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 N	Mohs hardness scale	e is		
a. fluorite b. talc			lcite	
2. The two most common elem				
a. oxygen and silicon	c. s	sodium and iron	•	
b. oxygen and nitroge	en d. :	aluminum and ma	ignesium	
3. Elements that have shiny su	urfaces and are able	to conduct elect	ricity and heat ar	e called _
a. metals b. non	metals c. ores	d. gę	emstones	
4. The breaking of a mineral a	along smooth defini	te surfaces is call	ed	
a. cleavage b. frac	cture c. splinteri	ng d. fo	liation	
5. The Earth's inner core is many a. oxygen and silicon	nade of			
a. oxygen and silicon	C. 1	iron and silicon		
b. iron and nickel	d.	copper and nicke	1	
6. The thin outmost layer of t	he Earth is called th	ne		
a. mantle b. Mo		d. co	ore	
G. Till 1 (but well-as we ex	ant aftha Earth's n	ace and volume i	e the	
7. The layer that makes up max as mantle b. max		d. co	ore	
a: mantie 0. mag	51114 0. 01450			
8. Two plates grind past each			d o.m.	
a. constructive bound	· · J	convergent boun	-	
b. divergent boundar	y d.	strike-stip bodila	ai y	
9. Plates containing crust and	l upper mantle form	the Earth's		_
a. lithosphere		core		
b. hydrosphere	d.	atmosphere		
10. In the diagram shown bel	low, which rock lay	er is probably the	e oldest?	
a. layer 1 b. lay		d. layer 6		
1				
2				
3				
4 22	4			
6				
11. The collision of two ocea	anic plates creates _	10 11		
a. mountain belts		rift valleys		
b. convection curren	its d.	island arcs		

CTBS Prep. Lithosphere, Rocks, Minerals, and Fossils

2. :	Evidence that supports the	ie theory of con		provided by
	a. coal fields		c. fossils	
	b. glacial deposits		d. all of these	
13. ′	The process in which the	ocean floor plu	nges into the Earth's i	nterior is called
	a. construction	b. subduction		d. convection
14	The movement of the oc	ean floor on eitl	her side of a midocean	ridge is best known as
. •	a. rifting	b. glaciation	c. ocean-floor sprea	ding d. subduction
15.	Metamorphic rocks with	mineral crystals	s arranged in parallel l	ayers, or bands, are
	a. clastic	b. intrusive		
16.	The way in which a mine	eral reflects light	t from its surface is its	
	a. streak	b. luster		d. brilliance
17	Which rocks can be char	nged into sedime	ents by weathering and	d erosion
	a. sedimentary			d. all of these
18	Which of these is an example which of these is an example.	mple of an intru	sive rock	
10.	a. granite	b. basalt		d. obsidian
19	The shape of an organism	n preserved in r	ock is called	
_ */.	a. mold/cast	b. coprolite		d. pertrification
20.	Bodies of whole animals	have been pres	erved in	
	a. ice	b. tar	c. amber	d. all of these
21	Rocks formed from the p	niling up of lave	rs of dust, dirt, and sa	nd are called
_ ~	a. igneous		hic c. magma	
22	The decay rate of a radi	oactive element	is measured by a unit	called
	a. period	b. era	c. half-life	
23	Dinosaurs found at the I	Bone Cabin Oua	rry lived during the	
	a. Paleozoic Era	b. Jurassic 🔄	c. Cretaceou	us Period d. Tertiary Period
24	A measure of how many		vent occurred or an or	ganism lives is
_ 2 1.	a. absolute age	b. relative ag		e d. sedimentary age
25	Name the eight properti	on used to ident	ifi minarale	
23	Name the eight properti		*	
	2	***	6	
	3.		7. –	
	4.		ð .	

		Na	me	
Sh	softest mineral in the Mohs h	pardness scale is		
1. The	a. fluorite b. talc	c. diamond	d. calcite	
2 The	two most common elements	in the Earth's crust a	re	
2. 1110	 a. oxygen and silicon 	c. sodium	and iron	
	b. oxygen and nitrogen	d. aluminu	m and magnesium	
21	ments that have shiny surface	and are able to cond	duct electricity and heat are	called
3. Eler	a. metals b. nonmetals	s c. ores	d. gemstones	
fa in The	breaking of a mineral along	smooth definite surfa	ces is called	
4. 11c	a. cleavage b. fracture	c. splintering	d. foliation	
Ph 5 The	Earth's inner core is made o	f	· .	
J. J. 1111	Earth's inner core is made o a. oxygen and silicon	c. iron and	d silicon	
	b. iron and nickel	d. copper	and nickel	
00	Sala Ta	which collect the		
6. The	e thin outmost layer of the Ea a mantle b. Moho	c. crust	d. core	
Λ				
Ha 7. The	e layer that makes up most of	the Earth's mass and	l volume is the	·
	a. mantle b. magma	c. crust	d. core	
h J				
8. Tw	o plates grind past each othe a. constructive boundary	r at a	gent boundary	
	b. divergent boundary	d. strike-s	slip boundary	
1.				
40 9. Pla	ites containing crust and uppe	er mantle form the Ea	rth's	_
	a. lithosphere	c. core		
	b. hydrosphere	d. atmosp	phere	
01	n the diagram shown below, v	which rook lover is no	ohably the oldest?	
10. li		c. layer 5 d	layer 6	
		o: layer o	,	
	1			
	3			
	4			
	5			
1	ri Win afterna accepia r	lates creates		
11.7	The collision of two oceanic p	c. rift va	llevs	
	a. mountain belts b convection currents	d. island	-	

M)	vidence that supports the	theory of conti	nental drift has been	provided by
12. E	a. coal fields b. glacial deposits	theory of com-	c. fossils d. all of these	
Rh.	he process in which the o	agen floor plun	ges into the Earth's i	nterior is called
	a. construction	b. subduction	C. mmg	d. convector
0.		an floor on eith	er side of a midocean	ridge is best known as
14. 1	he movement of the ocea a. rifting	b. glaciation	c. ocean-floor sprea	ding d. subduction
N.1		iol omictale	arranged in parallel l	ayers, or bands, are
10 15. 1	Metamorphic rocks with t a. clastic	b. intrusive	c. porphritic	d. foliated
24	The way in which a miner	-lanfloors light	from its surface is its	_
DD 16.7	The way in which a miner a. streak	b. luster	c. fracture	d. brilliance
<u>Od</u> 17.	Which rocks can be chang a. sedimentary	ged into sedime b. igneous	nts by weathering and c. metamorphic	d erosiond. all of these
AQ 18.	Which of these is an exan	nple of an intru	sive rock	d. obsidian
AQ 19.	The shape of an organism a. mold/cast	n preserved in r b. coprolite	ock is called c. imprint	d. pertrification
<u>Dd</u> 20.	Bodies of whole animals a. ice	have been pres b. tar	erved in c. amber	d. all of these
<u>Dd</u> _21.	Rocks formed from the particles as igneous	oiling up of laye b. metamorp	rs of dust, dirt, and sa hic c. magma	and are called d. sedimentary
<u>Cc</u> 22.	The decay rate of a radi	oactive element b. era	is measured by a uni c. half-life	t called d. unconformity
23.	Dinosaurs found at the E	Bone Cabin Qua b. Jurassic 9	arry lived during the _ c. Cretaced	ous Period d. Tertiary Period
<u>A0</u> 24.	A measure of how many a. absolute age	years ago an e b. relative ag	vent occurred or an c ge c. decay tu	organism lives is me d. sedimentary age
25	Name the eight property 1. Luster 2. Color 3. Density 4. Custa	ies used to iden 	tify minerals. 5. 6. 7.	Streak. Fracture/clevage Hardness Special Properties