

LESSON PLAN

Title: Will Rocks Last?	Grade: 4 th
Subject: Science	Standard: 4.15 Analyze and interpret data to determine effects of weathering and rate of erosion by water, ice, wind, and vegetation using one single form of weathering or erosion at a time.
Duration: Pre-teach/activate prior knowledge (10 min.) Activity/Investigation (approx. 45 min.) <i>*The pre-teach portion may be longer depending on how long your class has been studying this subject*</i>	Materials: 1 box of sugar cubes, 12 small containers (with lids), paper plates, markers and sugar data sheet (retrieved from Mystery Science lesson on https://mysteryscience.com/rocks/mystery-3/weathering-destructive-forces/57?r=52684029)

Previous Knowledge:

Students need to have a general understanding of what weathering is and what takes place during the weathering process. You could possibly do this as a “hook” style activity or a culminating activity. I chose to do it as a culminating activity to help students gain a deeper understanding of the subject.

Objective:

Weathering is the breakdown of rock into small pieces through mechanical, chemical, and biological processes.

Actions:

- Pair students up (I chose pairs, but you could group them however you prefer.)
- Each group/pair needs 1 small container, paper plate, five sugar cubes, marker, pencil and a sugar data sheet
- Have students fill in the first two questions on the sugar data sheet. They will draw what a cube looks like now and then what they think it will look like after 200 shakes.
- The students need to count all the edges of the cube. Remind them that they can only count each edge once. (There are 12 edges.)
- Next, the students take 2 sugar cubes and mark all the edges (not the faces...just the edges) on both of them. Also, remind them to work over their plate while doing this.
- The students will then need to place one of the marked cubes and three of the unmarked cubes in their container and secure the lid. The remaining marked cube should stay on the plate.
- The group/pair of students will need to decide who will be the shaker and who will be the counter during the first trial. The counter and shaker will switch jobs after each trial.
- Students should be ready to shake. Start all the students at the same time by saying ready set go. Count along with them while they shake so they keep a steady pace. Each trial will be for 40 seconds.
- At the end of the 40 seconds, students will discontinue shaking, slowly take the lid off and pour the cubes onto their plates. They will need to describe the condition/surface of the cubes and count the edges remaining. If all the marker has disappeared from an edge, then it can no longer be counted.
- Once all groups have completed the step from above, they will place those same four cubes (the marked one and the three unmarked) back in the container, switch roles with their partner, and repeat the step above. At the end of each trial they will need to describe the surface, count any remaining edges and document their findings in the appropriate boxes.
- After all shaking and data gathering is complete, they will need to answer the remaining questions with their partner/group.

Check for Understanding:

- The students will complete a padlet indicating if they think rocks will last forever and why or why not.

Please note: This lesson was taken from Mystery Science “Will a Mountain Last Forever?” and adapted for my own class. To find this lesson, you can use the link that was posted in the materials section or from below

<https://mysteryscience.com/rocks/mystery-3/weathering-destructive-forces/57?r=52684029#slide-id-0>

Here is a link for padlet. Sign up for free account! It's great!

<https://padlet.com/>