SUBJECT: Science	GRADE: 6
Unit Title: Nature of Science	**Time Frame: 36 weeks**

UNIT OVERVIEW

The nature of science is embedded into each unit of study at this grade level. Unit competencies focus on the scientific use of models and technology, gathering scientific data, making predictions, and using evidence to explain and reason the way a scientist does.

LRG SKILLS AND DISPOSITIONS	PA STANDARDS
Communication and Empathy 5-8: Communicating predictions, and also using evidence in scientific explanations. (S2B) Critical Thinking and Problem Solving 5-8: Analyzing and interpreting data. (S4B) Adaptability and Flexibility 5-8: Investigations and developing models. (D1B) Resilience and Grit 5-8: Scientific thinking requires resilience and grit. (D4B)	S8.A.1.1.4- Develop descriptions, explanations, predictions, and models using evidence. S8.A.2.2.3- Describe ways technology (e.g., microscope, telescope, micrometer, hydraulics, barometer) extends and enhances human abilities for specific purposes S8.A.3.2.1- Describe how scientists use models to explore relationships in natural systems (e.g., an ecosystem, river system, the solar system).

COMPETENCIES	LEARNING TARGETS
I can think, reason, and explain the way a scientist does.	● I can ask questions and define a problem. (K1SCA1G1) ● I can develop and use a model. (K1SCA1G2) ● I can plan and carry out an investigation. (K1SCA1G3) ● I can analyze and interpret data. (K1SCA1G4) ● I can use mathematical and computational thinking. (K1SCA1G5) ● I can construct explanations and design solutions. (K1SCA1G6) ● I can engage in an argument with evidence. (K1SCA1G7)

	• I can obtain, evaluate, and communicate information. (K1SCA1G8)

SUBJECT: Science	**GRADE: 6**
Unit Title: Levers and Pulleys	**Time Frame: 9 weeks**

UNIT OVERVIEW

In this unit students examine the use of simple machines to do work. By the end of the unit, they will be able to describe the forces acting on an object and explain the mechanical advantage that simple machines provide.

LRG SKILLS AND DISPOSITIONS	**PA STANDARDS**
Collaboration and Teamwork 5-8: Simple Machine Investigations (S1B) Communication and Empathy 5-8: Simple Machine Investigations (S2B) Critical Thinking and Problem Solving 5-8: Simple Machine Theme Park Project (S4B)	ASSESSMENT ANCHOR S8.A.2 Processes, Procedures, and Tools of Scientific Investigations S8.A.2.2.2 Apply appropriate measurement systems (e.g., time, mass, distance, volume, temperature) to record and interpret observations under varying conditions. ASSESSMENT ANCHOR S8.C.3 Principles of Motion and Force S8.C.3.1.3 Explain that mechanical advantage helps to do work (physics) by either changing a force or changing the direction of the applied force (e.g., simple machines, hydraulic systems).
COMPETENCIES	**LEARNING TARGETS**
I can justify the selection, setup, and use of a simple machine.	• I can choose or set up a simple machine that gives the greatest mechanical advantage when doing work. (K1SCA6G3) • I can explain, in science terms, why and how a simple machine provides a mechanical advantage. (K1SCA6G4)

SUBJECT: Science	GRADE: 6
Unit Title: Forces and Motion (Variables)	• **Time Frame: 9 weeks**

UNIT OVERVIEW

In this unit, students explore the differences between potential and kinetic energy and learn how energy changes form. The unit also focuses on how various forces, such as gravity and friction, impact motion.

LRG SKILLS AND DISPOSITIONS	PA STANDARDS
Collaboration and Teamwork 5-8: Forces Investigations (S1B) Communication and Empathy 5-8: Forces Investigations (S2B) Critical Thinking and Problem Solving 5-8: Paper Airplane Project (S4B) Resilience and Grit 5-8: Paper Airplane Project (D4B)	ASSESSMENT ANCHOR S8.A.1 Reasoning and Analysis S8.A.1.3.3 Examine systems changing over time, identifying the possible variables causing this change, and drawing inferences about how these variables affect this change ASSESSMENT ANCHOR S8.A.3 Systems, Models, and Patterns S8.A.3.1 Explain the parts of a simple system, their roles, and their relationships to the system as a whole. ASSESSMENT ANCHOR S8.C.3 Principles of Motion and Force Describe the effect of multiple forces on the movement, speed, or direction of an object.

COMPETENCIES	LEARNING TARGETS
I can explain how kinetic and potential energy influence the motion of a system.	• I can identify forms and examples of energy (e.g., kinetic vs. potential). (K1SCA7G1) • I can describe how energy changes forms. (K1SCA7G2) ○
I can explain how forces influence motion.	• I can identify different types of forces (e.g., gravity, lift, drag, buoyant force, friction, etc.). (K1SCA6G1)

	• I can analyze how balanced and unbalanced forces impact motion. (K1SCA6G2)

SUBJECT: Science	**GRADE: 6**
Unit Title: Solar System	**Time Frame: 9 weeks**
UNIT OVERVIEW	
In this unit, students study the solar system in order to learn about the vastness of space. Throughout the unit, students compare and contrast a variety of celestial bodies, determine the distances between objects and describe how gravity impacts the universe.	
LRG SKILLS AND DISPOSITIONS	**PA STANDARDS**
Collaboration and Teamwork 5-8: Inner and Outer Planet Exploration (S1B) Communication and Empathy 5-8: Solar System Brochure (S2B) Creativity and Innovation 5-8: Solar System Brochure (S3B)	ASSESSMENT ANCHOR S8.D.3 Composition and Structure of the Universe S8.D.3.1 Explain the relationships between and among the objects of our solar system S8.D.3.1.3 Compare, and contrast characteristics of celestial bodies found in the solar system (e.g., moons, asteroids, comets)
COMPETENCIES	**LEARNING TARGETS**
I can demonstrate understanding of the relationship between objects in the universe.	• I can compare and contrast characteristics (size, composition, position, etc.) of inner and outer planets. (K1SCA11G1) • I can describe how gravity influences the solar system and universe. (K1SCA11G2)

	• I can interpret that the distances between celestial bodies are vast. (K1SCA11G3)

SUBJECT: Science	**GRADE: 6**
Unit Title: Corny Days	**Time Frame: 2 weeks**
UNIT OVERVIEW	
This unit is an experiential field trip to a local farm. During this experience students examine how agricultural products such as corn are used to meet societies' needs.	
LRG SKILLS AND DISPOSITIONS	**PA STANDARDS**
Collaboration and Teamwork 5-8: Corny Days Field Trip (S1B) Communication and Empathy 5-8: Hybrid Animal/Plant Project (S2B) Critical Thinking and Problem Solving 5-8: Corny Days Field Trip Corn Analysis (S4B)	ASSESSMENT ANCHOR S8.B.1 Structure and Function of Organisms S8.B.1.1 Describe and compare structural and functional similarities and differences that characterize diverse living things ASSESSMENT ANCHOR S8.B.2 Continuity of Life S8.B.2.1.4 Describe how selective breeding or biotechnology can change the genetic makeup of organisms. ASSESSMENT ANCHOR S8.B.3 Ecological Behavior and Systems S8.B.3.1.1 Explain the flow of energy through an ecosystem (e.g., food chains, food webs).
COMPETENCIES	**LEARNING TARGETS**
I understand how humans throughout history have altered and used agricultural products to meet society's needs	• I can compare characteristics and uses of corn. (K1SCA3G1) • I can trace the pathway of corn products (i.e., corn syrup, feed, shaving cream, deodorant, etc.) from seed to consumption

	(photosynthesis, pollination, growing, maintaining, adapting, treating, converting, distributing, disposing). (K1SCA2G2) ● I can describe how selective breeding and biotechnology have changed the genetic makeup and characteristics of organisms. (K1SCA4G1) ● I can relate the structures of corn to the functions they perform. (K1SCA3G2)

SUBJECT: Science	**GRADE: 6**
Unit Title: Native Americans (Social Studies)	**Time Frame: 9 weeks**
UNIT OVERVIEW	
Social Studies Unit - Native Americans - Chapter 8 “tour” of North America: Includes science competencies and learning targets below	
LRG SKILLS AND DISPOSITIONS	**PA STANDARDS**
	ASSESSMENT ANCHOR S8.D.2 Weather, Climate, and Atmospheric Processes S8.D.2.1 Explain how pressure, temperature, moisture, and wind are used to describe atmospheric conditions that affect regional weather or climate.
COMPETENCIES	**LEARNING TARGETS**
I can explain how climate and geography influence human culture and way of life	● I can describe the climate (temperature and precipitation) of different regions of North America. ● I can describe the geography (location, elevation, and topography) of different regions of North America ● I can identify biotic and abiotic resources that humans use to survive.