

Course: GENERAL SCIENCE Sub-topic: General

Course Description: The 6th Grade Science curriculum builds on what students learned in the previous year. Using a spiral method, lessons and activities are intended to build on and further student knowledge and engagement in a variety of topics in the realm of science. Students engage with and learn about many topics in the Life and Physical Science disciplines respectively.

Timeline: 3 Weeks

Unit Essential Questions:

Unit Big Ideas:

Science Inquiry

Steps of the Scientific Method

Parts and Variable in an Experiment

Using Measurement and Data

STATE: Pennsylvania State Anchors (2010)

S6.A.1 (Advanced)	Reasoning and Analysis	
S6.A.2 (Advanced)	Processes, Procedures, and Tools of Scientific Investigations	
S6.A.3 (Advanced)	Systems, Models, and Patterns	

This Curriculum Map Unit has no Topics to display

Timeline: 6 Weeks

Unit Essential Questions:

What is matter? How can one explain the structure, properties, and interactions of matter?

How is an atom structured?

How can one distinguish between an element, a compound, and a molecule?

How is energy transferred and conserved?

Matter can be understood in terms of the types of atoms present and the interactions both between and within atoms.

Interactions of objects or systems of objects can be predicted and explained using the concept of energy transfer and conservation.

Atomic Structure/Subatomic Particles

Elements/Compounds

Molecules

States (and Properties) of Matter

Forms of Energy

Energy Transfer

Unit Key Terminology & Definitions : matter, atom, element, proton, neutron, electron, nucleus, orbit, solid, liquid, gas, properties (of matter), volume, mass, density, substance, pure substance, mixture (homogeneous and heterogeneous), element, compound, heat energy, light energy, electricity, magnetism, mechanical energy, sound energy, potential energy, kinetic energy, equilibrium, energy transfer

STANDARDS: STANDARDS

STATE: Pennsylvania State Anchors (2010)

[S6.C.1 \(Advanced\)](#) Structure, Properties, and Interaction of Matter and Energy

[S6.C.1.1 \(Advanced\)](#) Explain that matter has observable physical properties.

[S6.C.1.1.2 \(Advanced\)](#) Explain that materials are characterized by having a specific amount of mass in each unit of volume (density).

[S6.C.1.2 \(Advanced\)](#) Describe that matter can undergo chemical and physical changes.

[S6.C.1.2.1 \(Advanced\)](#) Describe how water changes from one state to another.

[S6.C.1.2.2 \(Advanced\)](#) Identify differences between chemical and physical changes of matter.

[S6.C.2 \(Advanced\)](#) Forms, Sources, Conversion, and Transfer of Energy

[S6.C.2.1 \(Advanced\)](#) Explain how energy can be transformed from one form to another and describe the results of the transformation.

[S6.C.2.1.1 \(Advanced\)](#) Describe how heat moves in predictable ways from warmer objects to cooler ones until they reach the same temperature.

[S6.C.2.1.2 \(Advanced\)](#) Describe the effect of heat on particle motion during phase changes.

[S6.C.2.1.3 \(Advanced\)](#) Compare various energy sources (i.e., oil, coal, natural gas, solar, wind, and moving water) and describe how these energy sources are transformed into useful forms of energy.

[S7.C.1 \(Advanced\)](#) Structure, Properties, and Interaction of Matter and Energy

[S7.C.1.1 \(Advanced\)](#) Describe the structure of matter and its chemical and physical properties.

[S7.C.1.1.2 \(Advanced\)](#) Recognize that the atom is the basic building block for all matter.

[S7.C.1.1.3 \(Advanced\)](#) Explain the differences between elements, compounds, and mixtures.

[S8.C.3.1.2 \(Advanced\)](#) Distinguish between kinetic and potential energy.

This Curriculum Map Unit has no Topics to display

Unit: Weather and Atmosphere

Timeline: 9 Weeks

Unit Description: Students will learn about and make connections between the water cycle, weather fronts, the ocean to understand how weather and climate patterns form, differ and impact society around the world. Students will learn and understand the atmosphere's composition and function.

Unit Key Terminology & Definitions : Weather, Climate, Evaporation, Precipitation, Condensation, Polar Molecule, Currents, Tides, Waves, Temperature, Humidity, Dew Point, Atmosphere, Barometer, Weather Front, Troposphere, Stratosphere, Mesosphere, Thermosphere, Ionosphere, Exosphere

STANDARDS: STANDARDS

STATE: Pennsylvania State Anchors (2010)

S6.D.2 (Advanced)	Weather, Climate, and Atmospheric Processes	
S6.D.2.1 (Advanced)	Explain basic elements of weather and climate.	
S6.D.2.1.1 (Advanced)	Describe cloud types and measurable factors (i.e., wind direction, temperature, barometric pressure, moisture, and precipitation) that are associated with various weather patterns.	
S6.D.2.1.2 (Advanced)	Interpret weather data to develop a weather forecast.	
S6.D.2.1.3 (Advanced)	Explain how global patterns (jet stream, water currents) influence weather in measurable terms (e.g., wind direction, temperature, barometric pressure, precipitation).	
S7.D.1.1 (Advanced)	Describe Earth structures and processes that characterize different biomes on Earth.	
S7.D.1.2 (Advanced)	Describe characteristic features and significance of Earth's water systems.	
S7.D.1.2.1 (Advanced)	Compare the different water systems on Earth (e.g., wetland, watershed, ocean, river).	
S7.D.2 (Advanced)	Weather, Climate, and Atmospheric Processes	
S7.D.2.1 (Advanced)	Explain the basic elements of meteorology.	
S7.D.2.1.1 (Advanced)	Explain the effect of wind patterns, circulation of oceans currents, atmospheric pressure, and temperature on weather.	
S7.D.2.1.2 (Advanced)	Describe changes in atmospheric conditions associated with various weather patterns.	
S8.D.1.3.1 (Advanced)	Describe the water cycle and the physical processes on which it depends (i.e., evaporation, condensation, precipitation, transpiration, runoff, infiltration, energy inputs, and phase changes).	
S8.D.2.1.1 (Advanced)	Explain the impact of water systems on the local weather or the climate of a region (e.g., lake effect snow, land/ocean breezes).	
S8.D.2.1.2 (Advanced)	Identify how global patterns of atmospheric movement influence regional weather and climate.	
S8.D.3.1.1 (Advanced)	Describe patterns of earth's movements (i.e., rotation and revolution) in relation to the moon and sun (i.e., phases, eclipses, and tides)	

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This Curriculum Map Unit has no Topics to display

Unit: Ecology

Timeline: 9 Weeks

Unit Students will learn about different ecosystems and the interactions that take place between living and non-living things in the environment. Students will compare and contrast the interactions in different locations.

Description:

Unit Big Ideas:

Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment.

Unit Key Terminology & Definitions :

Abiotic Factor, Biotic Factor, Consumer, Ecosystem, Energy pyramid, Food chain, Food web, Niche, Predator, Prey, Producer, Symbiosis, Capacity, Carrying Dynamics, Limiting factor, Population, Autotroph, Carnivore, Competition, Consumer, Decomposer, Herbivore, Heterotroph, Omnivore, Photosynthesis, Predation, Primary Consumer, Secondary Consumer, Tertiary Consumer

STANDARDS: STANDARDS

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S7.B.2.1.3 (Advanced)	Explain that adaptations within species (physical, behavioral, physiological) are developed over long periods of time.	
S7.B.3.1 (Advanced)	Compare the biotic and abiotic factors of different ecosystems and explain relationships between and these factors.	
S7.B.3.1.1 (Advanced)	Describe relationships (e.g., predator/prey competition, symbiosis) between organisms in different ecosystems.	
S7.B.3.1.2 (Advanced)	Identify the major biomes (terrestrial and aquatic) and describe their characteristic biotic and abiotic factors.	

S7.B.3.2.1 (Advanced)	Identify and describe factors that cause and/or influence changes in populations (e.g., deforestation, disease, land use, natural disaster, invasive species).	
S8.B.2.1 (Advanced)	Explain the basic concepts of natural selection.	
S8.B.3 (Advanced)	Ecological Behavior and Systems	
S8.B.3.1 (Advanced)	Explain the relationships among and between organisms in different ecosystems and their abiotic and biotic components.	
S8.B.3.1.1 (Advanced)	Explain the flow of energy through an ecosystem (e.g., food chains, food webs).	
S8.B.3.1.2 (Advanced)	Identify major biomes and describe abiotic and biotic components (e.g., abiotic: different soil types, air, water sunlight; biotic: soil microbes, decomposers).	
S8.B.3.1.3 (Advanced)	Explain relationships among organisms (e.g., producers/ consumers, predator/prey) in an ecosystem.	
S8.B.3.2.1 (Advanced)	Use evidence to explain factors that affect changes in populations (e.g., deforestation, disease, land use, natural disaster, invasive species).	
S8.B.3.2.3 (Advanced)	Describe the response of organisms to environmental changes (e.g., changes in climate, hibernation, migration, coloration) and how those changes affect survival.	

This Curriculum Map Unit has no Topics to display

Unit: Environmental Science

Timeline: 9 Weeks

Unit Description: With a local Pennsylvania focus, student will learn about watersheds and wetlands and the functions they play in the environment. Students will identify the natural resources in our local area. Students will investigate environmental issues and potential solutions.

STANDARDS: STANDARDS

STATE: Pennsylvania State Anchors (2010)

S6.A.1 (Advanced)	Reasoning and Analysis	
S6.A.2 (Advanced)	Processes, Procedures, and Tools of Scientific Investigations	
S6.A.3 (Advanced)	Systems, Models, and Patterns	
S6.C.2 (Advanced)	Forms, Sources, Conversion, and Transfer of Energy	
S6.D.1 (Advanced)	Earth Features and Processes That Change Earth and Its Resources	

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