

#### FORECASTING DISASTERS: AVALANCHES

**1.** Write a paragraph that explains the main ideas of Chapter 2.

**2.** What sensor do you think is most important for avalanche detection? Why?

- 3. Which devices sense the vibrations created by avalanches?
  - A. inclinometers
  - **B.** seismometers
  - C. infrasound sensors
- **4.** What would happen if scientists observed mountains with cameras but not with radar?
  - **A.** Scientists would be able to observe mountains at any time.
  - **B.** Scientists would be better at observing mountains in the dark.
  - **C.** Scientists would not be able to observe mountains when it was cloudy.

- - 5. What does debris mean in the Avalanches book?

It covers the road with heavy snow. Rocks and fallen trees crash down, too. The **debris** piles more than 4 feet (1.2 m) high.

- A. unbroken objects
- **B.** loose pieces
- **C.** electronic sensors
- 6. What does conditions mean in the Avalanches book?

Avalanches only form under certain **conditions**. They need snow, a steep slope, and a trigger.

- A. things that are not related to an event
- **B.** things that allow an event to happen
- C. things that are used to look at an event



#### **ANSWER KEY FOR FORECASTING DISASTERS: AVALANCHES**

- 1. Answers will vary
- 2. Answers will vary
- **3**. B
- **4.** C
- **5.** B
- **6.** B



#### FORECASTING DISASTERS: BLIZZARDS

**1.** Write a few sentences describing the features of a blizzard.

2. What would you do if you knew a blizzard was coming? Why?

- 3. When did the deadliest blizzard in history happen?
  - **A.** 1941
  - **B.** 1972
  - **C**. 2010
- **4.** Why might meteorologists make changes to the predictions of weather models?
  - A. Weather models are never correct.
  - **B.** Meteorologists have extra knowledge and experience.
  - **C.** Meteorologists don't know how to read the models.



5. What does intense mean in the Blizzards book?

The 1888 storm was **intense**. People tunneled through mountains of snow. They crossed the river on ice bridges.

- A. harsh
- **B.** small
- C. easy
- 6. What does extended mean in the Blizzards book?

The disaster led to a key change in forecasting. Some weather offices **extended** their hours. They started staying open 24 hours a day.

- A. eased
- B. shortened
- C. increased



#### ANSWER KEY FOR FORECASTING DISASTERS: BLIZZARDS

- 1. Answers will vary
- 2. Answers will vary
- **3.** B
- **4.** B
- **5**. A
- **6.** C



#### FORECASTING DISASTERS: FLOODS

**1.** Write a paragraph that describes the main ideas of Chapter **3**.

2. What do you think is the most important tool for predicting floods? Why?

- 3. When did the Johnstown dam fail?
  - **A.** 1889
  - **B.** 1902
  - **C**. 2024
- **4.** How could data from similar areas of land help predict floods in places without flood data?
  - **A.** Similar areas of land might have similar flood conditions.
  - **B.** Scientists would get more money to invent better tools.
  - **C.** Predictions cannot use data from similar areas of land.

- - 5. What does meteorologists mean in the Floods book?

*Meteorologists* analyze the water data. If flooding is likely, they can warn people days ahead of time.

- A. people who study weather
- B. people who cause floods
- C. people who stop floods
- 6. What does effective mean in the Floods book?

That makes them even more *effective*. For example, people put thermal cameras on drones. That way, forecasters get more information.

- A. dangerous
- **B.** useful
- **C**. breakable



### ANSWER KEY FOR FORECASTING DISASTERS: FLOODS

- 1. Answers will vary
- 2. Answers will vary
- **3**. A
- **4**. A
- **5**. A
- **6**. B



#### FORECASTING DISASTERS: HEAT WAVES

**1.** Write a few sentences describing the main ideas of Chapter 2.

**2.** What do you think is the best way for cities to make heat waves less harmful? Why?

- 3. What kind of models do scientists use to make long-term forecasts?
  - A. weather models
  - B. seasonal models
  - C. climate models
- **4.** About how many more people died during the 1995 Chicago heat wave compared to the city's 1999 heat wave?
  - **A.** 500
  - **B.** 600
  - **C**. 700



5. What does emergency mean in the Heat Waves book?

Aid groups put together **emergency** response teams. When the heat waves hit, many Pakistanis struggled.

- A. having to do with weather and climate
- **B.** having to do with serious and dangerous situations
- C. having to do with times of safety and calm
- 6. What does vegetation mean in the Heat Waves book?

Officials also add more **vegetation**. Grasses and trees remove heat from the air. The plants provide shade, too.

- A. animals
- **B.** plants
- C. pavement



#### **ANSWER KEY FOR FORECASTING DISASTERS: HEAT WAVES**

- 1. Answers will vary
- 2. Answers will vary
- **3**. C
- **4.** B
- **5.** B
- **6.** B



#### FORECASTING DISASTERS: HURRICANES

**1.** Write a paragraph that explains the main ideas of Chapter 2.

2. Which tool for tracking hurricanes do you think is most helpful? Why?

- 3. How fast are the winds in a Category 1 hurricane?
  - **A.** 74–95 mph (119–153 km/h)
  - **B.** 96–110 mph (154–177 km/h)
  - C. 111–129 mph (179–208 km/h)
- 4. Why don't hurricanes form over land?
  - A. Winds cannot reach high speeds on land.
  - **B.** Hurricanes need warm ocean water to grow.
  - **C.** Heavy rains cause large storms to fade.

5. What does inland mean in the Hurricanes book?

The storm moves **inland**. Wind and rain cause damage up to 500 miles (800 km) from the coast.

- **A.** in outer space
- **B.** out in the ocean
- C. far from the shore
- 6. What does develop mean in the Hurricanes book?

If a storm starts to **develop**, weather stations help scientists track it. Often, several storms are forming at once.

- A. stop moving
- B. begin to grow
- **C.** start to talk



#### **ANSWER KEY FOR FORECASTING DISASTERS: HURRICANES**

- 1. Answers will vary
- 2. Answers will vary
- **3**. A
- **4.** B
- **5**. C
- **6.** B



#### FORECASTING DISASTERS: TORNADOES

**1.** Write a paragraph that explains the main ideas of Chapter 2.

2. Which kind of tornado warning do you think is most important? Why?

3. In what year did an EF5 tornado hit Joplin, Missouri?

- **A.** 1982
- **B.** 2011
- **C**. 2012
- **4.** How many years passed between the first time scientists spotted a tornado on Doppler radar and the first time scientists issued a warning based on Doppler radar?
  - A. two years
  - **B.** four years
  - **C.** nine years



5. What does region mean in the Tornadoes book?

Tornado Alley covers the middle part of the United States. Many of the world's largest tornadoes happen in this **region**.

- A. height
- **B.** storm
- C. area
- 6. What does develop mean in the Tornadoes book?

Scientists continue to **develop** better radar systems. New kinds of radar can sense the size and shape of raindrops.

- A. work on breaking something
- B. work on making something
- C. work on ending something



#### **ANSWER KEY FOR FORECASTING DISASTERS: TORNADOES**

- 1. Answers will vary
- 2. Answers will vary
- **3.** B
- **4.** C
- **5.** C
- **6.** B



#### FORECASTING DISASTERS: TSUNAMIS

**1.** Write a few sentences describing the main points of Chapter 2.

2. Which tool do you think is most helpful for forecasting tsunamis? Why?

- 3. When did the deadliest tsunami in history strike the Indian Ocean?
  - **A.** 1868
  - **B.** 2004
  - **C.** 2011
- 4. After a tsunami, how can drones help?
  - **A.** Drones can find people who need to be rescued.
  - **B.** Drones can dive underwater and save people who are drowning.
  - **C.** Drones are only used before tsunamis hit.

- - 5. What does pollution mean in the Tsunamis book?

Some tsunamis destroy water treatment plants. They can break sewer pipes, too. The flowing water contains **pollution**. People have no way to get clean water.

- A. dirty things
- **B.** clean things
- **C.** broken things
- 6. What does essential mean in the Tsunamis book?

Computers models are another **essential** forecasting tool. Computer models are made of code. The coded programs create predictions for forecasters to use.

- A. confusing
- **B.** useless
- C. important



# ANSWER KEY FOR FORECASTING DISASTERS: TSUNAMIS

- 1. Answers will vary
- 2. Answers will vary
- **3.** B
- **4.** A
- **5**. A
- **6.** C



#### FORECASTING DISASTERS: WILDFIRES

**1.** Write a few sentences describing the main ideas of Chapter **3**.

**2.** What do you think is the most important part of forecasting wildfires? Why?

- 3. What is the rarest type of wildfire?
  - A. crown fire
  - B. surface fire
  - C. ground fire
- 4. Why did people stop trying to put out all fires in the 1970s?
  - **A.** Too much oxygen was blowing through the forest.
  - **B.** Too much heat was causing forests to grow faster.
  - **C.** Too much fuel was building up on the ground.



5. What does alert mean in the Wildfires book?

The scientists act quickly. They **alert** a team of firefighters. Many homes are in the area. So, the firefighters must get there fast.

- A. to tell someone about a problem
- **B.** to hide a problem from someone
- C. to make people disagree with each other
- 6. What does contain mean in the Wildfires book?

Firefighters use bulldozers to clear land. They also use hoses to shoot water at the flames. Within a few days, they **contain** the fire. The area's people and homes are safe.

- A. avoid and ignore
- **B.** stop the spread of
- C. get closer to



#### ANSWER KEY FOR FORECASTING DISASTERS: WILDFIRES

- 1. Answers will vary
- 2. Answers will vary
- **3.** C
- **4.** C
- **5**. A
- **6.** B