Miami-Dade County Public Schools

Office of Academics and Transformation

Department of Mathematics and Science

Learning Goals

For Middle School Comprehensive Science Courses

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Introduction to Learning Goals

The Learning Goals for Middle School Comprehensive Science Courses were developed using the FCAT 2.0 Science Achievement Level Descriptions (ALDs). The purposes of this document are to assist teachers with planning for the diverse readiness of students and to facilitate the growth of rich student portfolios. By providing teachers with an achievement scale aligned to a learning progression with accompanying sample progress monitoring and assessment activities, these learning goals reflect the Department's underlying principal of supporting instructional programs and teaching strategies that serve all students and accommodate diverse needs and learning styles to eliminate the achievement gap.

Having a scale aligned to learning progressions and formative assessments provides substantial support for students that can be enhanced by facilitating student ownership of learning. Investing students in learning by allowing them to track their progress and even generate new personal goals while celebrating student growth is critical to the sustenance of effective use of learning goals.

Marzano (2007) identifies six action steps to maximize the effect of learning goals on student achievement. These steps are:

1. Distinguish between learning goals and learning activities.
2. Write a scale for each learning goal.
3. Assess students using a formative approach.
4. Have students identify their own learning goals.
5. Have students chart their progress on each learning goal.
6. Recognize and celebrate growth.

The learning goals presented in this document explicitly address the first three action steps with the remaining three action steps needing to be implemented in the classroom.

Reference:

Marzano, R. J. (2007). *The art and science of teaching: A comprehensive framework for effective instruction*. Alexandria, VA: Association for Supervision and Curriculum Development.

Sixth grade learning goals

SC.6.N.1.1 Assessed as SC.8.N.1.1: Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to apply scientific thinking to evaluate an investigation and distinguish between an experiment and other scientific investigation and assess the limitations and benefits of each.	Design an experiment that models the interaction of the hydrosphere and atmosphere in the formation of clouds.
Score/Step 4.0	I am able to apply scientific thinking to evaluate an investigation.	Evaluate a scientific investigation on weather and/or climate and identify how scientific thinking and/or problem solving was used to provide evidence for changes in climate and/or weather. Develop a mini-board using the format used in the science fair.
Score/Step 3.0 Target (Learning Goal)	I am able to identify test variable (independent variable) and outcome variables (dependent variables) in a given experiment.	Identify the test variable (independent variable) and outcome variables (dependent variables) in a water cycle experiment
Score/Step 2.0	I am able to use simple data to draw a conclusion.	Infer the possible weather from given data and conditions
Score/Step 1.0	I am able to recognize the steps of the Scientific Method	

SC.6.N.1.1 Assessed as SC.8.N.1.1: Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to evaluate a scientific investigation using evidence of scientific thinking and/or problem solving.	Investigate local landforms that were developed as a result of erosion and deposition.
Score/Step 4.0	□ I am able to plan and carry out scientific investigation that is an observational study.	Design an experiment that will provide evidence on the formation of beaches through deposition.
Score/Step 3.0 Target (Learning Goal)	□ I am able to plan and carry out experiment: identify variables, collect and organize data, interpret data, analyze data and form conclusions.	Plan and carry out experiment that tests the effects of acidic water on the chemical weathering (breaking down) of rocks. Identify the test variables (independent variables) and the outcome variables (dependent variables) in the experiment
Score/Step 2.0	□ I am able to plan and carry out scientific investigations.	Plan and carry out an investigation that shows the effect of running water (erosion) on an area of soil.
Score/Step 1.0	□ I am able to explain the difference between an experiment and other types of scientific investigations.	

SC.6.N.1.1 Assessed as SC.8.N.1.1: Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to evaluate a scientific investigation using evidence of scientific thinking and/or problem solving.	Analyze each part of a scientific experiment on the effect of the amount of potential energy of a toy car on the amount of kinetic energy of that car.
Score/Step 4.0	□ I am able to plan and carry out an experiment: form a hypothesis, distinguish between test and outcome variables, collect and organize data, interpret data, analyze data and form conclusions.	Design and carry out experiment that tests the role of height in the amount of potential energy in a ball.
Score/Step 3.0 Target (Learning Goal)	□ I am able to recognize the hypothesis and distinguish test and outcome variables for an experiment.	Complete an experimental design diagram for the following problem statement: Will the height of a ramp affect the speed of a marble? State a hypothesis and identify the test and outcome variables.
Score/Step 2.0	□ I am able to recognize a hypothesis and a variable in a scientific experiment.	Write a hypothesis and identify variables for the following problem statement: Will the mass of a car affect the amount of kinetic energy it has?
Score/Step 1.0	□ I am able to explain the difference between an experiment and other types of scientific investigations.	

SC.6.N.1.1 Assessed as SC.8.N.1.1: Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I will be able to apply scientific thinking to evaluate an investigation	Evaluate a scientific investigation of Newton's Laws of Motion using evidence of scientific thinking and/or problem solving.
Score/Step 4.0	□ I will be able to apply scientific thinking to evaluate an investigation	Compare methods of scientific investigation of Newton's Laws of Motion and the importance of organizing data and interpret data in charts.
Score/Step 3.0 Target (Learning Goal)	□ I will be able to apply scientific thinking to evaluate an investigation	Discuss how scientists, question, discuss, and check each other's evidence when studying Newton's Laws of Motion.
Score/Step 2.0	□ I will be able to identify an investigation that uses scientific thinking	Recognize that scientific investigations of Newton's Laws of Motion does not always parallel the steps of "the scientific method"
Score/Step 1.0	□ I will be able to recognize the steps of the "scientific method".	

SC.6.N.1.2 Assessed as SC.7.N.1.2: Explain why scientific investigations should be replicable. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to evaluate the use and importance of replication in a scientific investigation.	Explain how scientific knowledge about natural disasters has changed as new evidence is discovered through replication of the investigation.
Score/Step 4.0	I am able to explain the need for replication in a scientific investigation.	Identify an instance in history when scientific knowledge has changed as a result of new evidence once an investigation was replicated or repeated by someone else
Score/Step 3.0 Target (Learning Goal)	I am able to explain why scientific investigations should be replicable (repeated by others).	Compare data from different student groups that investigated the same problem and explain why scientific investigations should be (replicated (repeated by others)
Score/Step 2.0	I am able to recognize that scientific investigations should be replicable (repeated by others)..	Perform scientific investigation using repetition and collect data from other groups that did the same investigation (replication).
Score/Step 1.0	I am able to recognize and explain the need for repeated experimental trials.	

SC.6.N.1.3 Assessed as SC.8.N.1.1: Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to distinguish between an experiment and other scientific investigations and assess the limitations and benefits of each.	Differentiate between controlled experiments and other types of scientific investigations and explain the limitations and benefits of each.
Score/Step 4.0	I am able to distinguish between an experiment and other scientific investigations and assess the limitations and benefits of each.	Explain circumstances in which designing and conducting a controlled scientific experiment might be impossible when studying gravitational forces.
Score/Step 3.0 Target (Learning Goal)	I am able to distinguish between an experiment and other scientific investigations.	Explain examples of when a controlled experiment or other types of scientific investigations are appropriate when investigating gravitational forces.
Score/Step 2.0	I am able to identify an investigation that uses scientific thinking.	List ways to investigate a scientific question.
Score/Step 1.0	I am able to define experiment and investigation.	

SC.6.N.1.4 Assessed as SC.7.N.1.2: Discuss, compare, and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to compare and evaluate the use of methods and/or results obtained in a scientific investigation performed by groups of students.	Analyze the same scientific investigation performed by a group of students and create a table that compares and evaluates the methods, results and explanations obtained by each student.
Score/Step 4.0	□ I am able to explain why it is important for groups of students to compare methods and/or results obtained in scientific investigation.	Create a graphic organizer that explains why groups of students should compare methods and/or results obtained in a scientific investigation that demonstrates the formation of sinkhole.
Score/Step 3.0 Target (Learning Goal)	□ I am able to identify and compare methods and/or results obtained in a scientific investigation performed by a group of students conducting the same investigation.	Analyze and compare the methods, results and explanations obtained by groups of students who performed the same experiment that demonstrates the formation of beaches.
Score/Step 2.0	□ I am able to recognize common methods used in scientific investigations performed by groups of students conducting the same investigation.	Create a report that identifies common methods used by groups of students performing the same experiment that demonstrates the formation of a sand dune.
Score/Step 1.0	□ I am able to recognize and explain that when scientific investigations are carried out, the evidence produced by those investigations should be replicable by others.	

SC.6.N.2.2: Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to evaluate the reasons why scientific knowledge is subject to change and conditions under which it does.	Create a presentation of the reasons why and conditions under which the scientific understanding of the formation of landforms has changed over the years.
Score/Step 4.0	I am able to relate the reasons why scientific knowledge is subject to change.	Create a graphic organizer that explains the development of scientific knowledge of the connection between glacier ice (cryosphere) and global temperature changes in the atmosphere.
Score/Step 3.0 Target (Learning Goal)	I am able to relate the reasons why scientific knowledge is subject to change.	Research the history of the knowledge of formation of landforms and create a timeline of how the scientific knowledge of landforms has changed over the years.
Score/Step 2.0	I am able to recognize that scientific knowledge is subject to change.	Research the development of the scientific understanding of sinkholes and recognize how that knowledge has changed over time.
Score/Step 1.0	I am able to recognize and explain that scientists base their explanations on evidence.	

SC.6.N.2.2: Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to evaluate the reasons why scientific knowledge is subject to change and conditions under which it does.	Create a presentation of the reasons why and conditions under which the scientific understanding of the Law of Conservation of Energy has changed over the years.
Score/Step 4.0	□ I am able to relate the reasons why scientific knowledge is subject to change.	Create a graphic organizer that explains the reasons why the Law of Conservation of Energy has changed or not changed over the years.
Score/Step 3.0 Target (Learning Goal)	□ I am able to relate the reasons why scientific knowledge is subject to change.	Research the development of the Law of Conservation of Energy and use this information to create a timeline of the development of this law.
Score/Step 2.0	□ I am able to recognize that scientific knowledge is subject to change.	Research the development of the scientific understanding of the transformation of potential and kinetic energy and identify how that knowledge has changed over time.(Create a foldable)
Score/Step 1.0	□ I am able to recognize and explain that scientists base their explanations on evidence.	

SC.6.N.2.2: Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to evaluate the reasons why scientific knowledge is subject to change and conditions under which it does.	Research the history of the classification of a specific organisms and evaluate the reasons that why its classification has changed.
Score/Step 4.0	□ I am able to relate the reasons why scientific knowledge is subject to change.	Design a graphic organizer that relates the reasons why the system of classifying a specific organism has changed over time.
Score/Step 3.0 Target (Learning Goal)	□ I am able to recognize that scientific knowledge is subject to change.	Design a time-line that illustrates how the system of classifying organisms has changed over the years.
Score/Step 2.0	□ I am able to recognize that some scientific knowledge has changed.	Give an example on how the classification system of living organisms has changed.
Score/Step 1.0	□ I am able to recognize that scientific explanations must always be linked with evidence.	

SC.6.N.3.2 Assessed as SC.7.N.3.1: Recognize and explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to provide justification to distinguish between scientific theories and laws.	□ Research a specific scientific theory and law and create a presentation that describes each one and explain the justification that makes it a theory or a law.
Score/Step 4.0	□ I am able to distinguish between scientific theories and laws.	□ Create a foldable that explains why the Law of Conservation of Energy is a law and not a theory.
Score/Step 3.0 Target (Learning Goal)	□ I am able to distinguish between scientific theories and laws;	□ Create a graphic organizer that compares and contrast theories and laws. Cite examples of each.
Score/Step 2.0	□ I am able to recognize that a theory is a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual.	□ Explain what a theory is and what makes it a theory.
Score/Step 1.0	□ I am able to recognize that all models are approximations of natural phenomena; as such, they do not perfectly account for all observations.	

SC.6.E.6.1 Assessed as SC.7.E.6.2: Describe and give examples of ways in which Earth's surface is built up and torn down by physical and chemical weathering, erosion, and deposition. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze how patterns in the rock cycle relate to ways in which Earth's surface is built up and torn down by physical and chemical weathering, erosion and deposition.	Identify community features that were affected by weathering and write a proposal to restore such a structure.
Score/Step 4.0	I am able to relate the patterns in the rock cycle to ways in which Earth's surface is built up and torn down by physical and chemical weathering, erosion and deposition.	Design and complete a scientific investigation demonstrating the role weathering plays in shaping/reshaping the earth.
Score/Step 3.0 Target (Learning Goal)	I am able to describe and give examples of ways in which Earth's surface is built up and torn down by physical and chemical weathering, erosion and deposition.	Create an interactive model that shows how Earth's surface is built up and torn down by physical and chemical weathering, erosion and deposition.
Score/Step 2.0	I am able to recognize that the Earth's surface is built up and torn down by weathering, erosion and deposition.	Create a graphic organizer that illustrates how Earth' surface is built up and torn down by weathering, erosion
Score/Step 1.0	I am able to describe the basic differences between physical weathering (breaking down of rock by wind, water, ice, temperature change, and plants) and erosion (movement of rock by gravity, wind, water, and ice.)	

SC.6.E.6.2 Assessed as SC.7.E.6.2: Recognize that there are a variety of different landforms on Earth's surface such as coastlines, dunes, rivers, mountains, glaciers, deltas, and lakes and relate these landforms as they apply to Florida. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze how patterns in the rock cycle relate to surface and subsurface events and landform formations.	Create labeled diagrams of different landforms found on Earth through research and identify those formed through the processes of weathering, erosion and/or deposition.
Score/Step 4.0	I am able to relate the patterns in the rock cycle to surface and subsurface events and landform formation.	Through research, create a presentation that differentiates between the different types of landforms on Earth's surface and relate these landforms as they apply to Florida. Identify the landforms that you have seen in person.
Score/Step 3.0 Target (Learning Goal)	I am able to identify patterns in the rock cycle and their effect on surface and subsurface events and landform formation.	Create a foldable that compares and contrasts the landforms found in Florida and those found outside of Florida Identify the landforms that you have seen in person.
Score/Step 2.0	I am able to recognize that there are a variety of different landforms on Earth's surface.	Create a graphic organizer that illustrates the different landforms on Earth's surface.
Score/Step 1.0	I am able to describe the basic differences between physical weathering and erosion.	

SC.6.E.7.1 Assessed as SC.6.E.7.5: Differentiate among radiation, conduction, and convection, the three mechanisms by that heat is transferred through Earth's system. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to differentiate convection, conduction, and radiation in both the Sun's and the Earth's systems.	Design and build a convection current model, a conduction model and a radiation model to observe and analyze heat transfer
Score/Step 4.0	I am able to compare convection, conduction, and radiation in both the Sun's and Earth's systems	Discuss conduction, convection, and radiation in the context of the Earth's atmosphere, hydrosphere, and geosphere.
Score/Step 3.0 Target (Learning Goal)	I am able to compare convection, conduction, and radiation in both the Sun's and Earth's systems	Create a Venn diagram to compare and contrast convection, conduction and radiation in both the Sun's and Earth's systems (atmosphere, hydrosphere, cryosphere, geosphere).
Score/Step 2.0	I am able to define convection, conduction and radiation.	Observe conduction, convection, and radiation in a model and define each.
Score/Step 1.0	I am able to demonstrate that radiant energy from the Sun can heat objects and when the Sun is not present, heat may be lost	

SC.6.E.7.3 Assessed as SC.6.E.7.4: Describe how global patterns such as the jet stream and ocean currents influence local weather in measurable terms such as temperature, air pressure, wind direction and speed, and humidity and precipitation. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to differentiate and analyze interactions among Earth's spheres, including cycling of water and global patterns that influence both weather and climate.	Create a model that illustrates how global patterns affect weather around the world.
Score/Step 4.0	I am able to differentiate interactions among Earth's spheres, including cycling of water and global patterns that influence both weather and climate.	Diagram and label jet stream and ocean currents for different regions of the world and explain how they affect weather in which region.
Score/Step 3.0 Target (Learning Goal)	I am able to recognize relationships among Earth's spheres, including cycling of water and global patterns that influence both weather and climate.	Create a graphic organizer that describes the effect of the jet stream and ocean currents on local weather patterns. Create a graphic organizer showing the Earth's spheres (hydrosphere, atmosphere, geosphere) and how water cycles through each.
Score/Step 2.0	I am able to identify that the cycling of water influences both weather and climate.	Develop a model, sketch or story that identifies how the water cycle influences both weather and climate.
Score/Step 1.0	I am able to recognize how air temperature, barometric pressure, humidity, wind speed and direction, and precipitation determine the weather in a particular place and time.	

SC.6.E.7.3 Assessed as SC.6.E.7.4: Describe how global patterns such as the jet stream and ocean currents influence local weather in measurable terms such as temperature, air pressure, wind direction and speed, and humidity and precipitation. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to differentiate and analyze interactions among Earth's spheres, including cycling of water and global patterns that influence both weather and climate.	Design and build a model to observe convection currents in the atmosphere and hydrosphere.
Score/Step 4.0	I am able to differentiate interactions among Earth's spheres, including cycling of water and global patterns that influence both weather and climate.	Create a model that illustrates how the interactions of the spheres of the Earth affect weather and climate.
Score/Step 3.0 Target (Learning Goal)	I am able to recognize relationships among Earth's spheres, including cycling of water and global patterns that influence both weather and climate.	Create a graphic organizer that recognizes how the interactions of the spheres of the Earth influence both weather and climate.
Score/Step 2.0	I am able to identify that the cycling of water influences both weather and climate.	Create a mini poster that identifies how the water cycle is related to weather.
Score/Step 1.0	I am able to recognize how air temperature, barometric pressure, humidity, wind speed and direction, and precipitation determine the weather in a particular place and time.	

SC.6.E.7.4: Differentiate and show interactions among the geosphere, hydrosphere, cryosphere, atmosphere, and biosphere. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to differentiate and analyze interactions among Earth's spheres, including cycling of water and global patterns that influence both weather and climate.	Research how the spheres of the Earth interact with each other and create a presentation that illustrates these interactions.
Score/Step 4.0	I am able to differentiate interactions among Earth's spheres, including cycling of water and global patterns that influence both weather and climate.	Create a model that differentiates and explains interactions among the geosphere, hydrosphere, cryosphere, atmosphere and biosphere.
Score/Step 3.0 Target (Learning Goal)	I am able to recognize relationships among Earth's spheres, including cycling of water and global patterns that influence both weather and climate	Create a graphic organizer that recognizes the relationships among Earth's spheres (What happens in each sphere that affects or influences weather and climate?).
Score/Step 2.0	I am able to identify some interactions among Earth's spheres.	Create a foldable that describes the spheres of the Earth and identifies some interactions among the spheres.
Score/Step 1.0	I am able to recognize how air temperature, barometric pressure, humidity, wind speed, and direction, and precipitation determine the weather in a particular place and time.	

SC.6.E.7.5: Explain how energy provided by the sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze how energy provided by the Sun influences global patterns of atmospheric movement and temperature differences between air, water, and land.	Design and build a model to observe convection currents in the atmosphere and hydrosphere
Score/Step 4.0	I am able to analyze how energy provided by the Sun influences global patterns of atmospheric movement and temperature differences between air, water, and land.	Design and perform an experiment that compares the rate of heat loss of different substances (sand, water, soil, rock, cement, etc.) and apply it to the earth system
Score/Step 3.0 Target (Learning Goal)	I am able to relate how energy provided by the Sun influences global patterns of atmospheric movement and temperature differences between air, water, and land.	Create a graphic organizer that relates how energy provided by the Sun influences global patterns of atmospheric movement and temperature differences between air, water, and land.
Score/Step 2.0	I am able to recognize that the Sun influences temperature differences between air, water, and land.	Design and perform an experiment that compares the temperature differences between air, water and soil out in the sun.
Score/Step 1.0	I am able to demonstrate that radiant energy from the Sun can heat objects and when the Sun is not present, heat may be lost.	

SC.6.E.7.6 Assessed as SC.6.E.7.4: Differentiate between weather and climate. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to differentiate and analyze interactions among Earth's spheres, including cycling of water and global patterns that influence both weather and climate.	Identify research and evaluate possible solutions to climate change and habitat loss.
Score/Step 4.0	I am able to differentiate and analyze interactions among Earth's spheres, including cycling of water and global patterns that influence both weather and climate;	Create a model that investigates the global patterns that affect weather and climate.
Score/Step 3.0 Target (Learning Goal)	I am able to recognize relationships among Earth's spheres, including cycling of water and global patterns that influence both weather and climate.	Create a graphic organizer that compares and contrast weather and climate for different regions of the Earth and identify the global patterns that affect them Create a graphic organizer that identifies the Earth's Spheres (geosphere, hydrosphere, atmosphere, cryosphere) and how the climate and/or weather is different in different regions on the Earth as a result of the cycling of water through the spheres in those areas.
Score/Step 2.0	I am able to identify that the cycling of water influences both weather and climate;	Create a graphic organizer that identifies how the cycling of water influences both weather and climate.
Score/Step 1.0	I am able to distinguish among the various forms of precipitation (rain, snow, sleet, and hail), making connections to the weather in a particular place and time.	

SC.6.E.7.9 Assessed as SC.6.E.7.4 Describe how the composition and structure of the atmosphere protects life and insulates the planet. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze the composition and function of the layers of Earth's atmosphere and relate how it protects life and insulates the planet.	Research how the layers of the Earth protect life and insulate the planet and use this information to create a presentation, such as a Power Point, that illustrates this information.
Score/Step 4.0	I am able to relate the composition and function of the layers of Earth's atmosphere to how it protects life and insulates the planet.	Create a model of the layers of the Earth's atmosphere that relates the composition and function of the layers to how the atmosphere protects life and insulates the planet.
Score/Step 3.0 Target (Learning Goal)	I am able to identify the composition and structure of the atmosphere and how the atmosphere protects life and insulates the planet.	Create a graphic organizer that illustrates how the composition and structure of the atmosphere protects life and insulates the planet.
Score/Step 2.0	I am able to recognize that the atmosphere protects life and insulates the planet.	Compare and contrast the different layers of the atmosphere and present information in small groups.
Score/Step 1.0	I am able to recognize that some of the weather-related differences, such as temperature and humidity, are found among different environments, such as swamps, deserts and mountains.	

SC.6.P.11.1 Assessed as SC.7.P.11.2: Explore the Law of Conservation of Energy by differentiating between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to differentiate and give examples of potential energy and kinetic energy.	□ Draw a diagram of a roller coaster and identify when the rollercoaster has potential energy and kinetic energy.
Score/Step 4.0	□ I am able to differentiate potential energy and kinetic energy;	□ Use a bouncy ball to create and explain a demonstration of potential energy and kinetic energy.
Score/Step 3.0 Target (Learning Goal)	□ I am able to compare potential energy and kinetic energy;	□ Create a graphic organizer that compares and contrasts potential energy and kinetic energy and illustrate examples of each.
Score/Step 2.0	□ I am able to recognize that there is a difference between potential energy and kinetic energy	□ Complete a Venn diagram that shows the similarities and differences between potential energy and kinetic energy.
Score/Step 1.0	□ I am able to investigate and explain that electrical energy can be transformed into heat, light, and sound energy, as well as the energy of motion.	

SC.6.P.11.1 Assessed as SC.7.P.11.2: Explore the Law of Conservation of Energy by differentiating between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to differentiate potential energy and kinetic energy. □ I am able to evaluate evidence that supports the Law of Conservation of Energy.	Analyze a diagram of a roller coaster and identify the locations of energy transformations of potential to kinetic or kinetic to potential. Create a graphic organizer of which explains what evidence in a moving roller coaster supports the Law of Conservation of Energy.
Score/Step 4.0	□ I am able to differentiate potential energy and kinetic energy. □ I am able to cite examples of the Law of Conservation of Energy.	Create a diagram of a moving pendulum and identify the energy transformations that occur while a pendulum is moving. Explain how the Law of Conservation of Energy applies to the motion of a pendulum.
Score/Step 3.0 Target (Learning Goal)	□ I am able to compare potential energy and kinetic energy. □ I am able to identify examples of the Law of Conservation of Energy.	Explore and cite examples of everyday situations where potential energy is transformed or changed into kinetic energy and vice versa and examples of the Law of Conservation of Energy.
Score/Step 2.0	□ I am able to recognize that there is a difference between potential energy and kinetic energy	Create a diagram of a roller coaster and identify all points on the track where the car would have potential and kinetic energy.
Score/Step 1.0	□ I am able to investigate and explain that electrical energy can be transformed into heat, light, and sound energy, as well as the energy of motion.	

SC.6.P.12.1 ***Assessed as SC.6.P.13.3***Measure and graph distance versus time for an object moving at a constant speed. Interpret this relationship. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze the data of moving objects and interpret an object's motion.	Interpret and analyze graphs to assess relative speed of an object at various points or sections of the graph and direction of motion
Score/Step 4.0	I am able to interpret graphs of distance and time for an object moving at constant speed.	Create a graph of you waling from one classroom to another at constant speed. Using given data, interpret and/or analyze graphs of distance and time for an object and identify average speed, instantaneous speed and constant speed of the moving object.
Score/Step 3.0 Target (Learning Goal)	I am able to interpret graphs of distance and time for an object moving at constant speed.	Make a graph that represents a car driving at constant speed. Interpret and/or analyze graphs of distance and time for an object moving at a constant speed.
Score/Step 2.0	I am able to recall that the speed of an object is determined by the distance it travels per unit of time.	Compare and contrast velocity, acceleration and speed
Score/Step 1.0	I am able to recognize that objects can move at different speeds.	

SC.6.P.13.1 Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze different types of forces acting on objects;	Design and explain demonstrations that show the effect of electrical, magnetic and gravitational forces
Score/Step 4.0	I am able to classify different types of forces acting on objects;	Explore how friction on various surfaces affects the pulling of a block or a ball rolling.
Score/Step 3.0 Target (Learning Goal)	I am able to distinguish between contact forces and forces that act at a distance;	Compare and contrast contact forces aand forces acting at a distance and provide examples for each.
Score/Step 2.0	I am able to identify familiar forces that cause objects to move;	Identify how different types of forces affect the motion of a toy car.
Score/Step 1.0	I am able to distinguish / recognize contact and noncontact forces.	

SC.6.P.13.2 ***Assessed as SC.6.P.13.1***Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other object and that the force depends on how much mass the objects have and how far apart they are. (Level 1: Recall)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to analyze the relationship among distance, mass and gravitational force between two objects.	Design a model that demonstrates the Law of Universal Gravitation
Score/Step 4.0	□ I am able to evaluate the relationship among distance, mass, and gravitational force between two objects.	Evaluate how the gravitational force between objects changes if the distance between them and mass changes. *Examples: two oranges on a branch or two oranges in a bowl, ping pong and a bowling ball next to each other or a marble and a plastic ball next to each other.*
Score/Step 3.0 Target (Learning Goal)	□ I am able to relate the relationship among distance, mass, and gravitational force between two objects.	Graph and compare how gravitational force between objects (*ex. Earth & the Moon, Sun & Earth, etc.)* changes if distance between them increases.
Score/Step 2.0	□ I am able to recognize that there is relationship among distance, mass, and gravitational force between two objects.	Observe and explain what happens to the force of gravity between two objects when the distance between them or the mass changes.
Score/Step 1.0	□ I am able to identify a force.	

SC.6.P.13.3 Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze observations and investigations to determine when forces acting on an object change its speed and/or direction.	Design and perform an experiment that demonstrates how an unbalanced force acts on the motion of an object
Score/Step 4.0	I am able to evaluate how unbalanced forces acting on an object, changes its speed and/or direction.	Interpret how balanced and unbalanced forces affect the tugging on a rope
Score/Step 3.0 Target (Learning Goal)	I am able recognize that an unbalanced force acting on an object changes its speed and/or direction.	Using a force diagram, explain how two people pushing on opposite sides of a box with unbalanced amounts of force differ from two people pushing on opposite sides of a box with equal force.
Score/Step 2.0	I am able to recognize that an unbalanced force acting on an object changes its speed and/or direction	Illustrate the direction of forces using vectors
Score/Step 1.0	I am able to recognize forces and unbalanced forces.	

SC.6.L.14.1: Describe and identify patterns in the hierarchical organization of organisms from atoms to molecules and cells to tissues to organs to organ systems to organisms.(Level 1: Recall)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze a model of the patterns in the hierarchical organization of organisms, from atoms to organisms.	Using different organisms, develop models of hierarchical organization from atoms to organisms and compare and contrast these models.
Score/Step 4.0	I am able to evaluate patterns in the hierarchical organization of organisms, from atoms to organisms.	Illustrate the hierarchical relationships of atoms to molecules and cells to tissues to organs to organ systems to organisms and explain interrelationships.
Score/Step 3.0 Target (Learning Goal)	I am able to find and recognize patterns in the hierarchical organization of organisms, from atoms to organisms.	Create a graphic organizer on the levels of organization including the terms: atom, molecule, cell, tissue, organ, organ system, and organism
Score/Step 2.0	I am able to recognize the different levels of organization in living things.	Describe and identify how organisms are composed of atoms, molecules, cells, tissues, organs, and organ systems.
Score/Step 1.0	I am able to identify structures that make up the body.	

SC.6.L.14.2: Investigate and explain the components of the scientific theory of cells (cell theory): all organisms are composed of cells (single-celled or multi-cellular), all cells come from pre-existing cells, and cells are the basic unit of life. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to relate the components of the cell theory and the importance of the cell theory.	Student can successfully create a foldable where each of the components of the cell theory is listed and at least one reason of their importance is given.
Score/Step 4.0	I am able to relate the components of the cell theory.	Research Redi's Experiment and relate his findings to the cell theory.
Score/Step 3.0 Target (Learning Goal)	I am able to recall the components of the cell theory	Create a graphic organizer that illustrates each component of the cell theory.
Score/Step 2.0	I am able to identify **one** component of the cell theory	List the three components of the cell theory.
Score/Step 1.0	I am able to create a definition for cells.	

SC.6.L.14.3 Assess as SC.6.L.14.2 Recognize and explore how cells of all organisms undergo similar processes to maintain homeostasis, including extracting energy from food, getting rid of waste, and reproducing. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze how cells maintain homeostasis	Research the cellular processes that enable a unicellular organism such as a Paramecium to maintain homeostasis. Create a report that shows how all these processes work together to ensure the survival of the organism
Score/Step 4.0	I am able to evaluate the processes cells undergo to maintain homeostasis	Create a poster that evaluates the processes that cells undergo to maintain homeostasis.
Score/Step 3.0 Target (Learning Goal)	I am able to identify some of the processes that cells undergo to maintain homeostasis.	Create a graphic organizer that illustrates the similar processes that cells undergo to maintain homeostasis.
Score/Step 2.0	I am able to relate homeostasis to survival of cells.	Create a concept map that identifies cell processes that enables the cell to maintain homeostasis and survive.
Score/Step 1.0	This benchmark is foundational.	

SC.6.L.14.4: Compare and contrast the structure and function of major organelles of plant and animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria, and vacuoles. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I can analyze a model of the major organelles of plant cells and animal cells and relate the function of each organelle.	Develop a model of a plant and animal cell that shows the major cell organelles and identifies their functions.
Score/Step 4.0	I can compare the structure and function of the major organelles of plant cells and animal cells	Using the Microscope identify differences between a plant and animal cell.
Score/Step 3.0 Target (Learning Goal)	I can compare the structure and function of the major organelles of plant cells and animal cells.	Draw, label and explain the functions of the basic structures of plant and animal cells. Identify that structures are only found in plant or animal cells.
Score/Step 2.0	I can identify some of the major organelles of plant cells and animal cells.	Using a Venn Diagram, compare and contrast the major organelles of plant and animal cells.
Score/Step 1.0	I can identify the basic structures found in cells.	

SC.6.L.14.5: Identify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) and describe ways these systems interact with each other to maintain homeostasis. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to connect the general functions of the major systems of the human body to how they interact to maintain homeostasis	Develop a model that demonstrates the sequence of activities involving major body systems that interact to complete a task. Explain how homeostasis is maintained through the interaction of these systems.
Score/Step 4.0	I am able differentiate the general functions of the major systems and relate how they interact to maintain homeostasis	Diagram the interactions of the various body systems. Describe how the systems differ.
Score/Step 3.0 Target (Learning Goal)	I am able to relate the general functions of how the major systems of the human body interact to maintain homeostasis.	Develop a graphic organizer that illustrates how the body systems interact to maintain homeostasis. Explain, in general, how your body systems interact to keep you alive
Score/Step 2.0	I am able to identify the general functions of some of the major systems of the human body	Design a table to identify the basic organs of the major body systems and their functions.
Score/Step 1.0	I am able to name the main human body systems.	

SC.6.L.14.6. Assessed as SC.6.L.14.5: Compare and contrast types of infectious agents that may infect the human body, including viruses, bacteria, fungi, and parasites. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to compare different types of infectious agents and how they affect the human body.	Research and describe examples of pathogens that affect humans on a regular basis (i.e., Influenza, Rhinovirus, Streptococcus, MRSA, HIV)
Score/Step 4.0	I am able to compare different types of infectious agents that affect the human body.	Develop a graphic organizer that compares and contrast the different type of infectious agents including the way it can infect a person.
Score/Step 3.0 Target (Learning Goal)	I am able to classify different types of infectious agents that affect the human body.	Develop a foldable that classifies different types of infectious agents that affect the human body.
Score/Step 2.0	I am able to identify some types of infectious agents that affect the human body.	Design a table that classifies different types of infectious agents that affect the human body.
Score/Step 1.0	I am able to identify organs in the human body and describe their functions.	

SC.6.L.15.1: Analyze and describe how and why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with the concept of Domains. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze how and why organisms are classified from Domains through Species.	Create a list of organisms and analyze and describe how and why these organisms are classified according to shared characteristics from Domain through Species
Score/Step 4.0	I am able to analyze how and why organisms are classified from Domains through Species.	Classify an organism using a dichotomous key
Score/Step 3.0 Target (Learning Goal)	I am able to recall how and why organisms are classified from Domains through Species.	Classify different types of organisms using the levels of classification
Score/Step 2.0	I am able to recognize the different levels of organization in living things.	Design a graphic organizer on the levels of organization including the terms: Domain, Kingdom, Phylum, Class, Order, Family, Genus, Species.
Score/Step 1.0	I am able to define classification in living things.	

Seventh grade learning goals

SC.7.N.1.2: Differentiate replication (by others) from repetition (multiple trials). (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to compare and evaluate the use and importance of repetition versus replication in a scientific investigation.	Create a presentation such as a poster, that compares and evaluates the use and importance of repetition versus replication in a scientific investigation.
Score/Step 4.0	□ I am able to distinguish between and explain the need for repetition and replication.	Think about science investigations that you have completed in the past and create a table that identifies both repetition (many trials) and replication (trials of the same investigation by others) for each activity. Then write a statement that explains the need for repetition and replication in investigations.
Score/Step 3.0 Target (Learning Goal)	□ I am able to distinguish between repetition and replication.	Analyze scientific investigations and distinguish between repetition and replication in each.
Score/Step 2.0	□ I am able to identify examples of repetition and replication.	Create a graphic organizer that explains repetition and replication and identifies multiple examples of each.
Score/Step 1.0	□ I am able to recognize and explain the need for repeated experimental trials and that evidence produced by investigations should be replicable by others.	

SC.7.N.1.4 assessed as SC.8.N.1.1: Identify test variables (independent variables) and outcome variables (dependent variables) in an experiment. (Level 1: Recall)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze the test and outcome variables of an experiment.	Analyze the test and outcome variables of experiments and explain why those variables are considered test and outcome variables.
Score/Step 4.0	I am able to distinguish between test and outcome variables in a given scientific experiment.	Distinguish between the test and outcome variables in an investigation of how light travels through various materials (transparent objects-lenses, prisms; translucent objects and opaque objects)
Score/Step 3.0 Target (Learning Goal)	I am able to identify test and outcome variables in a given scientific experiment.	Identify the test and outcome variables in an experiment that investigates whether the type of liquid affects the refraction of light.
Score/Step 2.0	I am able to identify variable in a scientific experiment.	Identify variables in an experiment that investigates if the type of surface affects the reflection of light.
Score/Step 1.0	I am able to recognize variables in a scientific experiment	

SC.7.N.1.5: Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology, and physics. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze and evaluate the benefits and limitations of various models and methods used in different fields of science.	Research models and methods used in biology and physics and analyze both the benefits and limitations. Compare and contrast the models used in the different fields of science.
Score/Step 4.0	I am able to evaluate the benefits and limitations of various models and/ or methods used in different fields of science.	Research the various models and/or methods used in biology, geology and physics. Create a presentation such as a PowerPoint that evaluates the benefits and limitations of these models.
Score/Step 3.0 Target (Learning Goal)	I am able to identify the benefits and limitations of common models.	Create a graphic organizer that illustrates the benefits and limitations of models in biology, geology and physics.
Score/Step 2.0	I am able to recognize the benefits of using scientific models.	Explain why building a model of the structure of the Earth or different land forms is beneficial to scientists.
Score/Step 1.0	I am able to explain that models can be three dimensional, two dimensional, an explanation in your mind, or a computer model.	

SC.7.N.3.1: Recognize and explain the difference between theories and laws and give several examples of scientific theories and the evidence that supports them. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	Learning Progression	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to provide justification to distinguish between scientific theories and laws.	Using evidence that supports various scientific theories and laws, provide a justification for the distinction between scientific theories and laws.
Score/Step 4.0	□ I am able to distinguish between scientific theories and laws.	Using a graphic organizer, compare and contrast scientific theories and laws.
Score/Step 3.0 Target (Learning Goal)	□ I am able to recognize examples of scientific theories and laws.	Conduct scientific investigations to collect evidence that supports examples of scientific theories and laws.
Score/Step 2.0	□ I am able to recognize and explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws.	Define a scientific law and distinguish scientific laws from societal laws
Score/Step 1.0	□ I am able to give several examples of scientific laws.	

SC.7.E.6.1 Assessed as SC.7.E.6.5: Describe the layers of the solid Earth, including the lithosphere, the hot convecting mantle, and the dense metallic liquid and solid cores. (Level 2: Basic Application of Skills & Concepts)		
Scale	Learning Progression	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to relate the composition of the layers of the Earth and how they interact.	Research the composition of the layers of the Earth and how they interact with each other. Create an interactive model of the Earth that illustrates the composition of the layers and how they interact.
Score/Step 4.0	I am able to compare the composition of the layers of the Earth.	Design a graphic organizer that compares and contrast the composition of the structural layers of Earth's interior (i.e., density differences, composition)
Score/Step 3.0 Target (Learning Goal)	I am able to identify the layers of the Earth.	Construct a model of the layers of Earth including the crust, the lithosphere, the hot convecting mantle, the outer liquid core, and the inner solid core.
Score/Step 2.0	I am able to identify the layers of the Earth.	Design a foldable that illustrates the layers of the Earth.
Score/Step 1.0	I am able to identify the three categories of rocks: igneous, sedimentary and metamorphic.	

SC.7.E.6.2: Identify the patterns within the rock cycle and relate them to surface events (weathering and erosion) and sub-surface events (plate tectonics and mountain building). (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze how patterns in the rock cycle relate to surface and subsurface events and landform formations.	Investigate the processes that rocks go through to become igneous, metamorphic, and sedimentary and relate to surface and subsurface events and landform formations. Use information to create a presentation such as a Power Point.
Score/Step 4.0	I am able to relate the patterns in the rock cycle to surface and subsurface events and landform formation.	Create a diagram of processes large rocks and sediments go through to become different types of rocks and relate to surface and subsurface events and landform formations.
Score/Step 3.0 Target (Learning Goal)	I am able to identify patterns in the rock cycle and their effect on surface and subsurface events and landform formation.	Create a model of the rock cycle that identifies patterns and their effect on surface and subsurface events and landform formation.
Score/Step 2.0	I am able to recognize the steps of the rock cycle.	Create a graphic organizer that illustrates each step of the rock cycle for the formation of igneous, metamorphic and sedimentary rocks.
Score/Step 1.0	I am able to identify the three categories of rocks: igneous, sedimentary and metamorphic.	

SC.7.E.6.3 Assessed as SC.7.E.6.4: Identify current methods for measuring the age of Earth and its parts, including the law of superposition and radioactive dating. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to evaluate physical evidence to determine if it supports scientific theories that Earth has evolved, including scientific methods for measuring geologic time.	Investigate and report various real life stories in which scientists determined the age of a fossil such as an ice man or dinosaur Explain how relative and absolute ages contributed to the geologic time scale and its units
Score/Step 4.0	I am able to evaluate physical evidence to determine if it supports scientific theories that Earth has evolved, including scientific methods for measuring geologic time;	Identify and describe current scientific methods for measuring the age of Earth and its parts.
Score/Step 3.0 Target (Learning Goal)	I am able to interpret physical evidence that supports scientific theories that Earth has evolved, including scientific methods for measuring geologic time.	Interpret a diagram of rock layers and identify examples of physical evidence that will help you determine the relative ages of the layers. Explain how a scientist finds the absolute age of rocks.
Score/Step 2.0	I am able to recognize that Earth has evolved over geologic time	Create a graphic organizer that illustrates that Earth has evolved over geologic time. Include terms such as Law of Superposition, index fossils, intrusion, extrusion, folding, faults, and relative age.
Score/Step 1.0	I am able to describe the basic differences between physical weathering (breaking down of rock by wind, water, ice, temperature change, and plants) and erosion (movement of rock by gravity, wind, water, and ice).	

SC.7.E.6.4: Explain and give examples of how physical evidence supports scientific theories that Earth has evolved over geologic time due to natural processes. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to evaluate physical evidence to determine if it supports scientific theories that Earth has evolved, including scientific methods for measuring geologic time.	Create a diagram of multiple rocks layers that illustrates physical evidence such as fault, extrusion, intrusion and index fossils and explain how the evidence supports scientific theories that Earth has evolved over time.
Score/Step 4.0	□ I am able to evaluate physical evidence to determine if it supports scientific theories that Earth has evolved, including scientific methods for measuring geologic time;	Evaluate layers of rock and determine how rock layers have changed over time.
Score/Step 3.0 Target (Learning Goal)	□ I am able to interpret physical evidence that supports scientific theories that Earth has evolved, including scientific methods for measuring geologic time.	Interpret a diagram of rock layers and identify examples of physical evidence that supports the statement that Earth has evolved over geologic time due to natural processes.
Score/Step 2.0	□ I am able to recognize that Earth has evolved over geologic time	Create a graphic organizer that illustrates that Earth has evolved over geologic time. Include terms such as intrusion, extrusion, faults, and weathering.
Score/Step 1.0	□ I am able to describe the basic differences between physical weathering (breaking down of rock by wind, water, ice, temperature change, and plants) and erosion (movement of rock by gravity, wind, water, and ice).	

SC.7.E.6.5: Explore the scientific theory of plate tectonics by describing how the movement of Earth's crustal plates causes both slow and rapid changes in Earth's surface, including volcanic eruptions, earthquakes, and mountain building. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to interpret the scientific theory of plate tectonics and how it relates to surface and subsurface structures and events.	Research the movement of Earth's plates at convergent, divergent and transform boundaries and relate that movement to surface and subsurface structures and geologic events.
Score/Step 4.0	I am able to relate the occurrence of geologic events and the formation of surface and subsurface structures to the scientific theory of plate tectonics.	Create an interactive model of the movement of Earth's plates that illustrates the structures that result from the movement of the plates.
Score/Step 3.0 Target (Learning Goal)	I am able to relate the scientific theory of plate tectonics to surface and subsurface structures and geologic events.	Create a booklet that illustrates the type of plate boundary and the structures and geologic events that are associated with the movement of the plates at a specific type of plate boundary. Illustrate the surface features that result from the movement of the plates.
Score/Step 2.0	I am able to recognize that the movements of Earth's plates result in various geologic events.	Create a graphic organizer identifies a type of geologic event with the movement of Earth's plates.
Score/Step 1.0	I am able to describe the basic differences between physical weathering and erosion.	

SC.7.E.6.6 Assessed as SC.7.E.6.2: Identify the impact that humans have had on Earth, such as deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze and give examples of the impact humans have had on Earth.	Research negative impacts humans have had on Earth and explain how they can turn the situation around. Use information to create a presentation.
Score/Step 4.0	I am able to identify examples of the impact humans have had on Earth	Investigate the impact human have had on the land through mining rocks for their use.
Score/Step 3.0 Target (Learning Goal)	I am able to identify the impact humans have had on Earth	Create a graphic organizer that illustrates some impacts humans have had on Earth, to include deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water..
Score/Step 2.0	I am able to identify some impacts humans have had on Earth	Identify the impact that humans have had on Earth, such as deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water.
Score/Step 1.0	I am able to recognize that humans need resources on Earth and that these are either renewable or nonrenewable.	

SC.7.E.6.7 Assessed as SC.7.E.6.5: Recognize that heat flow and movement of material within Earth causes earthquakes and volcanic eruptions, and creates mountains and ocean basins. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to interpret the scientific theory of plate tectonics and how it relates to surface and subsurface structures and events	Research what causes the movement of the Earth's plates and relate the heat flow and movement of material to the formation of different types of rocks, structures and geologic events.
Score/Step 4.0	I am able to relate the occurrence of geologic events and the formation of surface and subsurface structures to the scientific theory of plate tectonics.	Create a model of the movement of Earth's plates that includes the heat flow and movement of material within Earth and the type of geologic event such as a volcanic eruption that occurs at that type of boundary. Identify the type of rock found at the geologic event.
Score/Step 3.0 Target (Learning Goal)	I am able to relate the scientific theory of plate tectonics to surface and subsurface structures and geologic events.	Create a graphic organizer that identifies and describes the part that weathering, erosion and deposition play in the rock cycle and relate them to land formations in Florida and outside of Florida Identify land formations outside of Florida that are a result of the scientific theory of plate tectonics.
Score/Step 2.0	I am able to recognize that the movements of Earth's plates result in various geologic events.	Create a foldable that illustrates the type of rocks that form during a volcanic eruption,
Score/Step 1.0	I am able to describe the basic differences between physical weathering and erosion.	

SC.7.P.10.1: Illustrate that the sun's energy arrives as radiation with a wide range of wavelengths, including infrared, visible, and ultraviolet, and that white light is made up of a spectrum of many different colors. (Level 1: Recall)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze the characteristics of waves using the electromagnetic spectrum.	Analyze the types of electromagnetic waves, their wavelengths and frequencies as they transport energy from the Sun to Earth
Score/Step 4.0	I am able to predict the characteristics of waves using the electromagnetic spectrum.	Using a graphic organizer, compare and contrast the wavelengths and other characteristics of the different types of radiation that comes from the Sun's energy.
Score/Step 3.0 Target (Learning Goal)	I am able to compare the characteristics of waves using the electromagnetic spectrum	Create a foldable that describes each type of radiation that is found in energy from the sun.
Score/Step 2.0	I am able to identify some characteristics of the electromagnetic spectrum.	Identify each type of radiation that is found in energy from the Sun.
Score/Step 1.0	I am able to recognize that light travels in a straight line until it strikes an object or travels from one medium to another.	

SC.7.P.10.2 Assessed as SC.7.P.10.3: Observe and explain that light can be reflected, refracted, and/or absorbed. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to evaluate how evidence from experiments or investigations supports that light waves can be reflected, refracted, or absorbed.	Research the relationship between the transport of energy and the angle, speed, or medium during reflection, refraction, and absorption of light and prepare a presentation of your findings.
Score/Step 4.0	I am able to cite examples where light waves are reflected, refracted or absorbed.	Create labeled diagrams of light being reflected, refracted, and absorbed through different substances. For each diagram, explain why light behaves in this way.
Score/Step 3.0 Target (Learning Goal)	I am able to recognize that light waves can be reflected, refracted or absorbed.	Space Jams: Light, Absorption, Reflection and Refraction Create multiple models of light being reflected, refracted and absorbed and explain each one.
Score/Step 2.0	I am able to recognize that light waves can be reflected, refracted or absorbed.	Using a graphic organizer, compare and contrast reflection, refraction and absorption of light
Score/Step 1.0	I am able to demonstrate that light can be reflected, refracted and absorbed.	

SC.7.P.10.3 Recognize that light waves, sound waves, and other waves move at different speeds in different materials. (Level 1: Recall)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze how waves move at different speeds through different materials.	Design an experiment to quantify the effect of various media on the speed of waves and predict results using an understanding of the relationship between wave speed and media.
Score/Step 4.0	I am able to relate that waves move at different speeds through different materials.	Create a diagram that displays the changes in speed of waves as each type of wave travels through different media.
Score/Step 3.0 Target (Learning Goal)	I am able to recall that waves move at different speeds through different materials.	Describe how the electromagnetic waves, sound waves, and other waves travel at different speeds in different media using everyday examples.
Score/Step 2.0	I am able to recall different waves move at different speeds.	Using a graphic organizer, describe the speeds of electromagnetic waves and sound waves.
Score/Step 1.0	I am able to recall that light travels in a straight line until it strikes an object or travels from one medium to another.	

SC.7.P.11.1 Assessed as SC.7.P.11.4: Recognize that adding heat to or removing heat from a system may result in a temperature change and possibly a change of state. (Level 1: Recall)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	☐ I am able to use data to prove that adding heat to or removing heat from a system may result in a temperature change and possibly a change in state	Design scientific investigations using observations of various substances as they undergo changes in state including condensation, vaporization, sublimation, deposition as heat energy is added or removed.
Score/Step 4.0	☐ I am able to relate that adding heat to or removing heat from a system may result in a temperature change and possibly a change in state.	Create a graphic organizer that illustrates everyday examples of the various phase changes as heat energy is added or removed from a substance. Explain what happens to the temperature of a substance as it gains or loses energy.
Score/Step 3.0 Target (Learning Goal)	☐ I am able to recognize that adding heat to or removing heat from a system may result in a temperature change and possibly a change in state	Design and perform a scientific investigation that shows that adding or removing heat from water will result in a temperature change and a phase change. Gizmo: Phase Change,
Score/Step 2.0	☐ I am able to recognize that adding heat to a substance results in a temperature change	Explain why water gets hotter when you put it in a pot on the stove. Where did the heat come from that caused it to get hotter?
Score/Step 1.0	☐ I am able to recognize that heat flows from a hot object to a cold object and that heat flow may cause materials to change temperature	

SC.7.P.11.2: Investigate and describe the transformation of energy from one form to another. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to analyze the transformation of energy from one form to another.	Analyze different transformations of energy within systems, i.e., in a flashlight, in an energy pyramid, in renewable and nonrenewable sources to electricity that powers everyday appliances, or from within the sun to plants.
Score/Step 4.0	□ I am able to evaluate the transformation of energy from one form to another.	**GIZMOS**: Energy Conversions Create energy pathways to show where our energy comes from.
Score/Step 3.0 Target (Learning Goal)	□ I am able to identify the transformation of energy from one form to another.	Describe the flow of energy (pathway) in everyday examples such as cooking, riding a bike, using cell phone, fireworks reacting, or camp fires burning.
Score/Step 2.0	□ I am able to identify examples of energy that has been transformed from one from to another.	Identify the type of energy in a book sitting on table and the form of energy that it is transforms into as it falls to the floor (use terms such as potential and kinetic energy).
Score/Step 1.0	□ I am able to explain that electrical energy can be transformed into heat, light, and sound energy, as well as the energy of motion.	

SC.7.P.11.3 assessed as SC.7.P.11.2: Cite evidence to explain that energy cannot be created nor destroyed, only changed from one form to another. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to evaluate evidence that supports the Law of Conservation of Energy.	Create a graphic organizer that illustrates that energy is conserved during the energy transformation that occurs when you start up a car and the car moves forward.
Score/Step 4.0	I am able to cite examples of the Law of Conservation of Energy.	Analyze the energy transformations of everyday activities and explain how the Law of Conservation of Energy applies to each one.
Score/Step 3.0 Target (Learning Goal)	I am able to identify examples of the Law of Conservation of Energy.	Identify and describe examples of the Law of Conservation of Energy for each of the following energy transformations: Turn on a flashlight Burning of a firework Running in P.E.
Score/Step 2.0	I am able to recognize that energy is transformed into other types of energy	Create a foldable that shows the energy transformations that take place in: Listening to music on IPOD Riding a bike
Score/Step 1.0	I am able to explain that electrical energy can be transformed into heat, light, and sound energy, as well as the energy of motion.	

SC.7.P.11.4: Observe and describe that heat flows in predictable ways, moving from warmer objects to cooler ones until they reach the same temperature. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to cite evidence that heat flows in predictable ways	Research everyday examples of how heat flows from warmer objects to cooler ones until they reach the same temperature. Create a presentation that illustrates and explains how heat flows in each example.
Score/Step 4.0	□ I am able to relate how heat flows	Design and complete an investigation that compares what happens to the temperature of can of soda covered in ice and a cup of hot coffee left on a table. Explain the flow of heat that resulted in the change in temperature for each part of the investigation.
Score/Step 3.0 Target (Learning Goal)	□ I am able to recognize how heat flows	Create a graphic organizer that illustrates how heat flows when ice is added to a cup of hot tea and when a beaker of water is placed on a hot plate.
Score/Step 2.0	□ I am able to recognize that heat flows from hot to cold materials	Observe what happens to the temperature of a metal spoon when placed in a bowl of hot soup. Explain where the heat came from that made the spoon feel warmer.
Score/Step 1.0	□ I am able to recognize that heat flows from a hot object to a cold object and that heat flow may cause materials to change temperature	

SC.7.L.15.1 *Assessed as SC.7.L.15.2:* Recognize that fossil evidence is consistent with the scientific theory of evolution that living things evolved from earlier species. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to analyze ways in which fossil evidence is consistent with the scientific theory of evolution.	Create a graphic organizer that compares how fossils evidence for the sloth and elephant shows how they have evolved over time.
Score/Step 4.0	□ I am able to analyze ways in which fossil evidence is consistent with the scientific theory of evolution.	Research and create a flip book of how the structure of a whale has evolved up to present day.
Score/Step 3.0 Target (Learning Goal)	□ I am able to identify ways in which fossil evidence is consistent with the scientific theory of evolution.	Research fossil records for an organism such as the horse and create a time-line that illustrates how the horse has evolved over time.
Score/Step 2.0	□ I am able to identify that fossil evidence shows that the structure of organisms have changed over time.	Create a foldable that shows how the structure of an organism (fossils) of a specific organism has changed over time.
Score/Step 1.0	□ I am able to identify organisms that no longer exist but have left fossil evidence.	

SC.7.L.15.2: Explore the scientific theory of evolution by recognizing and explaining ways in which genetic variation and environmental factors contribute to evolution by natural selection and diversity of organisms. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to provide original examples that show how genetic variation and environmental factors contribute to the scientific theory of evolution by natural selection and diversity of organisms.	Design an activity that shows how the Peppered Moth can blend into its environment and explain what happens to the moths that can't blend. Explain why the ability to camouflage contributes to the scientific theory of evolution by natural selection and diversity of organisms. Explain what happens to organisms of the same species that cannot camouflage.
Score/Step 4.0	I am able to cite some examples that show how genetic variation and environmental factors contribute to the scientific theory of evolution by natural selection and diversity of organisms.	Design an experiment that demonstrates the benefits of different types of evolutionary adaptations such camouflage.
Score/Step 3.0 Target (Learning Goal)	I am able to identify genetic variation and environmental factors that contribute to the scientific theory of evolution by natural selection and diversity of organisms	Investigate and write to explain the genetic and environmental factors that affect population changes in an ecosystem, allowing some to survive and pass their traits to their offspring. Sometimes this results in the changing of a species over time.
Score/Step 2.0	I am able to recall that species may become extinct.	Identify and explain how a species' inability to adapt may contribute to extinction of that species
Score/Step 1.0	I am able to tell that plants and animals we have today are different from the ones in the past.	

SC.7.L.15.3 *Assessed as* SC.7.L.15.2: Explore the scientific theory of evolution by relating how the inability of a species to adapt within a changing environment may contribute to the extinction of that species. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to relate how species' inability to adapt may contribute to their extinction.	Design an activity that demonstrates the benefits of different types of evolutionary adaptations such as camouflage and how an organism's inability to survive could lead to extinction of the species..
Score/Step 4.0	I am able to relate that species' inability to adapt may contribute to their extinction.	Research the history of a specific organism: identify and explain how a species' inability to adapt may contribute to extinction of that species.
Score/Step 3.0 Target (Learning Goal)	I am able to identify how a species' inability to adapt may contribute to its extinction.	Design an activity that shows how an animal or plant's physical attributes, such as a bird's beak, results in possible advantages for survival in one environment but not in another. Explain what would happen to the species if the members were not able to survive in the environment.
Score/Step 2.0	I am able to recall that species may become extinct.	Create a foldable that identifies species that are extinct and explain why they became extinct.
Score/Step 1.0	I am able to tell that plants and animals we have today are different from the ones in the past**.**	

SC.7.L.16.1: Understand and explain that every organism requires a set of instructions that specifies its traits, which this hereditary information (DNA) contains genes located in the chromosomes of each cell, and that heredity is the passage of these instructions from one generation to another. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to relate that every organism requires a set of instructions that specifies its traits and that genes located in chromosomes contain this hereditary information.	Research how DNA in chickens is related to different traits in chickens. Create a presentation such as a Power Point that relates DNA to chromosomes, genes and specific traits in chickens.
Score/Step 4.0	I am able to relate that every organism requires a set of instructions that specifies its traits and that genes located in chromosomes contain this hereditary information.	Complete Activity: DNA Recipe for Traits Describe how variations in DNA lead to the inheritance of different traits.
Score/Step 3.0 Target (Learning Goal)	I am able to recall relate that every organism requires a set of instructions that specifies its traits and that genes located in chromosomes contain this hereditary information.	Create a graphic organizer that illustrates the concept of heredity as it relates to DNA within chromosomes. **GIZMOS**: Building DNA
Score/Step 2.0	I am able to recognize that genetic material is contained in DNA.	Create a diagram of a cell that illustrate the different materials in a cell that pass on genetic information (DNA, chromosomes, chromatin, and genes www.brainpop.com - DNA,
Score/Step 1.0	I am able to compare and contrast the major life cycles of Florida plants and animals, such as those that undergo incomplete and complete metamorphosis and flowering and nonflowering seed-bearing plants.	

SC.7.L.16.2 assessed as SC.7.L.16.1: Determine the probabilities for genotype and phenotype combinations using Punnett Squares and pedigrees. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to determine genotypic and phenotypic probabilities using Punnett Squares.	Using the trait for color of feathers in chickens, complete and analyze Punnett Squares to determine the probabilities for the genotypes and phenotypes of the possible offspring. Gizmo:Chicken Genetics
Score/Step 4.0	□ I am able to determine genotypic and phenotypic probabilities using Punnett Squares.	Using the trait for color of fur in mice, complete and analyze Punnett Squares to determine the probabilities for the genotypes and phenotypes of the possible offspring. Gizmo:Mouse Genetics (One Trait)
Score/Step 3.0 Target (Learning Goal)	□ I am able to determine genotypic and phenotypic probabilities using Punnett Squares.	Using the trait for fur color in mice, predict the genotypic and phenotypic possibility of traits in an offspring using Punnett squares. The dominant allele is black fur (B) and the recessive allele is white fur (b). BrainPop : Heredity
Score/Step 2.0	□ I am able to differentiate between phenotype and genotype in a given species.	Create a graphic organizer that differentiates between phenotype and genotype when discussing heredity. BrainPop : Heredity
Score/Step 1.0	□ I am able to explain that although characteristics of plants and animals are inherited, some characteristics can be affected by the environment.	

SC.7.L.16.3 Assessed as SC.7.L.16.1: Compare and contrast the general processes of sexual reproduction requiring meiosis and asexual reproduction requiring mitosis. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to differentiate sexual and asexual reproduction and how they relate to heredity	Differentiate between the resultant cells of mitosis and meiosis due to the differences in reproduction *(sexual and sexual)*
Score/Step 4.0	□ I am able differentiate sexual and asexual reproduction and how they relate to heredity.	Analyze and compare the path of a chromosome in a cell going through mitosis to a chromosome in a cell going through meiosis *(to show sexual reproduction)*
Score/Step 3.0 Target (Learning Goal)	□ I am able to compare sexual and asexual reproduction and how they relate to heredity.	Create a graphic organizer that compares and contrasts the processes of sexual and asexual reproduction that result in the passage of hereditary information from one generation to another. *(Include advantages and disadvantages)* Give examples of cells that undergo meiosis and organisms and cells that undergo mitosis
Score/Step 2.0	□ I am able to identify the difference between sexual and asexual reproduction.	Create a mini poster that illustrates the difference between sexual and asexual reproduction. *(use examples of organisms*)
Score/Step 1.0	□ I am able to compare and contrast the major stages in the life cycles of Florida plants and animals.	

SC.7.L.17.1 Assessed as SC.7.L.17.2: Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to analyze food webs to determine if they correctly illustrate the roles, relationships, and transfer of energy among organisms.	Explain and illustrate the relationships among decomposers, producers and consumers including herbivores, carnivores, and omnivores, in the process of energy transfer in an ecosystem including food webs and food chains
Score/Step 4.0	□ I am able to relate the roles and relationships of organisms in a food web.	**GIZMOS**: Food Chain Design a food web and identify the roles and relationships among the organisms. Explain why the relationships are necessary.
Score/Step 3.0 Target (Learning Goal)	□ I am able to infer the roles and relationships of organisms in a food web.	**BBC:** Food Chains Interactive & Test; Food Pyramids Identify the roles and relationships among organisms in a food web in your backyard or school grounds.
Score/Step 2.0	□ I am able to trace the flow of energy in a food chain.	Analyze several food chains and explain what happens to energy as it flows through the food chain.
Score/Step 1.0	□ I am able to identify producers and consumers in a food chain.	

SC. 7. L.17.2: Compare and contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	☐ I am able to analyze food webs to determine the relationships between organisms, such as mutualism, predation, parasitism, competition and commensalism.	Analyze food webs in different ecosystems and identify and explain the relationships between organisms such as mutualism, predation, parasitism, competition and commensalism in a presentation.
Score/Step 4.0	☐ I am able to relate the roles and relationships (mutualism, predation, parasitism, competition and commensalism) of organisms in an ecosystem.	Research symbiotic relationships and create a booklet that provides an explanation and diagram of each type. Technology: Symbiotic Relationships
Score/Step 3.0 Target (Learning Goal)	☐ I am able to compare relationships among organisms in an ecosystem.	Create a graphic organizer that compares and contrasts mutualism, parasitism, and commensalism with examples of each. Study Jams-Symbiosis
Score/Step 2.0	☐ I am able to identify relationships among some organisms in an ecosystem.	Create a concept map for mutualism, commensalism, parasitism and predation.
Score/Step 1.0	☐ I am able to identify what makes up an ecosystem.	

SC.7.L.17.3: Describe and investigate various limiting factors in the local ecosystem and their impact on native populations, including food, shelter, water, space, disease, parasitism, predation, and nesting sites. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to hypothesize the effects of limiting factors in an ecosystem.	Research an ecosystem that has had an impact on its populations of organisms. Utilize real-world to discuss the limiting factors that affected the populations of organisms.
Score/Step 4.0	□ I am able to analyze some of the effects of limiting factors in an ecosystem.	Gizmo: Prairie Ecosystem Analyze the factors that affect the populations of grass, prairie dogs, ferrets and foxes in a prairie ecosystem. Investigate feeding relationships and determine the food chain.
Score/Step 3.0 Target (Learning Goal)	□ I am able to identify limiting factors in an ecosystem.	Develop “limiting factors” scenario cards (example, all the trees tin a region have died) and have classmates infer three things that will happen as a result of the introduction of the limiting factor to a food web.
Score/Step 2.0	□ I am able to identify factors that affect populations in an ecosystem.	Identify and describe various limiting factors in an ecosystem and their impact on populations.
Score/Step 1.0	□ I am able to define what an ecosystem is.	

Eighth grade learning goals

SC.8.N.1.1: Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to evaluate the use of hypotheses in the design and evaluation of experiments. □ I am able to analyze the test and outcome variables of an experiment. □ I am able to analyze and interpret data to make inferences and predictions and to defend conclusions.	Design and complete a scientific investigation that investigates the difference between mass and weight.
Score/Step 4.0	□ I am able to relate the use of hypotheses in the design and evaluation of experiments. □ I am able to distinguish between test and outcome variables in a given scientific experiment. □ I am able to analyze and interpret data to make inferences and predictions and to defend conclusions	Design and complete a scientific investigation that examines the relationship between sample size of a substance and its density. Be sure to use the following terms: *Experimental Design, Procedures, Collect Data, Analyze Data, Conclusion, test variable, outcome variable*
Score/Step 3.0 Target (Learning Goal)	□ I am able to evaluate the value of hypotheses. □ I am able to identify test and outcome variables in a given scientific experiment. □ I am able to identify inferences, predictions, and/or conclusions that are based on data in an experiment.	Using a scientific experiment, explain why the hypothesis is a valuable tool, identify test and outcome variables, inferences, predictions, and/or conclusions that are based on data.
Score/Step 2.0	□ I am able to recognize a hypothesis. □ I am able to recognize a variable in a scientific experiment. □ I am able to use simple data to draw a conclusion.	Read a scenario about an experiment and identify the hypothesis and variables and analyze the data to form a conclusion.
Score/Step 1.0	□ I am able to explain the difference between an experiment and other types of scientific investigation.	

SC.8.N.1.2 Assessed as SC.7.N.1.2: Design and conduct a study using repeated trials and replication. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to compare and evaluate the use and importance of repetition versus replication in a scientific investigation.	Analyze different scientific investigations and compare and evaluate the use and importance of repetition versus replication. Use the information to create a presentation.
Score/Step 4.0	□ I am able to distinguish between and explain the need for repetition and replication.	Complete a claim, evidence, and reasoning paragraph for the importance of repetition and replication in scientific investigations.
Score/Step 3.0 Target (Learning Goal)	□ I am able to distinguish between repetition and replication.	Create a graphic organizer that compares and contrasts repetition and replication. (include examples from lab experiences involving density, mass, weight)
Score/Step 2.0	□ I am able to identify examples of repetition and replication.	Create a foldable that identifies examples of repetition and replication in scientific investigations.
Score/Step 1.0	□ I am able to understand the need for scientific investigations to be repeated by others.	

SC.8.N.1.3 Assessed as SC.8.N.1.1: Use phrases such as "results support" or "fail to support" in science, understanding that science does not offer conclusive 'proof' of a knowledge claim. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to analyze and interpret data to make inferences and predictions and to defend conclusions using phrases like “results support” or “fail to support”	Using a journal or research article, analyze and interpret data to make inferences and predictions and to defend conclusions using phrases like “results support” or “fail to support”
Score/Step 4.0	□ I am able to analyze and interpret data to make inferences and predictions and to defend conclusions using phrases like “results support” or “fail to support”	Using a journal or research article, analyze and interpret data to make inferences and predictions and to defend conclusions using phrases like “results support” or “fail to support”
Score/Step 3.0 Target (Learning Goal)	□ I am able to identify inferences, predictions, and/or conclusions that are based on data in an experiment	Identify inferences and predictions in an experiment and identify conclusions based on data.
Score/Step 2.0	□ I am able to use simple data to draw a conclusion	Use simple data to draw a conclusion.
Score/Step 1.0	□ I am able to keep records that describe observations made, carefully distinguishing actual observations from ideas and inferences about observations	

SC.8.N.1.4 Assessed as SC.8.N.1.1: Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to evaluate the use of hypotheses in the design and evaluation of experiments.	Design multiple simple experiments with elements, compounds and mixtures that affect the same outcome variable in which the correct cause-effect relationship is confirmed
Score/Step 4.0	I am able to relate the use of hypotheses in the design and evaluation of experiments.	Perform an experiment that shows that through experimentation and trial and error, a hypothesis may be rejected but should lead to further investigations.
Score/Step 3.0 Target (Learning Goal)	I am able to evaluate the value of hypotheses.	Perform an experiment that shows that through experimentation a hypothesis may be rejected but should lead to further investigations. Explain why a hypothesis is valuable.
Score/Step 2.0	I am able to recognize a hypothesis.	Explain the basic purpose of a hypothesis.
Score/Step 1.0	I am able to explain the difference between an experiment and other types of scientific investigation.	

SC.8.N.1.6 Assessed as SC.6.N.2.2: Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected evidence. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to interpret and analyze data to generate explanations and defend conclusions.	Analyze and interpret data on the properties of elements from the periodic table before and after the substances interact to determine if a chemical reaction has occurred.
Score/Step 4.0	I am able to interpret and analyze data to generate explanations and defend conclusions.	Analyze and interpret data on the properties of common elements from the periodic table before and after they interact to determine if a chemical reaction has occurred.
Score/Step 3.0 Target (Learning Goal)	I am able to identify predictions, and/or conclusions that are based on data in an experiment.	Identify conclusions and predictions based on data collected from data on an experiment on the atom.
Score/Step 2.0	I am able to use simple data to draw a conclusion.	Use the data from a experimental scenario to draw a conclusion.
Score/Step 1.0	I am able to recognize and explain that science is based on observations that are testable; an explanation must always be linked with evidence.	

SC.8.N.1.6 Assessed as SC.6.N.2.2: Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected evidence. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to apply scientific thinking to evaluate an investigation. This scientific thinking involves collecting relevant evidence and using logical reasoning to create hypotheses, predictions, explanation, and models that make sense of the data.	Collect moon phase data for one week. Create a mathematical representation to predict the moon phases for the next year. Create a visual model of the relative positions of Earth-moon-sun for each phase.
Score/Step 4.0	I am able to apply scientific thinking to evaluate an investigation. This scientific thinking involves collecting relevant evidence and using logical reasoning to create hypotheses, predictions, explanation, and models that make sense of the data.	Collect moon phase data for one week. Use logical reasoning to predict the moon phases for the next month. Create a visual model of the relative positions of Earth-moon-sun for each day.
Score/Step 3.0 Target (Learning Goal)	I am able to apply scientific thinking to evaluate an investigation. This scientific thinking involves collecting relevant evidence and using logical reasoning to create hypotheses, predictions, explanation, and models that make sense of the data.	Collect moon phase data for one week. Use logical reasoning to predict the moon phases for the next week.
Score/Step 2.0	I am able to identify an investigation that uses scientific thinking. This scientific thinking involves collecting relevant evidence and using logical reasoning to create hypotheses, predictions, explanation, and models that make sense of the data.	Identify an investigation that uses scientific thinking. This scientific thinking involves collecting relevant evidence and using logical reasoning to create hypotheses, predictions, explanation, and models that make sense of the data.
Score/Step 1.0	I am able to explain that empirical evidence is information, such as observations or measurements, which is used to help support explanations of natural events	

SC.8.N.3.2 Assessed as SC.7.N.3.1: Explain why theories may be modified but are rarely discarded. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to provide justification to distinguish between scientific theories and laws.	Write a research paper on the atomic theory. Outline the progression of the theory and explain the main points that define it as a theory. Explain the limitations of the model and why it is not considered a law.
Score/Step 4.0	□ I am able to distinguish between scientific theories and laws.	Compare and contrast various laws and theories on a Venn diagram. Then focus on the atomic theory and analyze how it fits under the characteristics
Score/Step 3.0 Target (Learning Goal)	□ I am able to recognize a theory from a scientific law.	Properly place on a T-Table various theories and laws that you have studied since sixth grade.
Score/Step 2.0	□ I am able to recognize that some scientific knowledge has changed.	Cite examples of how the atomic theory has been changed or modified over time.
Score/Step 1.0	□ I am able to recognize and explain the need for repeated experimental trials.	

SC.8.N.3.2 Assessed as SC.7.N.3.1: Explain why theories may be modified but are rarely discarded. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to evaluate the reasons why and conditions under which scientific knowledge is subject to change □ I am able to provide justification to distinguish between scientific theories and laws such as law of universal gravitation, law of superposition, theory of plate tectonics, atomic theory, law of conservation of mass, law of conservation of energy, cell theory, and the scientific theory of evolution	Evaluate the reasons why and a condition under which knowledge is subject to change. Justify the reasons for distinguishing between laws and theories and explain why theories are subject to change while laws remain constant.
Score/Step 4.0	□ I am able to relate the reasons why scientific knowledge is subject to change □ I am able to tell the difference between scientific theories and laws such as law of universal gravitation, law of superposition, theory of plate tectonics, atomic theory, law of conservation of mass, law of conservation of energy, cell theory, and the scientific theory of evolution	Differentiate between laws and theories such as the law of gravity and the Big Bang Theory and understand that theories can change with new evidence.
Score/Step 3.0 Target (Learning Goal)	□ I am able to recognize that scientific knowledge is subject to change □ I am able to recognize examples of scientific theories and laws such as law of universal gravitation, law of superposition, theory of plate tectonics, atomic theory, law of conservation of mass, law of conservation of energy, cell theory, and the scientific theory of evolution	Recognize examples of laws and theories such as law of universal gravitation and the Big Bang Theory, and understand that scientific knowledge can change.
Score/Step 2.0	□ I am able to recognize that some scientific knowledge has changed	Recognize that scientific knowledge has changed through time.
Score/Step 1.0	□ I am able to recognize and explain that scientific theory is a well-supported explanation of nature and it is not simply a claim made by a single person.	

SC.8.E.5.2 Assessed as SC.8.E.5.3: Recognize that the universe contains many billions of galaxies and that each galaxy contains many billions of stars. (Level 1: Recall)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to explain that the universe contains billions of galaxies and that each galaxy contains billions of stars.	Differentiate between the different types of galaxies.
Score/Step 4.0	□ I am able to identify and describe the different types of galaxies found in the universe.	Construct 3-D models of the different types of galaxies.
Score/Step 3.0 Target (Learning Goal)	□ I am able to describe that the universe contains billions of galaxies and stars.	Complete a digital presentation that describes each type of galaxy including the number and arrangement of stars
Score/Step 2.0	□ I am able to define stars and galaxies.	Define what makes the Sun a star and why our solar system is a part of a galaxy. Compare and contrast stars and galaxies.
Score/Step 1.0	□ I am able to tell apart the basic components of a galaxy. □ I know that the universe contains stars and galaxies	

SC.8.E.5.3: Distinguish the hierarchical relationships between planets and other astronomical bodies relative to solar system, galaxy, and universe, including distance, size, and composition. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to compare relative distance and relative size in terms of light and space travel, as well as general composition of astronomical bodies in the universe	Use a scale model of the universe to develop a plan for space travel including specific limitations of space travel. (See www.scaleofuniverse.com for a sample scale model.)
Score/Step 4.0	□ I am able to compare relative distance, relative size, and general composition of astronomical bodies in the universe.	Create a scale model of the solar system and relate the scale to galaxies and the university.
Score/Step 3.0 Target (Learning Goal)	□ I am able to distinguish among the relative distance, relative size, and general composition of astronomical bodies in the universe.	Use a graphic organizer to distinguish astronomical bodies in the universe based on relative distance, relative size, and general composition
Score/Step 2.0	□ I am able to recognize relative distance and relative size of astronomical bodies in the universe.	Identify astronomical bodies based on relative distances and relative sizes.
Score/Step 1.0	□ I am able to distinguish among the Sun, planets, moons, asteroids, and comets.	

SC.8.E.5.4 Assessed as SC.8.E.5.7: Explore the Law of Universal Gravitation by explaining the role that gravity plays in the formation of planets, stars, and solar systems and in determining their motions. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to relate the role that gravity plays to the formation and motion of planets, stars, and solar systems	Write an analytical essay on the criteria and constraints of gravity that scientists must consider and overcome in space exploration and satellite use.
Score/Step 4.0	□ I am able to relate the role that gravity plays to the formation and motion of planets, stars, and solar systems	Develop an interactive model demonstrating the relationship that the role of gravity plays in the formation and motion of planets, stars, and solar systems *(Emphasis on planetary sizes, relative distances, and number of moons or rings as it relates to differing gravitational pulls).*
Score/Step 3.0 Target (Learning Goal)	□ I am able to identify the role that gravity plays in the formation and motion of planets, stars, and solar systems	Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system *(Emphasis for the model is on gravity as the force that holds together the solar system and Milky Way galaxy and controls orbital motions within them).*
Score/Step 2.0	□ I am able to recognize that gravity plays a role in the formation and motion of planets, stars, and solar systems	Define gravity. Identify the gravitational pull of planets, moons, and stars based on size/ mass.
Score/Step 1.0	□ I am able to explain that gravity is a force that impacts the planets, stars, and solar systems	

SC.8.E.5.5: Describe and classify specific physical properties of stars: apparent magnitude (brightness), temperature (color), size, and luminosity (absolute brightness).(Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to classify stars using data, observations, and physical properties like brightness (apparent magnitude), color (temperature), size and absolute brightness (luminosity)	Analyze the pictorial display of data of the HR diagram to compare patterns of similarities of physical properties of stars.
Score/Step 4.0	I am able to classify stars using data, observations, and physical properties like brightness (apparent magnitude), color (temperature), size and absolute brightness (luminosity)	Use mathematical representations (data) of physical properties of stars and plot the data to develop an original HR diagram.
Score/Step 3.0 Target (Learning Goal)	I am able to identify the physical properties of stars like brightness (apparent magnitude), color (temperature), size, and absolute brightness (luminosity)	Use a visual HR model to identify the physical properties of different stars: apparent magnitude, temperature (color), size, and absolute brightness.
Score/Step 2.0	I am able to identify some of the physical properties of stars like brightness (apparent magnitude), color (temperature), size, and absolute brightness (luminosity)	Define and identify the physical properties of stars like brightness (apparent magnitude), color (temperature), size, and absolute brightness (luminosity)
Score/Step 1.0	I am able to explain that stars can be different; some are smaller, some are larger, and some appear brighter than others	

SC.8.E.5.6 Assessed as SC.8.E.5.5: Create models of solar properties including: rotation, structure of the Sun, convection, sunspots, solar flares, and prominences. (Level 1: Recall)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze models of solar properties and solar characteristics like rotation, the structure of the Sun, convection, sunspots, solar flares, and prominences	Using a computer model/imagery of the Sun, analyze the movement of heat and charged particles from the core, through the layers of the Sun, and into space. Analyze how the solar properties impact Earth.
Score/Step 4.0	I am able to evaluate models of solar properties and solar characteristics like rotation, the structure of the Sun, convection, sunspots, solar flares, and prominences	Using a model of the Sun, describe the movement of heat and charged particles from the core, through the layers of the Sun, and into space. Describe how the solar properties impact Earth.
Score/Step 3.0 Target (Learning Goal)	I am able to compare models of solar properties and identify solar properties on a model like rotation, the structure of the Sun, convection, sunspots, solar flares, and prominences	Identify and describe solar properties (rotation, the structure of the Sun, convection, sunspots, solar flares, and prominences) using a model of our Sun.
Score/Step 2.0	I am able to recognize some solar properties on models like rotation, the structure of the Sun, convection, sunspots, solar flares, and prominences	Define and label the parts of the Sun.
Score/Step 1.0	I am able to identify the Sun as a star and that it emits energy that can be in the form of light	

SC.8.E.5.7: Compare and contrast the properties of objects in the Solar System including the Sun, planets, and moons to those of Earth, such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to differentiate the characteristics of objects in the Solar System such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions	Based on characteristics of objects in the Solar System such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions, explain why other astronomical bodies cannot support life.
Score/Step 4.0	I am able to compare and contrast the characteristics of objects in the Solar System such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions	Develop and use a model to compare and contrast the characteristics of objects in the Solar System such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions.
Score/Step 3.0 Target (Learning Goal)	I am able to compare and contrast the characteristics of objects in the Solar System such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions	Develop a model of the Solar System and use the model to describe the differences in temperature, size, gravitational pull, distances, and atmospheric compositions of objects in the solar system.
Score/Step 2.0	I am able to identify the characteristics of objects in the Solar System such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions	Identify differences in temperature, size, gravitational pull, distances, and atmospheric compositions of objects in the solar system.
Score/Step 1.0	I am able to recognize the major common characteristics of all planets and compare/contrast the properties of inner and outer planets (surface composition, presence of an atmosphere, size, relative position to the Sun, relative temperature, and relative length of a year)	

SC.8.E.5.8 Assessed as SC.8.E.5.7: Compare various historical models of the Solar System, including geocentric and heliocentric. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze, from a historical perspective, why scientists created different models (geocentric and heliocentric) of the Solar System	Create a timeline of the historical models of the Solar System and explain the evidence that supported these changes.
Score/Step 4.0	I am able to compare the geocentric and heliocentric models as well as other historical models of the Solar System	Create a timeline of the historical models of the Solar System.
Score/Step 3.0 Target (Learning Goal)	I am able to compare the geocentric and heliocentric historical models of the Solar System	Compare and contrast the geocentric and heliocentric historical models of the Solar System.
Score/Step 2.0	I am able to recognize the geocentric and heliocentric historical models of the Solar System	Identify the geocentric and heliocentric models of the Solar System.
Score/Step 1.0	I am able to tell the difference between the following objects of the Solar System—Sun, planets, moon, asteroids, comets—and identify Earth's position in it	

SC.8.E.5.9: Explain the impact of objects in space on each other including: 1. the Sun on the Earth including seasons and gravitational attraction and 2. the Moon on the Earth, including phases, tides, and eclipses, and the relative position of each body. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to analyze how astronomical bodies in the Solar System affect each other including the Sun on the Earth (seasons, tides, eclipses) and the Moon on the Earth (tides, phases of the moon, eclipses) along with the relative position of each body	Analyze how relative positions of Earth-Sun-moon and corresponding tides affect extreme weather events. Analyze the historical implications of eclipses.
Score/Step 4.0	□ I am able to relate the effect of astronomical bodies on each other included the effect of the Sun and the Moon on the Earth (seasons, tides, eclipses, phases of the moon)	Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons. Use the model to describe the role of gravity in the motions of the Earth-sun-moon system.
Score/Step 3.0 Target (Learning Goal)	□ I am able to recall the effect of astronomical bodies on each other including the effect of the Sun and the Moon on the Earth (seasons, tides, eclipses, phases of the moon)	Use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons. Use the model to describe the role of gravity in the motions of the Earth-sun-moon system.
Score/Step 2.0	□ I am able to recognize some of the relationships between the Sun, Moon, and Earth (seasons, tides, eclipses, phases of the moon)	Recognize some of the relationships between the Sun, Moon, and Earth
Score/Step 1.0	□ I am able to describe how the Moon appears to change shape over the course of a month. □ I am able to recognize that Earth revolves around the Sun in a year and rotates on its axis every day. □ I am able to relate that the rotation of the Earth and movement of the Sun, Moon, and stars are connected.	

SC.8.E.5.10 Assessed as SC.7.N.1.5: Assess how technology is essential to science for such purposes as access to outer space and other remote locations, sample collection, measurement, data collection and storage, computation, and communication of information.(Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze the role of technology and how it is essential to science. Examples of technology in science are: access outer space and other remote locations, sample collection, measurement, data collection and storage, calculations, and communication of information.	Analyze a scientific tool and predict how future advancements in its technology can optimize scientific knowledge of space exploration.
Score/Step 4.0	I am able to evaluate the role of technology and relate how it is essential to science. Examples of technology in science are: access outer space and other remote locations, sample collection, measurement, data collection and storage, calculations, and communication of information.	Choose a scientific tool and analyze how its advancements in technology through time impacted scientific knowledge of space exploration.
Score/Step 3.0 Target (Learning Goal)	I am able to identify the role of technology and how it is essential to science. Examples of technology in science are: access outer space and other remote locations, sample collection, measurement, data collection and storage, calculations, and communication of information.	Identify the uses, advancements, and limitations of technology. Understand how technology optimizes scientific knowledge of space exploration.
Score/Step 2.0	I am able to recognize the value of technology used in science. Examples of technology in science are: access outer space and other remote locations, sample collection, measurement, data collection and storage, calculations, and communication of information.	Recognize the value of technology in space exploration.
Score/Step 1.0	I am able to explain that models can be created using technology	

SC.8.E.5.11 Assessed as SC.7.P.10.1: Identify and compare characteristics of the electromagnetic spectrum such as wavelength, frequency, use, and hazards and recognize its application to an understanding of planetary images and satellite photographs. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to compare the characteristics of waves using the electromagnetic spectrum such as wavelength, frequency, use and hazards and recognize its application to an understanding of planetary images.	Compare and contrast characteristics of waves in the EM Spectrum; understand the hazards and the applications of each type to space exploration and everyday life. (*Recognize that digitized signals (sent as wave pulses) are a reliable way to encode and transmit information from space such as planetary images)*
Score/Step 4.0	I am able to compare the characteristics of waves using the electromagnetic spectrum such as wavelength, frequency, use and hazards and recognize its application to an understanding of planetary images.	Compare and contrast characteristics of waves in the EM Spectrum; understand the hazards and the applications of each type to space exploration and everyday life. (*Recognize that digitized signals (sent as wave pulses) are a reliable way to encode and transmit information from space such as planetary images)*
Score/Step 3.0 Target (Learning Goal)	I am able to compare the characteristics of waves using the electromagnetic spectrum such as wavelength, frequency, use and hazards and recognize its application to an understanding of planetary images.	Compare and contrast characteristics of waves in the EM Spectrum; understand the hazards and the applications of each type to space exploration and everyday life.
Score/Step 2.0	I am able to identify some characteristics of the electromagnetic spectrum such as wavelength, frequency, use and hazards and recognize its application to an understanding of planetary images.	Identify some characteristics of the electromagnetic spectrum such as wavelength, frequency, use and hazards and recognize its application to an understanding of planetary images
Score/Step 1.0	This topic is foundational and has not been introduced at an earlier age.	

SC.8.P.8.1 Assessed as SC.8.P.8.5: Explore the scientific theory of atoms (also known as atomic theory) by using models to explain the motion of particles in solids, liquids, and gases. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to analyze models of the scientific theory of atoms and the motion of atomic particles.	Create a timeline of the modification of the model of the atom that explains how new investigations led to changes in the model. Develop models of the atoms to show the movement of the subatomic particles.
Score/Step 4.0	□ I am able to apply knowledge of atoms and the motion of atomic particles.	Develop models to describe the atomic composition of simple molecules and extended structures. Describe the motion of atomic particles.
Score/Step 3.0 Target (Learning Goal)	□ I am able to relate the scientific theory of atoms using models.	Develop models to describe the atomic composition of simple molecules. Relate the formation of compounds to the scientific theory of atoms.
Score/Step 2.0	□ I am able to identify atoms, elements, or compounds.	Draw and label models of atoms, elements and compounds and the atomic composition of simple molecules.
Score/Step 1.0	□ I am able to describe that matter is made of particles too small to be seen.	

SC.8.P.8.2 Assessed as SC.6.P.13.1: Differentiate between weight and mass recognizing that weight is the amount of gravitational pull on an object and is distinct from, though proportional to, mass. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to provide examples that differentiate mass and weight	Research the difference between mass and weight of an object at various locations such as Earth, Moon, outer space and other planets. Use the information to develop a table and explain why there are differences at each location.
Score/Step 4.0	I am able to analyze the differentiate mass and weight	Design and complete an experiment about the difference between mass and weight.
Score/Step 3.0 Target (Learning Goal)	I am able to differentiate mass and weight	After completing an activity on the differences in mass and weight, explain why mass stays the same but weight changes.
Score/Step 2.0	I am able to recognize that there is a difference between mass and weight	Create a Venn diagram that compares and contrast mass and weight.
Score/Step 1.0	I am able to identify familiar forces that cause objects to move, such as pushes or pulls, including gravity acting on falling objects.	

SC.8.P.8.4: Classify and compare substances on the basis of characteristic physical properties that can be demonstrated or measured; for example, density, thermal or electrical conductivity, solubility, magnetic properties, melting and boiling points, and know that these properties are independent of the amount of the sample. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to classify and compare substances using data, observations, and measurable physical properties. □ I am able to calculate and analyze the densities of various materials using data.	Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.
Score/Step 4.0	□ I am able to classify and compare substances based on their measurable physical properties. □ I am able to calculate and evaluate the densities of various materials.	Describe density and/or calculate and compare the densities of various materials using the materials' masses and volumes. (may require use of the density formula to calculate density, mass, or volume when comparing substances)
Score/Step 3.0 Target (Learning Goal)	□ I am able to classify and compare substances based on their measurable physical properties. □ I am able to calculate and evaluate the densities of various materials.	Classify and compare the density, thermal or electrical conductivity, solubility, magnetic properties, melting and boiling points of several common substances that you encounter in your everyday life, ex. gold, silver, aluminum, glass, plastic, water, oil) Explain why the properties remain the same regardless of the amount of substance being tested Use the density formula to calculate density, mass, or volume when comparing substances
Score/Step 2.0	□ I am able to identify some substances based on their measurable physical properties. □ I am able to compare the densities of various materials.	Identify various ways in which substances differ (i.e., density, mass, volume, thermal or electrical conductivity, solubility, magnetic properties, melting and boiling points, reaction to light and temperature).
Score/Step 1.0	□ I am able to differentiate the physical properties of solids, liquids, and gases.	

SC.8.P.8.5: Recognize that there are a finite number of elements and that their atoms combine in a multitude of ways to produce compounds that make up all of the living and nonliving things that we encounter. (Level 1: Recall)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to analyze how elements are grouped in the Periodic Table of the Elements according to similar properties and determine how they combine to produce compounds.	Develop models to describe the atomic composition of simple molecules and extended structures. (*Examples of molecular-level models could include drawings, 3D ball and stick structures, or computer representations showing different molecules with different types of atoms, such as a protein)*
Score/Step 4.0	□ I am able to relate that all elements are grouped in the Periodic Table of the Elements according to similar properties and determine how they combine to produce compounds.	Develop models to describe the atomic composition of simple molecules and extended structures. (*Examples of extended structures could include sodium chloride or diamonds)*
Score/Step 3.0 Target (Learning Goal)	□ I am able to recognize that all elements are grouped in the Periodic Table of the Elements according to similar properties and determine how they combine to produce compounds.	Develop models to describe the atomic composition of simple molecules and extended structures. *(Emphasis is on developing models of molecules that vary in complexity. Examples of simple molecules could include water, ammonia and methanol)*
Score/Step 2.0	□ I am able to identify atoms, elements, or compounds.	Recognize the difference between several depictions of atoms, elements and compounds.
Score/Step 1.0	□ I am able to identify elements and compounds are made of atoms made up of smaller parts.	

SC.8.P.8.6 Assessed as SC.8.P.8.5: Recognize that elements are grouped in the periodic table according to similarities of their properties. (Level 1: Recall)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to analyze how elements are grouped in the Periodic Table of the Elements according to similar properties and determine how they combine to produce compounds.	Develop models to describe the atomic composition of simple molecules and extended structures.
Score/Step 4.0	□ I am able to relate that all elements are grouped in the Periodic Table of the Elements according to similar properties and determine how they combine to produce compounds.	Develop models to describe the atomic composition of simple molecules and extended structures.
Score/Step 3.0 Target (Learning Goal)	□ I am able to recognize that all elements are grouped in the Periodic Table of the Elements according to similar properties and determine how they combine to produce compounds.	Demonstrate that the arrangement and number of electrons determine the properties of an element and that these properties
Score/Step 2.0	□ I am able to identify examples of pure substances and mixtures.	Identify examples of elements that are found as pure substances in nature.
Score/Step 1.0	□ I am able to compare and contrast the basic properties of solids, liquids, and gases, such as mass, volume, color, texture, and temperature.	

SC.8.P.8.7 Assessed as SC.8.P.8.5: Explore the scientific theory of atoms (also known as atomic theory) by recognizing that atoms are the smallest unit of an element and are composed of sub-atomic particles (electrons surrounding a nucleus containing protons and neutrons). (Level 1: Recall)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to analyze models of the scientific theory of atoms and the motion of atomic particles.	Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.
Score/Step 4.0	□ I am able to apply knowledge of atoms and the motion of atomic particles.	Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.
Score/Step 3.0 Target (Learning Goal)	□ I am able to relate the scientific theory of atoms using models.	Describe how the atomic theory was developed. Illustrate how and why the model of the atom has changed over time
Score/Step 2.0	□ I am able to identify atoms, elements, or compounds.	Explain that atoms are the smallest unit of an element and are composed of subatomic particles.
Score/Step 1.0	□ I am able to explore the scientific theory of atoms by recognizing that all matter is composed of parts that are too small to be seen without magnification.	

SC.8.P.8.8 Assessed as SC.8.P.8.5: Identify basic examples of and compare and classify the properties of compounds, including acids, bases, and salts. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to compare and classify the properties of compounds, including acids, bases, and/or salts.	Develop models to describe the atomic composition of simple molecules and extended structure that will identify common examples of acids, bases, and/or salts and compare, contrast, and/or classify the properties of compounds, including acids and bases using the hydronium and hydroxyl ion concentration.
Score/Step 4.0	□ I am able to compare and classify the properties of compounds, including acids, bases, and/or salts.	Identify common examples of acids, bases, and/or salts and compare, contrast, and/or classify the properties of compounds, including acids and bases using the PH scale.
Score/Step 3.0 Target (Learning Goal)	□ I am able to identify examples and compare the properties of compounds, including acids, bases, and/or salts.	Identify common examples of acids, bases, and/or salts that are found at home and compare, contrast, and/or classify the properties of compounds, including acids and bases, such as detergent, lemon juice and ammonia.
Score/Step 2.0	□ I am able to identify atoms, elements, or compounds.	Recognize the properties of atoms, elements or compounds, including acids and bases.
Score/Step 1.0	□ I am able to analyze how mixtures of solids can be separated by observable properties.	

SC.8.P.8.9 Assessed as SC.8.P.8.5: Distinguish among mixtures (including solutions) and pure substances. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze the properties of substances to determine if they are mixtures or pure substances.	Develop models to describe the atomic composition of a pure substance, compounds and mixtures (including solutions). *(Examples of molecular-level models could include drawings, 3D ball and stick structures, or computer representations showing different molecules with different types of atoms)*
Score/Step 4.0	I am able to distinguish pure substances from mixtures.	Explain the similarities and differences in the structure of pure substances and mixtures, including solutions of liquids and gases
Score/Step 3.0 Target (Learning Goal)	I am able to compare pure substances and mixtures.	Differentiate the structure of pure substances and mixtures, including solutions of liquids and gases.
Score/Step 2.0	I am able to identify examples of pure substances and mixtures.	Recognize examples of pure substances and mixtures including solutions, such as gold; iron fillings and sand; soda and gases in the atmosphere.
Score/Step 1.0	I am able to separate mixtures of solids by observable properties.	

SC.8.P.9.1 Assessed as SC.8.P.9.2: Explore the Law of Conservation of Mass by demonstrating and concluding that mass is conserved when substances undergo physical and chemical changes. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to relate how mass is conserved when substances undergo physical or chemical changes.	Explore real-world conservation of mass scenarios. Give examples of scenarios where mass is conserved when substances undergo physical or chemical changes.
Score/Step 4.0	I am able to relate how the Law of Conservation of Mass applies to physical and chemical changes.	Design and perform an experiment that demonstrates the Law of Conservation of Mass in both physical and chemical changes.
Score/Step 3.0 Target (Learning Goal)	I am able to recognize that mass is conserved in physical and chemical changes.	Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved. (*Emphasis is on law of conservation of matter and on physical models or drawings, including digital forms that represent atoms)*
Score/Step 2.0	I am able to determine the mass of substances before and after physical and chemical changes to confirm that mass is conserved.	Demonstrate that mass is conserved in ordinary chemical reactions. *(Compare the mass before and after in the following physical and chemical reactions: baking soda in balloon and vinegar in small bottle, beaker of ice, bottle of dry ice with balloon, and Alka-Seltzer tablet and water)*
Score/Step 1.0	I am able to define mass and measure the mass of various substances using a triple beam balance.	

SC.8.P.9.2: Differentiate between physical changes and chemical changes. (Level 2: Basic Application of Skills & Concepts)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to determine whether a physical and chemical change has occurred through observations.	Analyze and interpret data on the properties of substances and after the substances interact to determine if a chemical reaction has occurred. (*Examples of reactions could include burning sugar or steel wool, fat reacting with sodium hydroxide, and mixing zinc with HCl)*
Score/Step 4.0	□ I am able to tell the difference between a physical and chemical change.	Determine if a chemical reaction has occurred using the indicators that signify a chemical change or a physical change.
Score/Step 3.0 Target (Learning Goal)	□ I am able to compare physical and chemical changes in common substances.	Investigate chemical changes and describe indicators that signify a chemical change has taken place. Classify changes in matter as chemical or physical change.
Score/Step 2.0	□ I am able to identify examples of physical and chemical changes.	Recognize the difference between several depictions of physical and chemical changes.
Score/Step 1.0	□ I am able to tell apart the physical properties of solids, liquids, and gases.	

SC.8.P.9.3 Assessed as SC.8.P.9.2: Investigate and describe how temperature influences chemical changes. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to explain how temperature influences a physical and chemical change.	Identify real world examples of how temperature influences physical and chemical changes and investigate how to improve the efficiency of these reactions.
Score/Step 4.0	□ I am able to explain how temperature influences a physical and chemical change.	Identify and explain real world examples of chemical and physical changes and investigate how temperature influences these changes.
Score/Step 3.0 Target (Learning Goal)	□ I am able to describe how temperature influences chemical changes.	Design an experiment that investigates how temperature impacts chemical changes in common substances.
Score/Step 2.0	□ I am able to identify examples of physical and chemical changes.	Create a presentation such as a poster, that identifies examples of physical and chemical changes
Score/Step 1.0	□ I am able to tell apart the physical properties of solids, liquids, and gases.	

SC.8.L.18.1 Assessed as SC.8.L.18.4: Describe and investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water and chlorophyll; production of food; release of oxygen. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	□ I am able to breakdown the process of photosynthesis.	Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms describing the process of photosynthesis. Investigate and manipulate the process of photosynthesis using real plants or algae
Score/Step 4.0	□ I am able to breakdown the process of photosynthesis.	Describe and investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water, and chlorophyll; production of food; and release of oxygen by writing a word equation for the process of photosynthesis and how, with light, green plants convert water and carbon dioxide, into sugar and oxygen
Score/Step 3.0 Target (Learning Goal)	□ I am able to recall the steps in the process of photosynthesis.	Describe and investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water, and chlorophyll; production of food; and release of oxygen.
Score/Step 2.0	□ I am able to explain the purpose of photosynthesis.	Recognize the process of photosynthesis, such as the roles of light, carbon dioxide, water, and chlorophyll; production of food; and release of oxygen.
Score/Step 1.0	□ I can tell the difference between the ways plants and animals obtain their energy.	

SC.8.L.18.3 Assessed as SC.8.L.18.4: Construct a scientific model of the carbon cycle to show how matter and energy are continuously transferred within and between organisms and their physical environment. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to analyze models that show the transfer of matter in the carbon cycle.	Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
Score/Step 4.0	I am able to interpret how matter is transferred in the carbon cycle.	Design and conduct investigations that measure carbon cycling through a system.
Score/Step 3.0 Target (Learning Goal)	I am able to relate how matter is transferred in the carbon cycle.	Investigate and describe a model in which the carbon cycle can be observed as it travels through the Earth's spheres (Biosphere, Geosphere, Atmosphere, Hydrosphere).
Score/Step 2.0	I am able to recognize that matter is transferred in the carbon cycle.	Label the flow of carbon given a diagram with living and non-livings things with arrows.
Score/Step 1.0	I am able to recognize that carbon is an element found on all living things.	

SC.8.L.18.4: Cite evidence that living systems follow the Laws of Conservation of Mass and Energy. (Level 3: Strategic Thinking & Complex Reasoning)		
Scale	**Learning Progression**	**Sample Progress Monitoring and Assessment Activities**
Score/Step 5.0	I am able to evaluate how living systems obey the Law of Conservation of Mass and Law of Conservation of Energy.	Construct a food pyramid and explain how and why each step is smaller than the previous in relation to the Law of Conservation of Mass and the Law of Conservation of Energy.
Score/Step 4.0	I am able to relate that living systems obey the Law of Conservation of Mass and Law of Conservation of Energy.	Explain how and why each step in a food pyramid is smaller than the previous in relation to the Law of Conservation of Mass and the Law of Conservation of Energy.
Score/Step 3.0 Target (Learning Goal)	I am able to recognize that living systems obey the Law of Conservation of Mass and Law of Conservation of Energy.	Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. *(Emphasis is on describing the conservation of matter and flow of energy into and out of various ecosystems, and on defining the boundaries of the system)* Explain that living systems obey the Law of Conservation of Mass and the Law of Conservation of Energy
Score/Step 2.0	I am able to trace the flow of energy in a food chain.	Label the flow of energy with arrows given a series of living things.
Score/Step 1.0	I am able to evaluate a model that explains how energy is transferred from the Sun through a food chain.	

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