



WHEN LEE AND Lee's dad went for a walk along the old road by the coast, they noticed that some of the road had fallen down the cliff.

"Look, Dad," Lee said, "the road is falling into the ocean! Why did they build a road here?"

"Well, the cliff was a lot farther out when they built the road," Dad replied. "But over time, the cliff has been moving inland, and it has destroyed the road. Cars haven't been allowed on it for many years, and eventually it became a walking path."

"Huh. I wonder what made the cliff move like that?" said Lee.

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In this unit, you will:

- *Explore phenomena* related to constant changes in Earth's surface due to natural processes and human activity
- *Construct explanations* based on evidence for what causes these geoscience phenomena
- *Model* how water cycles over and under the Earth's surface and through the air
- *Investigate the issue* of how geoscience processes and human activities change the Earth's surface

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Where Should We Build?

INVESTIGATION

OVER THE PAST 20 years, the population of Boomtown has grown sharply, which has caused school overcrowding. Now the Boomtown City Council is trying to decide where to build a new school building. The Council is planning to include additional sports fields at the school for use by the whole community. Three possible locations for the new school and fields are being considered.

As more people live in and use the resources of an area, the natural characteristics of that area can change. More homes and businesses are built, more farms and gardens need fertilizer and water, and industries make more products to meet the population's needs. All of these activities use resources and create waste products. In this way, the effect on the environment caused by population growth can be significant. The effect on living organisms and their nonliving environment due to human activity is called **human impact**.



GUIDING QUESTION

What is the human impact of constructing buildings?

MATERIALS

For each student

Student Sheet 1.1, “Observations Before and After Construction”

PROCEDURE

1. Each set of photographs on the next page shows places before and after the construction of buildings. Examine the photographs, one location at a time. Observe changes—before and after construction—in:
 - the land
 - the water
 - the plants and animals
2. Discuss the changes you observed with a partner. Then record your observations on Student Sheet 1.1, “Observations Before and After Construction.”
3. After observing the photographs of all three kinds of places, discuss your ideas with the other pair in your group of four.
4. Review the information in your table on Student Sheet 1.1 with your group, and then add any new observations of the three kinds of places.
5. The observations you made provide a type of **evidence**, or information that supports or refutes a claim. With your group, use the evidence you gathered to make a claim about the human impact of building in Boomtown.

ANALYSIS

1. Based on the Building Sites Before and After Construction photos, explain how each of the following kinds of places were changed by the construction of buildings due to increased population:
 - a. Wetlands
 - b. Hillside
 - c. Cliff

Building Sites Before and After Construction



Cliff before



Cliff after



Hillside before



Hillside after



Wetlands before



Wetlands after

2. A **trade-off** is a desirable outcome given up to gain another desirable outcome. What are some of the trade-offs involving the human impact of building a new school and fields?
3. Examine the map of Boomtown on the next page. Find each of the three sites being considered for the new school and fields:

- Delta Wetlands
- Green Hill
- Seaside Cliff

Based on what you know so far, on which site do you think Boomtown should build the new school? Use the map and your class's observations from this activity to form your opinion.

4. **Revisit the issue:** List any questions you have about the following, which could help the City Council decide where to build the new school:
 - a. Animals in the area
 - b. Plants in the area
 - c. The shape of the land
 - d. The health of the nearby water
5. **Reflection:** Compare Boomtown to where you live. How is it similar or different?
6. The phenomena you are investigating relate to changes in the land due to geologic processes and human activity. Think about Boomtown and your own community. What questions do you have about phenomena that change the land?

Boomtown Map

