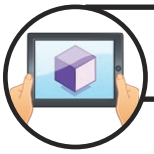

Explore the Solar System with Augmented Reality

Science	Y5	Lesson 1 of 1
Aim: To describe the movement of the Earth, and other planets, relative to the Sun in the solar system.	**Success Criteria:** I can name the planets in the correct order from the Sun. I can explain how the Earth and other planets move around the Sun. I can explain why planets orbit the Sun.	
Resources: A Teacher's Guide to Using AR in Google Expeditions Tablet computers, connected to the same wireless Internet network, with the most recent version of the Google Expeditions app installed Laptops Books on the topic of the solar system	**Preparation:** Differentiated **How Do Planets Move Around the Sun? Activity Sheet** – one per child **Researching Planets Activity Sheet** – one per child **Planets Fact Cards** – cut up **Planets Mnemonic Activity Sheet** – one per child 'Solar System' expedition downloaded in the Google Expeditions app on the teacher's device **Expeditions Marker Sheets** – place these around the room so that children can spread out while viewing the AR. The marker points will act as anchors for the AR images. It is strongly suggested that teachers follow the user guide to familiarise themselves with the Google Expeditions app before the lesson.	

Prior Learning

It will be helpful if children know that planets are spherical bodies in space; that we live on planet Earth, which has one moon; and that there are other planets in the solar system apart from Earth. It will also be helpful if children have learned about gravity and how it works

Starter: What Do You Already Know

Briefly discuss what children may already know about our solar system.

Teacher-Led Introduction: The Planets

Make sure each child has access to a tablet. Use the app to view each object in the solar system, in this order: the Sun, Mercury, Venus, Earth, the Moon, Mars, Jupiter, Saturn, Uranus, Neptune. For each object, use the descriptions in the app to discuss key information and interesting facts. The presentation also gives a true or false question about each object for children to discuss. Can children name the planets in the correct order from the Sun?

Main Activity: Our Solar System

Split the children into four groups, ready for a carousel of activities. Each activity should take roughly ten minutes. Activity One is a teacher-led guided tour of the solar system to explain how planets orbit the Sun. Activity Two is an activity sheet for children to record their learning from this. By the end of the lesson, all children must have done Activities One and Two, in that order; other activities can be done independently and in any order without having done any of the other activities. A table to show a suggested order of activities can be found at the end of this plan.

1. The Solar System (Teacher-led activity)	Use the AR technology to lead children on a guided tour of the solar system. Use the clickable buttons on the presentation slide to cover the key teaching points. Included is information about the Sun and its gravity; the way in which planets orbit the Sun and spin on their axes; and how this relates to the lengths of days and years on different planets.
2. How Do Planets Move around the Sun? Activity Sheet	Children use the AR technology to look at the solar system again and complete the differentiated worksheet. Tablets connected to the same tour that the teacher is running could be left on the table for children to complete this activity independently. LA: Fill in the gaps to explain how planets orbit around the Sun. MA: Answer the questions to explain how planets orbit around the Sun. HA: Write an explanation of how planets orbit around the Sun.
3. Research a Planet	Choose one of the other planets in our solar system. Use a laptop, tablet or book to find out more about it and complete the **Researching Planets Activity Sheet.**

4. Solar System Quiz	Write a quiz with five questions about the solar system and test the other members of your group. You could use the **Planets Fact Cards** to help.
5. Planets Mnemonic	Create your own mnemonic to remember the order of the planets and record it on the **Mnemonic Activity Sheet.**

Plenary

Challenge children to remember what they have learned with a quiz on the features of the solar system and the way in which the planets orbit around the Sun.

Assessment Questions

- What is an orbit?
- What is the force that keeps moons in orbit around planets and planets in orbit around the sun?
- In which direction does Earth orbit the Sun?
- In which direction does Earth spin on its axis?
- Are there any planets that rotate on their axes in a different direction to Earth?

Cross-Curricular Links

- Literacy: Write a non-chronological report about the solar system. Write a letter to Google describing how they used AR technology in their lesson.
- ICT: Create a PowerPoint with information about each planet.
- Music: Listen to The Planets Suite by Gustav Holst and investigate why and how the music reflects each planet. Can children create their own versions?

	The Solar System (teacher-led activity)	How Do Planets Move Around the Sun? Activity Sheet	Research a Planet	Solar System Quiz	Planets Mnemonic
Group 1	First	Second	Third	Fourth	Fifth
Group 2	Fourth	Fifth	First	Second	Third
Group 3	Third	Fourth	Fifth	First	Second
Group 4	Second	Third	Fourth	Fifth	First