

Join Raynee Randolph
and Sherida Helms
and make "yummy"
rock sandwiches.



My trip to Jackson

By Rachel Griffin (MAGS youth)

On my trip to Jackson, MS, I saw some nice drusie quartz. Also some pretty Brilliantwood, a geode, and an olivine necklace. I went rockhounding in the gem dig. I saw a beautiful red geode.

Shelby Forest

By Serena Enzerink (MAGS youth)

My family and I went to Shelby Forest and found some some rocks at the Mississippi River. We aren't sure what they are but we think they are petrified wood and Obsidian. I look forward to going on more field trips. It was so much fun!

MAGS Explorer is published monthly by and for the youth members of the Memphis Archaeological and Geological Society. Please send your comments and articles to Editor Mike Baldwin, 367 N. Main St., Collierville, TN 38017 or rockclub@earthlink.net. Youth can give articles, artwork, poems, puzzles, experiments, or stories to Raynee Randolph or Sherida Helms.

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You will be making "rock sandwiches" at the youth meeting tonight, so here's a "rock sandwich" project you can do at home.

Rock Layer Sandwiches

Adapted from the Missouri State Education Website:

<http://www.sjsd.k12.mo.us/curriculum/explorations/assessments%5Csandwich.htm>

Objective: You will be able to explain how geologic processes affect the Earth.

Summary: You will simulate how sedimentary rock is formed and manipulated by Earth processes.

Materials needed:

1 slice white bread; 2 slice wheat bread; 1 slice dark rye; 2 T jelly; 2 T chunky peanut butter; paper plate, plastic knife, napkin (for parent: electric soldering iron, 3 pieces white bread).

Procedure:

1. Collect all your materials. No eating the goodies (rock layers)!
2. Today you will make and manipulate a sandwich to illustrate the way natural forces affect actual layers of rock.
3. Think about the formation of sedimentary rocks. Especially the fact that deposition of sediment layers and eventual rock formation requires long periods of time.
4. Your sandwich layers (i.e., sedimentary rock) can be called just what they are - bread, jelly, etc. If preferred, actual rock names may be used. In the latter case, to insure consistence, the following associations should be used: white bread is white sandstone; peanut butter will be conglomerate; rye bread is shale; jelly is limestone; whole wheat will be dark sandstone.

>>> see page two >>>

Rock Layer Sandwich <<< from page one <<<

5. Place whole wheat on the plate. That represents deposition of their first sedimentary layer-dark sandstone. By now the activity analogy should be clear. Next deposit limestone (jelly). Then muds are deposited, creating a shale layer (rye bread). A conglomerate layer then forms on top of the shale (peanut butter). Finally, another sandstone (cleaner than the first) layer is formed (add white bread). As the sandwich is being constructed, see if you can imagine the actual environments of deposition of the real rock counterparts.

6. When your sandwich is completed, look at the following questions:
 - a. Was your sandwich formed instantly, or was a length of time required? Then, with regard to ‘age’ as part of the sandwich, are some parts older than others? (Yes.)
 - b. What is the oldest part or layer? (Bottom.) Why? (It was there first before anything else.)
 - c. What is the youngest part? (Top) Why? (Put on last).
 - d. Can we then apply the same reasoning - oldest layers on the bottom, and younger at the top--to horizontal layers of actual rock we might see in a road cut? (Yes) This “reasoning” is called Law of Superposition in geology.
 - e. Since you were not instructed to record the time it took to build your rock layer sandwich, much less exactly when each layer was put on, you cannot tell exactly how old each layer is. Even though we cannot state actual ages, we can indicate relative ages of the layers. The relative age of the rye (shale) is: older than the peanut butter and younger than the jelly. We call tell the relative age of your sandwich:
 - white bread (younger than peanut butter)?
 - jelly (older than rye, younger than whole wheat)?
 - peanut butter (older than white, younger than rye)?
 - whole wheat (older than jelly, someone might add - younger than plate)?
 The exact same principle applies to actual geologic study. It is called relative age dating.

7. When geologists study layers of rock, they are often horizontal or nearly horizontal. However, they frequently see layers that are bent (folded) or broken (faulted). Folding and faulting are deep-seated constructive forces that help build the crust as opposed to destructive forces (weathering and erosion) that wear the land away.

8. To illustrate folding, gently bend your sandwich so that the layers are bowed upwards, being sure to still keep the oldest layer on bottom. This geologic structure is called an anticline. Now gently bend your sandwich so that the layers are bowed downwards, thus creating a syncline. The presence of anticlines and synclines indicate strong forces that often form mountain ranges.

9. Draw and label the structure that you have created.