

TECHNOLOGY in Practice



Applications and Innovations

Chapter Overview, Concepts, and Goals

Chapter 2, When Natural Events Become Natural Disasters

Chapter Overview

In Chapter 1, “What Causes Weather Patterns” students learned some of the important science concepts that dictate the weather. In this chapter, “When Natural Events Become Natural Disasters,” they learn about different types of natural disasters and how they are influenced by the weather. They will focus on five kinds of natural disasters: wildfires, drought, floods, tornadoes, and hurricanes.

In the **Engage** activity, *Extraordinary Events*, students consider what natural events or disasters they know about and think about how those types of events can affect people’s lives.

The **Explore** activity, *Miniature Events*, asks students to investigate the five types of natural disasters using small, hands-on models that demonstrate factors that are important for the formation or growth of each natural event.

In the **Explain** activity, *Presenting Events*, students build on the investigations they did with the miniature models. They will read about one of the five types of natural events to learn about how it develops and the factors that affect its strength or severity. They will then read about historical examples of the natural disaster they read about. From the examples, they will learn how people have gathered information about natural disasters that will help prevent or reduce their impact should they occur again. They will see examples of how technology has been used to study each of the five natural events.

In the **Elaborate** activity, *Twisters*, students analyze data about the occurrence of tornadoes in the United States. This experience with data analysis should help them think about how knowing about the past can help people think about the future of natural events. They also will consider how these data help them identify patterns.

In the **Evaluate** activity, *Learning from the Past, Thinking about the Future*, students choose one type of natural event on which to focus. They will summarize what they know about that type of event and consider how understanding that event can help people think about the future.

Chapter Organizer

Engage—Extraordinary Events

Key idea:

Natural events can affect people's lives in many ways.

Activity:

Students examine photographs of historical natural events and consider the effects that they have on people.

Linking question:

What causes natural events?

Explore—Miniature Events

Key idea:

Models can help people learn about natural events.

Activity:

Students work through five stations to explore models of natural events.

Linking question:

Why are some natural events more severe than others?

Explain—Presenting Events

Key idea:

Different factors affect the severity of natural events.

Activity:

Teams of students read about different types of natural events to learn about that type of event, how the event may become more serious, and the strategies that people have used to protect themselves in case a serious event occurs.

Linking question:

How can scientists predict natural events?

Elaborate—Twisters

Key idea:

Patterns can help scientists predict natural events.

Activity:

Students analyze information about the occurrence of tornadoes.

Linking question:

How can patterns help people understand natural events?

Evaluate—Learning from the Past, Thinking about the Future

Key idea:

The patterns identified in past natural events can help people understand natural events in the future.

Activity:

Students use their knowledge of one type of natural event to explain how learning from past events can help people prepare for the future.

Major Concepts

- Natural events can be minor, or they can be serious and cause major damage.
- Natural processes cause natural events, including natural disasters.
- Technology can help scientists collect data, identify patterns, and predict future events.
- Humans can make changes to reduce the impact of natural events.
- A variety of factors can influence the seriousness of natural events.

Goals for the Chapter

By the end of this chapter, students will

- recognize that some natural events cause few or no problems for humans whereas others can cause serious problems and damage
- understand that natural processes cause natural events, including natural disasters
- be able to explain how different factors, such as temperature and density of air and water, interact to affect the size of a natural event
- be able to give examples of natural disasters and their effects on people and the environment
- be able to give examples of how humans have made changes to reduce the impact of natural disasters
- practice using data to identify patterns of weather events
- communicate their understanding of natural events.