

## Lesson 13: Teacher Reference

# Station Setup

Place each station around the room in a location that is easily accessible to 4-5 students at a time. Each station has a set of instructions, *Station Instructions* and a short reading, *Breaking Rock Station Readings* that accompanies the station to be read by students. Place 5 copies of these two handouts at each station.

### Instructions for each station

**Station 1:** baking pan, 2 empty cups, 2 pipettes, vinegar, limestone or other rock with calcium carbonate, piece of brick or stone (without calcium carbonate in it), paper towels as needed

Put a rock calcium carbonate (limestone, chalk, marble, etc.) and a piece of stone or brick in a baking pan. This pan will be getting wet with vinegar and water over the course of the day. Place water in one cup and vinegar in another cup. Label the cup with water “cup A” and the cup with vinegar “cup B.” Place the cups by the pan with paper towels or a lab towel. Students will use the liquids in the cup to see chemical weathering.



Station 1.

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**Station 2:** baking pan, sand and gravel/aquarium pebble mix, powdered sugar or flour, low grit sandpaper

Put some sand mixed with gravel or aquarium rocks in a disposable baking pan. If you do not want to use the disposable baking pan, you can use a container with a lid to keep the sand moist between classes. Wet the sand to the consistency of sand used to build a sand castle. Build the sand up on one side of the baking sheet to represent a mountainside. Sprinkle a small amount of powdered sugar or flour on the side of the mountain and place a very low-grit piece of sandpaper next to the station. Students will use this station to visualize glacier movement.



Station 2.



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**Station 3:** larger plastic tub (28 qt.), sand (dry), objects to be buried (such as shells or rocks), small fan

Place dry sand in a container with higher walls (28 qt bin). Bury small rocks or shells in the sand. Place a fan next to the container for student use. Students will blow the sand around to see wind weathering and erosion.



Station 3.

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**Station 4:** baking pan, sand, ruler, water

Place sand in a disposable baking pan and build it up on one side of the container to represent a cliff. You may need to wet the sand a small amount to get it to stay positioned on the side of the pan. Pour water in the base of the container to represent water surrounding a cliff. Place a ruler next to the station. Students will use the ruler to simulate waves and see shoreline weathering/erosion.



Station 4.



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**Station 5:** baking pan, sand, aquarium rocks/gravel, textbooks to prop the pan up, watering can or watering attachment, and soda bottle with water in it.

Fill a baking pan with sand. Mix in aquarium rocks or gravel on one side of the pan. Prop the pan up with something heavy and sturdy under it to create an angle. Textbooks are recommended. Put something at the bottom of the container to keep it from sliding if it is on a slick surface. Here we have used an index card holder full of washers instead of textbooks. Set a watering can next to the station for student use. In between each rotation, check the sand--some wet sand at the bottom may need to be replaced. If there are multiple back-to-back classes, two sets of this system could be made to reduce station reset time between classes.



Station 5.



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**Station 6:** baking pan, sand, twisty balloon, hand balloon pump, cup of water

Fill a container with sand and place a balloon on top of the sand. Place a small pump on the balloon and a cup of water next to the container. Students will expand the balloon to see biological mechanical weathering.



Station 6