

Optional Hands-On Experiments

The two simple experiments described below can be set up ahead of time as stations in the classroom with the lab procedures placed at each station so that students can conduct experiments on their own. To help students think more critically, one method would be to not tell the students what kind of experiment they are doing; simply provide them with the procedures. Then, after each experiment, have students consider how what they learned from doing the experiment can be applied to some of the environmental problems related to mining.

Experiment #1 - Settling Basin Simulation

In small groups (2-3) students will simulate how settling basins are used at mining sites to control sediments in the runoff.

Materials

You will need enough of each of the materials listed below for each group of students and/or station:

- Two clear glass containers with lids, numbered #1 and #2
 - Spoon
 - ¼ cup clay or mud
 - 1 cup water in a pitcher or large bottle (large enough to combine water and clay)
 - coffee filter or paper towel over a large beaker (secure w/ rubber band)
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Settling Basin Simulation Lab Procedures

1. Add clay or mud to water to produce muddy water
2. Place equal amounts (1/2 cup) of muddy water in each glass container.
3. Set aside one container
4. Stir the other container every 2-3 minutes
5. After 15 minutes, note your observations:
 - *Compare the appearance of the two containers*
 - *Explain what may have caused differences in the appearance of the two containers*
6. Slowly pour some muddy water into the coffee filter/ beaker, and note your observations

Assessment:

Describe how you think these same types of methods might be used at mining sites.

Experiment #2 - Acid Mine Drainage Treatment

In small groups, students will simulate acid mine drainage treatment.

Materials

You will need enough of each of the materials listed below for each group of students and/or station:

- 250 ml beaker
 - 25 ml white vinegar
 - 1 antacid tablet such as Tums or Roloids
 - Distilled water
 - Spoon
 - pH Strips 0-14
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Settling Acid Mine Drainage Treatment Lab Procedures

1. Fill a 250ml beaker with 25ml of vinegar
2. Place a pH strip in the vinegar. Record the pH level.
3. Crush an antacid tablet with a spoon.
4. Wet a pH strip with distilled water, and then place on the crushed antacid tablet. Record the pH level.
5. Combine vinegar and crushed antacid tablet.
6. Place a pH strip in the solution, and record the pH level.
 - Describe what you think happened.

Assessment:

Describe how you think this kind of method might be used at mining sites.