

## How to spot a hurricane

### Introduction

This lesson has been designed to support the Logo Lift Off Competition. Across all 6 lessons, there is a focus on areas of STEAM skill development and on improving learners' understanding of the role of small satellites in monitoring and informing solutions to climate change. It also has been designed to help engage young people with STEAM subject matter, through the lens of space, satellites, and climate change.

In this lesson children will investigate the role of small satellites in helping scientists report and predict extreme weather events like tropical storms, specifically hurricanes. Older or more able children will also go deeper to identify how and why hurricanes are named and learn about the impact of these extreme weather events and will have opportunities to present their findings in creative and innovative ways.



### Preparation

This lesson can run in the classroom. Facilitators should familiarise themselves with the resources required for the session (see **Resources** section in this guidance), print necessary sheets, and have research material and equipment available for children, i.e. internet access or a library collection of books. Be prepared to put children into groups of mixed ability and levels for the research portion of the session. Younger children will need support for the research section, or this can be scaled back.

### Learning Outcomes

- I can identify weather patterns such as hurricanes using satellite images
- I can identify the impact of such weather patterns
- I can use reference material to source information

### Timings and setting

30-60 minute class-based lesson

### Resources

1. Satellite Images of Hurricanes (Resource 1)
2. World Map (Resource 2)
3. Hurricane in a Bottle (Resource 3)
4. Hurricanes Playing Cards Template' (Resource 4)

### Curriculum links

**England:** Science, Geography, Computing, English, PSHE

**Scotland:** Sciences, Technologies

**Wales:** Humanities, Languages, Literacy and Communication, Science and Technology

**Northern Ireland:** The World Around Us, Language and Literacy

## Lesson Plan

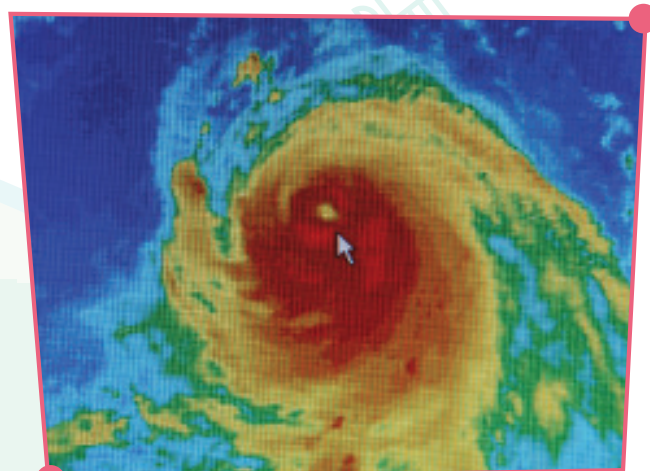
### Icebreaker

- Ask the children what a hurricane is. How is it formed? What does it do? What's the difference between a hurricane and a tornado or cyclone?
- Hurricanes are large and form over water, tornadoes form over land and are generally smaller, see **Research website suggestions** for more information to help with this discussion.
- Tell the children that behind every weather forecast are the satellites in space that make it possible to tell the weather. We depend on the observations and data from weather satellites to inform forecasts that help us prepare for incoming extreme weather, like hurricanes, and identify areas that will need support.
- Now tell children that they are going to do a research project to find out about an extreme weather event: hurricanes. Children will design and make their own *HurriCards* playing cards and share what they have found out.

Let children know that in 2022, small satellites like those that took the images they're looking at will be launched from the UK for the first time. There is a competition called Logo Lift Off to find a logo to go on rockets that launch from the UK in 2022; this activity is going to help them learn what they need to know to enter! [Watch this video](#) to find out even more about Logo Lift Off and get your children excited about entering.

### Main Activity

- Show the children the **Satellite Images of Hurricanes (Resource 1)**. Ask them to think about what an event as we see here from space, may feel like on Earth. Discuss what the impact and devastation might look like (flooding, damage



to houses, roads, buildings, death, injuries, loss of homes etc.) Make the connection with the children between why it is useful to have satellites to help predict these events and how that might help people to prepare.

- Put the children into small groups and ask them to use the internet or reference materials to find out about some well-known hurricanes.
- Provide the children with a large A3 printed version of the **World Map (Resource 2)**, and ask them to plot the locations and/or movements of these well-known hurricanes. Ask them to try and find patterns of frequency, where or when do they happen most often? And ask them to discuss any common themes about the frequency and location of hurricanes.
- Once they have found out all they need, children will make their own *HurriCards*. Each card in a pack of cards contains a list of numerical data, and the aim of the game is to compare these values to try to trump and win an opponent's card. e.g. children could make a card for each well-known hurricane, research and find out the power/strength, category, size, number of deaths, location, radius, monetary damage, wind pressure, affected areas, date etc.

*Ensure your class are consistently using either miles or kilometres, not a mixture.*



# Teacher Guidance



## Lesson Plan

### Differentiation

If working with younger children (under 7) or a less able group you should:

- Work in larger groups or as a whole class and choose just a few hurricanes to research.
- Give the children a specific website or reference book to use for their research. See **Research website suggestions** section in this guidance.
- When making their *HurriCards*, children can complete categories 1-5 on the **Hurricanes Playing Cards Template (Resource 4)** in small groups. They can also be given only 5 hurricanes to research such as Katrina, Sandy, Wilma, Irma, Andrew. Alternatively, you may like to remove some of the hurricane characteristics to simplify, e.g. number of deaths, wind pressure, radius. Children can also instead make a version of 'Snap' - choosing only one category from the list below and work in groups to create a full pack of *HurriCards*.

### Extension

- Provide the children with these challenge questions:
  - Why do all hurricanes look the same from space?
  - Find out about the 'eye' of the hurricane - why is this an important part of the hurricane? What can you tell about a hurricane from its 'eye'?
  - How are Hurricanes named? Ask the children to create their own list of hurricane names based on what they found out about how they are named.
- Ask children to present their findings in innovative and creative ways. Some ideas here could include: animations, presentations, posters, models etc.
- When making their *HurriCards*, children can complete all 10 categories on the **Hurricanes Playing Cards Template (Resource 4)**.

### Taking it further/home link

- Create a hurricane in a bottle – use the **Hurricane in a Bottle (Resource 3)**
- [Ten Facts about Hurricanes! – National Geographic Kids](#)
- [Exploring extreme weather – Met Office \(ages 7-11\)](#)
- Play *HurriCards* with someone at home

### Discussion questions

- What's the benefit of seeing weather patterns from space?
- What could happen if this was not possible?
- How can viewing weather patterns from space help us in the future?

### From Lesson to Logo

Recap the purpose of this lesson: to learn about the importance of small satellites in providing information to us about the weather. This information can help us predict and plan for extreme weather events and even help with the recovery process after an extreme event.

Ask the student what symbols could represent this key outcome?

Ask what children have learnt today that they might like to include as a logo design or symbol in their Logo Lift Off entry?

### Research website suggestions:

- [BBC](#)
- [Met Office](#)
- [Geography in the news](#)
- [Fun Kids live](#)
- [National Geographic Kids](#)