

Geosciences Extra Credit Project (+2%)

Task: You will observe, research, and analyze rock samples from your local area.

Procedure:

1. Define the following terms before you begin. Use your text, an encyclopedia, and the Internet.
 - a. Rock
 - b. Sedimentary
 - c. Sediment
 - d. Conglomerate
 - e. Sandstone
 - f. Igneous
 - g. Metamorphic
 - h. Geologic map
 - i. Rock formation
 - j. Bedrock
 - k. Weathering
 - l. Erosion
 - m. Glacial erratic
2. Find a rock sample from somewhere near your home. It can be bedrock (attached to the crust of earth) or fragments (rocks that have broken free from earth's crust)
3. Make detailed observations of the rock. Take pictures of the rock sample to include in your project. Often weathering makes a rock difficult to observe so attempt to view a freshly broken surface. (**CAUTION!** – do not try to break rock by throwing it or hitting with a hammer. There is danger of injury. Safety goggles must be worn. You may bring the rock into school before the due date to have the rock cut or fractured in the science lab.)
4. Use the following web site to determine the name and type of rock you have found. <http://www.rockhounds.com/rockshop/rockkey/index.html>
Read the above webpage and use the Rock Key by answering the questions correctly. Record the question and the answer to each question you navigate to on separate paper in 2-column format.
5. The next step is to find a geologic map of your neighborhood. You will discover what rocks make up the bedrock under your property and decide if the sample you found was similar or different to what one would expect to find.
 - a. Go to the NJ Department of Environmental Protection web site http://www.nj.gov/dep/gis/imapnj_geolsplash.htm
Read the directions on the page and then launch iMap by clicking the menu button on the upper left.

- b. You control what is visible by clicking on map layers on the left and then by hitting the refresh map button. You should activate the counties, municipalities, and topos layers and hit refresh. Lastly, at the bottom, activate the Bedrock Geology layer and hit refresh.
- c. Now zoom into Fair Lawn so that the town fills the map view. You can drag a box around an area on the map or you can hit zoom at the top of the map.
- d. Identify the general location of where you found the sample on the map. If you are unsure of where this is located you can use <http://maps.google.com/> to locate the nearest intersection or landmark on a map. Read the NJDEP iMap to determine the type of bedrock that is under the rock sample location. Use the key on the right by using the color and letter code to exactly find the bedrock description. Print the map and indicate where you found the rock sample.

Analysis: Answer the following questions

- i. What type of rock was found? (Igneous, sedimentary, metamorphic)
- ii. What is the name of the rock you found?
- iii. What specific type of bedrock is found under where the rock sample was located?
- iv. Was the rock sample the same as the bedrock found in that area? Describe similarities or differences.

Conclusion:

Discuss your findings. Suggest at least 2 possible reasons why you might find either the same type or different type of smaller rocks on top of the identified bedrock under the sampling location.

Evaluation

What should you hand in?

1. Definitions page (2 columns typed)
2. Rock sample and/or picture of your rock sample
3. Print out of map indicating the location of rock sample.
4. Rock Key questions and answers (2 columns typed)
5. Answers to the analysis questions. (Q&A 2 columns, typed)