**Graduation Standard #2**

**2. Using scientific models in the fields of earth and space science, life science, chemistry, and physics.**

* **Students will use and evaluate models to make predictions and inferences, explore relationships, and communicate ideas.**

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| --- | --- | --- |
| Performance Indicator | I can... | Need to know |
| * Develop a model based on evidence of Earth’s interior to describe the cycling of matter by thermal convection. (NGSS: HS-ESS2-3 Earth’s Systems) | I can explain convection  I can describe Earth’s layered interior  I can develop a model to accurately describe the cycling of matter by thermal convection within Earth | * Density * Density Relationships * Convection * Thermal Energy * Plate Tectonics * Buoyancy |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INDICATOR | 1 | 2 | 3 | 4 |
| **Develop a model based on evidence of Earth’s interior to describe the cycling of matter by thermal convection.** | I can identify the components involved in convection  I can list Earth’s layered interior    I can label a provided model that accurately describes the cycling of matter by thermal convection within Earth | I can define the components involved in convection  I can identify Earth’s layered interior    I can use an existing model to accurately explain the cycling of matter by thermal convection within Earth | I can explain convection  I can describe Earth’s layered interior    I can develop a model to accurately describe the cycling of matter by thermal convection within Earth | I can explain convection  and apply it to other examples.  I can explain Earth’s layered interior and distinguish the diverse composition found within each layer.  I can develop a model to accurately describe the cycling of matter by thermal convection within Earth and its resulting effects on earth’s plates. |

**Summative Assessment for Science Graduation Standard #2, Using Scientific Models in Earth and Space Science**

Please use the rubric for Science Graduation Standard #2 and the information that we have studied in the “Earth’s Dynamic Interior” unit to develop a model that can be directly applied to answer the two questions below. Your model can be in any form of your choice: digital, drawn by hand, a physical model, etc… Just make sure that your model contains the information necessary to completely answer the questions below, and that it meets the requirements for proficiency according to the rubric.

**Question 1**-- In what ways do physical conditions within the Earth create a dynamic, ever-changing planetary surface?

**Question 2**-- Why does the Earth have a magnetic field?

Your model must include the following:

1. Heat source in the inner core

2. Convection in the outer core

3. Convection in the mantle

4. Oceanic crust

5. Continental Crust