Met Office

Age range: 11–14

Exploring extreme weather

Introduction

Overview

This activity ignites students' interest in the world around them by looking at examples of extreme weather events and their impact on communities. The focus will be on ways of portraying weather in an interesting, thought-provoking and creative way while applying maths and geography knowledge and skills.

Time required

70 minutes for all activities (or less if individual tasks are selected)

Materials required

- Exploring extreme weather film
- Exploring extreme weather slides
- Computer/internet device for online research
- Extreme weather profile cards (available on pages 6 – 7)
- Pen, paper, pencils
- Met Office extreme weather and climate change briefing note

Learning objectives

By completing this lesson, students will be able to:

- Understand the causes of extreme weather events, the impact these can have and the measures that can be taken to mitigate the effects on local communities
- Develop an ability to recognise evidence of recent extreme weather events and indicators of past climates
- Think, respond and reflect creatively with regard to different meteorological sources and stimuli

Curriculum links

- **Geography/social studies** – observation, data collection and communicating data, prediction, global distribution of tropical storms, protection and planning
- **Sciences/science and technology** – prediction and evidence
- **Mathematics and numeracy** – understanding trends, graphs and interpreting data in different ways
- **Literacy and English** – written and verbal communication
- **Art and design/expressive arts** – design, communication

Activity steps

01

To kick off the lesson, introduce the topic of extreme weather, and show the extreme weather supporting film.

Ask the students to discuss the following prompt questions in pairs:

- What is 'extreme weather'?
- What are examples of extreme weather?
- What do you know about the science behind these types of weather events?
- What impacts can extreme weather events have on communities?
- What impacts would we expect climate change to have on extreme weather and why?

Bring the class together again to share ideas and explain the connections between extreme weather and climate change. In a warmer world, many types of extreme weather are expected to increase in frequency or severity. Scientists all over the world are researching the connections between climate change and extreme weather to help individuals, communities and nations to prepare for the consequences and mitigate future impacts. More information can be found in the Met Office extreme weather and climate change briefing note.

- 10 minutes
- Groupwork
- Slide 2
- Exploring extreme weather film
- Met Office extreme weather and climate change briefing note

Activity steps

02

Divide the class into small groups and provide them with an tablet or similar mobile device. Explain that they are going to do some quick research into an example of an extreme weather event using the extreme weather profile cards (found on pages 6 – 7).

Allocate each group an extreme weather profile card and ask them to research a real-life extreme weather event of this kind, using the following prompt questions:

- Why was the event significant?
- What was the impact of the event?
- How did people respond to the event?
- What were the primary impacts of the event?
- What were the secondary impacts of the event?

15 minutes

Groupwork

Exploring extreme weather profile cards

Slide 3

03

In the same groups, challenge students to imagine that they are working for an organisation overseeing research on past extreme weather events to help plan and mitigate against the impacts of a repeat event in the future.

Using the same extreme event example from Step 2, ask students to research and take notes on what they have learned from this event to help prepare for similar events in the future.

Students can use the following prompt questions to direct their research:

- What was it? When did it occur? Where did it occur? Why did it occur?
- How different was it to normal weather events in that area?
- Were there any warning signs? How could they be spotted?
- Was a warning put out? How far in advance? Who received it? Could it have been improved?
- What risks needed to be managed?

15 minutes

Groupwork

Slide 4

Activity steps

- What did people do before, during and after the event to mitigate the risks and effects to themselves and the local area? Could they have done anything else?
- How did the emergency services respond?
- Did anything make responding to the situation more difficult? If yes, what preparations could have been made for it?
- What technology is available to help now?
- Is climate change having an influence on the severity or frequency of this type of extreme weather event?

Explain that each group is now going to prepare an extreme weather advert.

Give students the option to create a poster, leaflet, or TV advert that articulates what should be done to to respond to and mitigate the impacts of extreme weather events in the future.

04

Ask each group one by one to present their advert and tell the class about their extreme weather.

Allow time for questions from the rest of the class.

25 minutes

Groupwork

05

Close the lesson by bringing attention back to the front and recap on the objectives outlined at the start of the lesson.

Ask the students to explain what extreme events are, where they occur most and what their impacts are.

You may like to conclude the lesson with a mini quiz to test their knowledge about the factors to consider when action planning.

5 minutes

Individual task

Extreme weather profile cards

Hurricane

Hurricanes are very large, rapidly rotating storms, with very strong winds and thunderstorms. Each year several make landfall and can cause considerable damage to property and loss of life. They are also known as typhoons or tropical cyclones.

Find out more:

www.metoffice.gov.uk/research/weather/tropical-cyclones/hurricane

https://oceanservice.noaa.gov/hazards/hurricanes/

https://www.cdc.gov/disasters/hurricanes/index.html

Tornado

Sometimes called a twister, a tornado is a rapidly rotating column of air that reaches between the base of a storm cloud and the Earth's surface.

Find out more:

www.metoffice.gov.uk/weather/learn-about/weather/types-of-weather/tornadoes

www.emsaonline.com/mediacenter/articles/00000184.html

www.stormaware.mo.gov/preparing-for-a-tornado/

Wildfires

Sometimes called brush fires, bushfires or forest fires, a wildfire is an uncontrolled fire in a natural area. It can be caused by a combination of very hot and dry weather, with fires being started either through lightning strikes or human activity.

Find out more:

www.kfwf.org.uk

www.nationalgeographic.com/environment/natural-disasters/wildfires/

www.readyforwildfire.org/What-To-Do-If-Trapped/

Extreme weather profile cards

Blizzards

A blizzard refers to a cold, strong wind that is laden with snow which significantly reduces visibility (this means a blizzard makes it very hard to see things that are further away).

Find out more:

www.metoffice.gov.uk/weather/learn-about/weather/types-of-weather/snow/blizzard

www.which.co.uk/news/2019/01/how-to-stay-safe-in-snow-and-ice/

Sandstorm

Sometimes called a dust storm, sandstorms happen when very strong winds blow up sand and/or dust from an area that is extremely dry. They are common in deserts.

Find out more:

www.sciencing.com/are-there-warning-signs-before-a-dust-storm-occurs-13419067.html

www.arizonahighways.com/blog/do-you-know-what-do-during-dust-storm

www.health.nsw.gov.au/environment/factsheets/Pages/dust-storms.aspx

Heatwave

A heatwave is a long period of hot weather, which may be accompanied by high humidity.

Find out more:

www.metoffice.gov.uk/weather/learn-about/weather/types-of-weather/temperature/heatwave

www.health.nsw.gov.au/environment/beattheheat/Pages/prepare-for-heat.aspx