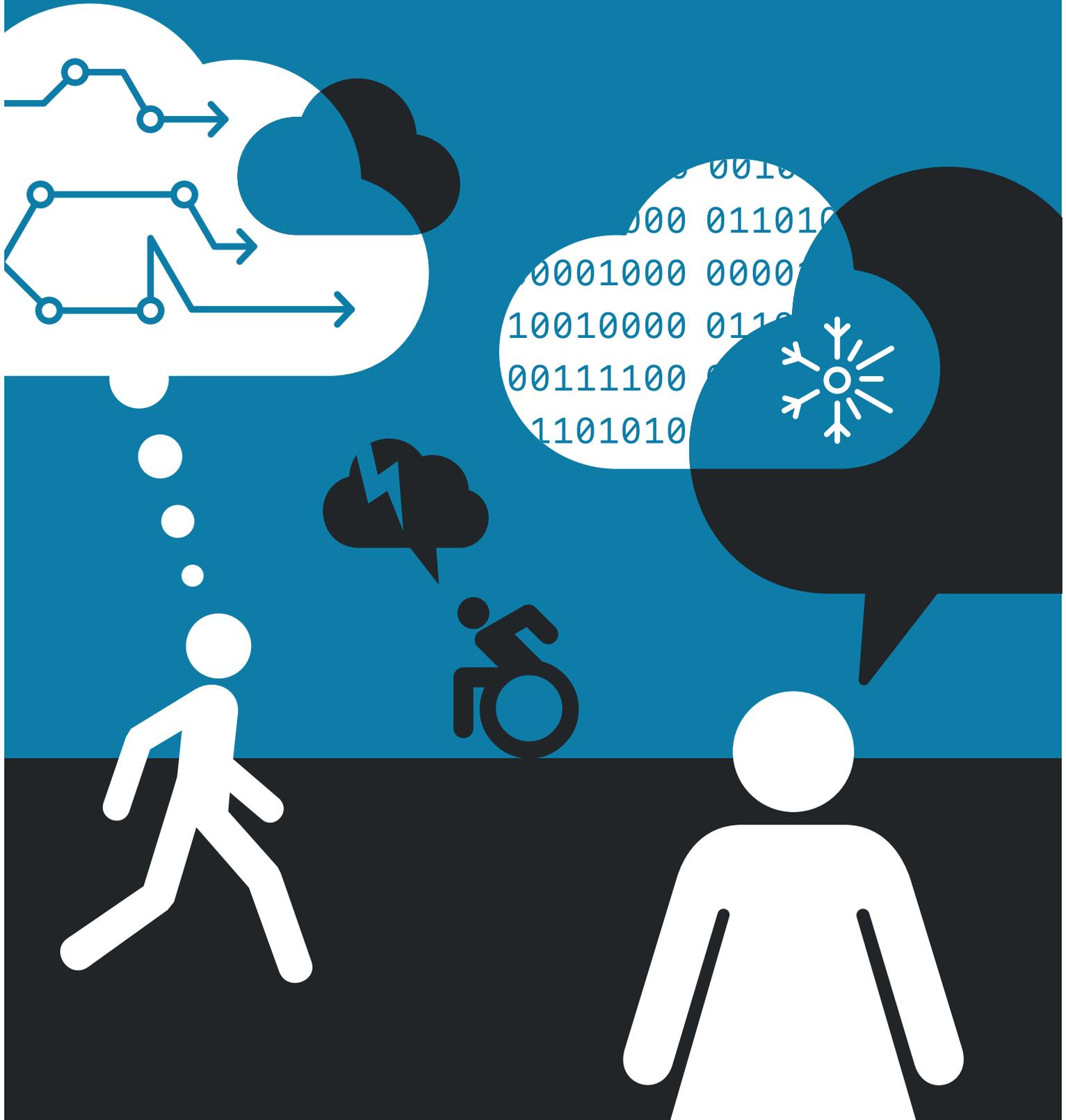




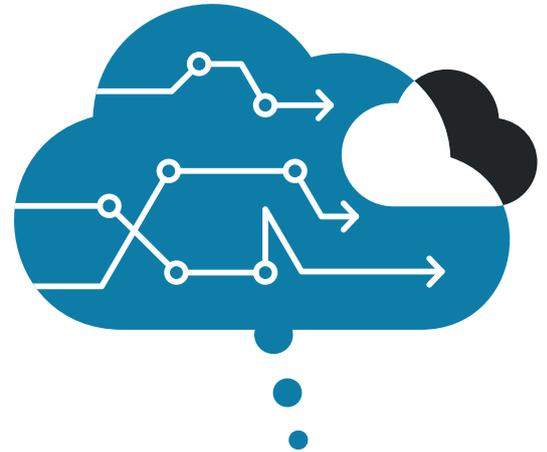
Amazing aurora



Introduction

Overview

What if we were to tell you that space has its own weather? Not like our weather here on Earth, but weather that is made up of particles and energy blown by a wind from the Sun that affects our planet in spectacular ways. Space weather helps produce amazing auroras in the Northern and Southern Hemispheres and leads to other impacts that could affect our day-to-day lives. In this lesson you will explore the aurora through the eyes of different cultures using their folklore to create your own stories about space weather and its impacts.



Time required

75 minutes



Materials required

- Amazing aurora slides
- Amazing aurora story

Learning objectives

This lesson enables pupils to:

- be able to write a short story using prompts
- be able to understand where and why the auroras occur
- exploring other cultures' folklore on the auroras

Curriculum Links

- **English literacy and language** – written and verbal communication/creative writing
- **Geography/social studies/the world around us** – maps and locations
- **Computing/ICT** – understanding how information can help make decisions
- **Science/sciences and technology** – new developments in science/develop knowledge and understanding of topical science.
- **Art and design/expressive arts** – storytelling

Activity steps



Ice breaker

Start the lesson as a whole class and ask them: what kind of things do you find in the sky?

Working in pairs, ask the pupils to come up with a list of things that they can find in the sky if they went outside and looked up at different times of the day and night. If they are close to a window, ask your pupils to look outside for ideas or take them outside to observe.

Examples: clouds, birds, sun, moon, stars, aeroplanes etc.

Take some suggestions from the class and write their answers on the whiteboard. You will be referring to these later.



Groupwork



5 minutes

01

Move to slide 2 with the image of the aurora. Explain to the class that there are other beautiful things that we see in the sky apart from clouds and birds, including something very beautiful and very special.

Show the pupils the image video of the Aurora Borealis and discuss with the class that this is a very special effect that happens in the sky and can be seen by eye when the sky is dark, but is only usually seen from a few places around the world. You can also visit this [link](#) to watch a video of the aurora.

Ask the class:

- What do you think this effect looks like?
- How does it make you feel?
- What does it remind you of?



Groupwork



10 minutes



Slides 2-3

Activity steps

Working in pairs, get your pupils to discuss this together and take some ideas from the class as to the above questions.

Show the class a map of the world on slide 3. Tell the class that some of the special places that you can see this amazing effect are located here. Using the map, play a game with the class and asking a volunteer to come up and see if they can point to where the countries are that you are going to mention. (Scotland, Finland, Canada, Alaska)

As the volunteers are locating the countries, ask the class to think about what they notice about the places you are referring to. Hopefully the pupils will notice that they're all towards the top of the map in the Northern Hemisphere.

Tell the pupils that this is very important for later when we explain why this amazing effect happens.

02

Go back to the map and focus on Finland on slide 4. Tell the pupils that a long time ago there were people who lived in Finland that had many stories to tell about these special lights that they saw in the night sky.

Using the story provided, read to the class the story of the aurora. If there is space around the classroom, get the class to find their own space and as you read get the pupils to act it out, focussing on movements of the fox and the reactions of the hunters in the story.

After you have read the story, mention that in another culture, the Inuits of Alaska, refer back to the map and point to where Alaska is, described the lights as the dancing souls of their favourite animals: caribou, seals, salmon and beluga whales.



Groupwork



15 minutes



Slide 4

Activity steps

03

Using the story and folklore tale above, tell the pupils that they are going to create their own magical animal aurora story.

Ask the class to think about what other animals they would find in these cold places on the globe? Take suggestions from the class.

Show slide 5 which contains a range of animals that can be found in cold places. Do the pupils recognise any of them, or have they mentioned them already?

Tip

To extend, you could ask your pupils to go and research animals they might find in cold places in the Northern Hemisphere.

Tell the class that you would like them to either use one of these animals on the slide or think of their own animal to write about in their story. They will need to describe how their animal could make these wonderful lights in the night sky just like the fox or Inuit people's stories.

Ask questions to the class to get them to think about their animal.

- Where does your animal live?
- How it would move across the night sky?
- What movements would it make?
- What adjectives could you use to describe the animal's movements?
- How would it make the people who saw it feel, excited? scared?

In pairs, get the pupils to discuss their animals and ideas. Take suggestions from the class, write these down on the whiteboard as a word bank so that the class can refer to them if they wish for their stories.

Tell the children to go and create their story, they can write it down and/or draw a picture of their ideas.



Individual



25 minutes



Slides 5-6

Activity steps



04

When the pupils have completed their stories, invite volunteers to read theirs to the class, you can show slide 7. Get the pupils to listen and comment on parts they enjoyed about the stories they heard.

Using the list created at the start of the session about what you can see in the sky, review the pupils' answers that they gave and add to that list 'Aurora Borealis'.

Using slide 8, explain to the class that this effect in the night sky is called the Aurora Borealis – this is the special term that scientists use to describe the lights that appear in the sky, also known as the 'Northern Lights', get the students to repeat the word Aurora Borealis out loud in the class.

Aurora Borealis can be seen in the night sky in northern half of the globe, the Northern Hemisphere, and are sometimes even seen in northern parts of the UK if you're very lucky! Aurora can happen at any time of the day and during any season, but your best chance to see them is when it's dark and there's a clear sky. So, don't forget to check the weather forecast and wrap up warm if you're aurora-hunting!

Tell the class that aurora is not just limited to the Northern Hemisphere. They can also be seen in the southern part of the globe (point to Antarctica on the map) and this is called the 'Aurora Australis', or 'Southern Lights'. Again, add this to the list and get the class to repeat the word out loud.



Groupwork



10 minutes



Slides 7-8

Activity steps

05

Bring the lesson to a close, show slide 9, by telling the pupils that we know what causes these magnificent lights in the sky and it is all to do with the behaviour of the Sun, the nature of Earth's magnetic field and atmosphere, and our location in the solar system.

Show them a picture of the Sun in space, slide 9, and discuss with the pupils that we get weather in space, just like we do on Earth.

On Earth, our weather is influenced by things like temperature, availability of water and the movement of air.

Space weather is different. The Sun doesn't only give out heat and visible light, it also gives out lots of charged particles and magnetic field. Sometimes there are even storms on the Sun which mean even more particles and energy are ejected out into space.

These particles travel across the solar system, carried by the solar wind – this is space weather. If there are lots of particles and a strong solar wind and they get blown towards the Earth, they can interact with the magnetic shield that surrounds our planet. It is this interaction that causes the beautiful aurora.

The Met Office has its own Space Weather forecasters just like it has weather forecasters for the weather here on Earth. It can help us forecast when the best time is to see aurora (show slide 10).

But space weather forecasts are not only important for aurora-watching. When the solar wind is really strong, the charged particles can also interact with all sorts of technology, both here on Earth and out in space (slide 11). A big space weather event can cause power cuts, it can stop satellites working and it can knock-out many types of communications. This is why it's really important that organisations like the Met Office work with governments, industry and defence to provide forecasts so that they can make plans to minimise the risk of a space weather event.



Wrap-up



10 minutes



Slides 5-6