

Expository
Text



CHANGING LANDSCAPES

BY MARIA GILL



Mc
Graw
Hill

PAIRED
READ

Students Save Wetlands

STRATEGIES & SKILLS

Comprehension

Strategy: Reread

Skill: Compare and Contrast

Vocabulary Strategy

Multiple-Meaning Words

Vocabulary

alter, collapses, crisis,
destruction, hazards, severe,
substantial, unpredictable

Content Standards

Science

Earth Science

Word Count: 762**

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**The total word count is based on words in the running text and headings only. Numerals and words in captions, labels, diagrams, charts, and sidebars are not included.



Essential Question

How do people respond to natural disasters?




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INTRODUCTION



Imagine you travel back in time thousands of years. You arrive in a wild landscape that you've never seen before. It's actually where you live now. You'd never guess it! Why does it look so different?



Water carved
out this canyon.



The huge waves from a hurricane can change the coastline.

The biggest changes to Earth take thousands of years. Mountains and cliffs slowly wear away. Rivers become wider.

Some changes to the landscape can happen very quickly. Natural disasters, such as hurricanes and floods, can alter the landscape suddenly. Some places have natural features that help protect the land from natural disasters.

CRUMBLING LANDSCAPES

Water can make big changes to the surface of the earth.

Rivers and streams shape the landscape. Small streams and rivers begin in the mountains. The water flows downhill. The moving water carries **sediment**, or small rocks and sand with it. The movement of the rock and sand is called **erosion**.

HOW RIVERS CHANGE



1. A fast moving river cuts a path through the land.
2. Over time, the river wears away more of the land.
3. The river leaves behind rocks and sand and forms a plain.



Erosion has worn away these cliffs.

The water from waves changes the shape of a coast. Waves can make cracks in cliffs. Waves also wear away the bottom of cliffs. They slowly break rocks into smaller pieces and sand. The breaking down of large rocks into smaller pieces is called **weathering**.

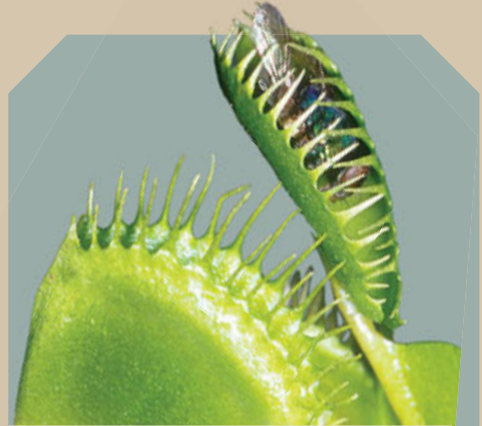
The wind also causes erosion. Wind blows the sand, and hills of sand called dunes form.

Some places have natural features that protect them against erosion.

On beaches, sand dunes get bigger as wind and waves add more sand. Larger dunes act as **barriers**. They trap the sand that is brought on land by the waves and wind. Grasses growing on the dunes also keep the sand from blowing away.

Wetlands slow down erosion, too. Wetlands are marshes or swamps. They are found near rivers and lakes. They are also found near the coast.

Wetlands act like sponges. They soak up water when it rains. This prevents flooding.

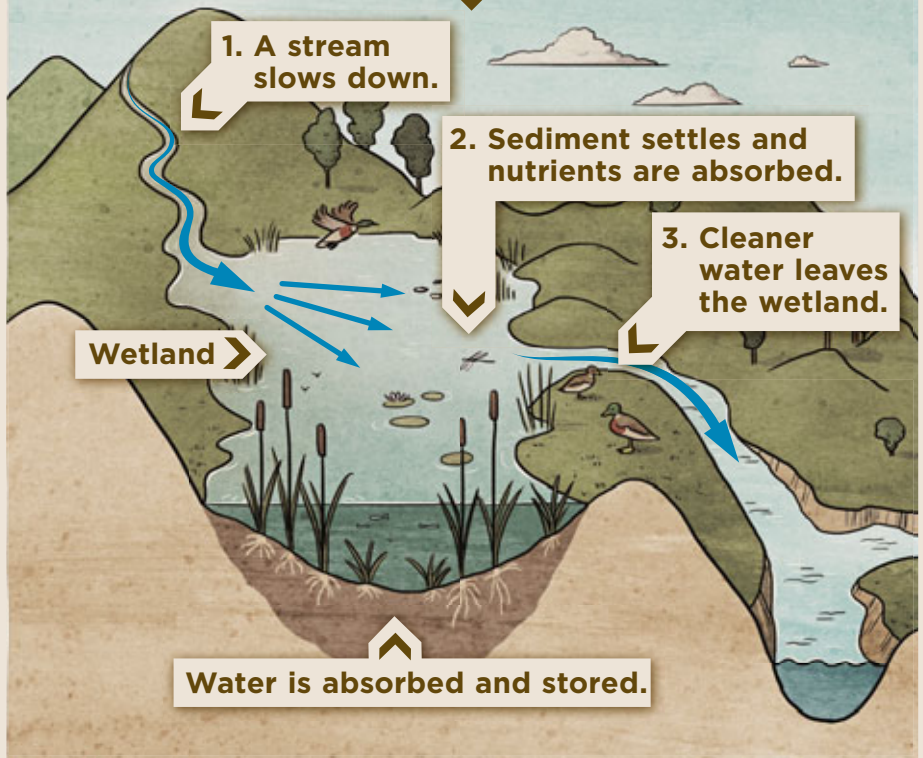


Steven P. Lynch

» Swamp Plants

The Venus flytrap grows in swamps or wetlands. It feeds on insects. The insects give the plant nutrients.

HOW A WETLAND WORKS




Plants that love the water grow in wetlands. Their roots hold the soil in place. This helps prevent erosion.

STOP AND CHECK

How do water and wind change a landscape?

CHAPTER 2

SUDDEN CHANGES!

An aerial photograph showing a massive landslide in California. A large, light-brown, rocky mass has slid down a steep, green hillside, creating a wide, deep channel. The surrounding area is densely forested with green trees. At the bottom of the slide, a small town with several houses and buildings is visible. A road or path is visible on the right side of the hillside, partially obscured by the landslide debris.

A landslide hit this town
in California.

Natural disasters change the land more quickly than erosion.


Heavy rain can cause landslides. The ground becomes soaked. It can't absorb any more water. Rocks and soil slide downhill. Sometimes the hillside collapses.

Earthquakes and volcanic eruptions can also cause landslides. These events are unpredictable and often happen without warning.

Landslides can move very quickly. They can sweep away roads, bridges, and buildings.

Landslides are less likely to happen on hills with lots of trees and plants. This is because the roots of trees and plants help to keep the soil in place. Their roots also absorb water in the soil.

Severe winds and rain from hurricanes also cause destruction and change the land. Hurricanes are substantial storms that begin in the ocean. When a hurricane nears land, the wind makes huge waves. The waves wash away sand from beaches. A beach can be much smaller after a hurricane.

An aerial photograph showing the aftermath of a hurricane. The landscape is heavily flooded with murky, brown water. Several houses are visible, some partially submerged and others with significant structural damage. Debris, including wooden planks and other household items, is scattered throughout the water. The surrounding land appears eroded and covered in mud and sand. A road is visible, partially submerged and damaged. The overall scene depicts extensive destruction and flooding.

Strong winds and rain from Hurricane Katrina caused a lot of damage.

Coastal wetlands protect areas from hurricanes. A hurricane can cause a huge wall of water to hit the coast. Wetlands can absorb some of that water.

STOP AND CHECK

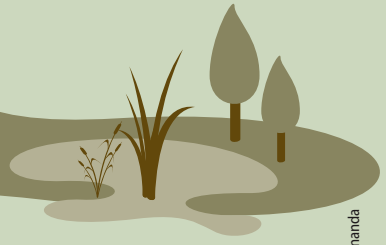
What damage do hurricanes and landslides cause?

» Hurricane Katrina

In 2005, Hurricane Katrina was a crisis for people living along the Gulf Coast. The hurricane caused a huge wall of water to tear through barriers and riverbanks. Many areas were flooded.

CHAPTER 3

FIXING THE DAMAGE



People often help cause erosion when they cut down trees or plants to build roads or houses. Wetlands, sand dunes, and trees protect against erosion. Without them, rain washes away soil and causes more damage, such as landslides.

Planting trees and plants with long roots helps prevent hazards such as landslides. The roots absorb water. They hold the soil in place.



Trees and plants with deep roots help prevent landslides.

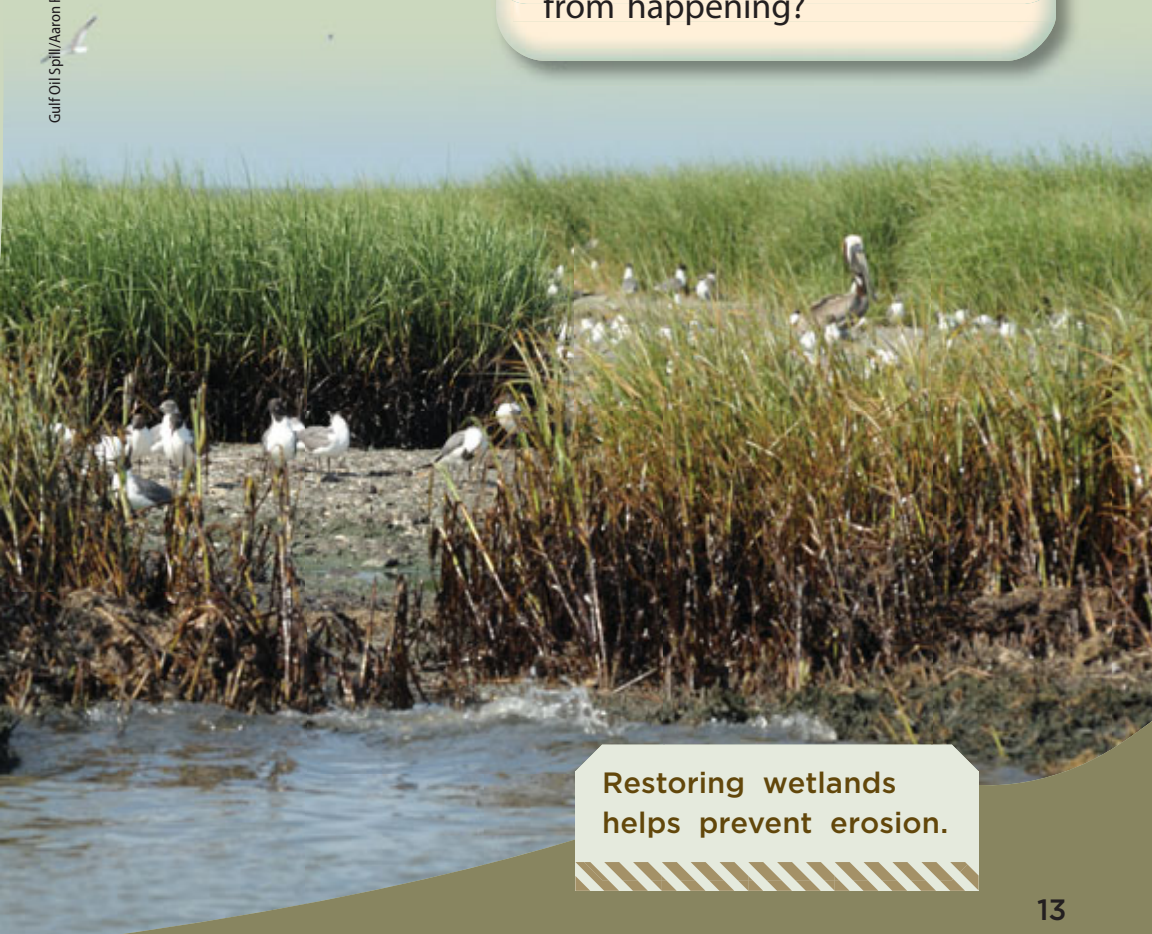
People can **restore** wetlands and dunes to keep erosion from happening. In the past, people have built homes and buildings on wetland areas. Now we realize that wetlands help prevent erosion.

People can make plans to prevent erosion. They can replant wetlands or move sand back into the dunes.

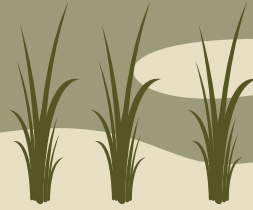
STOP AND CHECK

How can people keep erosion from happening?

Restoring wetlands helps prevent erosion.



CONCLUSION



Imagine you've moved back in time again. You've seen the slow changes to mountains, rivers, and coasts caused by erosion.

Natural disasters can change the land suddenly. We can't stop disasters from happening, but we can work to prevent some of the damage caused by them.

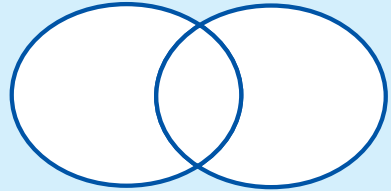
**Students plant
grasses at a wetland
in Maryland.**



Respond to Reading

Summarize

Summarize what you have learned from *Changing Landscapes*. Use your graphic organizer to help.



Text Evidence

1. How can you tell *Changing Landscapes* is an expository text? **GENRE**
2. Compare the three diagrams of a river on page 4. What is the same? What is different?
COMPARE AND CONTRAST
3. What is the meaning of *wear* on page 3? What words help you figure out the meaning?
MULTIPLE MEANING WORDS
4. Write about the similarities and differences between landslides and hurricanes. Use details from the text in your answer.

WRITE ABOUT READING

Compare Texts

Read about how students in Florida are helping to prevent erosion.

Students Save Wetlands



People are working to restore the wetlands in Tampa Bay, Florida. As the city grew, the wetland areas were damaged or destroyed.

Today people know that wetlands act as barriers against storms. They help prevent erosion. They provide homes for birds and fish.

Students in Tampa Bay are planting grasses in the wetlands. The grasses hold the soil in place.



Yvette C. Hammett/Staff

How to Grow Wetland Grasses

1. The students plant grasses in a pond.
2. They check the growth of the grasses. They test the water.
3. After six to eight months, the students dig up the grasses. They separate the grasses out and replant them. Now the grasses have more room to grow.
4. When the grasses have grown, the students plant them in a wetland!

Healthy Coastal Areas

The grasses the students have planted will help prevent erosion. The grasses will also be habitats for the animals and fish living there.

The students have made a big difference. They have restored almost 24 acres of wetlands on the Florida coast.

Students plant sea grasses.



Make Connections

Why is it important to restore wetlands?

ESSENTIAL QUESTION

How do people in *Changing Landscapes* and *Students Save Wetlands* prevent erosion?

TEXT TO TEXT

Glossary

barriers (*BAR-ee-urz*) obstacles that stop things from getting through (**page 6**)

erosion (*i-ROH-zhuhn*) wearing away caused by rain, wind, or glacial ice (**page 4**)

restore (*ri-STAWR*) return something to how it was (**page 13**)

sediment (*SED-uh-muhnt*) rocks and sand carried and dropped by water or wind (**page 4**)

weathering (*WETH-uhr-ing*) the slow wearing away of rocks (**page 5**)

wetlands (*WET-landz*) areas of land that are covered by water some part of the time (**page 6**)

Index

flooding, 3, 6, 11

Hurricane Katrina, 10, 11

hurricanes, 3, 10, 11

landslides, 8, 9, 12

sand dunes, 5, 6, 12, 13

wetlands, 6, 7, 11–13, 16–18

Focus on Science

Purpose To understand the kinds of damage a natural disaster can cause and how to prepare in advance

Procedure

Step 1 Pick a type of natural disaster you want to learn more about. You might choose a natural disaster that is common where you live.

.....

Step 2 Use the library or the Internet to research the kinds of damage the natural disaster causes.

.....

Step 3 Research the ways that people can prepare in advance for the natural disaster, such as making an emergency kit.

.....

Step 4 Create a poster that summarizes what you learned. Make sure you include what the disaster is, the hazards it creates, and how people can prepare and stay safe.

Conclusion Being prepared helps us to stay safe. What have you learned about planning for a natural disaster?

Literature Circles

Nonfiction

Thinkmark

The Topic

What is *Changing Landscapes* mostly about?

Text Structure

How does the author organize information in *Changing Landscapes*?

Vocabulary

What new words did you learn in the text?
What helped you understand their meanings?

Conclusions

What is the most important thing you learned about preventing erosion?

Author's Purpose

Why do you think the author wrote *Changing Landscapes*? What message did the author want you to get from the book?