

5E Lesson Plan
Faith & Hart

LESSON TITLE: Exploration and Changes in Earth's Surface

PERFORMANCE EXPECTATION: 4ESS2-1-Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation

STANDARDS ADDRESSED (See [AR K-4 Science Standards](#)):

ENGAGEMENT

- Describe how the teacher will capture students' interest and **access the student's prior knowledge and misconceptions.**
 - What kind of questions should the students ask themselves after the engagement?
- Questions: Does the earth's surface wear down? If it does, how? What substances can move matter around? Why is it important to understand? How are humans effected by the wearing down and movement of worn material. Eventually, class discussions need to go from small groups to whole groups about possible examples of this occurrence to check for misconceptions.

EXPLORATION

- Describe what hands-on/minds-on activities students will be doing.
- List "big idea" conceptual questions the teacher will use to encourage and/or focus students' exploration

Stations could be made with droppers(for rain), buckets (for supplie),pie plate (holds pebble, sand and soil) water bottles with water, straws (to blow in), and ice cubes(glacier).. Also needed would be examples of sand, soil, and pebbles. Charts in student notebooks could be made to list properties of each of the (earth) examples. A column for predictions of which substance will be affected (moved) the most when mixed with drops/stream of water, rubbed on paper with an ice cube, or blown lightly with a straw. Observations could be made in student sceince notebooks or on a teacher made t-chart for before and after drawings and observations/explanations. The teacher can take pictures of student activity at each part of the exploration.

EXPLANATION

- Student explanations should precede introduction of terms or explanations by the teacher. What questions or techniques will the teacher use to help students connect their exploration to the concept under examination?
- What concepts will the students be explaining? What format will the explanation take?
- List higher order thinking questions which teachers will use to solicit *student* explanations and help them to justify their explanations.
- How should vocabulary be addressed in this stage?

Students will share results in groups and then participate in class instruction. Weathering (breaking down of rocks) and erosion (movement of weathered material) should be addressed. Class comments should be posted on a class anchor chart and new vocabulary put into science notebooks. Of course, a teacher made assesement or a demonstration set up for students to explain can work as well.

brainpop: <https://www.brainpop.com/science/earthsystem/erosion/>

<https://www.youtube.com/watch?v=im4HVXMG168>

<https://www.youtube.com/watch?v=ZNJe6hrdL3M> -This is a good video for weathering and erosion. It is interactive and has places to stop for discussion and making drawings in student science notebooks.

<https://www.youtube.com/watch?v=J-ULcVdeggE> - Bill Nye-erosion clip

study jams: <http://studyjams.scholastic.com/studyjams/jams/science/rocks-minerals-landforms/weathering-and-erosion.htm>

ELABORATION

- Describe how students will develop a more sophisticated understanding of the concept. What activity, discussion, etc will the students engage in?
- What vocabulary will be introduced and how will it connect to students' observations?
- How is this knowledge applied in our daily lives?

Article: <https://newsela.com/articles/house-cliff/id/15046/>

Design challenge: The residence in California are in need of your help. They need you design a prevention system to reduce erosion around the falling houses.

After reading the article, The students will get into groups and design a system to support a falling house (cereal box) on the California Coast.

Material Ideas:

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string (4ft)
straws(6)
toilet paper rolls (4)
masking tape
pipe cleaners (4)
wax paper (12X12)
cereal box
sand

EVALUATION

- How will students demonstrate that they have achieved the lesson objective?
- This should be embedded throughout the lesson as well as at the end of the lesson

Students will evaluate their structure support system and re-design if neccessary.

Teacher will use ice, spray bottle and a fan to imitate the effects of hail, rain, and wind. Students will make observations about the effects of each type of erosion. Students will make a claim that is supported with evidence and explained for part of their assessment.

SUGGESTED MATERIALS