Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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# Effect of Magma on Surrounding Rock

**Purpose**

The purpose of this lab is to demonstrate the process of the invasion of solid rock by magma, by using acid (vinegar) to penetrate the shell of an egg without breaking it. [[1]](#endnote-2)

**Background**

All 3 types of rocks go through the rock cycle. There is not one type of rock that stays the same.

**Procedure**

 **Materials**

1. Balance /scale 5. String (30cm)
2. Beaker (500ml) 6. Vinegar (white)
3. Egg 7. Water
4. Meter stick 8. Pen/pencil

**Sequence of Steps**

1. Determine the mass and circumference of the egg. Record in Table 1. Characteristics of egg ![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()before and after acid treatment.
	1. Mass is the weight of an object. Carefully take the egg and place on the balance/scale. Record the weight in grams.
	2. Circumference refers to the distance around the center of the egg. Take a piece of string and wrap it once around the center of your egg. Make a mark on the string where it reaches fully around the egg. Carefully set your egg aside. Lay the string flat on your desk and measure the distance you marked with your ruler. Record the circumference in centimeters.
2. ![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()Record the characteristics such as color, hardness of shell and smoothness of shell. To make your data quantitative, use a number scale of 1-10 for the evaluation of hardness and smoothness of shell.

1=extremely soft, 10=extremely hard 1=extremely rough, 10=extremely smooth

1. Place the egg in the beaker and cover with vinegar.
2. Allow the beaker to stand undisturbed overnight.
3. Pour off the vinegar and replace with water.
4. ![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()Allow the beaker to stand undisturbed for 3 days.
5. Pour off the water and examine the egg. Record its mass and circumference and any other changes.

**![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]() Observations**

Table 1. Characteristics of egg before and after acid treatment.

|  |  |  |
| --- | --- | --- |
| Properties | Egg (before) | Egg (after) |
| Quantitative Data |
| Mass (g) |  |  |
| Circumference (cm) |  |  |
| Hardness of Shell (1-10) |  |  |
| Smoothness of Shell (1-10) |  |  |
| Qualitative Data |
| Color |  |  |
| Other |  |  |

1. Using complete sentences compare the egg before and after soaking it in vinegar.
2. Why did you soak the egg in vinegar? What was the purpose of this lab?
3. Explain, in order, the process that caused the changes in the egg.
4. Use the processes you listed above and explain how magma changes the country rock it invades.

5. As molten magma moves from the subduction zone through the continental crust, it forms chambers which cool slowly. In the process, elements separate out in zones. Heavy elements sink to the bottom while lighter elements float to the top. These elements combine to form minerals.[[2]](#endnote-3) Predict how the movement of magma can negatively or positively affect soil for agriculture production. Explain using complete sentences.

6. As magma moves through and over land it can cause erosion. Define erosion and the effect erosion has on agriculture production.

1. Goehring, JessaLee (2008).Effect of Magma on Surrounding Rock, Lab. *Lodi High School*. [↑](#endnote-ref-2)
2. Floor Anthoni, Dr. J (2000). Soil Geology. Retrieved November 21, 2008, from Seafriends Web site: http://www.seafriends.org.nz/enviro/Soil/geosoil.htm [↑](#endnote-ref-3)