

NOT-SO-SOLID GROUND



TEACHER GUIDE

WONDER



PLANNING

Here's a suggested schedule for this kit! The activities should be completed in order, but you can choose when the lessons take place over time.

ACTIVITY INFORMATION	SECTION (S)	TIME REQUIRED	DAY/ LESSON
ACTIVITY 1: CASTLE ATTACK Make sand castles and destroy them with water, wind, and more. Time required: 1 h	<input type="checkbox"/> Blown Away <input type="checkbox"/> Drop by Drop <input type="checkbox"/> Flash Flood <input type="checkbox"/> Eek! An Earthquake	60 minutes	Day 1
ACTIVITY 2: EARTH EVENTS Find out how Earth's surface changes slowly and quickly. Time required: 1 h 45 min	<input type="checkbox"/> Humans and Nature	30 minutes	Day 2

Full schedule available with purchase

? **Question 4: Have you ever seen wind, rain, flooding, or earthquakes make changes? What was that like?**

Answer: Answers will vary.

How to Help:

- *The student may have seen some of these without seeing their effects. For example, wind is common, but it is difficult to see wind changing structures or Earth's surface.*
- *Conversely, the student may have seen the effects of these events without knowing what was responsible. If you know this is the case, ask them how certain damage they have seen might have occurred.*

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EARTH EVENTS

Some natural events happen quickly, while others happen slowly. In this activity, your student will take a closer look at some natural events to find out what they are like.

LEARNING GOALS:

- ✓ I can use evidence to show that natural events on Earth can happen slowly or quickly.

HUMANS AND NATURE

- The differences between natural events and human impacts are detailed, and several examples are provided.
- The vocabulary terms natural event and human impact are defined.

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MULTIPLE AGES AND ABILITIES:

Natural events are sometimes affected by human activity, and vice versa, making it difficult to say that some events are only natural or only human-caused. This is briefly mentioned in the Student Workbook with some examples, but it is a potentially rich topic for your student to study in the field of environmental science.

You can get them started by having a conversation about the different ways humans interact with their environment. Ask them about the things humans and societies need to survive and how they attain those resources. Then, ask what humans should do if getting those resources harms the environment. Be sure to point out that there are no completely correct answers or solutions to such problems.

This is a topic that is discussed in more depth in the Wonder level kit *Go With the Flow* and the Accelerate level kit *Raining on Our Parade*.



THINK ABOUT IT!

? Question: What are two reasons people would want to stop erosion from happening?

Answer: Answers will vary but will likely mention something about saving money, keeping property intact, or keeping people safe.

How to Help:

- *Students at this level often think only about themselves because of their developmental stage. Therefore, it is important to give them opportunities to think about the world beyond themselves.*
- *Encourage them to think about how other people would feel about being affected by erosion. You can do this by searching for news stories on the internet and showing them pictures of damage caused by erosion.*

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Earth Defenders

- The student is introduced to ways in which people attempt to prevent erosion or at least try to lessen its destructive effects.
- Quick erosion events such as sinkholes and landslides tend to make the news more often than slow ones like beach destruction and creep, but they can all be destructive, costly, and dangerous.
- Your student will get a chance in the next section to identify some methods for preventing erosion in their own community, and in the next activity, they will design a method for reducing erosion in a landform model.
- There are some additional examples of erosion and erosion prevention in the next section, so feel free to discuss those with your student before officially moving on to Erosion in Your Environment.
- The vocabulary term prevent is defined.



THINK ABOUT IT!

? Question: Summarize the ways people stop weathering and erosion from happening. Write or draw pictures.

Answer:

- The student should write or draw what they learned in this subsection.
- They do not need to write or draw everything; instead, it is appropriate to have them choose 2–3 methods that stood out to them.

How to Help: *For an additional challenge, you could ask how each method might work in preventing erosion. For example, you might ask your student how terraces stop soil from falling down a hill or how jetties stop waves from washing away the sand of a beach.*

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EROSION IN YOUR ENVIRONMENT



PREPARATION AND SUPERVISION

- Your student will need your help in deciding on a route for walking through their neighborhood or community to look for examples of erosion and its prevention.
- Several examples of both erosion and prevention methods are provided.
- Try to choose a route that includes both land and water features so a variety of methods might be encountered.
- You might want to combine this walk with one of the extensions (“Local Landforms”) since the action of walking is similar.
- However, the routes may be different.
- You could make a combined route or make it a driving and walking activity to accommodate both goals.



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