

Spaced Out in the Solar System

1. *Spaced Out* is a national project to create the world's largest model of the Solar System (find out more at www.spacedout-uk.com). 18 models representing the Sun, planets and other members are located at scaled distances from the Sun (pictured) at the Jodrell Bank Observatory in Cheshire. The scale of the model is 1:15 million.



The artistic representation of the Sun stands proudly in front of the giant Lovell Radio Telescope at Jodrell Bank in Cheshire. Image by Chris Cartwright (Adventure Images)

- (a) The Earth is 150 000 km from the Sun. How far will the model representing the Earth be from Jodrell Bank?

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- (b) Distances within the Solar System are usually quoted in Astronomical Units (AU). What is an Astronomical Unit?

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- (c) In the *Spaced Out* project, the model representing Uranus is in Bath at the William Herschel Museum, 192 km from Jodrell Bank. How far is Uranus from the Sun:

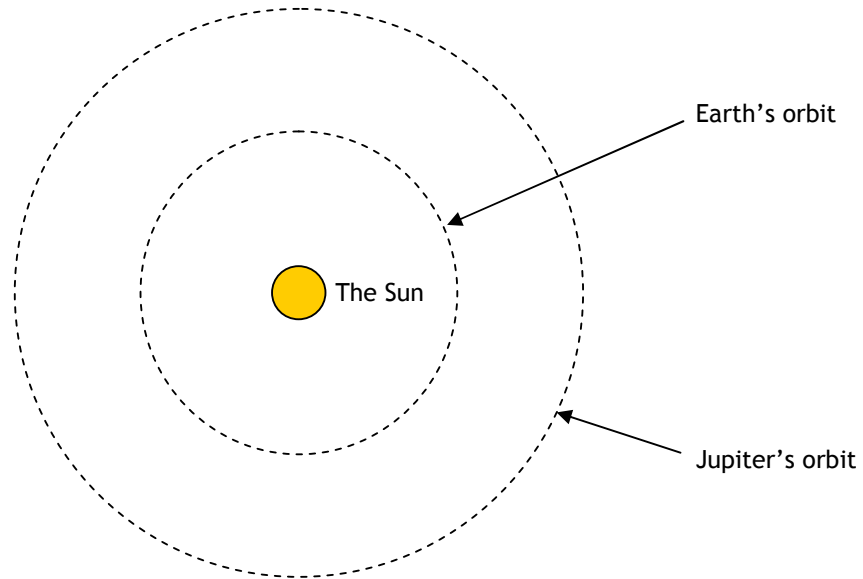
- (i) in kilometres

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- (ii) in AU

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2. The diagram shows the Earth's orbit around the Sun. The orbit of Jupiter is also shown (not to scale)



- (a) On the diagram, indicate the positions of the Earth and Jupiter when Jupiter is at **conjunction**. Use the letters **E** and **J**.
- (b) When Jupiter is at conjunction, it is 6.2 AU from Earth. How many AU is Jupiter from Earth when it is at **opposition**?

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- (c) Give two reasons why Jupiter is best visible from Earth when it is at opposition.

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3. On the *Spaced Out* scale of 1:15 million, where do you think the nearest star (*Proxima Centauri*) would be? Circle the correct answer.

Australia Norway 6 times further than the Moon the South Pole