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| M. Angileri | **6th grade science** | | **Lesson Plans 2-10-20 Energy Transfer and Temperature #3 Earths Materials #1** | | | | |
| NGSS Standards | **MS-PS 3-4**  DCI : PS3.B  S & E practices  CCC  **MS-ESS2-2**  **DCI**  S & E practices  CCC | | **Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.**  **Conservation of Energy and Energy Transfer:** The amount of energy transfer needed to change the temperature of a matter sample by a given amount depends on the nature of the matter, the size of the sample and the environment.  **Planning and Carrying out Investigations:** Plan an investigation and work collaboratively, and in the design: identify independent and dependent variables and controls, what tools are needed to do the gathering, how measurements will be recorded, and how many data are needed to support a claim.  **Scale Proportion and Quantity:** Proportional relationships among different types of quantities provide information about the magnitude of properties and processes.  The student is expected to construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales.  The planet’s systems interact over scales that range from microscopic to global in size, and they operate over fractions of a second to billions of years. These interactions have shaped Earth’s history and will determine its future. Water’s movements—both on the land and underground—cause weathering and erosion, which change the land’s surface features and create underground formations.  Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students’ own experiments) and the assumption that theories and laws that describe nature operate today as they did in the past and will continue to do so in the future. (MS-ESS2-2)  **Scale Proportion and Quantity** ♣ Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small. (MS-ESS2- 2) | | | | |
| Essential Question | | Why is the shallow water of the lake warmer than the deeper water below it?  What processes cause the cycling of Earth’s materials? | | | | | |
| Vocabulary: | | **Energy:** The ability of a system to do work. Energy is required for changes to happen within a system.  **Kinetic Energy:** Energy of motion.  **Mass:** A measure of how much matter is present in a substance.  **Matter:** Anything that has mass and takes up space.  **Temperature:** Average kinetic energy of all the particles in a material; measured by a thermometer in degrees. | | | | | |
|  | | **MONDAY** | | **TUESDAY** | **WEDNESDAY** | **THURSDAY** | **FRIDAY** |
| Content Objective: | | SW demonstrate application of energy transfer needed to change the temperature of a matter by Showing how Geothermal energy is link to the unit. | | SW demonstrate evaluation of energy transfer needed to change the temperature of a matter by testing with 70% proficiency. | SW demonstrate knowledge of how evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales by listing geoscience processes. | SW demonstrate comprehension of how scientist classify rocks by summarizing information from Reading Science A | SW demonstrate comprehension of how scientist classify rocks by classifying rock samples in the Hook activity. |
| Language objective | | SW write/speak to describe the energy transfer needed to change the temperature of a matter using sentence frames. | | SW write to describe the energy transfer needed to change the temperature of a matter using the common assessment with 70% proficiency. | SW write/speak to discuss geoscience processes have changed Earth’s surface at varying time and spatial scales using sentence frames. | SW write/speak to discuss how scientist classify rocks using vocabulary and reading activities. | SW write/speak to discuss  how scientist classify rocks using vocabulary and the Hook activity |
| In class today | | CCV: Geothermal energy in Indonesia and questions  Independent Practice worksheet | | Common Assessment: Energy Transfer and Temperature  Math Connection: Energy Transfer and Temperature | APK: Cycle Brainstorm  L.L. Prereading: Categorizing words | Vocabulary Predictions  Reading A: Classifying rocks and quiz  Begin Vocabulary | Hook: Rocks are Classy  Complete Vocabulary |
|  | |  | | Study Guide due |  |  |  |

Vocabulary:

Energy: The ability of a system to do work. Energy is required for changes to happen within a system.

Matter: Anything that has mass and takes up space.

Organism: A single, self-contained living thing.

Nutrient Cycle: Cycling of organic and inorganic matter through living organisms and the environment.

Water Cycle: The constant movement of water through the land, air, oceans, and living things.

Rock Cycle: The continual formation of igneous rock (cooled magma), sedimentary rock (cemented and compacted sediments), and metamorphic rock (rocks changed from heat and pressure), and the change from one rock type to another

Carbon-Oxygen Cycle: The continual process of plants using carbon dioxide for photosynthesis to make plant food and release oxygen; living things use oxygen for cellular respiration which releases carbon dioxide and continues the cycle.

Carbon Cycle: The continuous movement of carbon among the abiotic environment and living things.

Nitrogen Cycle: The continual movement of nitrogen from the air to the soil, into living things, and back into the air

Igneous Rock: is formed when lava or magma cools and solidifies. Lava cools quickly and forms rocks with small crystals, while magma cools more slowly and forms rocks with larger crystals.

Metamorphic Rock: is formed deep underground where heat and pressure cause existing rocks to be changed in both mineral composition and structural characteristics.

Sedimentary Rock: forms when particles of other rocks are deposited in layers and are compacted (crushed together), and cemented (binding of the sediments).

Earth Systems: Four interacting systems that make up our planet: atmosphere (air surrounding Earth), geosphere (all solid and molten rocks, soil, and sediments), hydrosphere (all bodies of water), and biosphere (all living things)