Subject: Science **Grade: 6th** **Unit/Topic: Science Inquiry** **9 Weeks: 1st**

Learning Targets:

Lab safety

Process skills

Communicating results

Creating and interpreting graphs

CSO's/ Depth of Knowledge:

Standards/Objectives: *ongoing

Standard 1 Nature of Science

SC. 6.1.01/DOK 1	SC 6.1.02/DOK 1
SC 6.1.03/DOK 1	SC 6.1.04/DOK 2
SC 6.1.05/DOK 2	SC 6.1.06/DOK 3
SC 6.1.07/DOK 3	SC 6.1.08/DOK 1
SC 6.1.09/DOK 1	SC 6.1.10/DOK 3
SC 6.1.11/DOK 2	SC 6.1.12/DOK 3

Enduring Understanding/ Essential Questions:

Students will gain an understanding that scientists formulate and test explanations of nature using inquiry, observations and experiments.

1. How do you use scientific inquiry to answer questions that relate to your daily life?
2. How can we draw information from historical scientific discoveries to compare and contrast to today's scientific achievements?

Key Vocabulary:

infer

hypothesis

Dependent variable

Independent variable

Skepticism

Subject: Science **Grade: 6th** **Unit/Topic: Science Inquiry** **9 Weeks: 1st**

SC 6.1.01 realize that scientists formulate and test their explanations of nature using observation and experiments.

SC 6.1.02 recognize scientific knowledge is subject to modification as new scientific information challenges current explanations.

SC 6.1.03 examine the careers and contributions of men and women of diverse cultures to the development of science.

SC 6.1.04 compare and contrast the historical significance of scientific discoveries.

SC 6.1.05 cooperate and collaborate to ask questions, design and conduct investigations to find answers and solve problems.

SC 6.1.06 formulate conclusions through close observation, logical reasoning, objectivity, perseverance and integrity in data collection.

SC 6.1.07 apply skepticism, careful methods, logical reasoning and creativity in investigating the observable universe

SC 6.1.08 use a variety of technologies and scientific instruments to conduct explorations, investigations and experiments of the natural world.

SC 6.1.09 demonstrate safe techniques for handling, manipulating and caring for science materials, equipment, natural specimens and living organisms.

SC 6.1.10 utilize experimentation to demonstrate scientific processes and thinking skills (formulation questions, predicting, hypothesis, dependent and independent variable)

SC 6.1.11 construct and use charts, graphs and tables to organize, display, interpret, analyze and explain data.

SC 6.1.12 use inferential reasoning to make logical conclusions from collected data.

Technology:

Strategies:

Resources:

21st Century Learning

21C.0.5-8.1.LS2	21C.0.5-8.1.LS3
21C.0.5-8.2.TT8	21C.0.5-8.2.LS1
21C.0.5-8.2.LS2	21C.0.5-8.2.LS3
21C.0.5-8.2.LS4	21C.0.5-8.2.TT3
21C.0.5-8.3.LS1	21C.0.5-8.3.LS2
21C.0.5-8.3.LS4	*ongoing

Formative/Classroom Assessments:

Subject: Science **Grade: 6th** **Unit/Topic: Motion** **9 Weeks: 1st**

Learning Targets:

Newton's Laws of Motion

Relationship of mass and gravity

Types of simple machines

Use scientific equation to

determine speed

CSO's/ Depth of Knowledge:

Standards/Objectives:

Standard 2 Concepts of Science

SC 6.2.20/DOK 1 SC 6.2.21/DOK 1

SC 6.2.22/DOK 2 SC 6.2.23/DOK 2

Enduring Understanding/ Essential Questions:

Motion is the result of unbalanced forces. Machines change the amount of force needed to move an object.

1. What is motion?
2. How do machines make work easier?
3. What are the three laws of motion?
4. Compare and contrast force and acceleration.

Key Vocabulary:

speed

velocity

acceleration

force

friction

inertia

gravity

work

fulcrum

Compound machines

Pivot point

Subject: Science **Grade: 6th** **Unit/Topic: Motion** **9 Weeks: 1st**

WV CSO's/ Standards:

SC 6.2.20 correlate the relationship of mass to gravitational force (eg. Larger the mass the larger the gravitational force, or the closer the objects the stronger the force.)

SC 6.2.21 examine simple machines and the forces involved.

SC 6.2.22 apply the effects of balanced and unbalanced forces on motion of objects.

SC 6.2.23 explain motion in terms of frames of reference and analyze graphs depicting motion and predicted future motion.

Technology:

Tech Steps: Paper Copters

Strategies:

Resources:

Formative/Classroom Assessments:

Subject: Science **Grade: 6th** **Unit/Topic: Matter** **9 Weeks: 1st**

Learning Targets:

Physical/chemical change

States of matter

Parts of an atom

Organization of the Periodic Table

CSO's/ Depth of Knowledge:

Standards/Objectives:

Standard 2 Content of Science

SC 6.2.10/DOK 2 SC 6.2.11/DOK 2

SC 6.2.12/DOK 1 SC 6.2.13/DOK 1

SC 6.2.14/DOK 1

*ongoing: SC 6.2.01/DOK 2, SC 6.2.02/DOK 1

Standard 3 Applications of Science

SC 6.3.01/DOK1 SC 6.3.03/DOK 2

Enduring Understanding/ Essential Questions:

Understanding changes in matter will help you interpret the world around you.

1. How are the properties of matter dependent upon atoms?
2. How can you identify the rows and columns on the periodic table?
3. What is the neutral considered on the pH scale?

Key Vocabulary:

atom

Proton/neutron/electron

element

compound

mixtures

solution

reactivity

pH scale

Acid/base

cyclical

Variation

Subject: Science **Grade: 6th** **Unit/Topic: Matter** **9 Weeks: 1st**

WV CSO's/ Standards:

SC 6.2.01 demonstrates the interrelationships among physics, chemistry, biology, earth and environmental science, and astronomy.

SC 6.2.02 use pictures to show cyclical processes in nature (eg. Nitrogen cycle, carbon cycle, or water cycle.)

SC 6.2.10 classify and investigate properties and processes (changes) as either physical or chemical.

SC 6.2.11 investigate the formation and separation of simple mixtures of matter concluding that matter is composed of tiny particles and that the particles are the same for the same type of matter.

SC 6.2.12 use indicators to classify substances as either acidic, basic or neutral.

SC 6.2.13 using the periodic table, identify the symbols of elements as solids, liquids, and gases; metals or nonmetals.

SC 6.2.14 describe the composition and properties of matter (eg particles, malleability, melting point, density, inertia, or specific heat.)

SC 6.3.01 explore the relationship between the parts of a system to the whole system.

SC 6.3.03 compare and contrast changes that occur in an object, event, or process.

SC 6.3.04 compare and contrast the influence that a variation in scale will have on the way an object or system works.

SC 6.3.05 research everyday application and interaction of science and technology.

SC 6.3.06 evaluate and critically analyze mass media reports of scientific developments and events.

Technology:

Strategies:

Resources:

Formative/Classroom Assessments:

Subject: Science **Grade: 6th** **Unit/Topic: Living Things** **9 Weeks: 2nd**

Learning Targets:

Animal/plant cell

Classification of organisms

Compare seed producing and spore producing plants

CSO's/ Depth of Knowledge:

Standards/Objectives:

Standard 2 Content of Science

SC 6.2.03/DOK 2 SC 6.2.04/DOK 2

SC 6.2.06/DOK 2

Enduring Understanding/ Essential Questions:

Organisms can be related by their structure and function.

1. How are living organisms alike and different?
2. What is different between the animal and plant cell and what is alike?

Key Vocabulary:

organelle

Cell membrane

Cell wall

cytoplasm

nucleus

chloroplast

vacuole

Classification

vertebrate

invertrebrate

Body system

Subject: Science **Grade: 6th** **Unit/Topic: Living things** **9 Weeks: 2nd**

WV CSO's/ Standards:

SC 6.2.03 classify living organisms according to their structure and functions.

SC 6.2.04 compare the similarities of internal features of organisms, which can be used to infer relatedness.

SC 6.2.06 construct models of plant an animal cells and compare the basic parts.

Technology:

Strategies:

Resources:

Formative/Classroom Assessments:

Subject: Science **Grade: 6th** **Unit/Topic: Energy** **9 Weeks: 2nd**

Learning Targets:

Kinetic/potential energy

Electric current

Electromagnetic spectrum

Wave properties

Types of waves

CSO's/ Depth of Knowledge:

Standards/Objectives:

Standard 2 Content of Science

SC 6.2.15/DOK 1 SC 6.2.16/DOK 1

SC 6.2.17/DOK 1 SC 6.2.18/DOK 1

SC 6.2.19/DOK 2

Standard 3 Application of Science

SC 6.3.05/DOK 3

Enduring Understanding/ Essential Questions:

Energy can exist in different forms and impact matter.

1. How does energy flow?
2. What is the difference between a parallel and series circuit?
3. How many different kinds of waves can be found on the electromagnetic spectrum?

Key Vocabulary:

temperature

Conduction

Convection

charge

Parallel circuit

Series circuit

frequency

Reflection

Refraction

absorption

Subject: Science **Grade: 6th** **Unit/Topic: Energy** **9 Weeks: 2nd**

WV CSO's/ Standards:

SC 6.2.15 investigate the properties of the electromagnetic spectrum. (eg, wavelengths, frequencies, visible light)

SC 6.2.16 recognize that an object's color is based upon the absorption and reflection of light waves.

SC 6.2.17 describe light and sound in terms of longitudinal or transverse waves.

SC 6.2.18 describe the flow of heat between objects (eg. Hot air rises, or absorption and release of hear by metals)

SC 6.2.19 diagram simple parallel and series circuits. (eg bulbs, battery, wires, or switch)

Technology:

Strategies:

Resources:

Formative/Classroom Assessments:

Subject: Science **Grade: 6th** **Unit/Topic: Weather and Water** **9 Weeks: 3rd**

Learning Targets:

Meteorology/climatology

Water cycle

Layers of the atmosphere

Relationship between air pressure and wind

Plate tectonics

Cloud classification

CSO's/ Depth of Knowledge:

Standards/Objectives:

Standard 2 Content of Science

SC 6.2.01/DOK 2	SC 6.2.02/DOK 1
SC 6.2.10/DOK 2	SC 6.2.24/DOK 1
SC 6.2.25/DOK 2	SC 6.2.29/DOK 2

Enduring Understanding/ Essential Questions:

Energy from the sum powers Earth's water cycle.

1. What role do air masses and fronts play in affection weather?
2. How does the tilt of the earth and distance from the sun impact seasons?
3. What causes continental plate drift?

Key Vocabulary:

Air pressure

humidity

Relative humidity

Dew point

Evaporation

Condensation

Precipitation

Transpiration

tectonics

Longitudinal

transverse

Subject: Science **Grade: 6th** **Unit/Topic: Weather and Water** **9 Weeks: 3rd**

WV CSO's/ Standards:

SC 6.2.01 demonstrate the interrelationships among physics, chemistry, biology, earth and environmental science, and astronomy.

SC 6.2.02 use pictures to show cyclical processes in nature

SC 6.2.10 classify and investigate properties and changes as either physical or chemical

SC 6.2.24 monitor major atmospheric events using a variety of resources including technology

SC 6.2.25 compare and contrast continental drift hypothesis to the plate tectonic theory.

SC 6.2.29 compare the earth's tilt and revolution to the seasonal change.

Technology:

Tech Steps: Cloud power point

Strategies:

Resources:

Formative/Classroom Assessments:

Subject: Science **Grade: 6th** **Unit/Topic: Ecosystems** **9 Weeks: 3rd**

Learning Targets:

Biotic/ a biotic factors

Natural resources

Natural cycles

Nitrogen cycle

Carbon dioxide/oxygen cycle

CSO's/ Depth of Knowledge:

Standards/Objectives:

Standard 2 Content of Science

SC 6.2.03/DOK2 SC 6.2.4/DOK 4

SC 6.2.05/DOK 2 SC 6.2.06/DOK 2

SC 6.2.08/DOK 2 SC 6.2.09/DOK 2

Standard 3 Application of Science

SC 6.3.01/DOK 1

Enduring Understanding/ Essential Questions:

Organisms have a profound effect on the physical and living environment.

1. How are the parts of an ecosystem related?
2. What role do humans play in an ecosystem?
3. What would happen if there were not cycles in nature?

Key Vocabulary:

habitat

Population

community

niche

Limiting factor

renewable

nonrenewable

decomposer

consumer

Respiration

Subject: Science **Grade: 6th** **Unit/Topic: Ecosystems** **9 Weeks: 3rd**

WV CSO's/ Standards:

SC 6.2.03 classify living organisms according to their structure and function

SC 6.2.04 compare the similarities of internal features of organisms, which can be used to infer relatedness

SC 6.2.05 examine how abiotic and biotic factors affect the interdependence among organisms

SC 6.2.06 construct models of plant and animal cells and compare the basic parts

SC 6.2.08 predict changes in populations of organisms due to limiting factors

SC 6.2.09 analyze the ecological consequences of human interactions with the environment

SC 6.3.01 explore the relationship between the parts of a system to the whole system

Technology:

Strategies:

Resources:

Formative/Classroom Assessments:

Subject: Science **Grade: 6th** **Unit/Topic: Earth-Sun-Moon-Relationships** **9 Weeks: 4th**

Learning Targets:

Phases of the moon

Rotation/revolution

tides

Plant life

CSO's/ Depth of Knowledge:

Standards/Objectives

Standard 2 Content of Science

SC 6.2.07/DOK 2 SC 6.2.26/DOK1

SC 6.2.27/DOK 1 SC 6.2.28/DOK 2

SC 6.2.29/DOK 2

Standard 3 Application of Science

SC 6.3.02/DOK 2

Enduring Understanding/ Essential Questions:

Plant life and development from 4 million years ago.
Relationship between the sun, moon and earth.

1. How can we see the effect of planetary motion on Earth?
2. When did plant life first appear on Earth, and how did it develop over time?

Key Vocabulary:

orbit

eclipse

geologic

Subject: Science **Grade: 6th** **Unit/Topic: Earth-Sun-Moon Relationships** **9 Weeks: 4th**

WV CSO's/ Standards:

SC 6.2.07 compare growth cycles in different plants

SC 6.2.26 associate plant and animal life forms with specific geologic time periods

SC 6.2.27 recognize the phases of the moon

SC 6.2.28 investigate models of earth-moon-sum relationships

SC 6.2.29 compare the earth's tilt and revolution to the seasonal changes

6.3.02 construct a variety of useful models of an object, event, or process

Technology:

Strategies:

Resources:

Supplemental Book : Prehistoric life of plants

Formative/Classroom Assessments: