

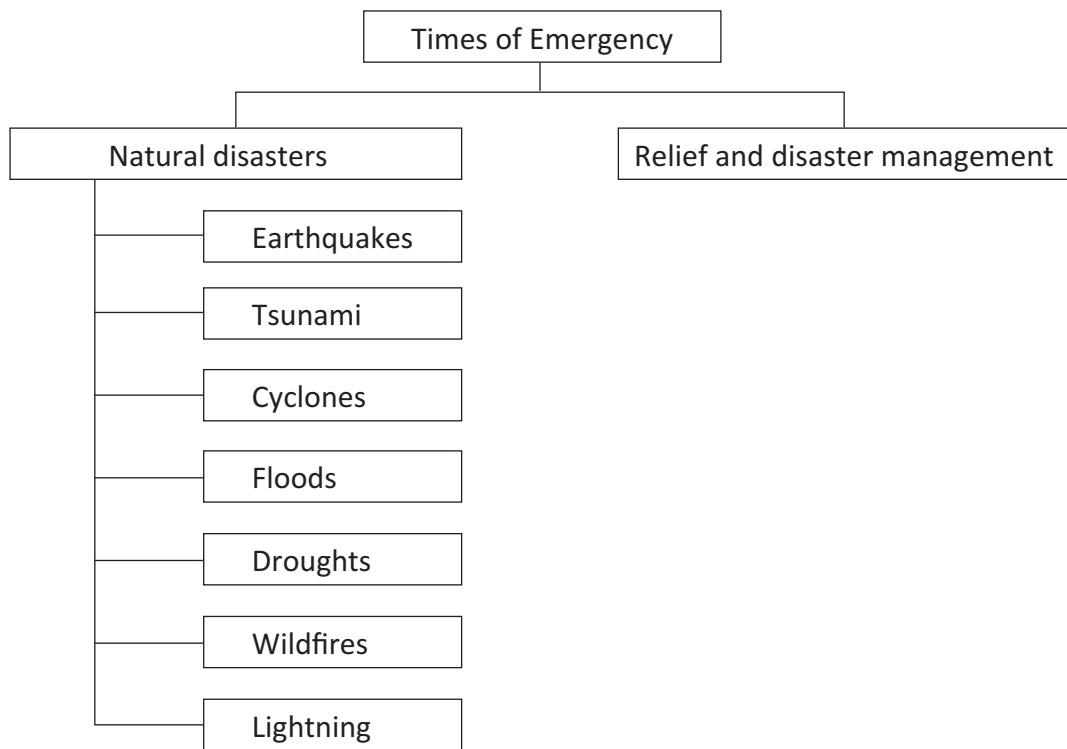
TIMES OF EMERGENCY

Learning Outcomes
<ul style="list-style-type: none"> ● Infer the role of community and community workers during and after natural disasters ● Explain what natural disasters are and the kinds of natural disasters ● Describe why natural disasters occur and their effects ● Describe the effects of natural disasters ● Reflect on the role and responsibility of people in causing certain disasters ● Explain and analyse safety precautions to be taken before, during and after a disaster ● Describe the role of the government and other agencies in disaster management ● Explain what to do in the event of a fire in a building

Integration	
Art	Project
Language, Mathematics, Science, General Awareness	Story Time, Do You Know? 1, Activity 1, Do You Know? 2, Do You Know? 3, Do You Know? 4
Life Skills and Values	Find Out 1, Do You Know? 5, Project
Multiple Intelligences	Project
Digital	Weblinks, Presentations, Animation

Suggested Number of Sessions: 12

Session 1: Warm-up; Story Time:
Session 2: Natural disasters: <i>Earthquakes</i> : Digital: Follow the link to know more about what to do and what not to do before, during and after an earthquake; Do You Know? 1
Session 3: Activity 1; <i>Tsunami</i> : Digital: tsunami warning systems; Cyclones (to continue)
Session 4: Digital: weblink to know more about what to do and what not to do before, during and after a cyclone; Do You Know? 2; Exercise Questions 1-9 (to continue)
Session 5: Exercise Questions 1-9; Floods: Digital: weblinks to know more about what to do and what not to do before, during and after a flood
Session 6: Droughts; Wildfires; Do You Know? 3
Session 7: Lightning: Digital: Follow the weblink to know more about lightning; Do You Know? 4
Session 8: Exercise Questions 10-14; Home assignment: Find Out 1: Digital: Watch the presentation to learn more about how human actions contribute to the occurrence of natural disasters.
Session 9: Relief and disaster management: Digital: Watch the presentation to learn more about a few international organisations providing services during an emergency
Session 10: Exercise Questions 15-18; Home assignment: Activity 2
Session 11: Do You Know? 5; Home assignment: Project (to continue in the next session)
Session 12: Workbook; Other pending work



Teaching guidelines

Warm up

- Instruct students to complete the task given in this section.

Story time

- Draw the attention of students to the illustrations of the damages caused by the earthquake.

Ask students:

What do these illustrations represent?

What may have caused these?

What would you do if you were in this situation?

- Describe the destructions an earthquake (a natural calamity) can cause.
- Next, ask a few students to take turns and read a paragraph of the text aloud to the class.
- Elicit the answer to the question given at the end of the story.

Natural disasters

- Introduce the lesson by explaining what a natural disaster is.
- List the natural disasters, as given in the textbook.
- With the help of the textbook, explain what one should do in case of an emergency.

Ask students:

What types of natural disasters are common in your area?

Can we prevent the natural disasters?

Earthquakes

- Describe an earthquake as a sudden and violent shaking of the ground.
- Tell students that earthquakes can be of mild or severe intensity.
- Explain how it occurs.
- With the help of the text and images given in the textbook, discuss the various effects of an earthquake.
- Tell students that earthquakes can be very destructive.
- Explain what 'aftershocks' are, as given in the textbook.
- Tell students that there is no reliable method of predicting the exact time, place or magnitude of an earthquake.

Ask students:

What causes earthquakes?

What damages to the buildings and roads may result from a major earthquake? How does an earthquake affect human and animal lives?

- List the safety measures that are to be taken during an earthquake.

- **Digital integration:** Instruct students to scan the QR code and follow the link to know more about on what to do and what not to do before, during and after an earthquake.

S Do you know? 1: This is **integrated** with **General Awareness**.

Explain what a Richter scale is. Students learn how the Richter scale readings help us determine the intensity of earthquakes.

S Activity 1: This is an **integration** with **Mathematics** (numbers).

Tsunami

- With the help of the textbook, describe what a tsunami is and how it is caused.
- Explain why these waves are dangerous when they approach the land.
- Discuss the effects of tsunami.
- Talk about the warning sign of an approaching tsunami.
- Discuss about the safety measure to be taken to save ourselves from a tsunami.

Ask students:

How is a tsunami caused?

- **Digital integration:** Instruct students to scan the QR code and watch the presentation on tsunami warning systems. A digital resource allows for more active learning.

Cyclones

- Define a cyclone and point out its characteristic features.
- Explain how a cyclone is formed.
- Point out the spread of a cyclone and the wind speeds it can create.
- Describe the devastation that a cyclone can cause.
- Point out that a cyclone can cause flooding.
- Tell students where cyclones affect the most.

Ask students:

What is a cyclone? (Cyclones are powerful storms that are usually accompanied by strong spiralling winds and heavy rainfall.)

Where do cyclones mostly occur in India?

- Point out how cyclones can be tracked and monitored with the help of technology. The authorities will then alert the communities concerned through television/radio.
- List the steps one can take to ensure their safety.
- Discuss the arrangements made for the people by the government when a cyclone is expected.

- **Digital integration:** Instruct students to scan the QR code and follow the weblink to know more about what to do and what not to do before, during and after a cyclone.



Do You Know? 2: This is an **integration** with **General Awareness**. Students learn about the wind speeds a cyclone can create.

- Instruct students to attempt the **Exercise** following the topic. Guide them where required.

Floods

- Explain the range of situations that can cause flooding (*natural factors and human-made factors*).
- Discuss the effects of floods.
- List the precautions to be taken before a flood.

Ask students:

Besides rainfall, what else can cause floods?

How does listening to the weather forecast help before a flood?

- **Digital integration:** Instruct students to scan the QR code and follow the weblinks to know more about what to do and what not to do before, during and after a flood.

Droughts

- Explain how a drought occurs.
- Explain how human activities can result in drought.
- Draw the attention of students to the image that shows parched land. Explain that this is the effect of severe shortage of water.
- Discuss how a drought affects the people, animals (habitats and food source) and land. Explain what a famine is.
- List the measures for preventing droughts and famines.

Ask students:

Who is affected by a drought?

How can you help save water?

Wildfires

- Explain what a wildfire is and how it occurs. It can be caused by human activities or natural sources.
- Tell students that most wildfires are started accidentally by humans.
- Discuss the effects of wildfires (*it can cause the loss of life, property and natural resources*). Describe the physical changes a fire can cause, as given in the textbook.
- Discuss how firefighters try to contain the fire.

Ask students:

What are the activities that can cause destructive wildfires?



Do you Know? 3: This is an **integration** with **General Awareness**. Students learn how stubble burning contributes to air pollution.

Lightning

- Explain how lightning is produced in nature.
 - Discuss the lethal effects of lightning.
 - List the safety measures to be taken during thunderstorms.
- **Digital integration:** Instruct students to scan the QR code and follow the weblink to know more about lightning.



Do you Know? 4: This is an **integration** with **Science**. Students learn how lightning conductors help protect tall structures.

- Instruct students to attempt the **Exercise** following the topic. Guide them where required.



Find out 1: This is an **integration** with **Life Skills** and **Values**. Students learn about the natural disasters that are man-made.

- **Digital integration:** Instruct students to scan the QR code and watch the presentation on natural disasters that are caused by human mistakes.

Relief and disaster management

When a disaster strikes—

Ask students:

If you had five minutes to leave your home, what would you take with you? Why would you choose these items?

Does your family had a first-hand experience in dealing with a disaster? What are the things your family did to prepare for a disaster?

- List their responses on the board and discuss them.
- With the help of the textbook, explain what disaster management is.
- Point out that modern technology and warning systems are available to alert the public before a disaster occurs. This helps save many lives, property loss and damage.
- Explain how the government alerts people about a natural disaster to ensure their safety.
- Discuss the measures the government takes to provide relief to people affected by disasters.
- Explain how the army, hospitals, fire stations and police stations help in such times.
- List the steps taken by the government to rehabilitate the affected people.
- List the organisations that provide voluntary services to help the affected people.
- Explain what relief funds are. Talk about The Prime Minister's Relief Fund.

Ask students:

What are the things that the people affected by a disaster need immediately?

- **Digital integration:** Instruct students to scan the QR code and watch the presentation on international organisations that provide service during an emergency.

The answer for the follow-up question: National Disaster Management Authority was established in the year 2005.

- Instruct students to attempt the **Exercise** following the topic. Guide them where required.

Activity 2: Instruct students to complete the task given in this section.

S Do you know? 5: This is an **integration** with **Life Skills** and **Values**. Students learn what one can do to prevent fire accidents in buildings.

Fires can be caused by human mistakes

Ask students to read the text given in this section.

Explain the importance of staying calm and following the rules to save one's life and those of others.

Ask students to study the illustrations of the rules to be followed in case of a fire, given in the textbook, and read the captions below them.

With the help of the textbook, list the things that can be done to prevent fire accidents in buildings.

S Project: This is an **integration** with **Life Skills** and **Values, Multiple Intelligences** (Visual-Spatial, creating the poster) and **Art**.

1. Fire safety awareness: It equips students to deal with situations in real life. Students produce posters to educate others about what to do in the event of a fire accident.

Instruct students to make a poster about fire safety tips for their school.

The poster should feature a list of fire safety tips.

Invite each student to talk about the elements the poster includes.

Allow students to display their posters on a bulletin board in the school corridor.

Tell students that they will be doing a fire drill in the next session.

Digital integration: Instruct students to scan the QR code and watch the animation for the instructions to be given on the poster.

2. Students learn how to make a first-aid box. Instruct students to add a list of emergency phone numbers in the box.

QUESTION BANK WITH ANSWER KEY

TIMES OF EMERGENCY

A. Fill in the blanks.

1. A _____ is a very strong wind accompanied by heavy rain.
2. _____ are huge waves caused by undersea earthquakes.
3. _____ occur when the water in a river rises and overflows on to the riverbanks.

4. The risk of wildfires increases during _____.
5. _____ are placed on top of tall buildings to arrest lightning.

Ans: 1. cyclone 2. tsunamis 3. floods 4. drought 5. metal rods

B. Choose the correct answers.

1. A strong earthquake would show the reading on the Richter scale as:
a. 5 b. 3 c. 7
2. We should **not** do this in the event of a flood
a. place sand bags in front of our house
b. follow the forecast on radio or television
c. drink water without filtering or boiling
3. A / an _____ floods mainly due to heavy rainfall or melting snow in summer.
a. river b. sea c. ocean
4. Cyclones are characterised by _____ .
a. strong winds b. heavy rains c. both strong winds and heavy rains

Ans: 1. c. 7 2. c. drink water without filtering or boiling
3. a. river 4. c. both strong winds and heavy rains

C. Answer the following.

1. Can we use a lift during an earthquake? Why or why not?

Suggested answer: We cannot use a lift during an earthquake as the power for the lift may go out and leave us trapped. It is also not safe from the falling debris or rubble just outside the lift door. (**Note:** *Accept other correct answers.*)

2. What is a tsunami?

Ans: A tsunami is a high wave that is caused by an earthquake under the sea. This high wave rushes in and crashes onto the shore, washing away everything out of its path.

3. How do weather experts help in forecasting cyclones? What preventive steps can be taken thereafter?

Ans: Weather experts can predict if there is going to be a cyclone. A warning is given to the people through the television, radio or newspapers. People move their animals and other belongings to safer places. They make their roofs strong so that they cannot be blown away. They sometimes move away to safer places themselves. The government makes arrangements for people to go and stay in cyclone shelters or in other strong buildings till the storm has passed.

4. What is a drought and how does it occur? What are its effects?

Ans: A drought is a long dry spell, with little or no rainfall in a region. This is caused when there is no rain and rivers, lakes and other waterbodies dry up. The groundwater level dips sharply. The land becomes parched and dry. Farmers do not have enough water for their crops. The crops die and there is less food, which may result in famine. Livestock and other animals die too.

5. What measures can be taken to prevent droughts?

Ans: Drought may be prevented by planting more trees and practising rainwater harvesting to recharge the underground water level.

6. How does drinking water get contaminated during floods?

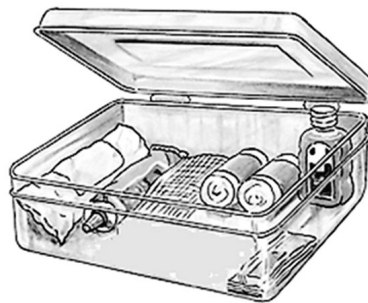
Suggested answer: Flooding of waterbodies leads to an overflow of water into the streets and into wells and underground tanks. The water flowing through the streets collects garbage and sewage and mixes with the water that is stored in wells or underground water storage tanks. Thus, flooding leads to the mixing of drinking water with sewage and waste.

(Note: Accept other correct answers.)

A. Match the natural disasters with their description.

1.	earthquake	a.	very strong rotating windstorm
2.	drought	b.	water in a river rises and overflows on to the land
3.	cyclone	c.	sudden shaking of the Earth's surface
4.	floods	d.	a long, dry spell
5.	tsunami	e.	giant wave from the sea that rushes in over the shore

B. What measures should be taken in case of a fire in a building?

C. List one use each of any three items in the first-aid box.

ANSWER KEY FOR THE WORKSHEET

TIMES OF EMERGENCY

- A. 1. c 2. d 3. a 4. b 5. e
- B. Warn others in the building by ringing a bell and shouting; Leave the building quickly, but do not run. Do not use the lift / escalator. Use the stairs; Cover your nose and mouth with cloth; Take the help of an adult; Keep calm and do not talk
- C. *bandages*: to support joint injuries, put pressure on wounds to stop bleeding; *antiseptic cream*: burn dressing, using around wounds; *cotton wool*: for cleaning wounds, for applying antiseptic lotions. (accept other correct answers)

STUDENTS' BOOK ANSWER KEY

TIMES OF EMERGENCY

Warm-up

earthquake, tsunami, forest fire, cyclone (left to right and top to bottom).

Story Time

Wooden houses do not break of easily on shaking. They are strong and flexible. Wooden houses will not collapse like brick structures will. Also, wooden houses ensure that the damage will not be too severe in case the structures fall.

Activity 1

The earthquake struck near the town of Bhuj on the morning of India's Republic Day in 2001. It was felt throughout much of Northwestern India and parts of Pakistan. In addition to killing more than 20,000 people and injuring more than 1,50,000 others, the quake left hundreds of thousands homeless and destroyed or damaged more than 10 lakh buildings. A vast area of crops was destroyed as well.

To suit American readers, the underlined numbers have to be changed to 150,000 and 1,000,000 million buildings.

Exercise

1. Emergency means a dangerous situation which requires an immediate action.
During an emergency, we have to take steps to stay safe. We have to be ready to act quickly, and save lives and property as much as possible. We must stay calm and help ourselves and others.
2. An earthquake occurs when there is a sudden movement of huge masses of rocks deep under the surface of the Earth, causing the ground to shake violently.

The shaking of the ground may cause cracks to develop on the walls of buildings. Major earthquakes can damage buildings, dams, bridges, roads, railway lines and lives. They also make many homeless.

An earthquake can cause a tsunami or landslide.

3. Suggested answer:

- a. If we are outdoors, we should try to move to an open space to protect ourselves from falling objects like buildings, trees and poles. We must drop to the ground and stay there until the shaking stops.
 - b. If we are indoors, we should not run outside. We should hide underneath a sturdy table so as to prevent being hit by falling objects till the tremors stop. We should move away from hanging objects or heavy furniture that could fall.
 - c. We should switch off electrical equipment and turn off the gas stove.
 - d. If we are near the shore, we should move to high ground immediately as there can be a possibility of a tsunami. (**Note:** *Accept other correct answers.*)
4. Usually, islands are smaller in area and they are surrounded by ocean waters on all sides so tsunami waves can approach them from all sides. Thus, they are most affected if there is a tsunami in the ocean in which they are located.
5. a. ii. an earthquake b. ii. move to high ground
c. i. stay inside a building d. ii. a cyclone
6. Vishakhapatnam, Chennai, Puducherry, Nagapattinam, Thiruvananthapuram, Kochi, Panaji (Goa), Mumbai. These cities are near to the sea.
7. **Suggested answer:** We should close and tape all the windows and stay clear of windows. We should turn off power and gas; disconnect all electrical appliances. We should remain indoors and listen to radio/TV for further information. (**Note:** *Accept other correct answers.*)
8. **Suggested answer:** My friend's family can take the following precautions:
By tying things down where possible so that they cannot be blown away. By making the roof strong. By moving to the nearest safe high ground. (**Note:** *Accept other correct answers.*)

Exercise

9. Heavy rains during the rainy season or the melting of snow during summer may cause the water level to rise in rivers. This results in rivers overflowing their banks, causing floods. Cyclone-induced floods can also happen in the coastal areas.
10. **Suggested answer:** Indiscriminate cutting down of trees reduces the soil's ability to absorb and hold water, which increases the risk of flood during heavy rainfall. Roots absorb water from the soil, thereby, making the soil to store rainwater. Deforestation also leads to an increase in global temperature. The Earth has become warmer, causing the polar ice caps to start melting. This will result in rising sea levels, which will cause floods in the coastal areas.
11. Wildfires can occur naturally in dry conditions, when it is hot and there is little rain. But many are started by people, either on purpose or by accident. Open agricultural burning, campfires or other careless behaviour by people may lead to wildfires. Drought, heat, and wind can make a wildfire worse.

12. a. If we are indoors, we must stay there. We must bring our pets indoors too.
b. If we are outdoors, we should stay away from tall objects such as trees and poles. We should stay away from water and waterbodies.
c. We should switch off the electrical mains. (**Note:** *Accept other correct answers*)
13. a. true b. false c. true d. true

Find Out 1

1. Landslides are caused by cutting down trees on hillsides.
2. Indiscriminate cutting down of trees reduces the soil's ability to absorb and hold water, which results in runoff; widespread deforestation contributes to less amount of rainfall; climate change due to greenhouse gas emissions; construction of dams upstream can cause water scarcity downstream; increased pumping of groundwater for intensive farming and household needs; when rivers and groundwater are not recharged

Exercise

14. Hospitals: ambulances; fire stations: fire engines
15. **Suggested answer:** a. Hospital: providing emergency care to the injured; providing medicines and vaccination to prevent outbreak of diseases
b. Police station: police officers help in keeping the community safe from theft, destruction of property and so on; police stations ensure that the fire and ambulance services can do their job; search for missing persons; help in rescue operations
c. Fire station: firefighters rescue stranded people and animals and provide first aid and food; to put out fires; providing the ambulance service for taking the injured and sick people to hospitals
16. When a disaster is predicted, the government alerts people through radio, television and newspapers. Measures are taken to move people to safer places. After a disaster strikes, the government sets up relief camps for the affected people and provides food, drinking water, medicines and bedding. It helps them to rebuild destroyed homes and fields. The government also restores the water and power supply.
17. International Organisations like the Red Cross Society and World Health Organization provide voluntary services and relief materials such as medicines and bedding.