

8-Science MLS

Science

Grade(s) 8th, Duration 1 Year, 1 Credit
Required Course

Course Description

This science course is designed for students to learn how living organisms such as bacteria, plants, animals, and humans are designed with specialized cells that serve specific functions, and the processes that occur in these cells to aid in the interconnectivity of these organisms. Students will then study the patterns that exist in ecosystems that are both beneficial and detrimental to the energy flow in the ecosystem. Emphasis will be given on the effect of human activity on the ecosystem. Students will then study the internal and external features of Earth and give scientific explanations as to what causes them. Finally, students will study the properties and relationships between matter and energy, including the interactions of materials, effect of energy on matter, and they will explore the causes and effects of various physical and chemical changes.

Timeframe	Unit	Scope And Sequence Instructional Topics
6 Week(s)	Measurement and Inquiry	1. Measurement 2. Experimental Design
5 Week(s)	Cells and Plants	1. Cells 2. Plants
6 Week(s)	Human Body	1. Organization of the Human Body 2. Interactions of Organ Systems
6 Week(s)	Ecosystems	1. Changes in Ecosystems 2. Maintaining Ecosystems 3. Plant and Animal Characteristics 4. Natural Selection 5. Artificial Selection 6. Adaptation
5 Week(s)	Earth Science	1. Earth's Interior 2. Earth's Surface Processes 3. Rocks, Minerals and Fossils 4. History of the Earth
8 Week(s)	Matter and Energy	1. Physical and Chemical Properties of Matter 2. The Kinetic Theory of Matter 3. Chemical and Physical Changes
3 Week(s)	Heredity - Genetics	

Prerequisites

Successful completion of 7th grade science.

Course Details

Unit: Measurement and Inquiry

Duration: 6 Week(s)

Unit Description

Students will measure length, mass, volume, temperature, and density using the appropriate tools, units, and methods. Once measurements have been taken, students will use various prefixes (ie. kilo-, centi-, milli-, etc) to convert them into different appropriate values

Power Standards

- Students will measure length to the nearest centimeter (cm)
- Students will measure mass to the nearest gram (g)
- Students will measure volume to the nearest (mL)
- Students will measure temperature to the nearest degree Celsius (C°)
- Students will be able to write a testable question as well as a hypothesis.
- During an experiment, students will be able to identify the independent and dependent variable
- During an experiment, students will use collected data to create a data table and generate a graph to communicate results.
- During an experiment, students will use data to evaluate their conclusion.
- Students will be able to evaluate the design of an experiment, and make suggestions for improvements in the experimental design.

Topic: Measurement

Duration: 3 Week(s)

Description

Students will measure length, mass, volume, temperature, and density using the appropriate tools, units, and methods. Once measurements have been taken, students will use various prefixes (ie. kilo-, centi-, milli-, etc) to convert them into different appropriate values.

Enduring Understandings/Essential Questions

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Academic Vocabulary (What terms will students need to know?)

length
mass
volume
density
temperature
meter stick
triple beam balance
graduated cylinder
meter
liter
gram
water displacement method
LxWxH
Degrees Celsius
Definition of Mastery

Students will be able to collect data through measuring mass, volume, and density with accuracy

Learning Targets

The student will measure length to the nearest millimeter. (also convert to and from various metric prefixes)

Description: Students will use meter sticks to measure various lengths and properly record their data. Emphasis on identifying how lengths compare considering their prefix.

Assessment: Lab

Performance

I can measure mass to the nearest gram. (also convert to and from various metric prefixes)

Description: Students will use triple beam balances to measure the mass of various objects and properly record their data. Emphasis on identifying how different masses compare considering their prefix.

Assessment: Performance

The student will measure the volume of an object to the nearest milliliter.

Description: Student will use LxWxH and the water displacement method to find the volume of various objects.

Assessment: Performance

Lab

The student will measure the density of various objects by measuring the mass, volume, and using the formula $D=m/v$.

Students will measure temperature to the nearest degree Celsius using a thermometer.


Description: Several measurements will be made of substances at different temperatures. Students will also learn to identify thermometer readings.

Assessment: Lab

Performance

The student will convert metric measurements between all prefixes including kilo-, centi-, and milli-, by manipulating decimal placement.

Assessment: Performance

Learning Targets linked to Priority Standards = 

Topic: Experimental Design

Duration: 3 Week(s)

Description

Students will conduct investigations that require them to hypothesize, collect data, communicate data, and evaluate results.

Enduring Understandings/Essential Questions

Hypothesis

Inference

Learning Targets


Students will be able to evaluate the design of an experiment and make suggestions for improvements.

Students will be able to identify the independent variable and dependent variable within an experiment.

Students will use collected data to create a data table and generate a graph to communicate results.

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Students will use data provided from an investigation to evaluate their conclusion

Learning Targets linked to Priority Standards = 

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Unit: Cells and Plants

Duration: 5 Week(s)

Unit Description

Students will learn how living organisms such as bacteria, plants, animals, and humans are designed with specialized cells that serve specific functions, and the processes that occur in these cells to aid in the interconnectivity of these organisms such as photosynthesis and cellular respiration.

Power Standards

Living things are made of cells (one or many)

Describe the function of a cell

Describe the role of organelles such as nucleus, chloroplasts, mitochondria, cell membrane, and cell wall

Understand the process of photosynthesis

Understand the process of cellular respiration

Illustrate the role of photosynthesis and cellular respiration in the cycling of matter

Illustrate the role of photosynthesis and cellular respiration in the flow of energy into and out of organisms

Academic Vocabulary

Construct

Scientific explanation

Evidence

Photosynthesis

Cellular Respiration

Cycling of Matter

Assessment

Students will be assessed through formative assessments such as exit slips, warm ups, short quizzes, or teacher conferences.

Topic: Cells

Duration: 2 Week(s)

Description

Students will learn how living organisms are designed with specialized cells that serve specific functions, and the processes that occur in these cells to aid in the interconnectivity of these organisms

Enduring Understandings/Essential Questions

Construct

Scientific explanation

Evidence

Photosynthesis

Cellular Respiration

Cycling of Matter

Academic Vocabulary (What terms will students need to know?)


Students can use evidence to construct a scientific explanation that photosynthesis and cellular respiration work together to cycle matter and transfer energy into and out of organisms.

Learning Targets

I can explain that living things are made of cells (one or many)

I can describe the function of a cell

I can describe the role of organelles such as nucleus, chloroplasts, mitochondria, cell membrane, and cell wall

Learning Targets linked to Priority Standards = 

Topic: Plants

Duration: 3 Week(s)

Description

Students will learn about the functions and structures of plants including the processes of photosynthesis and cellular respiration.

Enduring Understandings/Essential Questions

Construct

Scientific explanation

Evidence

Photosynthesis

Cellular Respiration

Cycling of Matter

Academic Vocabulary (What terms will students need to know?)

Students can use evidence to construct a scientific explanation that photosynthesis and cellular respiration work together to cycle matter and transfer energy into and out of organisms.

Learning Targets

I can explain and understand the process of photosynthesis

I can explain and understand the process of cellular respiration

I can illustrate the role of photosynthesis and cellular respiration in the cycling of matter

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I can illustrate the role of photosynthesis and cellular respiration in the flow of energy into and out of organisms

Learning Targets linked to Priority Standards = +

Unit: Human Body

Duration: 6 Week(s)

Unit Description

Students will learn how the body is organized into cells, tissues, organs and organ systems, and how these organ systems work together to provide the body with the growth and repair necessary for existence and reproduction of life.

Power Standards

- Primary roles of cells
- Tissues are composed of cells
- Organs are composed of tissues
- Organ systems are composed of organs that work together
- The body systems interact together
- What are the key functions needed for the survival of the human body?
 - Provide nutrients and oxygen to cells for their proper function
 - Remove carbon dioxide and waste from cells and the body
 - Controlling body motion/activity and coordination
 - Protecting the body

Academic Vocabulary

- Cells
- Tissue
- Organs
- Organ Systems
- Complexity
- Argument
- Multicellular
- Varying Levels
- Present evidence
- Body systems
- Interact
- Carry out
- Body functions
- Nutrients
- Cells
- Coordination

Assessment

Students will be assessed through formative assessments such as exit slips, warm ups, short quizzes, or teacher conferences.

Topic: Organization of the Human Body

Duration: 1 Week(s)

Description

In this topic, students will learn how the human body is organized by cells, tissues, organs, and organ systems.

Enduring Understandings/Essential Questions

- Cells
- Tissue
- Organs
- Organ Systems
- Complexity
- Argument
- Multicellular
- Varying Levels

Academic Vocabulary (What terms will students need to know?)

Students can create an argument supported by evidence that a multicellular organism is organized by varying levels of complexity.

Learning Targets

- I can identify the primary roles of cells
- I can identify that tissues are composed of cells
- I can identify how organs are composed of tissues
- I can explain that organ systems are composed of organs that work together

Learning Targets linked to Priority Standards = +

Topic: Interactions of Organ Systems

Duration: 5 Week(s)

Description

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Students will understand how each body system has a specific function and how they interconnectively work together.

Enduring Understandings/Essential Questions


Present evidence
Body systems
Interact
Carry out
Body functions
Nutrients
Cells
Coordination

Academic Vocabulary (What terms will students need to know?)

Given two body systems, students can identify how they interact to carry out key functions necessary for the survival of the human body.

Learning Targets

I can explain how the body systems interact together
I can explain what are the key functions needed for the survival of the human body?
-Provide nutrients and oxygen to cells for their proper function
-Remove carbon dioxide and waste from cells and the body
-Controlling body motion/activity and coordination
-Protecting the body

Learning Targets linked to Priority Standards = 

Unit: Ecosystems

Duration: 6 Week(s)

Unit Description

Students will study the patterns that exist in ecosystems that are both beneficial and detrimental to the energy flow in the ecosystem. Emphasis will be given on the effect of human activity on the ecosystem. Students will study the variances in organisms that occur through genetic means that either increase or decrease the likelihood of survival.

Power Standards

Understand characteristics of healthy ecosystems
Recognize patterns in data
Make inferences about changes in populations
Define the boundaries of an ecosystem
Evaluate empirical evidence supporting arguments about changes to ecosystems
What are different design solutions for maintaining an ecosystem?
- Water protection
- Land protection
- Species protection
- Prevention of soil erosion
Identify and understand design solution constraints
- Scientific
- Economic
- Social
Identify animal behaviors
Identify specialized plant structures
Evaluate effectiveness of reproductive animal behaviors/characteristics
- Nest building to protect young from cold or predators
- Herding of animals to protect young from predators
- Vocalization of animals/colorful plumage to attract mates
Evaluate specialized plant structures that aid in successful reproduction
- Animals transferring pollen or seeds
- Animals creating conditions for seed germination/growth
- Bright flowers attracting butterflies that transfer pollen
- Flower nectar and odors that attract insects to transfer pollen
- Hard shells on nuts that squirrels bury
Understand how physical traits can vary due to genetics
Analyze survival rates of populations due to trait variances
Construct an explanation using simple probability statements and proportional reasoning
Use reliable sources to gather information about technologies
Understand how humans influence the inheritance of desired traits in organisms
- Genetic modification
- Animal husbandry
- Farming practices
What is a trait?
What are populations?
What is natural selection?

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Required Course

Understand how natural selection provides for the slight changes in species' traits over time
Interpret graphical representations to create a scientific argument

Academic Vocabulary

Construct an argument
Empirical evidence
Physical components of an ecosystem
Biological components of an ecosystem
Populations
Evaluate
Benefits and limitations
Differing design solutions
Maintaining an ecosystem
Construct an explanation
Characteristic animal behaviors
Specialized plant structures
Successful reproduction
Construct an explanation based on evidence
Genetic variations
Traits
Population
Probability of survival
Probability of reproduction
Environment
Synthesize
Influence
Inheritance
Desired Traits
Organisms
Graphical representations
Support
Natural selection
Specific traits
Populations

Assessment

Students will be assessed through formative assessments such as exit slips, warm ups, short quizzes, or teacher conferences.

Topic: Changes in Ecosystems

Duration: 1 Week(s)

Description

Students will understand the qualities of a healthy ecosystem and how changes in these ecosystems can have effects on the populations within that ecosystem

Enduring Understandings/Essential Questions


Construct an argument
Empirical evidence
Physical components of an ecosystem
Biological components of an ecosystem
Populations

Academic Vocabulary (What terms will students need to know?)

Students can study empirical evidence and construct an argument that explains how changes to physical or biological components of an ecosystem affect populations within that ecosystem.

Learning Targets

I can understand characteristics of healthy ecosystems
I can recognize patterns in data
I can make inferences about changes in populations
I can define the boundaries of an ecosystem
I can evaluate empirical evidence supporting arguments about changes to ecosystems

Learning Targets linked to Priority Standards = 

Topic: Maintaining Ecosystems

Duration: 1 Week(s)

Description

Students will understand the processes involved in maintaining healthy ecosystems.

Enduring Understandings/Essential Questions

Evaluate

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Grade(s) 8th, Duration 1 Year, 1 Credit
Required Course

Benefits and limitations
Differing design solutions
Maintaining an ecosystem

Academic Vocabulary (What terms will students need to know?)

Given an ecological maintenance design solution, students can evaluate the benefits and limitations this solution provides.

Learning Targets

I can explain what are the different design solutions for maintaining an ecosystem?

- Water protection
- Land protection
- Species protection
- Prevention of soil erosion

I can identify and understand design solution constraints

- Scientific
- Economic
- Social

I can explain how each organism changes the energy flow of the ecosystem.

Learning Targets linked to Priority Standards = +

Topic: Plant and Animal Characteristics

Duration: 1 Week(s)

Description

Students will study special design characteristics of plants and animals that allow them a higher chance of survival and reproduction.

Enduring Understandings/Essential Questions

Construct an explanation
Characteristic animal behaviors
Specialized plant structures
Successful reproduction

Academic Vocabulary (What terms will students need to know?)

Students can construct an explanation for how characteristic animal behaviors as well as specialized plant structures affect the probability of successful reproduction of animals and plants.

Learning Targets

I can identify animal behaviors

I can identify specialized plant structures

I can evaluate effectiveness of reproductive animal behaviors/characteristics

- Nest building to protect young from cold or predators
- Herding of animals to protect young from predators
- Vocalization of animals/colorful plumage to attract mates

Evaluate specialized plant structures that aid in successful reproduction

- Animals transferring pollen or seeds
- Animals creating conditions for seed germination/growth
- Bright flowers attracting butterflies that transfer pollen
- Flower nectar and odors that attract insects to transfer pollen
- Hard shells on nuts that squirrels bury

I can construct a scientific explanation based on valid and reliable evidence from my own experiment.

Description: This explanation will include the genetic factors as well as local conditions and how they affect the growth of organisms.

Assessment:

*Tasks should not include the following:

- The process of inheritance
- Biochemical processes (e.g., translation and transcription of DNA)
- Labeling a diagram/model

*All evidence for arguments must be provided

Project

Learning Targets linked to Priority Standards = +

Topic: Natural Selection

Duration: 1 Week(s)

Description

Students will study genetic variations in plants and animals and how they provide beneficial or detrimental effects on their survival as a species.

Enduring Understandings/Essential Questions

Construct an explanation based on evidence
Genetic variations
Traits
Population

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Grade(s) 8th, Duration 1 Year, 1 Credit
Required Course

Probability of survival
Probability of reproduction
Environment

Academic Vocabulary (What terms will students need to know?)

Students can construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment

Learning Targets

I can understand how physical traits can vary due to genetics
I can analyze survival rates of populations due to trait variances
I can construct an explanation using simple probability statements and proportional reasoning

Learning Targets linked to Priority Standards = +

Topic: Artificial Selection

Duration: 1 Week(s)

Description

Students will learn how humans use technologies to influence the inheritance of desired traits in plants and animals.

Enduring Understandings/Essential Questions

Synthesize
Influence
Inheritance
Desired Traits
Organisms

Academic Vocabulary (What terms will students need to know?)

Students can gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.

Learning Targets

I can use reliable sources to gather information about technologies
I can understand how humans influence the inheritance of desired traits in organisms
- Genetic modification
- Animal husbandry
- Farming practices

Learning Targets linked to Priority Standards = +

Topic: Adaptation

Duration: 1 Week(s)

Description

Students will understand how natural selection may lead to changes in specific traits in populations over time.

Enduring Understandings/Essential Questions

Graphical representations
Support
Natural selection
Specific traits
Populations

Academic Vocabulary (What terms will students need to know?)

Students can create a scientific argument by interpreting graphical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.

Learning Targets

I can explain what a trait is.
I can explain what populations are.
I can explain what natural selection is.
I can understand and explain how natural selection provides for the slight changes in species' traits over time.
I can interpret graphical representations to create a scientific argument

Learning Targets linked to Priority Standards = +

Unit: Earth Science

Duration: 5 Week(s)

Unit Description

Students will then study the internal and external features of Earth and give scientific explanations as to what causes them. They will also use rock layers to make inferences of past biotic and abiotic factors in a specific area.

Power Standards

1. Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes and human activity.

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Required Course

2. Analyze data to define the relationship for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
4. Analyze and interpret evidence from the fossil record to infer patterns of environmental change resulting in extinction and changes to life forms throughout the history of the Earth.

Academic Vocabulary

Explanation
Evidence
Distribution
Mineral
Energy
Groundwater
Geoscience
Relationship
Per-capita
Consumption
Natural resources
Earth's systems
Principles
Monitoring
Human impact
Fossil record
Environmental change
Extinction

Assessment

Students will be assessed through formative assessments such as exit slips, warm ups, short quizzes, or teacher conferences.

Topic: Earth's Interior

Duration: 1 Week(s)

Description

Students will learn about the interior processes of the Earth and trace the energy transfer from the core of the Earth to the surface processes they cause.

Enduring Understandings/Essential Questions


Explanation
Evidence
Distribution
Mineral
Energy
Groundwater
Geoscience
Relationship
Per-capita
Consumption
Natural resources
Earth's systems

Academic Vocabulary (What terms will students need to know?)

Students can trace the energy transfer from the core of the Earth to the surface processes they cause.

Learning Targets

- I can identify past and current geoscience processes
- I can identify examples of Earth systems
- I can describe the layers of the Earth in detail from the crust to inner core.

Learning Targets linked to Priority Standards = 

Topic: Earth's Surface Processes

Duration: 1 Week(s)

Description

Students will be able to connect surface processes on the Earth to the genesis of that energy in the core of the Earth.

Enduring Understandings/Essential Questions

Explanation
Evidence
Distribution
Mineral
Energy

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Required Course

Groundwater
Geoscience

Academic Vocabulary (What terms will students need to know?)

Students can connect surface processes on the Earth to the genesis of that energy in the core of the Earth.

Learning Targets

Identify past and current geoscience processes
Identify examples of Earth systems

Learning Targets linked to Priority Standards = +

Topic: Rocks, Minerals and Fossils

Duration: 2 Week(s)

Description

In this topic, students will be able to discern the different methods and conditions necessary by which different rocks, minerals, and fossils are created.

Enduring Understandings/Essential Questions

Explanation
Evidence
Distribution
Mineral
Energy
Groundwater
Geoscience
Relationship
Per-capita
Consumption
Natural resources
Earth's systems
Principles
Monitoring
Human impact
Fossil record
Environmental change
Extinction

Academic Vocabulary (What terms will students need to know?)

Students can discern the different methods and conditions necessary by which different rocks, minerals, and fossils are created.

Learning Targets

I can explain and understand that Earth's minerals, energy and groundwater resources are unevenly distributed
I can identify human activity that affect natural resources
I can explain why human population and per-capita consumption of natural resources are increasing
I can understand and explain the impact of population increase and per-capita consumption of natural resources on Earth's systems
I can design a method for monitoring human impact on the environment
I can design a method for minimizing human impact on the environment
I can describe how environmental changes result in the extinction and changes in life forms

Learning Targets linked to Priority Standards = +

Topic: History of the Earth

Duration: 1 Week(s)

Description

Students will learn how to use rock and fossil data to determine past geological processes, environments, and the history of the earth.

Enduring Understandings/Essential Questions

Explanation
Evidence
Distribution
Mineral
Energy
Groundwater
Geoscience
Fossil record
Environmental change
Extinction

Academic Vocabulary (What terms will students need to know?)

Students can use rock and fossil data to determine past geological processes, environments, and the history of the earth.

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Grade(s) 8th, Duration 1 Year, 1 Credit
Required Course

Learning Targets

Describe how environmental changes result in the extinction and changes in life forms
Identify past and current geoscience processes

Learning Targets linked to Priority Standards = +

Unit: Matter and Energy

Duration: 8 Week(s)

Unit Description

Students will study the properties and relationships between matter and energy, including the interactions of materials, effect of energy on matter, and they will explore the causes and effects of various physical and chemical changes.

Power Standards

1. Develop models to describe the atomic composition of simple molecules and extended structures.
2. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.
3. Gather, analyze, and present information to describe that synthetic materials come from natural resources and how they impact society.
4. Develop a model that describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.
5. Develop and use a model to describe how the total number of atoms remains the same during a chemical reaction and thus mass is conserved.
6. Construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.

Academic Vocabulary

Models
Atomic composition
Nucleus
Protons
Neutrons
Electrons
Simple molecules
Extended structures
Substances
Chemical reaction
Synthetic materials
Natural resources
Society
Particle
Temperature
Pure Substance
Thermal Energy
Atoms
Mass
Conserved

Assessment

Students will be assessed through formative assessments such as exit slips, warm ups, short quizzes, or teacher conferences.

Topic: Physical and Chemical Properties of Matter

Duration: 2 Week(s)

Description

In this topic, students will be able to discern physical and chemical properties of matter by means of direct or indirect observation.

Enduring Understandings/Essential Questions

Models
Atomic composition
Nucleus
Protons
Neutrons
Electrons
Simple molecules
Extended structures

Academic Vocabulary (What terms will students need to know?)

Students can discern physical and chemical properties of matter by means of direct or indirect observation.

Learning Targets

I can explain and describe atomic composition
I can correctly identify properties of substances

Learning Targets linked to Priority Standards = +

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Topic: The Kinetic Theory of Matter

Duration: 3 Week(s)

Description

I can explain how particle motion determines the temperature and state of matter of a substance.

Enduring Understandings/Essential Questions

Construct
Test
Modify
Thermal Energy
Chemical Processes
Particle
Temperature
Pure Substance
Thermal Energy
Construct
Test
Modify
Thermal Energy
Chemical Processes

Academic Vocabulary (What terms will students need to know?)

Students can describe and interpret how particle motion determines the temperature and state of matter of a substance.

Learning Targets

I can describe changes in particle motion, temperature and state of matter when thermal energy is added or removed.
I can understand and explain the different materials released or absorbed through thermal energy
I can understand chemical processes that absorb or release thermal energy

Learning Targets linked to Priority Standards = +

Topic: Chemical and Physical Changes

Duration: 3 Week(s)

Description

Students will be able to use evidence to determine whether a substance has undergone a physical or chemical change.

Enduring Understandings/Essential Questions

Particle
Temperature
Pure Substance
Thermal Energy
Atoms
Chemical Reaction
Mass
Conserved

Academic Vocabulary (What terms will students need to know?)

Students can use evidence to determine whether a substance has undergone a physical or chemical change.

Learning Targets

I can identify evidences of chemical reactions
I can determine when a chemical reaction has taken place
I can explain why atoms remain the same before and after a chemical reaction
-I will be able to give examples of how natural resources are used in chemical processes to create synthetic materials
Description: Students will be able to:
-give examples such as the burning of limestone for the production of concrete.
-describe how synthetic materials are formed, including the natural resources and chemical processes used.
-describe the properties of synthetic materials that make it different from the natural resources from which it was derived
-describe how those physical and chemical properties contribute to the function of the synthetic material.
-describe how the synthetic material satisfies a societal need or desire through the properties of its structure and function.
-describe the effects of making and using synthetic materials on natural resources and society

Assessment: Students will be able to explain how/why
Exit Slip

Learning Targets linked to Priority Standards = +

Unit: Heredity - Genetics

Duration: 3 Week(s)

Unit Description

Students will learn the fundamentals of genetics. Students will be able to explain how traits can be carried on DNA through generations. They

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will be able to calculate genotypic and phenotypic ratios using Punnett Squares