

Teaching Unit: *Metric System*

Essential Understandings

The metric system is the measurement system used throughout most of the world.

Basic Units of Measurement.

Gram-- Unit of Mass

Meter-- Unit of Length of Length

Liter----Unit of Volume

Symbols for Units of Measurement

Gram---g

Meter__ m

Liter l

Basic Prefixes and Symbols

Kilo--- K

Hecto-- H

Deka--- Da

Deci D

Centi C

Milli --- M

Values of Metric Prefixes

Kilo- 1,000

Hecto-- 100

Deka-- 10

Deci-0.1

Centi-0.01

Milli--0.001

Sub Topic:

Knowledge and Skills

Metric prefixes: kilo, hecto, deka, deci, centi, milli

Metric symbols: K, H Da, D, C, M

Metric values: 1,000 100 10 0.1 0.01 0.001

Basic units of measurement: meter (length), liter (liquids), gram (weight/mass)

Teaching Unit: **Periodic Table**

Essential Understandings

basic reason for this unit is to introduce students to the common elements that are a part of other science units they study (like how oxygen figures into the respiratory system, etc.)

this is only an intro b/c in 8th grade it is covered in much more detail.

An atom is made up of protons, neutrons, and electrons.

Protons have a positive electrical charge.

Electrons have a negative electrical charge.

Neutrons have no electrical charge.

Sub Topic:

Knowledge and Skills

understand what the periodic table is and used for.

Learn the basic symbols of common elements (hydrogen, oxygen, carbon, nitrogen, potassium, gold, silver, tin)

protons, neutrons, electrons - where they appear in each element

Teaching Unit: **Cells**

Essential Understandings

A cell is the basic unit of structure and function in a living thing.

Sub Topic:

Knowledge and Skills

identify basic parts of a cell: cell membrane, nucleus, cytoplasm, ribosomes, nuclear membrane, endoplasmic reticulum, chromosomes

introduction to the function of these different parts

Teaching Unit: **Environmental science**

Essential Understandings

Living things depend on each other and on nonliving things in the environment for survival

Systems change in response to factors, both living and nonliving.

Sub Topic: **interactions/organisms**

Knowledge and Skills

Generate examples of ways organisms interact

Analyze how finite resources (space, food, weather) affect populations

Teaching Unit: **Body Systems**

Essential Understandings

Realize that our body's skin serves many life-sustaining functions.

Our skin is made up of lots of different parts.

Sub Topic: **Skin**

Knowledge and Skills

Understand the different functions the skin performs: 1. cover the body, 2. prevent loss of water, 3. protect from injury and infection, 4. regulate temperature, 5. eliminate waste, 6. gather information through senses, 7. produce vitamin D

Know basic parts of the skin: epidermis, dermis, hair, pore, oil gland, sweat gland, follicle, fat, nerves, blood vessels

Teaching Unit: ***Body Systems***

Essential Understandings

Knowing basic parts of abone.
Basic parts of the human skeleton.

Teaching Unit: ***Environmental Science***

Essential Understandings

Organisms have characteristics which distinguish them from other organisms,
There is a vital interconnectedness between humans and plants

Sub Topic: ***Skeletal***

Knowledge and Skills

Sub Topic: ***Tree Unit***

Knowledge and Skills

Beginning understanding of classification system for plants.
Tree participation in photosynthesis/respiration cycle
Dispersal of organisms
Know the difference between coniferous and deciduous trees
Describe in general terms the process of photosynthesis and respiration

Teaching Unit: ***Body Systems***

Essential Understandings

Sub Topic: ***Circulation***

Knowledge and Skills

Basic function of the cardiovascular system.
The heart's 4 chambers and how they work together. Circulation after blood leaves the heart.
Function of arteries, veins, and capillaires.
Lymphatic system.
Oxygen rich/poor blood.
Diffusion of oxygen out to the cell and carbon dioxide back in

Teaching Unit: **Body Systems**

Essential Understandings

Sub Topic: **Respiration**

Knowledge and Skills

Basic parts and function of the respiratory system: nose, pharynx, epiglottis, larynx, trachea, bronchi, lungs

Process of breathing. Lungs: critical role of the pulmonary arteries and veins. Oxygen rich/poor blood.

Process of speaking.

Exchange of carbon dioxide and oxygen.

Teaching Unit: **Body Systems**

Essential Understandings

Sub Topic: **Nervous System**

Knowledge and Skills

Basic function of the nervous system (motor and sensory).

Understanding of neurons.

Division of the nervous system: 1. central nervous system, 2. peripheral nervous system.

Basic parts of the brain and their functions: cerebrum, cerebellum, brain stem, and hippocampus.

Teaching Unit: **Senses**

Essential Understandings

Sub Topic: **Vision**

Knowledge and Skills

Basic understanding of parts of the eye and their functions: optic nerve, sclera, blind spot, choroid, retina, vitreous humor, rectus muscles, ciliary body, ciliary muscle, ligaments, lens, iris, aqueous humor, cornea, fovea

compare / contrast different animals eyesight

discuss different eye conditions and corrective measures

Teaching Unit: **Senses**
Essential Understandings

Sub Topic: **Hearing**
Knowledge and Skills

Teaching Unit: **Viruses, Bacteria and Infectious Disease**
Essential Understandings

Sub Topic:
Knowledge and Skills

Infectious diseases are typically caused by microbes such as viruses and bacteria.

Understand that viruses are non-living, yet need living cells to replicate

There are steps humankind can take to prevent, cure, or eliminate many infectious diseases from the human population.

Understand the parts of a virus and how a virus takes over the functioning of a host cell: creating a physical model of a virus and its host

Understand the differences between viruses and bacteria

Understand the characteristics of a bacteria cell

Understand how viruses and bacteria are transmitted to humans and other living organisms.

Teaching Unit: **Plants**
Essential Understandings

Sub Topic: **Biological Characteristics**
Knowledge and Skills

Difference between plant and animal cells.

Basic difference between plant and human characteristics.

How protists display both animal and plant characteristics.

Teaching Unit: **Plants**
Essential Understandings

Sub Topic: **Photosyntheses**
Knowledge and Skills

Photosynthesis is the process by which plants make food.

Sunlight provides the power for photosynthesis.

During photosynthesis carbon dioxide and water are used to make food and oxygen.

Teaching Unit: *Evolution of Earth's Atmosphere*

Essential Understandings

This is a possible unit to be developed.

Sub Topic:

Knowledge and Skills

Originally Earth's atmosphere did not contain oxygen.

Be able to trace/describe the process of Earth's atmosphere eventually having 20% oxygen.
