

Science – Y4 Sp2 - Space

Subject Knowledge Notes:

- This lesson covers the order of the planets in their solar system and their key characteristics
- Using a mnemonic to be able to remember the names of the planets starting from the sun going outwards
- Knowing the key characteristics of the inner, rocky planets in comparison to the larger, outer gas giants
- Being able to take information about a given planet and naming which one it relates to (e.g. that Jupiter is the biggest)

For this lesson you will need:

- A model of the solar system for reference could be helpful to contextualise which of the planets you are talking about and where it sits in comparison to the other planets
- You can try and create a model of the planets using different sizes of balls but it is almost impossible to create a model to scale of the solar system because the distances involved are so large

Lesson Three: how do planets in the Solar System Differ?

 10 minutes	<ul style="list-style-type: none"> • Students complete retrieval practice questions. Provide keywords or hints on the board for students that may require support • Teacher to model correct answers on the board – students should tick or correct their answers according to the models provided by the teacher
 5 minutes	<ul style="list-style-type: none"> • Ask students to try and write down the names of planets they already know • This serves to both activate prior knowledge and as a check for understanding for the teacher to know what students already know
 10 minutes	<ul style="list-style-type: none"> • If students have not come across one before, introduce the idea of a mnemonic to students as a phrase that we can use to help us remember a number of words off by heart and that we can use a mnemonic to help us remember the names of the planets and the order they are in from the sun outwards • At this stage, you can either provide a mnemonic for the students to use or you can give them the opportunity to create their own NOTE – IN ERROR, NEPTUNE WAS INITIALLY MISSED FROM THE FIRST VERSION OF BOOKLET. If this is the version you have, you will need to add Neptune in as a class.
 20 minutes	<ul style="list-style-type: none"> • Introduce the key learning and then read the text as a class. • Begin reading aloud and ask children to follow under each word with their finger. • Switch readers every so often. • Emphasise any words in bold as key words/phrases. • After each section of text, pause the reading, read the question(s) to be answered and ask students to discuss with a partner what they think the answer will be to that question • Give students the required time (1-2 mins depending on writing speed) to complete an answer to the question independently • If any student is waiting, they can read the next part of the text in preparation for reading it together as a class
 15 minutes	<ul style="list-style-type: none"> • Students will need to be able to write in descriptors that are appropriate for inner rocky planets and outer gas giants • As a preparation for the writing that the students will need to do, you could quiz students on which category each descriptor fits into as a class before they write (e.g. instruct students to use their left hand for inner rocky planets and right hand for outer gas giants and get them to raise the relevant hand when you read out each of the descriptors in turn)

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	<ul style="list-style-type: none">• Students then write in the relevant descriptor in the right place. To reduce writing, they could label each descriptor with a letter or number and then place the related letter/number in the correct box.• Go through answers together and class, marking the correct ones on the board while students make corrections where required
 10 minutes	<ul style="list-style-type: none">• Students should work discuss which planet goes next to each clue and write their answer in if they feel confident• Go through answers together and class, marking the correct ones on the board while students make corrections where required
 10 minutes	<ul style="list-style-type: none">• Ask children to look at a rough diagram of the solar system and try and work out why it is difficult for scientists to study planets in detail (up close)• After 5 mins, ask children to raise their hands to share ideas. Encourage children to use the sentence stem: <i>"I think it is difficult for scientists to study planets in detail because _____"</i>• Key points include:<ul style="list-style-type: none">- It takes a really long time to get to other planets (give examples e.g. Jupiter = 6 years)- The conditions of planets are very difficult to survive in so we can't get very close to them- Because the gas giants are made of gas, we can't land on their surface anyway – we would sink into them
 5 minutes	<ul style="list-style-type: none">• Return to page 3 and explain what differs about each of the planets of the Solar System.