Teacher Notes
Grades 5–8 Activity 2

Comparing New Jersey Sediments

NJ Core Curriculum Standards:
- Describe and explain the causes of the natural processes and events that shaped the earth's surface and interior. (Science 5.10.8.)

GEPA in Science Content/Skill Outlines:
- Observe an object or event by using any of the senses or extensions of the senses to identify properties. (5.2.6.7.8.9.10.11—Skill)
- Forces that wear the earth's surface down include weathering, glaciation and erosion. Features formed as a result of these forces include soil and valleys. (5.10.5.6.7.8.9.10 —Knowledge)
- Describe a sequence of events that explains how the earth's surface has been changed over time. (5.10.5.6.7.8.9.10—Skill)

Teacher Background: Read about glass sand, lime sand, and greensand on pages 8–9 of the *New Jersey Rocks and Sediments* booklet. Uniformity of grain size is a clue, among others, that sediments were well sorted during transport from one location to another. Rounded, polished particles were created by abrasion during transport by streams or waves. Grains of sand that look glasslike and rounded are most likely quartz. Shiny sheet-like particles are most likely mica. Quartz sands are typical of continental margin beach sands.

Materials: Samples 3, 4, and 5 from the New Jersey Rocks and Sediments kit, 3 Petri dishes, transparent tape, binocular microscope or hand lens

Advance Preparation: Use transparent tape to seal a small amount of each sample in a Petri dish. Provide students with a binocular microscope with 10X and 20X magnification, making sure there is adequate light for observation. You may wish to set up the microscope or hand lens and the Petri dishes in a learning center, which students can visit individually or in pairs and work independently. If possible, obtain for students a standard chart used by geologists that graphically compares particles by their degree of roundness and sphericity.

Directions: Make sure students know how to use the binocular microscope or hand lens before beginning the activity. You may want to have students compare the observations they recorded in the table and discuss any differences.

Discussion/Journal Entry Questions:
- How would you describe each sample to a friend? (*Communicate*)
- What does each question in the table tell you about that kind of sediment? (*Inferring*)

Suggested Evaluation: Assess the accuracy of students' recorded observations and the logic of their inferences.

Name _____ Date _____

Student Activity Sheet for Activity 2

COMPARING NEW JERSEY SEDIMENTS

Geologists can tell a lot about where sand came from and how it was formed by observing it under magnification. Now you'll try it, too.

1. Place a Petri dish containing sample 3 under the scope. Observe the individual grains. In the table, answer the questions about this sample.

2. Repeat step 1 for specimens 4 and 5.

Question	Sample 3	Sample 4	Sample 5
Does the sample contain grains mostly about the same size or of different sizes?			
Are the grains rounded or angular (jagged)?			
What color or colors are the grains?			
Do the grains look glasslike (translucent and shiny) or not (opaque and dull)?			
Are fossils present?			

3. Think about each sample. On the line below, tell where it might have come from and how it might have formed.

Sample 3: _____

_____

Sample 4: _____

_____

Sample 5: _____

_____