



5th Grade – Environmental Science

Weathering, Erosion and Deposition

Objective: Differentiate between Weathering, Erosion and Deposition and how they are related.

Standard 5-ESS2-1: Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. Students will be learning the difference between each of the systems, and ways that each of the systems interact to help make Earth what it is today.

Standard 5-ESS2-2: Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

This specific lesson covers standard 5-ESS2-1 by describing three processes that change the geosphere. The processes of weathering, erosion, and deposition are impacted by factors of the other systems such as water and wind.

At the conclusion of the unit, students will be asked to make these connections to create a model of how systems interact, and visit a section of the Napa Vine Trail to observe the forces of Weathering, Erosion and Deposition in our local Environment.

If students use classroom Science journals (AVID strategy) all notes, handouts and foldable may be attached to their notebooks. If notebooks are not used in the classroom, a special unit booklet may be assembled using the materials for this set of lessons.

Handouts included for these lessons include:

- Weathering, Erosion and Deposition Foldable
- Weathering Erosion and Deposition Exit Ticket
- LAB Sheet for weathering and Erosion stations
- Weathering, Erosion and Deposition Power Point for use with Foldable
- Readworks article to Introduce Erosion
- Main Idea wheel for final wrap up and conference day
- Sorting Activity game on Weathering, Erosion and Deposition



5th Grade – Environmental Science

Day 1 Lesson Goal:

The goal of today's lesson is for students to be able to differentiate between weathering, erosion, and deposition and identify how each changes the surface of the Earth.

Success Criteria:

Students will demonstrate success on this lesson goal by correctly answering the questions on the exit ticket.

Warm Up 10 min

- **Kinesthetic Weathering, Erosion, Deposition**
- Begin today's lesson by getting the students up and moving. Model the movements to match weathering, erosion, and deposition. Say the words and definitions as you do the motions.

Weathering- the breaking down of rock {hands sprinkling}

Erosion- the movement of sediments {hands swoosh forward}

Deposition- the dropping off of sediments in a new place {top hand comes around and smacks the bottom hand}



- Do this several times like a chant with motions to it and then ask the students to join in. We do it many times so that it gets stuck in their heads.
- Ask students to share some ideas on what they think each term means just by the actions in the chant. One student may say he believes erosion is washing away and erosion is smashing and another student says erosion is moving and weathering is breaking. Both mean about the same so you can tell them they are both correct.
- **Why Begin The Lesson With This Activity**



5th Grade – Environmental Science

- By putting motions with a chant, students are more likely to remember what the three vocabulary terms mean. The chant will be stuck in their head as you progress through the lesson. Each time during the lesson that you ask a question about weathering, erosion, or deposition, refer back to the chant and do the motions to trigger their memory. By making it simple, only three words, students are able to easily remember it and say it to themselves during testing.

Guided Practice 10 min

Engage

To inspire interest in today's lesson and capitalize on student curiosity, show the following video clip:

HowStuffWorks Show: Episode 4: Power Of Water Erosion

https://youtu.be/MFpCJsc_k64

How can the same soothing liquid we drink and bathe in cut through materials used to build skyscrapers? Learn about water erosion on Discovery Channel's "HowStuffWorks" show.

To encourage active listening during the video, pause a few times for students to turn and talk about a particular question. For example, at 0:27, ask students to turn and talk: *What is erosion?* (the removal of solid material by the force of moving wind or water).

Share the video titled Weathering & Erosion: The Grand Canyon (below).

<https://youtu.be/eEYn5GCX028>

At the end of the video, ask students to turn and talk: *How are the hydrosphere and geosphere interacting during the erosion process?* (Sediment in the geosphere is carried downstream by rivers in the hydrosphere. The hydrosphere can carve away the geosphere over tens of millions of years of erosion to create grand canyons.)



5th Grade – Environmental Science

Defining the New Vocabulary / Foldable

20 minutes

Provide each student with a copy of the **Weathering, Erosion, and Deposition Foldable** that has been copied front to back and precut to save time. The foldable has a picture on the front to help them remember each term. The definitions are printed on the inside with a blank side on the other inside panel.

On the blank side, have students draw pictures of how land forms change due to each process.

Show pictures from the **Weathering, Erosion, and Deposition PowerPoint** and discuss each one. Students can select which pictures they want to draw in their foldable. Do not let them begin drawing until after talking about all of them.

Give students a couple of minutes to draw what they would like. Let them choose what picture to draw to represent each term because it allows them to take ownership in the product. By choosing something that stands out to them, they are more likely to remember the term and process that goes with it.

Day 2: Lesson Goal

Students will continue studying the process of weathering erosion through a six station lab activity and a close reading activity on Erosion..

Warm Up – 20 minutes

Close reading strategy. Readworks article on Erosion. This reading is a warm up to the lab activity which will demonstrate erosion and weathering using sugar cubes, sand, water, “wind”.

Divide the class into four or six groups and have students number the paragraphs. Students then take turns in their group reading the passage out loud and looking for key causes of erosion. These elements should be highlighted.

- Rocks are worn down
- Moving water/waves
- Sheets of ice scrape off rocks
- Wind can blow sand and dirt

Students then work in their groups to read, discuss and answer the follow up questions.

Engage—Weathering and Erosion Lab (approx. 30 minutes)



5th Grade – Environmental Science

Download the [Lab sheet](#) and print out copies (one copy per student)

Review lab sheet and explain the procedures for the lab activity.

Students will rotate through the stations with their lab partners and read the task card at each station. Students must following directions and record data at each station, and then answer the questions at each station. If all six stations are used, student should spend up to 5 minutes per station.

Allow 10 minutes for students to clean up stations, answer questions with partners.

Day 3: Field Trip to section of the Napa Vine Trail

Objective:

Students will look for evidence of weathering, erosion and deposition along the Napa River/Vine trail, and record their findings in their Science notebooks, and/or record photos to prepare a google doc presentation in the classroom.

Materials:

Student notebooks
Clip boards
Colored pencils
Cameras or cell phones for photos of areas being observed

Procedure:

Students may work with partners to observe evidence of weathering, erosion and deposition along the river trail. Draw pictures or take photos of evidence to create group presentations. Document examples of weathering, erosion and deposition in the area visited.

Suggested sections of the River Trail:

1. Oxbow Commons Park
2. River Trail in American Canyon
3. Napa River Ecological Reserve, Yountville
4. Trancas Crossing Park and Floodplain
(Great signage in this park with info on wildlife and the history of the area)

Monitoring Student Understanding during the field trip



5th Grade – Environmental Science

Once students begin observing the process of erosion with their partners, meet with every group. Your goal is to support students by asking guiding questions (listed below).

Encourage students to engage in Science & Engineering Practice 7: Engaging in Argument from Evidence.

1. What patterns have you noticed?
2. Why do you suppose ___?
3. What have you found so far?
4. Has your thinking changed?
5. What evidence do you have?
6. How did you decide ___?
7. What conclusion can you draw about ___?
8. How is the ___ (sphere) interacting with the ___ (sphere)?
9. How are the processes of weathering and erosion different?
10. What do you think is powerful enough to move sediment from one place to another on Earth?
11. Do you see evidence in this area?
12. Explain the variety of ways a rock might be transported from one place to another.

Day 4: Field Trip follow up

Warm Up : Student Conferences in the classroom - 20-30 minutes

During this conference, have Students discuss examples of weathering and erosion they observed on the Vine Trail in the Napa Valley.

Encourage the students to think about how the hydrosphere (amount of precipitation) and biosphere (vegetation) impact the erosion process and the geosphere (soil).

Students Discuss the Earth's Spheres, the students come up with ways that the atmosphere, hydrosphere, and biosphere interact with the geosphere during the process of erosion.

Students can use the Main idea wheel to record their questions and ideas

Groups work together to record data on their Main Idea wheels using the drawings and photos (data) that they collected during the field trip. Sections of the wheel could include titles:

- Examples of erosion
- Example of weathering
- Examples of deposition

Engage: Weathering, Erosion or Deposition sorting game – 15 minutes



NAPA COUNTY OFFICE
of
Education
COMMUNITY PROGRAMS

5th Grade – Environmental Science

Cards should be prepared in advance and may be laminated for multiple use.
Explain the rules to students and have one set of cards for each group of 4 to 6 students .
Answer key is provided for checking answers.

Wrap Up:

Exit Ticket - 10 minutes

Pass out a **Weathering, Erosion, and Deposition Exit Ticket** to each student. Do not allow them to use their notebooks or any other resource to complete the exit ticket. You can use the exit ticket to assess understanding of weathering, erosion, and deposition, and how each changes the surface of the Earth. Although there are only two questions, you should be able to assess understanding of all concepts.

The second question requires students to apply the entire process to the formation of a delta. To get this correct, students will have to describe how rocks are weathered by wind or water and then the sediments are carried downstream by the river through the process of erosion and finally, deposited at the mouth of the river to create a new piece of land called a delta. In order to get these correct, students would have to have a good understanding of each process and how they work together.