

# Physical Weathering

## 4<sup>th</sup> Grade

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### References:

- Weathering and Erosion (GK-12 lesson by Daniel Fink, Lashonda Orrell, Lila Levendoski)

### Benchmarks & Objective:

- SLC/GLI 8: Describe how wind and water shape land surfaces by eroding rock and soil in some areas and depositing them in other areas producing characteristic landforms.
- Students will identify agents of physical weathering in playground and perform experiments with sand, wind, water, rocks and sandpaper.

### Materials:

- Loose soil
- Plywood
- Bricks or something to prop one end of plywood up to create a slope
- Sod with roots
- Pitcher of water
- Yard sticks/rulers

### Target Concept:

- Physical weathering occurs over time with exposure to wind, water, temperature (agents of change)
- Slope, vegetation and amount of wind and water effect amount of weathering
- Weathering occurs everywhere to different extents.

### Initial Introduction:

The students were previously introduced to erosion and weathering as part of their reading program (or during free reading time/ homework).

We will open by asking the students to define erosion. The students will mention the agents of erosion: wind, water, and ice.

Write a list on the board with the supply list and ask the students what experiments could they create to understand erosion. (If they don't come up with all of the experiments, then guide them).

### **Procedure:**

- Students will work with loose soil on plywood (or playground). They will blow on soil to watch it move. (Notebook) The students will use their notebooks to record distances. We will compare strong and weak winds. (One student thought to use his notebook as a fan and increase wind strength). (The students must agree on what they will use as a strong wind and what they will use for a weak wind).
- We will explore water erosion looking at speed that water is poured and slope. If students have not generated hypotheses when they formulated their experiments have them do so now.
- Similarly, we will look at the speed of pouring to see how high discharge events accelerate erosion. (Ask them to hypothesize why a local river is dirty after it storms upstream).
- Students will record hypotheses and perform experiments on grass with roots.
- Ask the students if they have additional experiments they would like to perform. (One student examined pouring water on already moist soil).
- Then we will ask students to find examples of weathering in playground. (Notebook) This will be a transition to the next lesson in chemical weathering.

### **Vocabulary:**

- Erosion
- Deposition
- Weathering
- Sediment
- Transport
- Gravity

### **Final Target Concept:**

- Wind, water and gravity move rocks and soil
- Roots stabilize soil from erosion

### **Summary & Discussion:**

Students have measured amount of soil movement with wind (blowing) and water on loose and rooted soil.

**Extensions (Optional):**

- Students will locate another example of weathering (draw a picture, take picture, find picture, or bring an example from neighborhood) (They did this during their recess).