BARTLETT CITY SCHOOLS

6th GRADE SCIENCE PACING GUIDE

FIRST QUARTER				
UNIT	**PACING**	**TOPICS**	**STANDARDS**	**LEARNING OBJECTIVES**
Topic 1: Energy	37 days	**Lesson 1:** Kinetic and Potential Energy **Lesson 2:** Other Forms of Energy **Lesson 3:** Thermal Energy **Lesson 4:** Energy Change and Conservation	6.PS3.1 6.PS3.2 6.ETS1.2	**Lesson 1** **Students will use visual representations to identify:** • factors related to kinetic energy. • factors that affect potential energy. **Students will integrate quantitative information to explain:** • the relationship between potential and kinetic energy. **Students will evaluate expressions to identify:** • linear relationship of gravitational potential energy. • the nonlinear relationship of kinetic energy. **Lesson 2** **Students will use scientific reasoning to**: • classify, quantify, and measure different forms of energy. **Students will use models to represent relationships**: • among different forms of energy. **Lesson 3** **Students will use text evidence to describe and explain:** • how total thermal energy depends on the types, states, and amounts of matter present. • the relationship among thermal energy, temperature, and heat. • how adding or removing heat affects the kinetic and thermal energy of matter. • how changes in temperature can cause changes in state. **Students will construct graphs to identify:** • the proportional relationship between Celsius and Fahrenheit scales. **Lesson 4** **Students will cite textual evidence to explain:** • how energy changes from one form to another. **Students will use models to demonstrate:** • how energy transfers between objects. **Students will use proportional relationships to explain:** • how energy is conserved in systems.
Topic 2:	9 days	**Lesson 1:** Living things and the Environment	6.LS2.1	**Lesson 1** **Students will analyze and interpret data to provide evidence that:** • changes in the amount and availability of resources affect populations within an ecosystem.

Ecosystems, Populations, and Energy				**Students will analyze cause-and-effect relationships in order to predict how:** • the size of a population directly affects the availability of resources.
SECOND QUARTER				
UNIT	**PACING**	**TOPICS**	**STANDARDS**	**LEARNING OBJECTIVES**
Topic 2: Ecosystems, Populations, and Energy	17 days	**Lesson 2:** Interactions in Ecosystems **Lesson 3:** Energy Flow in Ecosystems	6.LS2.2 6.LS2.3	**<u>Lesson 2</u>** **Students will analyze and interpret data to predict the cause-and-effect of:** • the amount and availability of a given resource on its population. • resource availability on competition. **Students will identify and describe evidence that:** • predatory actions and symbiotic relationships influence population size. **Students will construct explanations using reasoning that predicts similar patterns of:** • Competitive, predatory, and symbiotic interactions across ecosystems. **<u>Lesson 3</u>** **Students will develop and use models to show:** • the transfer of matter through a food web. • the transfer of energy through a food web. **Students will construct explanations about:** • The flow of energy through producers, consumers, and decomposers. • The transfer of energy through an energy pyramid.
Topic 3: Ecosystem Health and Biodiversity	29 days	**Lesson 1:** Terrestrial Ecosystems **Lesson 2:** Aquatic Ecosystems **Lesson 3:** Benefits of Biodiversity	6.LS2.4 6.LS4.1	**<u>Lesson 1</u>** **Students will identify evidence that:** • explains the factors that affect biomes. **Students will conduct an investigation to:** • provide evidence of how humans can affect the health of ecosystems. • describe how invasive species can disrupt native ecosystems. **<u>Lesson 2</u>** **Students will construct an explanation to:** • distinguish between freshwater ecosystems and saltwater ecosystems using biotic and abiotic factors. • differentiate between different types of marine and freshwater ecosystems. **Students will analyze existing evidence to:** • determine if an ecosystem exhibits characteristics of a healthy ecosystem. • determine if a species is invasive and design a solution to mitigate its impact. **<u>Lesson 3</u>** **Students will cite textual evidence to describe:** • direct and indirect values of biodiversity. • the need to protect biodiversity globally.

				Students will determine central ideas to: • identify factors that affect biodiversity. • explain why it is important to maintain healthy ecosystems. **Students will use ratio reasoning to explain:** • how biodiversity impacts ecosystem services.
THIRD QUARTER				
UNIT	**PACING**	**TOPICS**	**STANDARDS**	**LEARNING OBJECTIVES**
Topic 4: Earth's Hydrosphere and Atmosphere	25 days	**Lesson 1:** Patterns in Earth's Atmosphere **Lesson 2:** Patterns in Earth's Oceans **Lesson 3:** The Water Cycle	6.ESS2.1 6.ESS2.2 6.ESS2.4	**<u>Lesson 1</u>** **Students will identify and describe evidence that wind results from:** • differences in air pressure due to unequal heating of the atmosphere. • the jet stream and ocean currents. **Students will cite textual evidence to support how:** • unequal heating and Earth's rotation affect wind and weather conditions. **Students will analyze relationships to describe how:** • winds that blow over short distances and affect local weather are called local winds. • winds that occur over large areas and move around the globe are called global winds. • global convection currents and the Coriolis effect interact to make the wind pattern of calm areas and global wind belts around Earth. **Students will identify and describe evidence that:** • global winds drive surface currents. • unequal heating and the rotation of Earth combine to produce the patterns of ocean circulation. **<u>Lesson 2</u>** **Students will cite textual evidence to support how ocean currents redistribute Earth's energy by the motion of:** • the Gulf Stream. • ocean currents that move in a loop around Earth's bodies of water**.** **<u>Lesson 3</u>** **Students will analyze and interpret data to describe evidence that:** • water vapor enters the atmosphere through various processes. • water is continually evaporating and condensing in the atmosphere and this process forms clouds. • precipitation is a vital part of the water cycle. **Students will develop and use models to demonstrate:** • water is always moving between the surface of Earth and the atmosphere. **Students will also study cause-and-effect relationships in order to predict how**: • temperature determines the type of precipitation for an area.
Topic 5:	15 days	**Lesson 1:**	6.ESS2.3	**<u>Lesson 1</u>** **Students will explain:**

Earth's Climate		Heating Earth's Surface **Lesson 2:** Weather	6.ESS2.7	• what greenhouse gasses are and how they affect Earth • if and how life can survive on Earth if temperatures continue to rise. **Students will develop and use a model to:** • demonstrate how greenhouse gasses affect the temperature of Earth. **<u>Lesson 2</u>** **Students will analyze and interpret data to describe evidence that:** • air masses are commonly moved by the prevailing winds and jet streams. **Students will develop and use models to demonstrate how:** • air masses of different temperatures and humidity collide, resulting in a front. **Students will construct explanations using reasoning that predicts similar patterns by recognizing that:** • storms and changeable weather often develop along fronts.
FOURTH QUARTER				
UNIT	**PACING**	**TOPICS**	**STANDARDS**	**LEARNING OBJECTIVES**
Topic 5: Earth's Climate	7 days	**Lesson 3:** Climate	6.ESS2.3	**<u>Lesson 3</u>** **Students will compare time scales of the same phenomena to:** • identify weather as a description of short-term atmospheric conditions. • recognize climate as long-term patterns in atmospheric conditions. **Students will analyze and interpret data to provide evidence to support:** • how latitude, altitude, distance from large bodies of water, and ocean currents affect patterns of circulation in the atmosphere and ocean. **Students will construct an explanation for:** • how patterns of circulation determine regional climates.
Topic 6: Earth and Human Activity	30 days	**Lesson 1:** Water Cycle and Landforms **Lesson 2:** Atomspheric Systems **Lesson 3:** Managing Earth's Resources	6.ESS2.5 6.ESS2.6	**<u>Lesson 1</u>** **Students will analyze data to determine:** • how human population has changed since 1750. • that the current rate of population growth is exponential. **<u>Lesson 2</u>** **Students will evaluate textual evidence to describe a chain of reasoning that includes the ideas that**: • increased human population leads to greater consumption of natural resources. • scarcity of natural resources limits human activity. • strategies can help address the effects of population growth on the consumption of natural resources. • human activitiy has an impact on natural systems.
6th GRADE FAMILY LIFE CURRICULUM				