Updated Pacing Guide for ELL Level 2 Science

Level 2

Trimester 1: LIFE SCIENCE

Flow of Energy and Recycling of Matter

- ***7.4.2.2.1 Recognize that producers use the energy from sunlight to make sugars from carbon dioxide and water through a process called photosynthesis. This food can be used immediately, stored for later use, or used by other organisms.***

- ***7.4.2.2.2 Describe the roles and relationships among producers, consumers and decomposers in changing energy from one form to another in a food web within an ecosystem.***

- 7.4.2.2.3 Explain that the total amount of matter in an ecosystem remains the same as it is transferred between organisms and their physical environment, even though its form and location change. *For example:* Construct a food web to trace the flow of matter in an ecosystem.

Interdependence Among Living Systems

Predator, prey, producer consumer decomposer, biotic and abiotic factors, (living and nonliving things that affect an ecosystem), changes to an ecosystem and affects (floods, fire, humans build houses), limiting factors for a population and definition of a population.

- ***7.4.2.1.1 Identify a variety of populations and communities in an ecosystem and describe the relationships among the populations and communities in a stable ecosystem.***

- 7.4.2.1.2 Compare and contrast predator/prey, parasite/host and producer/consumer/decomposer relationships.

- 7.4.2.1.3 Explain how the number of populations an ecosystem can support depends on the biotic resources available as well as abiotic factors such as amount of light and water, temperature range and soil composition.

Trimester 2: PHYSICAL SCIENCE

Matter

Key idea is development of understanding of atoms and how they move and interact such as when heated, or dissolved, or in a chemical reaction. Law of Conservation of Mass, matter (atoms) cannot be made or destroyed they only change form (ice melts, water evaporates, paper burns)

- 6.2.1.2.1 Identify evidence of physical changes, including changing phase or shape, and dissolving in other materials.

- 6.2.1.2.3 Use the relationship between heat and the motion and arrangement of particles in solids, liquids and gases to explain melting, freezing, condensation and evaporation.

- 6.2.1.1.1 Explain density, dissolving, compression, diffusion and thermal expansion using the particle model of matter.

- 7.2.1.1.1 Recognize that all substances are composed of one or more of approximately one hundred elements and that the periodic table organizes the elements into groups with similar properties.

- 7.2.1.1.2 Describe the differences between elements and compounds in terms of atoms and molecules.

- ***8.2.1.1.1 Distinguish between a mixture and a pure substance and use physical properties including color, solubility, density, melting point and boiling point to separate mixtures and identify pure substances.***

- 8.2.1.1.2 Use physical properties to distinguish between metals and non-metals.

- ***8.2.1.2.2 Distinguish between chemical and physical changes in matter.***

- ***7.2.1.1.3 Recognize that a chemical equation describes a reaction where pure substances change to produce one or more pure substances whose properties are different from the original substance(s).***

- 8.2.1.2.3 Use the particle model of matter to explain how mass is conserved during physical and chemical changes in a closed system.

- 8.2.1.2.1 Identify evidence of chemical changes, including color change, generation of a gas, solid formation and temperature change.

- 8.2.1.2.4 Recognize that acids are compounds whose properties include a sour taste, characteristic color changes with litmus and other acid/base indicators, and the tendency to react with bases to produce a salt and water. (DO FOR FUN IF TIME)

<u>Supplemental Materials-Physical Science, Trimester 2</u>

- **FOSS Mixtures and Solutions Kit**
  - **FOSS "Matter and Energy" Kit** (Available at DMC for checkout)
  - **EiE--"Water, Water Everywhere" Kit (Designing water filters)**
  - Review of **FOSS Water Kit** investigation 2 &3

Trimester 3: EARTH SCIENCE

<u>Earth Structure and Processes</u>

Earth's Layers and Plate Tectonics

- 8.3.1.1.1 Recognize that the Earth is composed of layers, and describe the properties of the layers, including the lithosphere, mantle and core.

- 8.3.1.1.2 Correlate the distribution of ocean trenches, mid-ocean ridges and mountain ranges to volcanic and seismic activity.

- **8.3.1.1.3 Recognize that major geological events, such as earthquakes, volcanic eruptions and mountain building, result from the slow movement of tectonic plates.**

Connect this to what you do in Matter i.e., density changes when fluids are heated, atoms spread out, less dense things go up and this creates a convection current. This drives or moves the earth's plates. Plate tectonics has moved continents to where they are now, and makes mountains earthquakes and volcanoes. Density of basaltic rock on ocean floor is more than granitic rock we live on. So basalt sinks on magma and is lower so fills with water i.e., the oceans.

Landforms

- ***8.3.1.2.1 Explain how landforms result from the processes of crustal deformation, volcanic eruptions, weathering, erosion and deposition of sediment.***

- 8.3.1.2.2 Explain the role of weathering, erosion and glacial activity in shaping Minnesota's current landscape.

Rocks and Rock Formations

- ***8.3.1.3.1 Interpret successive layers of sedimentary rocks and their fossils to infer relative ages of rock sequences, past geologic events, changes in environmental conditions, and the appearance and extinction of life forms.***