Curriculum Map: 4th Grade Science

Course: 4 Science Sub-topic: General

Grade(s): None specified

Course Description:

In 4th grade science students will experience three science domains; Life Science, Physical Science, and Earth and Space Science. In each domain hands on learning opportunities will be provided.

In Life science students will explore topics related to **Plant Life** (structures of a plant, photosynthesis, transpiration, parts of a plant cell, adaptations, life cycle, responses to external stimuli) **Animal Life** (life cycles, adaptations, internal and external functions of animals, diet, responses to external stimuli) **Human Body Systems** (How our organs work together to perform a function), **Ecosystems** (plant and animals that thrive in a certain habitat, characteristics of each ecosystem

In Physical Science students will explore topics related to **Energy** (define energy, transfer of energy, conservation of energy, renewable/nonrenewable resources) **Magnetism** (attracts and repels) **Electricity** (closed and open circuits, static) **Motion** (laws of motion)

In Earth and Space science students will learn **Earth's Water (**water cycles, bodies of water) **Earth's Features** (Land forms), inner and outer Earth), **Properties of Minerals, 3 Types of Rocks** (Sedimentary, Metamorphic, and Igneous) Weathering (physical and chemical) and Erosion, Types of soil (layers) **Severe Weather** (Tornadoes, Hurricanes, Floods, Avalanches...) **Space** (Rotation/Revolution of Earth, Sun, & Moon, Planets)

Course Interdisciplinary Connections:

Journaling, read alouds, lectures, word problems, informational and persuasive writing, graphic organizers, cooperative learning, note taking, bell ringers, exit slips, demonstration

Unit: Physical Science

This Curriculum Map Unit has no Topics to display

Unit: Energy and Motion

Unit Description: **Physical Science -**

Force and Motion

Unit Essential Questions:

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

How can one explain and predict interactions between objects within systems?

How is energy transferred and conserved?

Unit Big Ideas:

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

Interactions between any two objects can cause changes in one or both.

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

Unit Materials:

Textbook

Teacher Chosen Materials:

Teacher Pay Teacher: Energy NGSS Aligned Unit 4.PA.3

Unit Assignments:

Lesson	Objective	Standards	Assessment	Resources
Energy, Speed, & Moving Objects	Explain what energy is and forms of energy Explain how a moving object's speed and energy are relate	3.2.3.B1 3.3.3.B2 3.2.4.B1 3.2.4.B2 3.2.4.B4		
Collisions	Predict changes in energy that occur when objects collide	3.2.3.B1 3.3.3.B2 3.2.4.B1 3.2.4.B2 3.2.4.B4 3.2.2.B6		
Energy Transfer	Give examples of energy being transferred from place to place Explain that heat flows from hot objects to cold ones Demonstrate that some materials are good conductors of heat and others are not	3.2.4.B4 3.2.4.B6 3.2.3.B4 3.2.4.B4 3.2.5.B3 3.2.5.B4		
Electric Circuits	Use models to describe how electric currents flow in circuits	3.2.3.B4 3.2.4.B4 3.4.7.B		

Unit Key Terminology & Definitions:

Attract
Collision
Friction
Gravity
Magnets
Repel

This Curriculum Map Unit has no Topics to display

Unit: Electricity, Light, and Sound

Unit Description:

Physical Science -

Electricity, Light, and Sound

Unit Essential Questions:

How can one explain or predict interactions between objects within systems?

How is energy transferred and conserved?

How are waves used to transfer energy and information?

Unit Big Ideas:

Interactions between any two objects can cause changes in one or both.

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

Waves are repeating pattern of motion that transfers energy from place to place without overall displacement of matter.

Unit Materials:

Textbook

Unit Assignments:

Lesson	Objectives	Standards	Assessments	Resources
Energy Conversions	Describe how natural resources are converted to energy and fuels	3.2.3.B.2 3.2.4.B.2 3.2.5.B.2		
Nonrenewable Energy Sources	Investigate how people extract and use natural resources Give examples of nonrenewable energy sources	3.2.3.B2		
Renewable Energy Sources	Distinguish between renewable and nonrenewable energy sources Give examples of renewable energy sources	3.2.3.B2		
Environmental Impacts of Energy Use	Describe how the use of different natural energy resources affects the local and global environments Evaluate how technology can improve the environmental affects of using a given resource.	3.2.3.B2		
Properties of Waves	Describe the basic properties of waves Describe how waves can cause objects to move	3.3.4.B5 3.2.4.B6		
Patterns of Waves	Model Waves using patterns in wave properties	3.2.4.B5 3.2.4.B6		
waves and the Electromagnetic Spectrum	Model how light reflection allows objects to be seen	3.2.3.B5 3.2.4.B5		
Waves and Information	Demonstrate how high tech devices use waves to send and receive information	3.4.4.B1 3.4.4.B3		

Unit Key Terminology & Definitions:

Conductor Heat
Electricity Light
Insulator Sound
Parallel Circuit Transformation
Serial Circuit Conversion
System Non-Renewable
Closed Circuit Renewable
Open Circuit Waves
Switch Seismic Waves
Current Decode
Electromagnet Digitize
Forces Pixels
Energy Transmit
Magnet Encode
Transfer Battery
Motion Production
Electric Current

This Curriculum Map Unit has no Topics to display

Unit: Life Science

This Curriculum Map Unit has no Topics to display

Unit: Plant and Animal Structures

Unit Description: Life Science -

Plant and Animal Structures

Unit Essential Questions: How do organisms live, grow, respond to their environment and reproduce?

How and why do organisms interact with their environment and what are the effects of these interactions?

How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?

Unit Big Ideas: All organisms are made of cells and can be characterized by common aspects of their structure and functioning.

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

Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth.

Unit Assignments:

Lesson	Objective	Standards	Assessment	Resources
Internal Structures and Functions of Plants	Describe some internal structures that help plants survive and reproduce	3.1.4.A 3.1.4.B 3.1.4.C 4.1.4.A 4.5.4.C 4.2.4.C 3.1.3.A.1		
External Structures and Functions of Plants	Describe some external structures that help plants survive and reproduce	3.1.4.A 3.1.4.B 3.1.4.C		

		4.1.4.A 4.5.4.C 4.2.4.C 3.1.3.A.1
Internal Structures and Functions of Animals	Describe some internal structures that help animals survive	3.1.4.A 3.1.4.B 3.1.4.C 4.1.4.A 4.5.4.C 4.2.4.C 3.1.3.A.1
External Structures and Functions of Animals	Describe some external structures that help animals survive and reproduce	3.1.4.A 3.1.4.B 3.1.4.C 4.1.4.A 4.5.4.C 4.2.4.C 3.1.3.A.1
Plant and Animal Responses to the Environment	Explain how animals use sensory information to respond to their environments Describe how plants and animals can survive in different environments because of adaptations	3.1.4.A 3.1.4.B 3.1.4.C 4.1.4.A 4.5.4.C 4.2.4.C 3.1.3.D
Circulatory and Respiratory Systems	Explain how the heart moves blood through the body Explain how the circulatory and respiratory systems interact to move oxygen through the body	3.1.4.A 3.1.4.B 3.1.4.C 4.1.4.A 4.5.4.C 4.2.4.C 3.1.3.A.1
Skeleton, Muscles, and Skin	Describe the functions of the skeleton, muscles, and skin Explain how the skeletal and muscular system interacts to allow movement	3.1.4.A 3.1.4.B 3.1.4.C 4.1.4.A 4.5.4.C 4.2.4.C 3.1.3.A.1
Nervous Systems	Describe the functions of the brain and sensory organs	3.1.4.A 3.1.4.B 3.1.4.C 4.1.4.A 4.5.4.C 4.2.4.C 3.1.3.A.1

		3.1.3.A.1
Digestive, Reproductive, and other Systems	Relate the structures in the digestive reproductive, and other systems to their functions	3.1.4.A 3.1.4.B 3.1.4.C 4.1.4.A 4.5.4.C 4.2.4.C 3.1.3.A.1

Unit Key Terminology & Definitions:
Behaviors
Cause and Effect
Function
Offspring
Reproduce
Structure
Survival
System
System Models

This Curriculum Map Unit has no Topics to display

Unit: Earth and Space Science

This Curriculum Map Unit has no Topics to display

Unit: Changing Earth

Unit Description:
Earth Science -

Changing Earth

Unit Essential Questions:
what is the Universe and what is Earth's place in it?

How and why is Earth constantly changing?

How do Earth's processes and human activities affect each other?

Unit Big Ideas:

The Universe is composed of a variety of different objects, which are organized into systems each of, which develops according to accepted physical processes and laws.

The Earth is a complex and dynamic set of interconnected systems that interact over a wide range of temporal and spatial scales.

The Earth's processes affect and are affected by human activities.

Unit Assignments:

Lesson	Objective	Standards	Assessment	Resources
Maps and Data	Read maps to identify and compare Earth's surface features	3.3.5.A1 3.3.4.A1. 4.5.4.D		
Patterns of Earth's Features	Identify patterns in Earth's surface features	3.5.4.A 4.5.4.D 3.3.4.A1		
Rocks, Minerals, and Soil	Describe how rocks and soil form Identify the properties of minerals	3.3.4.A3 4.4.4.C		
Weathering and Erosion	Use evidence to show how weathering and erosion change Earth's surface	3.3.5.A1 3.3.4.A3 4.4.4.4C		
Tectonic Hazards Weather Hazards Impacts of Natural Hazards	Describe how volcanic eruptions, earthquakes, and tsunamis can impact people Describe how weather hazards can affect humans Explain how natural hazards can negatively affect humans Describe some solutions that reduce the impact of natural hazards			
Patterns in fossils and Rock formations	Identify patterns in fossils and rock formations	3.3.3.A1 3.3.3.5.A3		
Evidence of change from Fossils and Rock Formations	Use patterns in fossils and rock formations to explain how a landscape has changed over time	3.3.3.A1 3.3.3.5.A3		

Unit Key Terminology & Definitions:

Fossils Analyze Tsunami
Rock Features Weather
Formations Interpret
Deposition Lakes
Erosion Lentic
Vegetation Lotic
Weathering Ponds
Physical Characteristics Rivers
Biogeology Streams
Earthquake Watersheds
Geographic Rock Layers
Geologic Minerals
Hazards Fissile Materials
Mountain Rang fossil Fuels
Natural Plate Tectonics Natural Resources
Trench Solar
Volcano Natural Hazard

This Curriculum Map Unit has no Topics to display

Unit:

This Curriculum Map Unit has no Topics to display