



Orbit investigation

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 learn about the weather and climate of the planets in our solar system and think about what creates and impacts the climates. Children will also learn about the positions of the planets and their orbits in space. Older or more able children will also conduct their own research, and present their findings in interesting and creative ways, encouraging innovation and creativity around how information can be shared with others.

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 etc. 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 the climate of the planets in our solar system
- I can use reference material to source information
- I can discuss and share my findings

Timings and setting

30-60 minute class-based lesson

Resources

1. Space Video (Resource 1)
2. Research Sheet (Resource 2)
3. Weather and Climate Word Search (Resource 3)

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



Teacher Guidance



Lesson Plan



Before starting the Main Activity, tell children that in 2022, small satellites will be launched by rockets from the UK for the first time. There is a competition called Logo Lift Off to find a logo to go on these rockets; 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

Watch [this introductory video](#) on planets and their orbit that shows 1. Their position/orbits and 2. The varied climates/weather patterns on Earth. Put children into small groups, assign each group a planet and ask them to use the internet or reference material to find out about the climate on each planet and explain that at the end of the session, the class will all come together to share what they found out and decide on a way to order the planets according to their climate, criteria to be decided by the class.

Use the **Research Sheet (Resource 2)** provided.

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 1 or 2 planets to research and compare and contrast.

Give the children a specific website or library book to use for their research. See **Research website suggestions** section in this guidance.

Only work on questions 1-4 on the Research Time! **Research Sheet (Resource 2)**

Give the children the **Weather and Climate Word Search (Resource 3)** to help build vocabulary.

Icebreaker

As a class, brainstorm what weather and climate means. Ask children for suggestions of key words/phrases for each and discuss the difference between weather and climate. You could make a class list or word cloud using the ideas children come up with.

Again as a class, give the children the names of each of the planets on a piece of paper and ask them to order the planets according to distance from the sun.

Ask the children to help demonstrate the positions of the planets and their orbits by physically acting this out. Once completed, help children understand a connection between distance from the sun and the weather/climate experienced.

Let children know that small satellites are always collecting important information to do with planetary orbit and climate from space. The information the satellites collect help us protect our planet from the effects of climate change.

Remind children that there is no right or wrong in the activity ahead, but rather a focus on discussion and explaining reasoning.

Teacher Guidance



Lesson Plan

Extension

Complete the 'Need more of a challenge?' questions on the Research Sheet (Resource 2) which involve further investigation, comparing and contrasting

Ask the children to present findings in innovative and creative ways. Some ideas here: animations, presentations, posters, drama performance, models etc

Share this fun fact with the class; one planet doesn't follow the trend of distance from the sun and it's temperature. This is because of a very hot and thick atmosphere, which we know about thanks to small satellites! Ask the children to guess which planet it might be, before sharing that the answer is Venus

From Lesson to Logo

Recap the purpose of this lesson which was to learn about the weather and climate of the planets in our solar system. Revisit the idea that this information is available because of the small satellites that are always collecting important information to do with planetary orbit and climate from space and that this information the satellites collect help us protect our planet from the effects of climate change.

Ask children some of the following questions to help them link the learning done with the logo they will need to design to enter:

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?

Taking it further/home link:

Get Creative! – Ask children to create a visual representation to show the planets and their orbits and how they are all connected. Some ideas include: a model, animation, painting, sculpture, virtual experience

Caption This - Ask children to write interesting, informative, and maybe even humorous captions sharing information about weather and climate on the planet for a class social media task. They may want to research 'Caption this' trends and replicate or make their own. If children struggle with writing captions, suggest they focus on a catchy phrase which rhymes and/or has alliteration

Resource pack:

Research website suggestions:

Here are some websites to help kick start your classes research projects.

<https://climatehub.uk>

<https://www.stem.org.uk/rxx9p>

<https://theskylive.com/3dsolarsystem>

