ELEMENTARY SCIENCE GRADE 5 CURRICULUM

Course 50520

Fifth grade students will review some of the basic principles and practices of science. They will learn vocabulary and principles in a variety of topics from biology, physical science, Earth science, and ecology. Student will conduct simple investigations posing questions, making observations, using scientific tools, collecting data and posing conclusions. Students will use pictures, charts, diagrams, models, and maps to understand and represent scientific concepts.

FIFTH GRADE SCIENCE OUTLINE:

Goals	Skills	Summative Assessments	Time Frame	Main Resources
• To gain an understanding of problem solving and technological design processes. • Classify organisms based on characteristics. • Become familiar with some basic structures and systems within living organisms. • Learn about ecosystems and change within them over time. • Explore what makes a healthy ecosystem and what activities can negatively affect an ecosystem. • Learn the characteristics of matter. • To gain an understanding of the laws of motion. • Know different forms of energy and the laws of energy.	• Distinguish between a scientific fact and an opinion, providing clear explanations that connect observations and results • Observe and record change by using time and measurement. • Generate questions about objects, organisms, or events that can be answered through scientific investigations. • Select appropriate tools for making observations.	Unit Tests	1-year	Daily Science Grade 5

FIFTH GRADE SCIENCE MAP:

TIME FRAME	BIG IDEAS	CONCEPTS	ESSENTIAL QUESTIONS	STANDARDS	OBJECTIVES	DIFFERENTIATION	ASSESSMENT
Chapter 1 (Weeks 1-3)	• Technological design is a creative process that anyone can do which may result in new inventions and innovations.	1. What do scientists do? 2. How do scientists investigate? 3. How do scientist collect and interpret data? 4. How do scientist support their conclusions?	• What steps are involved in technological design and problem solving when creating inventions and innovations?	3.1.5.A9 Understand how theories are developed. Identify questions that can be answered through scientific investigations and evaluate the appropriateness of questions. Design and conduct a scientific investigation and understand that current scientific knowledge guides scientific investigations. Describe relationships using inference and prediction. Use appropriate tools and technologies to gather, analyze, and interpret data and understand that it enhances accuracy and allows scientists to analyze and quantify results of investigations. Develop descriptions, explanations, and models using evidence and understand that these emphasize evidence, have logically consistent arguments, and are based on scientific principles, models, and theories. Analyze alternative explanations and understanding that science advances through legitimate skepticism. Use mathematics in all aspects of scientific inquiry. Understand that scientific investigations may result in new ideas for study, new methods, or procedures for an investigation or new technologies to improve data collection. S3.A.1.1.1 Distinguish between fact and opinion. S5.A.1.1.1	The students will be able to: • Apply knowledge of scientific investigation or technological design to make inferences and solve problems.	one-on-one instruction modified tests modified testing locations guided notes selective grouping use of technology	unit worksheets teacher observation experiments Summative: Unit Test

				Explain how certain questions can be answered through scientific inquiry and/or technological design (e.g., investigate to find out if all clay or foil boats designs react the same when filled with paperclips). S5.A.1.1.2 Explain how observations and/or experimental results are used to support inferences and claims about an investigation or relationship (e.g., make a claim based on information on a graph). S5.A.1.1.3 Describe how explanations, predictions, and models are developed using evidence. S5.A.2.1.1 Design a simple, controlled experiment (fair test) identifying the independent and dependent variables, how the dependent variable will be measured and which variables will be held constant (e.g., relate the effect of variables [mass, release height, length of string] to number of swings of a pendulum, investigate the relationships between variables in paper airplane designs). S5.A.2.1.2 Describe relationships between variables through interpretation of data and observations (i.e., make predictions for the outcome of a controlled experiment using data tables and graphs). S5.A.2.2.1 Describe the appropriate use of instruments and scales to accurately measure time, mass, distance, volume, and temperature safely under a variety of conditions (e.g., use a			

				thermometer to observe and compare the interaction of food coloring in water at different temperatures). S5.A.2.2.2 Explain how technology extends and enhances human abilities for specific purposes (e.g., use hand lens to examine crystals in evaporation dishes; use graduated cylinders to measure the amount of water used in a controlled plant experiment). S5.A.3.1.1 Make predictions based on patterns in natural systems (e.g., phases of the Moon, time [day, month, and year], weather, seasons). S5.A.3.2.1 Describe how models are used to better understand the relationships in natural systems (e.g., water cycle, Sun-Earth-Moon system, ecosystems, observe and draw a diagram to show the effects of flowing water in a watershed). S6.A.1.1.1 Explain how certain questions can be answered through scientific inquiry and/or technological design (e.g., consumer product testing, common usage of simple machines, modern inventions). S6.A.1.1.2 Use evidence to support inferences and claims about an investigation or relationship (e.g., common usage of simple machines). S6.A.1.1.3			

				Predict the outcome of an experiment based on previously collected data.			
Chapter 2 (Weeks 4-6)	• Technology is created, used and modified by humans.	1. What is technology? 2. How does technology mimic living things? 3. What is the design process?	• What methods do humans employ to create, use, and modify technologies?	3.4.5.B1 Explain how the use of technology can have unintended consequences.	The students will be able to: • Explain how certain questions can be answered through scientific inquiry and/or technological design (e.g., investigate to find out if all clay or foil boats designs react the same when filled with paperclips). • Describe relationships between variables through interpretation of data and observations (i.e., make predictions for the outcome of a controlled experiment using data tables and graphs). • Explain how technology extends and enhances human abilities for specific purposes (e.g., use hand lens to examine crystals in evaporation dishes; use graduated cylinders to measure the amount of water used in a controlled plant experiment). • Describe how models are used to better understand the relationships in natural systems (e.g., water cycle,	one-on-one instruction modified tests modified testing locations guided notes selective grouping use of technology	unit worksheets teacher observation experiments Summative: - Unit Test

					Sun-Earth- Moon system, ecosystems, observe and draw a diagram to show the effects of flowing water in a watershed).		
Chapter 3 (Weeks 7-9)	• Aquatic, terrestrial and human-made ecosystems consist of diverse living and non-living components that change over time and among geographic areas.	1. How do we classify living things? 2. How do we classify animals? 3. How do we classify plants? 4. How can a key help you identify and classify?	• How do ecosystems differ and change over time?	4.1.5.D Explain the differences between threatened, endangered, and extinct organisms. 4.4.5.C Investigate the factors influencing plant and animal growth. (e.g., soil, water, nutrients, and light) BIO.B.4.1.2 Describe characteristic biotic and abiotic components of aquatic and terrestrial ecosystems. BIO.B.4.2.5 Describe the effects of limiting factors on population dynamics and potential species extinction.	The students will be able to: • Describe relationships between variables through interpretation of data and observations (i.e., make predictions for the outcome of a controlled experiment using data tables and graphs).	one-on-one instruction modified tests modified testing locations guided notes selective grouping use of technology	unit worksheets teacher observation experiments Summative: Unit Test
Chapter 4 (Weeks 10-12)	• The survival of living things is dependent upon their adaptations and ability to respond to natural changes in and human influences on the environment.	1. What are some physical structures in living things? 2. How do adaptations help plants? 3. How do adaptations help animals? 4. What are some life cycles of animals?	• How do adaptations enable an organism to survive?	3.1.5.A3 Compare and contrast the similarities and differences in life cycles of different organisms. 3.1.5.C1 Describe how organisms meet some of their needs in an environment by using behaviors (patterns of activities) in response to information (stimuli) received from the environment. 3.1.5.C2 Give examples of how inherited characteristics (e.g., shape of beak, length of neck, location of eyes, shape of teeth) may change over time as adaptations to changes in the environment that enable organisms to survive. S5.A.1.1.1	The students will be able to: • Describe relationships between variables through interpretation of data and observations (i.e., make predictions for the outcome of a controlled experiment using data tables and graphs). • S.5.A.3.1.1 Make predictions based on patterns in natural systems (e.g., phases of the Moon, time [day, month, and year], weather, seasons).	one-on-one instruction modified tests modified testing locations guided notes selective grouping use of technology	unit worksheets teacher observation experiments Summative: Unit Test

				Explain how certain questions can be answered through scientific inquiry and/or technological design (e.g., investigate to find out if all clay or foil boats designs react the same when filled with paperclips). S5.A.1.1.2 Explain how observations and/or experimental results are used to support inferences and claims about an investigation or relationship (e.g., make a claim based on information on a graph). S5.A.1.1.3 Describe how explanations, predictions, and models are developed using evidence. S5.A.2.1.1 Design a simple, controlled experiment (fair test) identifying the independent and dependent variables, how the dependent variable will be measured and which variables will be held constant (e.g., relate the effect of variables [mass, release height, length of string] to number of swings of a pendulum, investigate the relationships between variables in paper airplane designs). S5.A.2.1.2 Describe relationships between variables through interpretation of data and observations (i.e., make predictions for the outcome of a controlled experiment using data tables and graphs). S5.A.2.2.1 Describe the appropriate use of instruments and scales to accurately measure time, mass, distance, volume, and temperature safely under a variety of conditions (e.g., use a	• Describe how models are used to better understand the relationships in natural systems (e.g., water cycle, Sun-Earth- Moon system, ecosystems, observe and draw a diagram to show the effects of flowing water in a watershed). • Differentiate between inherited and acquired traits (e.g., scars, injuries). • Explain how inherited traits help organisms survive and reproduce in different environments. • Explain how certain behaviors help organisms survive and reproduce in different environment		

				thermometer to observe and compare the interaction of food coloring in water at different temperatures). S5.A.2.2.2 Explain how technology extends and enhances human abilities for specific purposes (e.g., use hand lens to examine crystals in evaporation dishes; use graduated cylinders to measure the amount of water used in a controlled plant experiment). S5.A.3.1.1 Make predictions based on patterns in natural systems (e.g., phases of the Moon, time [day, month, and year], weather, seasons). S5.A.3.2.1 Describe how models are used to better understand the relationships in natural systems (e.g., water cycle, Sun-Earth-Moon system, ecosystems, observe and draw a diagram to show the effects of flowing water in a watershed). S5.B.1.1.1 Recognize that all organisms are composed of cells. S5.B.1.1.2 Explain the concept of the cell as the basic structural unit of all living things. S5.B.1.1.3 Compare the structure and function of basic cell parts in organisms (i.e., plants and animals). S5.B.2.1.1 Differentiate between inherited and acquired traits (e.g., scars, injuries).			

				S5.B.2.1.2 Explain how inherited traits help organisms survive and reproduce in different environments. S5.B.2.1.3 Explain how certain behaviors help organisms survive and reproduce in different environments. S5.B.2.1.4 Identify changes in environmental conditions that can affect the survival of populations and entire species. S5.B.3.1.1 Describe the roles of producers, consumers, and decomposers within a local ecosystem. S5.B.3.1.2 Describe the relationships between organisms in different food webs. S5.B.3.2.1 Identify fossil fuels and alternative fuels used by humans. S5.B.3.2.2 Describe the usefulness of Earth's physical resources as raw materials for the human-made world. S5.B.3.2.3 Explain how different items are recycled and reused.			
Chapter 5 (Weeks 13-15)	• The health of all living things is directly related to the quality of the environment.	1. What is the circulatory system? 2. What is the respiratory system? 3. What are the skeletal muscular systems?	• How does the quality of environments affect the health of living things?	3.4.5.E1 Identify how technological advances have made it possible to create new devices and to repair or replace certain parts of the human body. S5.A.1.1.1 Explain how certain questions can be answered through	Students will be able to: • Describe relationships between variables through interpretation of data and observations (i.e.,	one-on-one instruction modified tests modified testing locations guided notes	unit worksheets teacher observation experiments Summative: Unit Test

		4. What is the nervous system what are some other systems?		scientific inquiry and/or technological design (e.g., investigate to find out if all clay or foil boats designs react the same when filled with paperclips). S5.A.1.1.2 Explain how observations and/or experimental results are used to support inferences and claims about an investigation or relationship (e.g., make a claim based on information on a graph). S5.A.1.1.3 Describe how explanations, predictions, and models are developed using evidence. S5.B.1.1 Describe how the cell is the basic unit of structure and function for all living things. S5.B.1.1.2 Explain the concept of the cell as the basic structural unit of all living things. S5.B.3.1.1 Describe the roles of producers, consumers, and decomposers within a local ecosystem. S5.B.3.1.2 Describe the relationships between organisms in different food webs. S6.A.1.1.1 Explain how certain questions can be answered through scientific inquiry and/or technological design (e.g., consumer product testing, common usage of simple machines, modern inventions). S6.A.1.1.2 Use evidence to support inferences and claims about an investigation or relationship (e.g.,	make predictions for the outcome of a controlled experiment using data tables and graphs). • Describe how models are used to better understand the relationships in natural systems (e.g., water cycle, Sun-Earth- Moon system, ecosystems, observe and draw a diagram to show the effects of flowing water in a watershed).	selective grouping use of technology	

				common usage of simple machines). S6.A.1.1.3 Predict the outcome of an experiment based on previously collected data.			
Chapter 6 (Weeks 16-18)	• Sustainable use of natural resources is essential to provide for the needs and wants of all living things now and in the future.	1. What are some parts of an ecosystem? 2. How do organisms interact in ecosystems? 3. How do ecosystems change? 4. How do humans impact ecosystems? 5. What heats up air?	• Why is the sustainable use of natural resources necessary?	3.1.5.A2 Describe how life on earth depends on energy from the sun. 3.1.5.A3 Compare and contrast the similarities and differences in life cycles of different organisms. 3.1.5.C1 Describe how organisms meet some of their needs in an environment by using behaviors (patterns of activities) in response to information (stimuli) received from the environment. S5.A.1.1.1 Explain how certain questions can be answered through scientific inquiry and/or technological design (e.g., investigate to find out if all clay or foil boats designs react the same when filled with paperclips). S5.A.1.1.2 Explain how observations and/or experimental results are used to support inferences and claims about an investigation or relationship (e.g., make a claim based on information on a graph). S5.A.1.1.3 Describe how explanations, predictions, and models are developed using evidence. S5.A.2.1.1 Design a simple, controlled experiment (fair test) identifying the independent and dependent variables, how the dependent	Students will be able to: • Describe relationships between variables through interpretation of data and observations (i.e., make predictions for the outcome of a controlled experiment using data tables and graphs). • Make predictions based on patterns in natural systems (e.g., phases of the Moon, time [day, month, and year], weather, • Describe how models are used to better understand the relationships in natural systems (e.g., water cycle, Sun-Earth- Moon system, ecosystems, observe and draw a diagram to show the effects of flowing water in a watershed). • Identify changes in environmental conditions that can affect the survival of populations and entire species. • Describe the roles of producers,	one-on-one instruction modified tests modified testing locations guided notes selective grouping use of technology	unit worksheets teacher observation experiments Summative: Unit Test

				variable will be measured and which variables will be held constant (e.g., relate the effect of variables [mass, release height, length of string] to number of swings of a pendulum, investigate the relationships between variables in paper airplane designs). S5.A.2.1.2 Describe relationships between variables through interpretation of data and observations (i.e., make predictions for the outcome of a controlled experiment using data tables and graphs). S5.A.2.2.1 Describe the appropriate use of instruments and scales to accurately measure time, mass, distance, volume, and temperature safely under a variety of conditions (e.g., use a thermometer to observe and compare the interaction of food coloring in water at different temperatures). S5.A.2.2.2 Explain how technology extends and enhances human abilities for specific purposes (e.g., use hand lens to examine crystals in evaporation dishes; use graduated cylinders to measure the amount of water used in a controlled plant experiment). S5.A.3.1.1 Make predictions based on patterns in natural systems (e.g., phases of the Moon, time [day, month, and year], weather, seasons). S5.A.3.2.1 Describe how models are used to better understand the relationships in natural systems (e.g., water cycle, Sun-Earth-	consumers, and decomposers within a local ecosystem.		

				Moon system, ecosystems, observe and draw a diagram to show the effects of flowing water in a watershed). S5.B.2.1.3 Explain how certain behaviors help organisms survive and reproduce in different environments. S5.B.2.1.4 Identify changes in environmental conditions that can affect the survival of populations and entire species. S5.B.3.1.1 Describe the roles of producers, consumers, and decomposers within a local ecosystem. S5.B.3.1.2 Describe the relationships between organisms in different food webs. S5.B.3.2.1 Identify fossil fuels and alternative fuels used by humans. S5.B.3.2.2 Describe the usefulness of Earth's physical resources as raw materials for the human-made world. S5.B.3.2.3 Explain how different items are recycled and reused. S6.A.1.1.1 Explain how certain questions can be answered through scientific inquiry and/or technological design (e.g., consumer product testing, common usage of simple machines, modern inventions). S6.A.1.1.2			

				Use evidence to support inferences and claims about an investigation or relationship (e.g., common usage of simple machines). S6.A.1.1.3 Predict the outcome of an experiment based on previously collected data.			
Chapter 7 (Weeks 19-21)	• Solid, liquid and gaseous earth materials all circulate in large scale systems at a variety of time scales, giving rise to landscapes, the rock cycle, ocean currents, weather, and climate.	1. What is the water cycle? 2. What is the ocean? 3. What is weather? 4. How do clouds and precipitation form? 5. What is climate?	• What causes the great variation at Earth's surface?	3.3.5.A4 Explain the basic components of the water cycle. 3.3.5.A5 Differentiate between weather and climate. Explain how the cycling of water, both in and out of the atmosphere, has an effect on climate S5.B.3.2.1 Identify fossil fuels and alternative fuels used by humans. S5.B.3.2.2 Describe the usefulness of Earth's physical resources as raw materials for the human-made world. S5.B.3.2.3 Explain how different items are recycled and reused. S5.C.1.2.1 Describe how water changes from one state to another. S5.C.1.2.2 Identify differences between chemical and physical changes of matter. S5.D.1.1.1 Differentiate between abrupt changes in Earth's surface (e.g., earthquakes, volcanoes, meteor impacts, landslides) and gradual changes in Earth's surface (e.g.,	The students will be able to" • Describe relationships between variables through interpretation of data and observations (i.e., make predictions for the outcome of a controlled experiment using data tables and graphs). • Make predictions based on patterns in natural systems (e.g., phases of the Moon, time [day, month, and year], weather, seasons). • Describe how models are used to better understand the relationships in natural systems (e.g., water cycle, Sun-Earth- Moon system, ecosystems, observe and draw a diagram to show the effects of flowing water in a watershed). • Explain how the cycling of water into and out of the atmosphere	one-on-one instruction modified tests modified testing locations guided notes selective grouping use of technology	unit worksheets teacher observation experiments Summative: Unit Test

				lifting up of mountains, wearing away by erosion). S5.D.1.1.2 Explain how geological processes observed today (e.g., erosion, changes in the composition of the atmosphere, volcanic eruptions, earthquakes) are similar to those in the past. S5.D.1.2.1 Identify physical, chemical, and biological factors that affect water quality. S5.D.1.2.2 Describe the importance of wetlands in an ecosystem. S5.D.2.1.1 Explain how the cycling of water into and out of the atmosphere impacts climatic patterns. S5.D.2.1.2 Explain the effects of oceans and lakes on climate.	impacts climatic patterns. • Explain the effects of oceans and lakes on climate.		
Chapter 8 (Weeks 22-24)	• Aquatic, terrestrial and human-made ecosystems consist of diverse living and non-living components that change over time and among geographic areas.	1. What are minerals? 2. What are rocks? 3. What makes up soil? 4. What are erosion and deposition? 5. How does Earth's surface change?	• How do ecosystems differ and change over time?	3.3.5.A1 Describe how landforms are the result of a combination of destructive forces such as erosion and constructive erosion, deposition of sediment, etc. S5.B.3.2.1 Identify fossil fuels and alternative fuels used by humans. S5.B.3.2.2 Describe the usefulness of Earth's physical resources as raw materials for the human-made world. S5.B.3.2.3 Explain how different items are recycled and reused. S5.C.1.2.1	Students will be able to: • Describe how models are used to better understand the relationships in natural systems (e.g., water cycle, Sun-Earth- Moon system, ecosystems, observe and draw a diagram to show the effects of flowing water in a watershed). • Describe the usefulness of Earth's physical resources as raw materials for the human-made world.	one-on-one instruction modified tests modified testing locations guided notes selective grouping use of technology	unit worksheets teacher observation experiments Summative: Unit Test

				Describe how water changes from one state to another. S5.C.1.2.2 Identify differences between chemical and physical changes of matter. S5.D.1.1.1 Differentiate between abrupt changes in Earth's surface (e.g., earthquakes, volcanoes, meteor impacts, landslides) and gradual changes in Earth's surface (e.g., lifting up of mountains, wearing away by erosion). S5.D.1.1.2 Explain how geological processes observed today (e.g., erosion, changes in the composition of the atmosphere, volcanic eruptions, earthquakes) are similar to those in the past. S5.D.1.2.1 Identify physical, chemical, and biological factors that affect water quality. S5.D.1.2.2 Describe the importance of wetlands in an ecosystem. S5.D.2.1.1 Explain how the cycling of water into and out of the atmosphere impacts climatic patterns. S5.D.2.1.2 Explain the effects of oceans and lakes on climate.	• Explain how different items are recycled and reused. • Identify characteristic properties of matter that are independent of mass and volume.		
Chapter 9 (Weeks 25-27)	• An object's motion is the result of all forces acting on it.	1. How does Earth move? 2. What is a star? 3. What are the inner planets? 4. What are the outer planets? 5. What are asteroids, meteors,	• What causes objects to move?	3.2.5.B1 Explain how mass of an object resists change to motion. 3.3.5.B1 Provide evidence that the earth revolves around (orbits) the sun in a year's time and that the earth rotates on its axis once approximately every 24 hours.	Students will be able to: • Describe relationships between variables through interpretation of data and observations (i.e.,	one-on-one instruction modified tests modified testing locations guided notes	unit worksheets teacher observation experiments Summative: Unit Test

		comets, and moons?		S5.C.2.1.1 Describe how energy exists in many forms (e.g., electrical, mechanical, chemical, heat, light, sound) and can be transformed within a system. S5.C.2.1.2 Describe how heat energy is usually a byproduct of an energy transformation. S5.C.2.1.3 Distinguish between kinetic and potential energy. S5.C.2.1.4 Explain how energy is conserved. S5.C.3.1.1 Differentiate between the mass and weight of an object. S5.C.3.1.2 Explain how the mass of an object resists change to motion (inertia). S5.C.3.2.1 Recognize that moving electric charges produce magnetic forces and moving magnets produce electric forces (electromagnetism). S5.C.3.2.2 Identify the variables within an electric current (i.e., voltage, current, and resistance). S5.D.3.1.1 Describe the patterns of Earth's rotation and revolution in relation to the Sun and Moon (i.e., solar eclipse, phases of the Moon, and time). S5.D.3.1.2 Compare the general characteristics of the inner	make predictions for the outcome of a controlled experiment using data tables and graphs). • Describe how models are used to better understand the relationships in natural systems (e.g., water cycle, Sun-Earth- Moon system, ecosystems, observe and draw a diagram to show the effects of flowing water in a watershed). • Describe the patterns of Earth's rotation and revolution in relation to the Sun and Moon (i.e., solar eclipse, phases of the Moon, and time). • Compare the general characteristics of the inner planets of our solar system (i.e., size, orbital path, surface characteristics, and moons).	selective grouping use of technology	

				planets of our solar system (i.e., size, orbital path, surface characteristics, and moons).			
Chapter 10 (Weeks 28-30)	• Solid, liquid and gaseous earth materials all circulate in large scale systems at a variety of time scales, giving rise to landscapes, the rock cycle, ocean currents, weather, and climate.	1. What makes up matter? 2. How can matter be described? 3. What are solids, liquid, and gases? 4. what are mixtures and solutions 5. How does matter change?	• What causes the great variation at Earth's surface?	3.2.5.A1 Describe how water can be changed from one state to another by adding or taking away heat. S5.C.1.1.1 Identify characteristic properties of matter that are independent of mass and volume. S5.C.1.1.2 Differentiate between volume and mass. S5.C.1.2.1 Describe how water changes from one state to another. S5.C.1.2.2 Identify differences between chemical and physical changes of matter. S5.D.1.2.1 Identify physical, chemical, and biological factors that affect water quality. S5.D.1.2.2 Describe the importance of wetlands in an ecosystem. S5.D.2.1.1 Explain how the cycling of water into and out of the atmosphere impacts climatic patterns. S5.D.2.1.2 Explain the effects of oceans and lakes on climate.	Students will be able to: • Describe relationships between variables through interpretation of data and observations (i.e., make predictions for the outcome of a controlled experiment using data tables and graphs). • Identify characteristic properties of matter that are independent of mass and volume. • Differentiate between volume and mass. • Describe how water changes from one state to another. • Identify differences between chemical and physical changes of matter. • Identify physical, chemical, and biological factors that affect water quality.	one-on-one instruction modified tests modified testing locations guided notes selective grouping use of technology	unit worksheets teacher observation experiments Summative: Unit Test
Chapter 11 (Weeks 31-33)	• Technological design is a creative process that anyone can do which may result in new	1. What are forces? 2. What are Newton's laws? 3. What are machines?	• What steps are involved in technological design and problem solving when creating	3.2.5.B1 Explain how mass of an object resists change to motion. 3.2.5.B7 Understand how theories are developed.	Students will be able to: • Make predictions based on patterns in natural systems (e.g., phases of the Moon, time [day,	one-on-one instruction modified tests modified testing locations	unit worksheets teacher observation experiments

	inventions and innovations.		inventions and innovations?	Identify questions that can be answered through scientific investigations and evaluate the appropriateness of questions. Design and conduct a scientific investigation and understand that current scientific knowledge guides scientific investigations. Describe relationships using inference and prediction. Use appropriate tools and technologies to gather, analyze, and interpret data and understand that it enhances accuracy and allows scientists to analyze and quantify results of investigations. Develop descriptions, explanations, and models using evidence and understand that these emphasize evidence, have logically consistent arguments, and are based on scientific principles, models, and theories. Analyze alternative explanations and understanding that science advances through legitimate skepticism. Use mathematics in all aspects of scientific inquiry. Understand that scientific investigations may result in new ideas for study, new methods, or procedures for an investigation or new technologies to improve data collection. S5.A.1.1.1 Explain how certain questions can be answered through scientific inquiry and/or technological design (e.g., investigate to find out if all clay or foil boats designs react the same when filled with paperclips). S5.A.1.1.2 Explain how observations and/or experimental results are used to support inferences and claims about an investigation or	month, and year], weather, seasons). • Explain how the mass of an object resists change to motion (inertia). • Recognize that moving electric charges produce magnetic forces and moving magnets produce electric forces (electromagnetism).	guided notes selective grouping use of technology	Summative: Unit Test

				relationship (e.g., make a claim based on information on a graph). S5.A.1.1.3 Describe how explanations, predictions, and models are developed using evidence. S5.A.2.1.1 Design a simple, controlled experiment (fair test) identifying the independent and dependent variables, how the dependent variable will be measured and which variables will be held constant (e.g., relate the effect of variables [mass, release height, length of string] to number of swings of a pendulum, investigate the relationships between variables in paper airplane designs). S5.A.2.1.2 Describe relationships between variables through interpretation of data and observations (i.e., make predictions for the outcome of a controlled experiment using data tables and graphs). S5.A.2.2.1 Describe the appropriate use of instruments and scales to accurately measure time, mass, distance, volume, and temperature safely under a variety of conditions (e.g., use a thermometer to observe and compare the interaction of food coloring in water at different temperatures). S5.C.2.1.3 Distinguish between kinetic and potential energy. S5.C.2.1.4 Explain how energy is conserved.			

				S5.C.3.1.1 Differentiate between the mass and weight of an object. S5.C.3.1.2 Explain how the mass of an object resists change to motion (inertia). S6.A.1.1.2 Use evidence to support inferences and claims about an investigation or relationship (e.g., common usage of simple machines). S6.A.1.1.3 Predict the outcome of an experiment based on previously collected data.			
Chapter 12 (Weeks 34-36)	• Energy is neither created nor destroyed. Energy can be transformed from one form to another, but transformation between forms often results in the loss of useable energy through the production of heat.	1. What is energy? 2. What is sound energy? 3. What is light energy?	• How do energy transformations explain that energy is neither created nor destroyed?	3.2.5.B3 Demonstrate how heat energy is usually a byproduct of an energy transformation. 3.2.5.B4 Demonstrate how electrical circuits provide a means of transferring electrical energy when heat, light, sound, and chemical changes are produced. Demonstrate how electromagnets can be made and used. S5.C.2.1.1 Describe how energy exists in many forms (e.g., electrical, mechanical, chemical, heat, light, sound) and can be transformed within a system. S5.C.2.1.2 Describe how heat energy is usually a byproduct of an energy transformation. S5.C.2.1.3 Distinguish between kinetic and potential energy.	Students will be able to: • Describe relationships between variables through interpretation of data and observations (i.e., make predictions for the outcome of a controlled experiment using data tables and graphs). • Identify characteristic properties of matter that are independent of mass and volume. • Describe how energy exists in many forms (e.g., electrical, mechanical, chemical, heat, light, sound) and can be transformed within a system.	one-on-one instruction modified tests modified testing locations guided notes selective grouping use of technology	unit worksheets teacher observation experiments Summative: Unit Test

				S5.C.2.1.4 Explain how energy is conserved. S5.C.3.1.1 Differentiate between the mass and weight of an object. S5.C.3.1.2 Explain how the mass of an object resists change to motion (inertia). S5.C.3.2.1 Recognize that moving electric charges produce magnetic forces and moving magnets produce electric forces (electromagnetism). S5.C.3.2.2 Identify the variables within an electric current (i.e., voltage, current, and resistance).	• Describe how heat energy is usually a byproduct of an energy transformation. • Distinguish between kinetic and potential energy. • Explain how energy is conserved.		