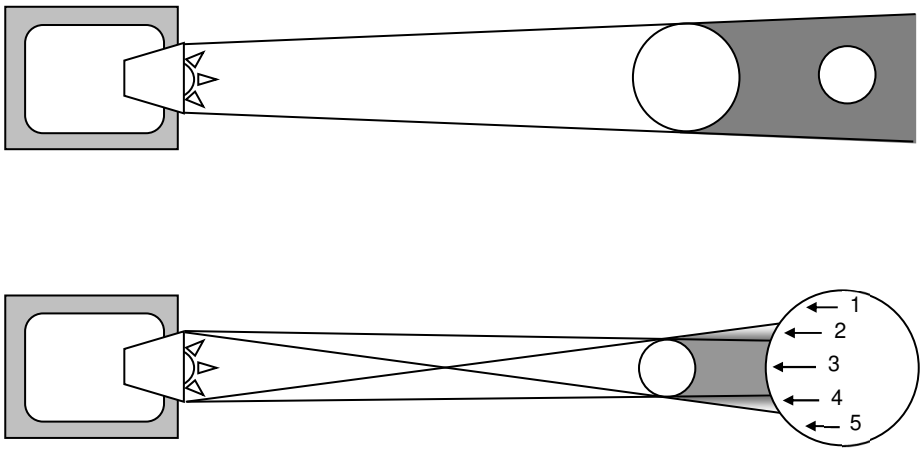
Practical Alternatives

Eclipses

Steph was wondering how eclipses of the Sun and Moon occur. She used a projector, a netball and a tennis ball to investigate the shadows created in various positions.



Fact File

A lunar eclipse is an eclipse of the Moon. This occurs when part of the Moon is hidden in the Earth's shadow.

A solar eclipse is an eclipse of the Sun. This occurs when part of the Sun is blocked out by the Moon.

A total eclipse occurs when the Sun is completely hidden by the Moon.

Tasks

1. Label the Sun, the Moon and the Earth in both diagrams above.
2. Give each diagram a title, either 'Eclipse of the Moon' or 'Eclipse of the Sun'.
3. How would the Moon appear from Earth in the first experiment?
4. Complete the diagrams below to show what the Sun would look like from the points 1, 2, 3, 4 and 5 on Earth in experiment 2 (hint - two of them do not need any shading).

1	2	3	4	5
○	○	○	○	○

5. Find out how eclipses have helped with our understanding of the solar system.

Key Words

Solar. Lunar. Umbra. Penumbra.

☑ Checklist for this activity

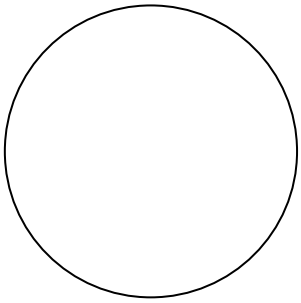
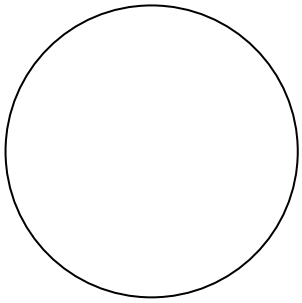
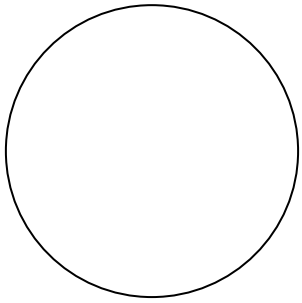
☐ Work on the sheet/in the file
☐ Write full answers
☐ Copy the diagrams
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
☐ Copy the *Fact File*
☐ Add your own research

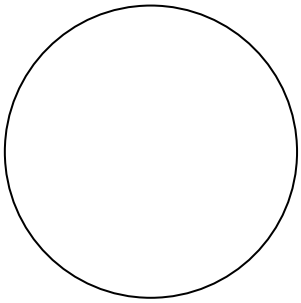
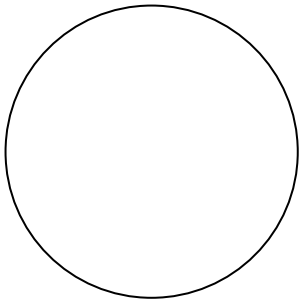
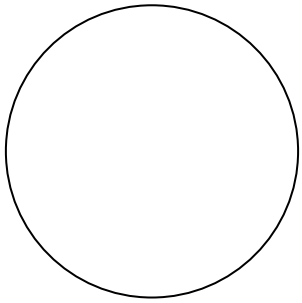
© ORB Education Visit http://www.orbeducation.com for the full, editable versions with answers.

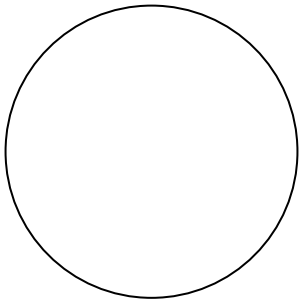
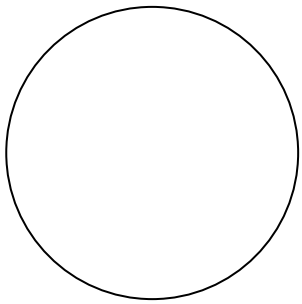
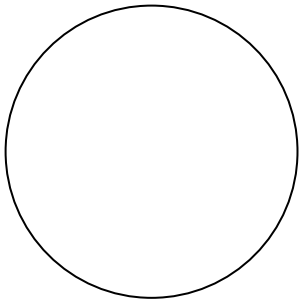
Observation

Moon Phases Observation 9

Draw the shape of the moon on the days shown below. You may pick up the cycle at any point.

New Moon	Waxing Crescent Moon	First Quarter Moon
Day 0	Day 3 or 4	Day 7
		

Waxing Gibbous Moon	Full Moon	Waning Gibbous Moon
Day 10 or 11	Day 14	Day 17 or 18
		

Last Quarter Moon	Waning Crescent Moon	New Moon
Day 21	Day 24 or 25	Day 28
		

© ORB Education Visit http://www.orbeducation.com for the full, editable versions with answers.

Plenaries

Life in the Solar System

Life in the Solar System						
atmosphere	*plants*	*Sun*	*oxygen*	*life*	*Earth*	*space*

The _____ is well suited to supporting life. There is an _____ that protects us from the extremes of _____; we are close enough to the _____ for warmth (but not too close); and we have an abundance of _____ that absorb carbon dioxide and release _____. None of the other planets have these conditions and therefore are unlikely to support _____. However, we are still looking.

Life in the Solar System						
atmosphere	*plants*	*Sun*	*oxygen*	*life*	*Earth*	*space*

The _____ is well suited to supporting life. There is an _____ that protects us from the extremes of _____; we are close enough to the _____ for warmth (but not too close); and we have an abundance of _____ that absorb carbon dioxide and release _____. None of the other planets have these conditions and therefore are unlikely to support _____. However, we are still looking.

Life in the Solar System						
atmosphere	*plants*	*Sun*	*oxygen*	*life*	*Earth*	*space*

The _____ is well suited to supporting life. There is an _____ that protects us from the extremes of _____; we are close enough to the _____ for warmth (but not too close); and we have an abundance of _____ that absorb carbon dioxide and release _____. None of the other planets have these conditions and therefore are unlikely to support _____. However, we are still looking.

© ORB Education Visit http://www.orbeducation.com for the full, editable versions with answers.

Data Tasks

Solar System Spreadsheet Task

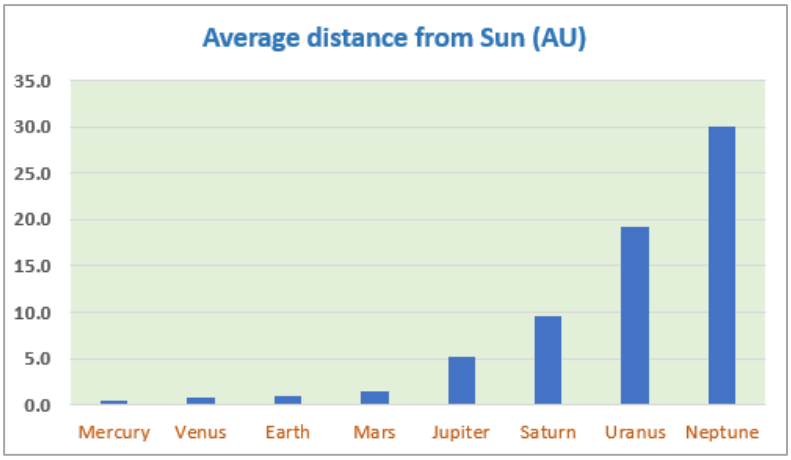
Scientists use data they collect to find out about the nature of the solar system. For this task you will use data in an Excel spreadsheet to plot graphs and present information clearly.

Task 1 – Chart showing Distance from the Sun

a. Open a copy of the spreadsheet ***DT Solar System Spreadsheet Task***.

b. Select all the data in *column A* and *column B*. Click the *Insert* tab, then *Insert Column or Bar Chart* icon (in the *Charts* group) and select the top-left chart (*Clustered Column*).

c. Format the chart if you wish.



Task 2 – Sorting the Data by Diameter

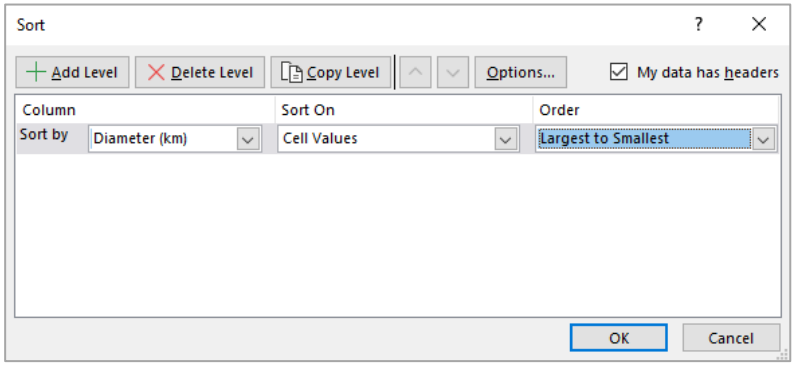
a. Select all the data.

b. Click *Sort* under the *Data* tab.

c. Make sure that the *My data has headers* box has been checked.

d. Select *Diameter* from the list and order by *Largest to Smallest*.

e. Click *OK*.



f. The data should now be sorted with the largest planet at the top. Write out the planets in order of size, starting with the largest.

Select all the data again. This time sort by *Average Distance from the Sun* and order by *Smallest to Largest*. The data should now be back in its original order.