Layers of the Earth

Engage
Watch the video “Jello 1-2-3 Dessert” from
https://www.youtube.com/watch?v=bTpZxgP4BVQ

What do you notice?

What do you wonder?

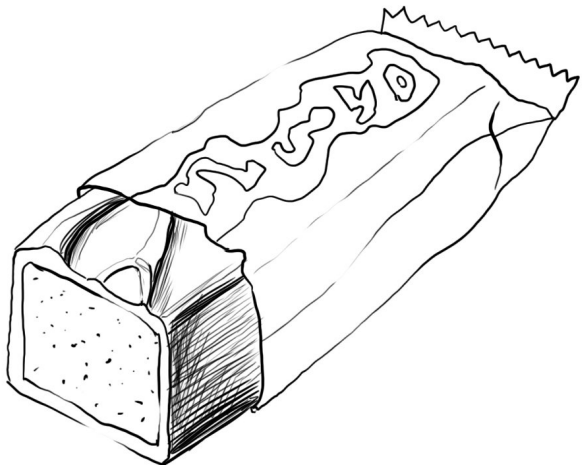
What do you remember from earlier lessons to explain why the mixture formed three different layers?

Explore
Materials: Sugar wafter cookie, paper towel
What To Do:
1. Your teacher will give you a sugar wafer cookie. DON’T EAT IT YET!
2. Look at the cookie from the side.
3. Draw what you observe below.

4. Dispose of the cookie as your teacher directs.

5. Watch the video, “How SNICKERS Chocolate Bars are Made,” from
https://www.youtube.com/watch?v=W3byiETFwZk

6. Draw what a SNICKERS bar looks like inside as seen at approximately 2:19 in the video.



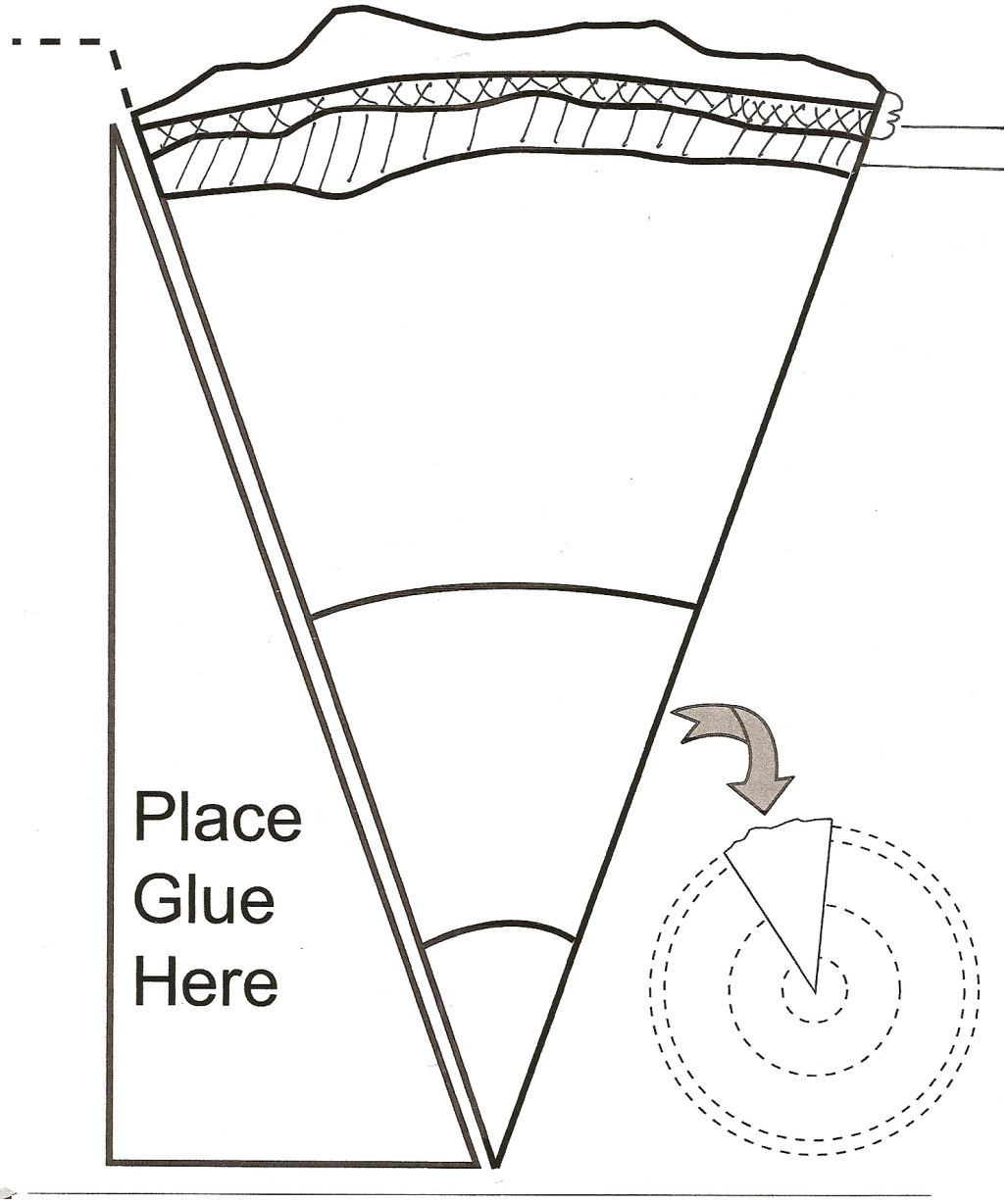
Explain

Materials: Colored pencils, scissors

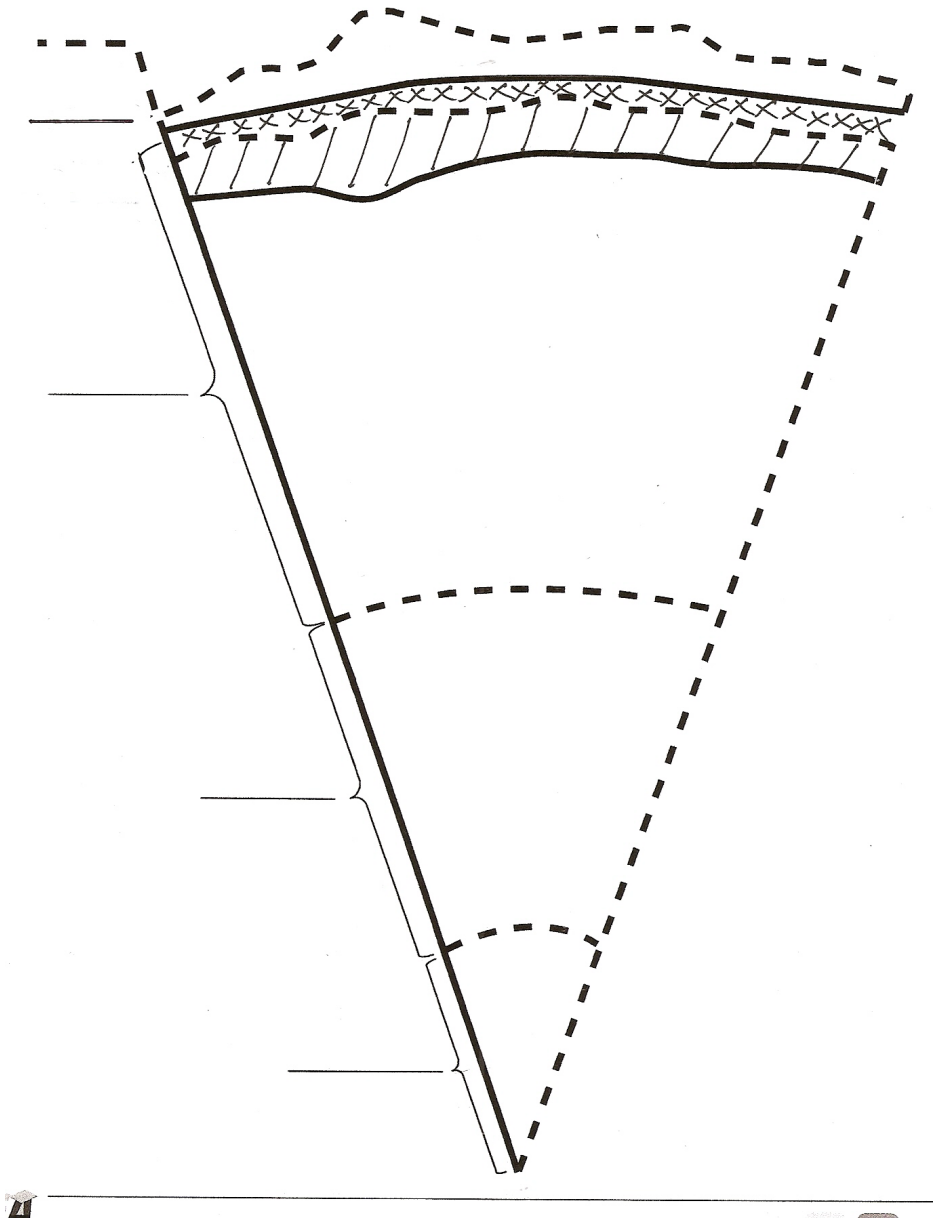
What To Do:

1. Glue Bottom Sheet into your notebook.
2. Cut only along the dotted lines on the top sheet.
3. Match the solid outline on the top sheet with the bottom sheet.
3. Apply glue to the labeled area.
4. Lay the top sheet on top of the bottom so that the shapes match.
5. Label the first flap of the Top Sheet at the pointed end of the cone “Inner Core” and color it red.
6. Label the second flap from the bottom “Outer Core” and color it orange.
7. Label the third flap from the bottom “Mantle” and color it yellow.
8. Label the top flap “Crust” and color it green.
9. Color the circle at the bottom the correct colors.

BOTTOM SHEET



TOP SHEET



Elaborate

1. As you read the descriptions below, underline the following information.
    1. State of matter (liquid or solid)
    2. Elements found in the layer
    3. Temperature
    4. Thickness
2. Place this information under the flaps on your model.

The Inner Core

The deepest layer in Earth is the inner core. It is located at the center of Earth because it is the densest material of all Earth's layers. The inner core is solid and mostly composed of the element iron (Fe). It's extremely hot temperature is estimated at 6000°C. This layer is approximately 1,250 km thick.

The Outer Core

The outer core is less dense than the inner core and, therefore, is located around the inner core. The temperatures range from 4,000°C to 5000°C. The outer core is approximately 2, 200 km thick and is a combination of mostly molten iron (Fe) and nickel (Ni). Molten describes materials that change to liquid form when exposed to extreme amounts of thermal energy.

The Mantle

The mantle is located outside the outer core. This layer is mostly made of iron (Fe) and magnesium (Mg) and has a thickness of approximately 2,900 km. The upper mantle has two layers and it's high temperatures of 2,800-3,200°C can melt rocks, which means it is liquid.

The Crust

The crust is made mostly of the elements oxygen (O_2) and silicon (Si). The crust is the thinnest layer of Earth and has a temperature range from 200°C - 400°C. It varies in thickness from 4.8 to 69 km. All life on Earth is found on top of the solid crust.

Introducing Geology

I C N T J O T S U R C E E J Y
K N C E M U G L N X R Z R Y T
O H N W R T D K A E U M E A R
A D V E X E N D H I A X H I Z
W Z J A R R H P D N V T P I P
H O R D M C S P T E B R S V M
J J Y U K O O L S C W G O L V
Z H W M R R E R Q O F U E R Q
W X I D W E B O E L I T G R J
S G Y V F T M F X C R B U M O
K H A T M O S P H E R E K E G
L A Y E R S D M X F M Q M Y K
Z U N H K I F K G W C Q I Z K
O S I E E U D L B Q H F V L Z
Q C V C D U U M Q Z I P P V K

LAYERS BIOSPHERE MANTLE

INNER CORE CRUST GEOSPHERE

OUTER CORE ATMOSPHERE HYDROSPHERE

Name _____ period _____

EXIT TICKET

Layers of the Earth

1. What is the name of the layer at the center of the earth?
   a. outer core
   b. inner core
   c. mantle
   d. crust

2. What is the name of the layer at the top of the earth?
   a. outer core
   b. inner core
   c. mantle
   d. crust

3. What is the core made of?
   a. rock
   b. sponge
   c. metal
   d. dust

4. The core's temperature is
   a. very hot
   b. medium hot
   c. warm
   d. cool

5. On which layer of the Earth is life found?
   a. outer core
   b. crust
   c. mantle
   d. inner core