.	<ul style="list-style-type: none"> What methods and tools scientists use to explore Earth's atmosphere and bodies of water? 	I will be able to: <ul style="list-style-type: none"> Identify the methods and tools scientists use to explore Earth's atmosphere and bodies of water. 	<ul style="list-style-type: none"> Earth's atmosphere Water cycle Forms of water Thermometer

Page 79	PO 5. Describe ways scientists explore the Earth's atmosphere and bodies of water. (See Strand 2 Concept 1)	<ul style="list-style-type: none"> How do water move around in nature: <ol style="list-style-type: none"> The parts of the water cycle About water storage and movement The forms of water 	<ul style="list-style-type: none"> Identify water movement around in nature: <ol style="list-style-type: none"> The parts of the water cycle About water storage and movement The forms of water 	<ul style="list-style-type: none"> Anemometer Hygrometer Psychrometer Rain gauge barometer Wind vane
Integrated Science: McGraw Hill Earth Systems Lesson 2 Page 87	Concept 2: Earth's Processes and Systems Understand the processes acting on the Earth and their interaction with the Earth systems. PO 1. Explain how water is cycled in nature.	<ul style="list-style-type: none"> How does water is moved around in nature <ol style="list-style-type: none"> The parts of the water cycle About water storage and movement The forms of water <ul style="list-style-type: none"> What are the processes in: <ol style="list-style-type: none"> Evaporation Transpiration Condensation Precipitation Infiltration 	I will be able to: <ul style="list-style-type: none"> Identify how water is moved around in nature: <ol style="list-style-type: none"> The parts of the water cycle About water storage and movement The forms of water <ul style="list-style-type: none"> Water processes in: <ol style="list-style-type: none"> Evaporation Transpiration Condensation Precipitation Infiltration 	<ul style="list-style-type: none"> Water cycle Evaporation Condensation Precipitation Groundwater
Integrated Science: McGraw Hill Earth Systems Lesson 2 Page 88	Concept 2: Earth's Processes and Systems Understand the processes acting on the Earth and their interaction with the Earth systems. PO 2. Identify the distribution of water within or among the following: <ul style="list-style-type: none"> atmosphere lithosphere hydrosphere 	<ul style="list-style-type: none"> Where can water be found in Earth's sphere? How is water distributed on Earth What are the spheres of Earth? 	I will be able to: <ul style="list-style-type: none"> About where water can be found in Earth's spheres. How water is distributed on Earth Identify the sphere of Earth Describe where water is found in each of the spheres 	<ul style="list-style-type: none"> Atmosphere Lithosphere Hydrosphere Spheres

		<ul style="list-style-type: none"> Where is water found in each of the spheres? How is water cycled between the spheres? 	<ul style="list-style-type: none"> Describe how water is cycled between the spheres. 	
Integrated Science: McGraw Hill Earth Systems Lesson 2 Page 90	Concept 2: Earth's Processes and Systems Understand the processes acting on the Earth and their interaction with the Earth systems. PO 3. Analyze the effects that bodies of water have on the climate of a region.	<ul style="list-style-type: none"> What are the effects the bodies of water have on the climate of a region? What are the following factors <ol style="list-style-type: none"> Bodies of water Ocean currents Elevation Location 	I will be able to: <ul style="list-style-type: none"> Describe the effects that bodies of water can have on the climate of a region. Identify the following factors that affect climate: <ol style="list-style-type: none"> Bodies of water Ocean currents Elevation Location 	<ul style="list-style-type: none"> Bodies of water Ocean currents Elevation Location Climate
Integrated Science: McGraw Hill Earth Systems Lesson 2 Page 90	Concept 2: Earth's Processes and Systems Understand the processes acting on the Earth and their interaction with the Earth systems. PO 4. Analyze the following factors that affect climate: <ul style="list-style-type: none"> ocean currents elevation location 	<ul style="list-style-type: none"> What factors that affect climate: <ol style="list-style-type: none"> Ocean climate Elevation Location What are the different factors that affect climate? How ocean currents influence the climate How climate can be different at the top and bottom of a mountain 	I will be able to: <ul style="list-style-type: none"> Identify the following factors that affect climate: <ol style="list-style-type: none"> Ocean climate Elevation Location Find the different factors that affect climate: <ol style="list-style-type: none"> How ocean currents influence the climate That location has an effect on climate How climate can be different at the top and bottom of a mountain 	<ul style="list-style-type: none"> Ocean currents Elevation Location Earth systems


Integrated Science: McGraw Hill Earth Systems Lesson Page 90	<p>. Concept 2: Earth's Processes and Systems Understand the processes acting on the Earth and their interaction with the Earth systems.</p> <p>PO 5. Analyze the impact of large-scale weather systems on the local weather.</p>	<ul style="list-style-type: none"> • What is large-scale weather? • How do large-scale weather form? • How large-scale weather systems affect the local weather? 	<p>I will be able to:</p> <ul style="list-style-type: none"> • Define large-scale weather systems • Explain the affect of large-scale where systems • Explain how large-scale weather affect the local weather 	<ul style="list-style-type: none"> • Large-scale weather • Local weather • Major surface currents • Earth's climate
Integrated Science: McGraw Hill The Sun-Earth-Moon System Lesson 1 Page 40	<p>. Concept 2: Earth's Processes and Systems Understand the processes acting on the Earth and their interaction with the Earth systems.</p> <p>PO 6. Create a weather system model that includes:</p> <ul style="list-style-type: none"> • the Sun • the atmosphere • bodies of water 	<ul style="list-style-type: none"> • What is weather system? • What are the parts of different weather systems? • What cause the different weather systems? 	<p>I will be able to:</p> <ul style="list-style-type: none"> • Define weather system. • Name the parts of different weather systems • Identify the cause of different weather systems 	<ul style="list-style-type: none"> • Sun • Atmosphere • Bodies of water • Weather system • Earth system

Ganado Unified School District (Science/Sixth Grade)

PACING Guide SY 2015-2016

Timeline & Resources	AZ College and Career Readiness Standard	Essential Question (HESS Matrix)	Learning Goal	Vocabulary (Content/Academic)
	6-8.RST.1. Cite specific textual evidence to support analysis of science and technical texts.	COMMUNICATION		
	6-8.RST.2. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.		CAREER	
	6-8.RST.3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.			
	6-8.RST.4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 6–8 texts and topics</i> .	SELF & SOCIAL AWARENESS		
	6-8.RST.5. Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.			
	6-8.RST.6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.			
	6-8.RST.7. Integrate quantitative or technical information expressed in words in			

	a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).			
	6-8.RST.8. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.			
	6-8.RST.9. Compare and contrast the information gained from experiments, simulations, videos, or multimedia sources with that gained from reading a text on the same topic.			
	6-8.RST.10. By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.			
	<p>6-8.WHST.1. Write arguments focused on <i>discipline-specific content</i>.</p> <ul style="list-style-type: none"> a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. b. Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. d. Establish and maintain a formal style. <p>Provide a concluding statement or section that follows from and supports the argument presented.</p>			
	6-8.WHST.2. Write informative/explanatory texts, including the narration of historical			

	<p>events, scientific procedures/experiments, or technical processes.</p> <ol style="list-style-type: none"> Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. Use precise language and domain-specific vocabulary to inform about or explain the topic. Establish and maintain a formal style and objective tone. <p>Provide a concluding statement or section that follows from and supports the information or explanation presented.</p>			
	<p>6-8.WHST.3. (See note; not applicable as a separate requirement)</p> <p>Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate</p>			

	them and (possibly) reach the same results.			
	<p>6-8.WHST.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>Produce clear and coherent functional writing (e.g., formal letters, envelopes, procedures, labels, timelines, graphs/tables, experiments, maps, captions, charts, and diagrams) in which the development, organization, and style are appropriate to task, purpose, and audience.</p>			
	<p>6-8.WHST.5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.</p>			
	<p>6-8.WHST.6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.</p>			
	<p>6-8.WHST.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</p>			
	<p>6-8.WHST.8. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.</p>			
	<p>6-8.WHST.9. Draw evidence from informational texts to support analysis, reflection, and research.</p>			

	<p>6-8.WHST.10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p>		
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