# 36. WHAT SETTLES FIRST, SAND OR ROCKS?

**Overview:** Students will take a look at pond water to see which materials will settle to the bottom of a container first.

**Objective:** Students will observe, classify, predict, compare and identify which items in a water sample will settle to the bottom of a sediment jar first.

**Time needed:** 1 hour

**Group Size:** any

**Age appropriateness:** any

**Site:** any available water supply

**Background:** There is a certain order in which things settle in water and students will have the opportunity to investigate and predict using the scientific method in this activity. Students will find that sedimentation will be rather consistent with the largest particles settling to the bottom first and the finer particles toward the top. Factors to be considered should be size and density of particles and any currents or water flow.

**Materials:**

Provided at the Garden
- Water, soil, rocks

Provided by the classroom teacher
- Sedimentation jars (recycled quart jars with a lid work well)
- Paper and pencils

**Preparation:** collect jars

**Pre Activity:** Have students brainstorm the ways they predict that the materials will settle in water after being shaken up. They should discuss the variables involved which might affect particles in different bodies of water such as rivers, ponds, oceans, etc. Could there be a different order based on possible currents, speed of water flow or types of particles that may be present in the water.

**Procedure:**

1. Add equal amounts of soil, gravel and sand until the jar is 1/3 full.
2. Add water till the jar is 3/4 full.
3. Place the lid on the jar and shake it carefully to thoroughly stir the mixture.
4. Predict which particles will settle first, which will be on top.
5. Stop shaking the jar and let it stand until all materials are settled and the water is somewhat clear.
6. Examine the materials in the jar and record the order in which they settle.
7. Check observations against predictions.
8. Shake the mixture again and find out if the materials settle in the same order again.
9. Create a theory to explain the order of sedimentation.

**Modifications:** Vary the mixture.

**Extensions:** Compare observations to actual samples taken from a body of water. Make a stream table and compare erosion to what happened in the sediment jar. Borrow the groundwater model from the University of Arizona Extension office.

**Reference List:**


Hands on Earth Science Activities, K-8
Environmental Science Activities Kit
Hands on General Science Activities, Grades 5-12
Out of the Rock, National Energy Foundation
U of A Extension Office
Natural Resource Conservation Service, Yuma office


**Time of Year:** any

**This activity was adapted from Hands on Earth Science Activities.