

Teaching Unit: **Earth Science**

Essential Understandings

Forces inside the earth work to cause changes on the surface of the earth.

Sub Topic: **Forces of Nature**

Knowledge and Skills

Teaching Unit: **Biology**

Essential Understandings

Cells are the building blocks of living things.

Living things carry out life processes - (get energy, use energy, grow, reproduce, react to change)

Living things are grouped to make it easier to study their characteristics.

Sub Topic: **Classifying Living Things**

Knowledge and Skills

Students will identify an example of a cell.

Students will label parts of a cell. (nucleus, cytoplasm, cell membrane, cell wall, chloroplast).

Students will identify five life processes.

Students will classify plants and animals according to the way they carry out life processes.

Students will use microscopes to view cells.

Teaching Unit: **Biology**

Essential Understandings

Living things reproduce to continue their species.

In many celled living things, reproduction occurs when two reproductive cells combine.

In single celled living things, reproduction occurs through cell division.

Offspring inherit their traits from the parents' cells.

Sub Topic: **Reproduction and Inherited**

Knowledge and Skills

Students will explain how flowering plants are pollinated and fertilized.

Students will learn how offspring inherit traits from their parents.

Students will identify the difference between dominant and recessive genes.

Teaching Unit: ***Biology***

Essential Understandings

In order to survive, plants/animals must meet basic needs. (food, grow, reproduce, protection from their surroundings)

Adaptations help organisms survive in their environment.

Sub Topic: ***Animal Adaptations***

Knowledge and Skills

Students will learn that all living things have basic needs for survival.

Students will learn that plants/animals have physical attributes that enable them to survive in their environment.

Students will learn that animals have certain behaviors which allow them to survive in their environment.

Students will select an animal and research how it is adapted to survive in its environment.

Teaching Unit: ***Biology***

Essential Understandings

An ecosystem is made up of living and nonliving things in an area.

Photosynthesis is a process in which plants use sunlight to make sugar from carbon dioxide.

Sub Topic: ***Ecology Unit***

Knowledge and Skills

Students will select a biome to study (such as desert, tundra, forest, ocean, grassland) and using their computers research the plants, climate, animals, and resources of the region.

Teaching Unit: ***Physics & Motion***

Essential Understandings

Forces act on objects in pairs, ie: pushes and pulls.

Objects move or change direction as a result of the forces applied to them.

There are three laws to explain how forces cause objects to move.

Sub Topic: ***Newton's Laws***

Knowledge and Skills

Students will learn that gravity is a force that acts to pull pairs of objects together.

Students will learn that friction is a force that resists the movement of one surface past another.

Students will learn Newton's first Law: Law of inertia, an object at rest (or in motion) will stay at rest (or in motion) until acted upon by an outside force.

Students will learn Newton's second Law: $F = M \times A$ /

Students will learn Newton's third Law: For every action there is an equal and opposite reaction.

Students will be able to describe how an object will move, based on the principles of Newton's Laws of Motion.

Teaching Unit: ***Physical Science***

Essential Understandings

Matter is made up of basic particles called atoms.

Elements form basic building blocks of matter.

Atoms combine to form molecules.

There are three states of matter; solid, liquid, and gas.

Sub Topic: ***Classifying Matter***

Knowledge and Skills

Students will identify the parts of an atom (proton, neutron, electron).

Students will learn that elements are classified by their properties.

Students will learn that movement of atoms create changes in the state of matter.

Students will be introduced to the Periodic Table of Elements.

Teaching Unit: ***Physical Science***

Essential Understandings

Energy is the ability to do work.

Energy is classified into different forms.

Energy can change from one form to another.

The sun is a primary source of energy.

Sub Topic: ***Forms of Energy***

Knowledge and Skills

Students will be able to define what energy is.

Students will identify the difference between Potential and Kinetic energy.

Students are introduced to seven forms of energy: electrical, radiant, chemical, thermal, mechanical, nuclear and sound.

Students will identify what a wavelength is and how it is measured.

Students will identify that sounds are produced by vibrations which travel as waves through space.

Teaching Unit: ***Earth Science***

Essential Understandings

The Earth is made of layers. The interaction of these layers create long-term and short-term changes to the Earth.

Movement of the earth's plates causes earthquakes and volcanic eruptions.

Scientists think the continents were once part of a single land mass that began separating 150 - 200 million years ago.

Sub Topic: ***The Changing Earth***

Knowledge and Skills

Students will be able to identify layers of the earth, including: Hydrosphere, lithosphere, atmosphere, crust, mantle, and core.

Students will become familiar with the theory of plate tectonics.

Students will be able to identify landforms created by the movement of plates.

Students will be able to explain how weathering, erosion, and deposition cause short term and long term changes on the earth's surface.

Students will be introduced to the rock cycle.

Students will learn that mountains and oceans influence weather patterns observed on Earth.
