

Lesson Plan

NEUROHEADWAY

Neuroscience Into Education

Overall aims and learning outcomes for 4 linked lessons

- Basic guide to the planets and rocky asteroids of the solar system: capture imagination with the best images available. Give sense of wonder of our solar system and the very different planets
- Learn the names, order and basic information about the planets
- Understand the inner rocky planets and outer gas and ice giants
- Understand there are a lot of small rocky planets (called dwarf planets) very far out in the solar system

Lesson 1: The Sun and Overview of the Solar System (1 hr lesson plan)

Resource:

- PowerPoint required
- Printout of the worksheets provided (black and white PDFs)
- Internet connection (optional)

Teacher slides: 1 - 7 (Lesson 1 Teacher Notes)**[10mins]**

Overview of the solar system: Sun and the known 8 accepted planets of the solar system

Present the mnemonic to remember. Note the inner rocky planets and the outer gas giants and ice giants.

Activity 1: Worksheet on identifying the planets (Worksheet1a)**[10 mins]****Teacher slides: 9 - 11 (Lesson 1 Teacher Notes)****[10mins]**

The Sun – what is it and fun facts.

Activity 2: Quiz worksheet (Worksheet1b)**[10 mins]**

Teacher slides: Go over the answers.

[10 mins]

Extra activity if desired: what questions do the class have ? Collect up to 5 questions. Tweet the questions to Professor Smartt, who will answer on twitter.

Can have the answers at the start of next lesson, or later in the School day (or next day).

Answers will be provided rapidly on twitter and teacher can chose.

The Solar System for Key Stage 2 (4 x 1hr lessons)
7 – 11

KS2 Ages

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Power point Example

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THE SUN

- The Sun is a burning ball of hydrogen and helium, about 15million °C at its core.
- The sun makes up 99.86% of the mass of our solar system, with most of the remaining 0.14% made up by the two gas giants Jupiter and Saturn.
- You could fit 1.3 million Earths inside the Sun.
- Just as we rotate around the Sun, the Sun orbits the centre of our own galaxy, **The Milky Way**.



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NASA/SDO

While The Sun is inconceivably huge, it is really only an average-sized star, minute in comparison to red super-giants such as Arcturus.



Jupiter

Sun

Sirius

Pollux

Arcturus

SOLAR FLARES

- Solar flares are huge bursts of magnetic energy from the sun, that occur during **magnetic storms**.
- They can affect Earth's magnetic field.
- The largest one that hit Earth was in 1859. Known as the **Carrington Event**, this geomagnetic storm produced Auroras around the world. Those over the Rocky Mountains in the U.S. were so bright that the glow woke gold miners, who began preparing breakfast because they thought it was morning.
- Telegraph systems failed. Some operators received electric shocks and others told of how they could still send and receive messages despite being disconnected from their power supplies.



Teachers Evaluation and Handouts

The Sun

1. *The temperature of the Sun's core is:*
 - a. 150 °C
 - b. 15 000 °C
 - c. 15 million °C
2. *What is the closest planet to the Sun?*
 - a. Mars
 - b. Jupiter
 - c. Mercury
3. *How many Earths could you fit inside the Sun?*
 - a. 13
 - b. 1300
 - c. 1.3 million
4. *What is the farthest planet from the Sun?*
 - a. Neptune
 - b. Saturn
 - c. Earth
5. *Tick the two main gases inside the Sun*
 - ☐ Oxygen
 - ☐ Hydrogen
 - ☐ Nitrogen
 - ☐ Helium
6. *What is the name of our galaxy?*
 - a. The Silky Bay
 - b. The Milky Way
 - c. The Mars Bar

7. After it turns into a Red Giant, what will the Sun continue its transformation in to?
- a. Yellow Elf
 - b. Golden Troll
 - c. White Dwarf

