

Thunderstorm emergencies: learn

These activities introduce thunderstorm emergencies: they explain some of the key characteristics of thunderstorms and the effects they can have. This section also outlines some of the actions the children and their families can take when responding to a thunderstorm emergency.

Activities can be worked through in order. You can do all activities, or you can pick and choose. If you are short on time, you could pick the following activities:

1. What is a thunderstorm?
and
2. What does a thunderstorm look and sound like?
and
3. Thunderstorm characteristics and effects **or** Experiencing a thunderstorm.

The 'Thunderstorm worksheets are optional. These can be used as homework activities.

Learning objectives

By the end of the 'Thunderstorm emergencies: learn' activities children will be able to:

- > Identify and explain what thunderstorms are and the impacts they can have on people and the environment.
- > Explore and understand how to manage risks and stay safe during a thunderstorm.

Learn activity summary		
Time	Activity name	Supporting resources
10 minutes	What is a thunderstorm?	Thunderstorm factsheet for teachers Sticky notes and pens Sticky tack
10 minutes	What does a thunderstorm look and sound like?	Thunderstorm short film Thunderstorm short film transcript Thunderstorm factsheet for teachers
10 minutes	Thunderstorm characteristics and effects	Thunderstorm characteristics and effects table worksheet Thunderstorm characteristics and effects cards worksheet
20 minutes	Experiencing a thunderstorm	Experiencing a thunderstorm character cards
5-10 minutes	Thunderstorm worksheets	'Thunderstorm crossword puzzle' worksheet 'Thunderstorm crossword puzzle' answers 'Thunderstorm true or false' worksheet 'Thunderstorm true or false' answers

1. What is a thunderstorm?

Activity type



Learn

Suggested time



10 minutes

Suggested group size



Small groups

What you need

1. [Thunderstorm factsheet for teachers](#)
2. Sticky notes and pens
3. Sticky tack

Introduction

This activity introduces what a thunderstorm is and how it happens, by exploring what the children already know about thunderstorms and developing their understanding through the information listed in the 'Thunderstorm factsheet for teachers'.

Activity description

Before the activity:

1. Hand out sticky notes and pens to each group of children, and have some sticky tack available.
2. Print out a copy of the 'Thunderstorm factsheet for teachers' for your reference.

Divide the class into small groups. Write 'thunderstorms' in the centre of the board. Explain that:

- > In this lesson we are going to start thinking about thunderstorm emergencies and how to stay safe if one were to happen.
- > In your groups discuss and then write down words or phrases that make you think of thunderstorms. Use a different piece of paper for each word or phrase. These words or phrases could be about what thunderstorms look like, when and where they can happen, or how they can affect people or the environment.

Give the children a few minutes to note down some ideas.

- > One member of each group at a time brings one of your group's sticky notes up to the board.
- > Read the word or phrase out and then stick it onto the board around the word 'thunderstorms'. If you have the same word as other groups, stick them next to each other.

Continue this process until all the words/phrases children have written have been read and put up on the board. Once there are plenty of words on the board, you could ask the class how they think thunderstorms happen, referring to the 'Thunderstorms factsheet for teachers.'

2. What does a thunderstorm look and sound like?

Activity type



Learn

Suggested time



10 minutes

Suggested group size



Whole group

What you need

1. [What is a thunderstorm?](#)
2. [Thunderstorm factsheet for teachers](#)

Introduction

This activity helps children become familiar with what a thunderstorm looks and sounds like by developing their knowledge through questions.

Activity description

Before the activity:

1. Have the 'What is a thunderstorm' information to read out.

Introduce thunderstorms:

- > Explain that you are going to read out some information about thunderstorms. It will show you what thunderstorms look like and what their effects can be. It will also give you a few tips on how to stay safe.

After watching the film, ask a few questions:

- > What are some of the characteristics that thunderstorms have?
- > How does lightning happen?
- > What kind of effects can thunderstorms have?
- > Who might be affected?
- > What can you do to stay safe?
- > What is the golden rule when it comes to thunder?

You can refer to the 'Thunderstorm short film transcript' and the 'Thunderstorm factsheet for teachers' if needed, to answer these questions and to develop any other questions you might like to explore with the class.

3. Thunderstorm characteristics and effects

Activity type



Learn

Suggested time



10 minutes

Suggested group size



Small groups

What you need

1. [Thunderstorm characteristics and effects: table](#)
2. [Thunderstorm characteristics and effects: cards](#)

Introduction

This activity helps children identify the characteristics and impacts thunderstorms can have on people and the environment.

Activity description

Before the activity:

1. Print out copies of the 'Thunderstorm characteristics and effects: table' on A3 paper. You will need one copy for each group.
2. Print out copies of the 'Thunderstorm characteristics and effects: cards' on single-sided A4 paper and cut out the cards. You will need one set of ten cards for each group.

Divide the class into small groups and hand each one a set of cards and the A3 'Thunderstorm characteristics and effects: table'. Explain that:

- > Each group has been given a set of ten photo cards. Some of these photos show thunderstorm characteristics (what the actual thunderstorm looks like) and some show the effects thunderstorms can have (the damage they can cause and the impact thunderstorms can have).
- > As a group, look through your cards and decide which ones show characteristics and which ones show effects. Then put each card underneath the heading your group thinks is correct in the table.

Once groups have divided the cards into characteristics and effects, work through each card asking the class which category they thought the photo went into. You may wish to have your own set of cards to stick onto the board with blue tack under the two category headings. The answers are below:

Characteristics:

- > heavy rain
- > hail
- > strong winds
- > thunder and lightning
- > big dark clouds.

Effects:

- > flooding
- > hole in the wall by the beach
- > fallen tree
- > a power-cut because of damaged power lines
- > damaged railings near a beach.

At the end of the activity ask the children what they have learnt about thunderstorms. You can use some or all of the following suggested prompt questions to generate group discussion:

- > What impact can thunderstorms have on the man-made and natural environment?
- > How might thunderstorms affect people?
- > How might people feel if they knew a thunderstorm was going to happen in their area?
- > What could people do to stay safe during a thunderstorm?

If you would like to explore how they can stay safe further with your group, you can watch the 'Thunderstorm short film' or print out a copy of the 'Thunderstorms short film transcript' or work through the 'What does a thunderstorm look and sound like?' activity.

4. Experiencing a thunderstorm

Activity type



Learn

Suggested time



20 minutes

Suggested group size



Small groups

What you need

1. [Experiencing a thunderstorm: character cards](#)

Introduction

This activity helps children think about what experiencing a severe thunderstorm might be like through an activity called 'hot seating'.

Activity description

Before the activity:

1. Print out copies of the 'Experiencing a thunderstorm: character cards' and cut out the four cards. You will need one set of cards for each group.

Divide the class into small groups and explain that:

- > To help us understand what it might be like to be affected by a thunderstorm, we are going to do an activity called 'hot seating'.
- > 'Hot seating' means one person takes on a character and the rest of the group ask questions to find out more about the character and their experiences.

Give one child in each group a character card. Give them time to read their card and familiarise themselves with the character.

Arrange each small group so that there is an 'audience' in front of a chair that is the 'hot seat'. If you prefer, you could have one hot seat and the whole class as the audience, with different children taking on different characters and taking the hot seat one at a time.

The children in each group ask the child in the hot seat questions about their experience of a thunderstorm described on the character card. For example, they might ask:

- > How old are you?
- > Where do you live?
- > Where and what were you doing when the thunderstorm started?
- > Who were you with?
- > Did it happen at night or during the day?
- > What could you hear and see during the thunderstorm?
- > How did you feel during the thunderstorm?

After a few minutes, another child in each group will get a new character card, and will be in the hot seat to answer questions. If you have time continue in this way, let four children in each group have a turn in the hot seat with a new character card.

At the end of the activity ask the children how they might feel during a thunderstorm emergency and what they might do to feel prepared. If you have time, you could work through some of the coping skills, to support children in learning techniques to keep calm in an emergency.

5. Thunderstorm worksheets

Activity type



Learn

Suggested time



5–10 minutes per worksheet

Suggested group size



Individual

What you need

1. [‘Thunderstorm crossword puzzle’ worksheet](#)
2. [‘Thunderstorm crossword puzzle’ answers](#)
3. [‘Thunderstorm true or false’ worksheet](#)
4. [‘Thunderstorm true or false’ answers](#)

Introduction

This activity helps children to consolidate their learning about the impact of thunderstorms and to reinforce their language around this topic.

Activity description

Before the activity:

1. Print out one or both of the worksheets. You will need one copy for each pupil.
2. Print out a copy of the teacher answers sheet for each worksheet.

The following worksheets can be used in class or as follow up homework activities:

- > Thunderstorm crossword puzzle
- > Thunderstorm true or false

Thunderstorm factsheet for teachers

Why, when and where do thunderstorms happen?

- > Thunderstorms can happen anywhere and at any time when the conditions are right – it is estimated that there are more than 2,000 thunderstorms happening at any given moment in the world. Here in the UK they are most likely to occur in the spring and summer due to warm weather and changes in temperatures.
- > Thunderstorms happen when warm air from the Earth rises and meets much colder air higher up in the atmosphere, causing a large cloud to form as it fills with warm, moist air. When the cloud has grown in height, the air at the top cools and the moisture in the air condenses into water droplets that accumulate and eventually fall as rain or hail. When the water droplets freeze and move around each other in the cloud, they collect a negative charge, which builds up to ultimately be released as lightning.
- > Lightning is a gigantic spark of electricity that come from the clouds. It is very powerful and very dangerous.
- > Thunder is the sound of the air ‘exploding’ when a very hot bolt of lightning shoots down from the sky. Since thunder is caused only by lightning, all thunderstorms have lightning. If you hear thunder, lightning will be close by, so it is best to immediately seek safe shelter indoors.
- > Thunderstorms can bring heavy rains that may cause flash floods, as well as strong winds and hail that can damage buildings and vehicles. But their most common threat is lightning, which can electrocute or severely burn a person and can also cause fires.
- > We see lightning before we hear thunder because the light from a lightning bolt travels much faster than the sound of thunder. It takes less than a second for light to travel a mile but it takes thunder five seconds to travel a mile. By counting the seconds from the time you see lightning until the time you hear thunder, and dividing by five, you can estimate how far away the lightning is.
- > Lightning can sometimes cause power-cuts if it strikes electrical equipment. Power-cuts can also happen when lightning causes a tree or branch to fall on to power lines, causing the electrical system to shut down.

Staying safe

When you hear the thunderstorm start, take shelter immediately and stay there until 30 minutes after you hear the last sound of thunder. You can use this helpful saying as a reminder: **When thunder roars, stay indoors!**

- > If you hear thunder when you are swimming or paddling, get out of the water immediately and go inside.
- > If you are in an open outdoor space, like a football pitch, quickly find a place to go inside.
- > If you are in a car during a thunderstorm, stay inside it with your hands in your lap, so you do not touch anything metal that could conduct the lightning.
- > Do not use a phone or computer that is plugged in, because the electricity in lightning can travel into the home through the electrical wiring.
- > Stay away from taps, sinks, and bathtubs, because lightning has been known to come inside through home plumbing systems.
- > Stay away from windows and glass doors in case they break – broken glass can be very dangerous.
- > During a power cut, remain calm. The power companies will be working to restore power. In the meantime, protect your electrical appliances by switching them off and unplugging them.
- > To minimise food spoilage during an extended power-cut, eat refrigerated food first, frozen food next (within 2 days), and food from the cupboard last. But always remember this food safety rule: **When in doubt, throw it out!**

Thunderstorm checklist

Thunderstorms can happen anywhere and at any time when the conditions are right, especially in spring and summer. Share this checklist with your parents/guardians to help the family stay safe throughout a thunderstorm.

- ☐ Take shelter immediately when you hear a thunderstorm start and stay indoors until 30 minutes after you hear the last sound of thunder.
- ☐ Stay away from water throughout a thunderstorm. This includes taps, sinks and bathtubs.
- ☐ Do not use any electrical appliances that are plugged in, such as phones or computers.
- ☐ Switch off and unplug all electrical appliances.
- ☐ Stay away from windows and glass doors in case they break.
- ☐ Have a torch somewhere accessible in case there is a power-cut.
- ☐ To minimise food spoilage during an extended power-cut, eat refrigerated food first, frozen food next (within 2 days), and food from the cupboard last.
- ☐ If you are in a car during a thunderstorm, stay inside it and do not touch anything metal that could conduct lightning.



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What is a thunderstorm?

Thunderstorms. You might have experienced a thunderstorm before. In the UK, they usually happen in spring or summer when the weather is warmer. Across the world, it's estimated that at any given moment there are over 2,000 thunderstorms taking place. This gives you an idea of how often they happen.

Thunderstorms have many associated characteristics including lightning, thunder, strong winds, huge amounts of rain, hail and big dark grey clouds.

Lightning is the giant flashes of light you see in the sky during a thunderstorm. They are created inside the thunderclouds, when many tiny frozen raindrops move into each other, causing an electric charge which builds up and eventually – lightning strikes.

Thunder is caused by the lightning – the big low rumble is the sound of air exploding in the cloud. You might have noticed that during a thunderstorm, you often see lightning right before hearing thunder. This is because the *light* from a lightning bolt travels much faster than the *sound* of the thunder.

Thunderstorms can have some serious effects when they happen. Heavy rain can cause flooding. The strong winds, rain and hail can cause trees to fall over and damage can be caused to homes and cars: for example, if roof tiles fly off, power lines go down or cars are hit by flying or falling objects. Damage to power lines can cause power-cuts, so homes are without electricity. Lightning can be dangerous as it can seriously hurt someone if they are struck and can cause fires.

To stay safe in a thunderstorm:

- > Stay indoors until the storm has passed.
- > If you are swimming, come out of the water straight away.
- > Do not use anything electrical that is plugged in.
- > Stay away from windows and glass doors in case they break.
- > Have a torch nearby in case there is a power-cut.

Make sure you remember this golden rule: **When thunder roars, go indoors!**

Thunderstorm characteristics and effects: table

Thunderstorm characteristic	Thunderstorm effect

Thunderstorm characteristics and effects: cards



Source: British Red Cross
flooding



Source: © Photo by Martin McCarthy/iStock

big dark grey clouds



Source: U.S. Air Force

thunder and lightning



Source: © Photo by Ian Capper

hole in the wall by a beach



Source: British Red Cross

hail



Source: © Photo by Rudi Winter

fallen trees



heavy rain



Source: Photo from Wikimedia

strong winds



power-cuts because of damaged power lines



damaged railings near a beach

Experiencing a thunderstorm: character cards

Character card A

I was watching TV and my older brother was clearing up the dishes from dinner. Suddenly, the lights flickered and then the TV and all the lights turned off. It was really dark. I panicked and called out to my brother. Using the light of his phone, he came over to me and told me to stay calm. He said it was just a power-cut. We got a torch out of our emergency grab bag to light the room up. Outside we could hear the wind blowing against the house and the loud thunder. It was really scary and I wanted our mum and dad to come home.

Character card B

One Saturday evening, my mum and I were in the car driving back to Dundee from visiting my Grandma when a thunderstorm started. So much rain was falling that we could not see the road in front of us clearly. Suddenly, we saw flashing blue lights just before the bridge into Dundee. It was a police car. Mum stopped the car and the police officer came to talk to us. He explained that the bridge had been closed because the heavy rain had caused the river to get too high. There wasn't another way to get home so we had to just stay inside the car on the side of the road until the storm passed.

Character card C

It was the last day of our holiday. We were watching the news on TV and the newsreader announced that there had been a big storm where we lived. My parents looked worried on the drive back home the next morning. On the road into our town there were twigs and branches on the ground everywhere. We even saw a big tree that had fallen over in a field. I felt worried about our house with all our things in it and my pet rabbit Roger.

Arriving onto my street, I saw our neighbour's fence had fallen down. He told us it had been a big storm. My trampoline had blown over into the side of the house. It had broken the kitchen window. Our neighbour had been looking after Roger for us. Roger lived in a hutch in our garden. I ran to his hutch and checked that he was OK – luckily, he was. The only damage was to the window.

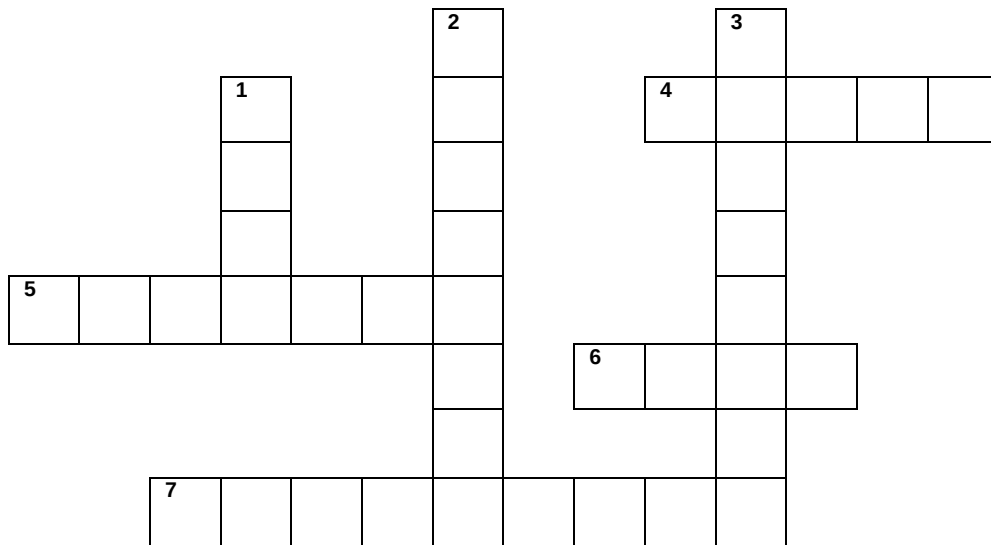
Character card D

One afternoon, I was at my friend Tom's house when a thunderstorm started. The sky outside became really dark. Then the loud thunder and bright lightning started. It even began hailing a lot. At first it was really exciting, but then I began to get worried. The weather looked so bad that I was not sure my dad would be able to come and pick me up. It would have been really dangerous to drive in this hail. Tom's mum gave us a board game to play.

We were having fun playing when the phone rang. Tom's mum came in and said that a tree had fallen and blocked the road, so my dad wouldn't be able to collect me. She said I could stay the night. I was worried about my dad and sad that I couldn't get home to my family, but I knew I would see them the next day.

Thunderstorm crossword puzzle

Read the clues and complete the crossword puzzle.



Down

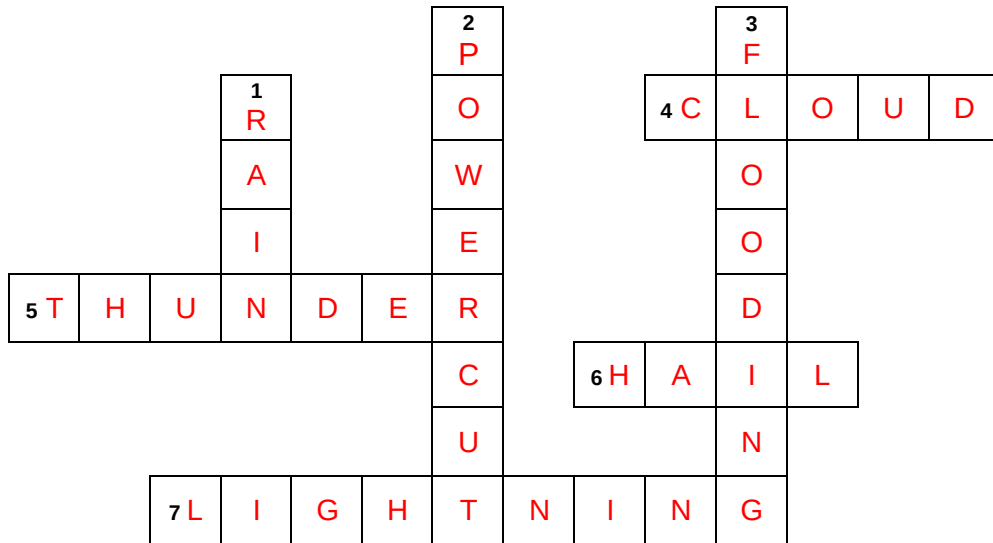
- 1 Water that falls from the clouds.
- 2 When electricity stops working.
- 3 When lots of rain falls in a thunderstorm, this type of emergency can happen.

Across

- 4 Where lightning comes from in the sky.
- 5 The sound of the air exploding in a cloud during a thunderstorm.
- 6 Frozen rain that falls from the sky.
- 7 A spark of electricity that comes from the sky during a thunderstorm.

Thunderstorm crossword puzzle answers

Read the clues and complete the crossword puzzle.



Down

- 1 Water that falls from the clouds.
- 2 When electricity stops working.
- 3 When lots of rain falls in a thunderstorm, this type of emergency can happen.

Across

- 4 Where lightning comes from in the sky.
- 5 The sound of the air exploding in a cloud during a thunderstorm.
- 6 Frozen rain that falls from the sky.
- 7 A spark of electricity that comes from the sky during a thunderstorm.

Thunderstorm true or false

Harry is trying to remember what to do in a thunderstorm. Read the things he says and decide whether they are true (✓) or false (✗).

	True	False
You can still go swimming outside in a thunderstorm.		
If you are in a car when there is lightning, try not to touch anything metal.		
You can safely watch a thunderstorm from the window.		
If there is a power-cut make, sure your parents unplug anything electrical.		

Thunderstorm true or false answers

Harry is trying to remember what to do in a thunderstorm. Read the things he says and decide whether they are true (✓) or false (✗).

	True	False
You can still go swimming outside in a thunderstorm.		✗
If you are in a car when there is lightning, try not to touch anything metal.	✓	
You can safely watch a thunderstorm from the window.		✗
If there is a power-cut make sure your parents unplug anything electrical.	✓	