

Mini Unit – Earth, Rocks and Minerals, and Soil

Earth's Layers

Major Concepts: Earth is layered, Models

Minor Concepts: Convection Currents, Magnetosphere

Concepts

Skills

Vocabulary: Inner core

Models

Outer core

Mantle

Moho

Crust

Continental crust

Oceanic crust

Convection current

Magnetosphere

Magma

Core Content

SC-M-2.1.1 The Earth is layered ... There is a dense core at the center of the Earth.

Program of Studies

Grade 7 Scientific Inquiry – Use evidence, logic, and scientific knowledge to develop scientific explanations.

Earth/Space (Structure of the Earth's System) Student's will model Earth's layers.

Pretest on Lithosphere and Earth's Interior – after student's finish I read them passages from Journey to the Center of the Earth.

Materials for 1 classroom demonstration

Core – Solid food. I usually use chocolate fudge or chocolate candy melt. I prepare it and place it in a small bowl to harden overnight.

Outer Core – 1 ½ Jars of large marshmallow cream.

Mantle – 1 large box of red Jell-O. Prepared

Moho – 2 small bars of white candy making chocolate

Crust – 1 box of crushed graham crackers.

Demonstration

(To do this demonstration I come dressed as a chef – known as Donna Meryl)

As the kids enter the room they know something different is about to happen. I have their immediate attention.

Donna Meryl's Recipe for making Earth

1. Inner Core – I begin by putting a large clear pan on my desk. Then I put the small chocolate inner core into the pan. I pick a student to record notes on the board as I talk about the layers of the Earth. I require students to

copy notes. The first question asked is what is that? Once I tell them, the next question is do they get to eat the core. I reply it all depends on how well they listen and learn. I then begin telling all kinds of facts about the inner core, i.e. made of nickel and iron, spins, scientists believe it produces the magnetosphere, etc.

2. Outer core – Next, I get out the marshmallow cream and cover the inner core, discussing facts about the outer core.

3. Mantle – Next Jell-O discussing convection currents within the mantle.

4. Moho – I melt the candy making chocolate as I discuss the inner parts of the Earth. I then pour the melted chocolate on top of the Jell-O and it hardens quickly, discussing the known facts about the Moho.

5. Crust – Finally, I pour the crushed graham crackers on top, thick to represent the continental crust, thin for ocean crust. I discuss facts about the crust.

At the end I ask for questions and erase the board. I have the students put up their notes and tell them they will need them the next day. I then ask questions about the lesson.

Then I get out bowls and spoons and let them eat Earth. They love it.

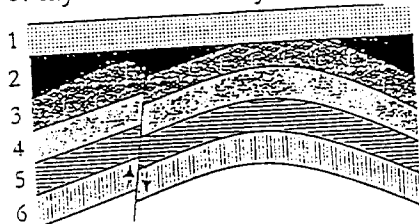
Day 2

The next day I put the students into groups and have them get out their notes. I give them lots of modeling clay and have them to make a model of the Earth. That's all I tell them. Let them figure out how to do it. You get all kinds of designs and models. They must make a key and write fact notes about the different layers. I place the models on tag board and display them.

I follow this with lessons on the lithosphere. That then leads us into rocks and minerals.

Name _____

- _____ 1. The softest mineral in the Mohs hardness scale is _____
 a. fluorite b. talc c. diamond d. calcite
- _____ 2. The two most common elements in the Earth's crust are _____
 a. oxygen and silicon c. sodium and iron
 b. oxygen and nitrogen d. aluminum and magnesium
- _____ 3. Elements that have shiny surfaces and are able to conduct electricity and heat are called _____
 a. metals b. nonmetals c. ores d. gemstones
- _____ 4. The breaking of a mineral along smooth definite surfaces is called _____
 a. cleavage b. fracture c. splintering d. foliation
- _____ 5. The Earth's inner core is made of _____
 a. oxygen and silicon c. iron and silicon
 b. iron and nickel d. copper and nickel
- _____ 6. The thin outmost layer of the Earth is called the _____
 a. mantle b. Moho c. crust d. core
- _____ 7. The layer that makes up most of the Earth's mass and volume is the _____
 a. mantle b. magma c. crust d. core
- _____ 8. Two plates grind past each other at a _____
 a. constructive boundary c. convergent boundary
 b. divergent boundary d. strike-slip boundary
- _____ 9. Plates containing crust and upper mantle form the Earth's _____
 a. lithosphere c. core
 b. hydrosphere d. atmosphere
- _____ 10. In the diagram shown below, which rock layer is probably the oldest?
 a. layer 1 b. layer 2 c. layer 5 d. layer 6



- _____ 11. The collision of two oceanic plates creates _____
 a. mountain belts c. rift valleys
 b. convection currents d. island arcs

Name _____

Bb

1. The softest mineral in the Mohs hardness scale is _____
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Fa

2. The two most common elements in the Earth's crust are _____
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b. oxygen and nitrogen d. aluminum and magnesium

Aa

3. Elements that have shiny surfaces and are able to conduct electricity and heat are called _____
a. metals b. nonmetals c. ores d. gemstones

Aa

4. The breaking of a mineral along smooth definite surfaces is called _____
a. cleavage b. fracture c. splintering d. foliation

Bb

5. The Earth's inner core is made of _____
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Cc

6. The thin outmost layer of the Earth is called the _____
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Aa

7. The layer that makes up most of the Earth's mass and volume is the _____
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Dd

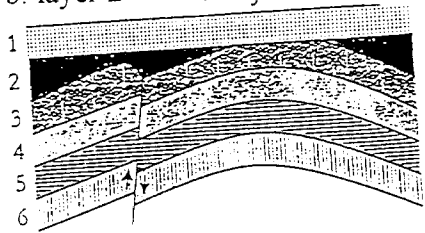
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Dd

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Dd

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