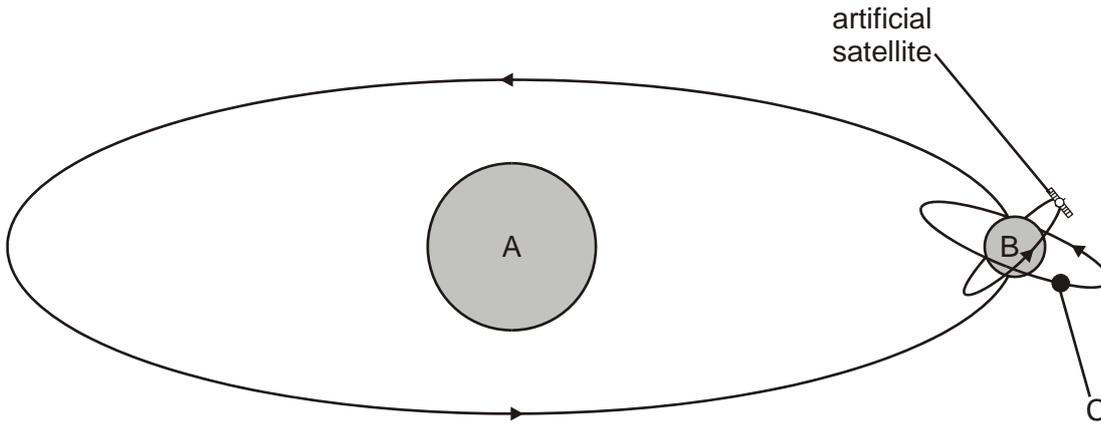


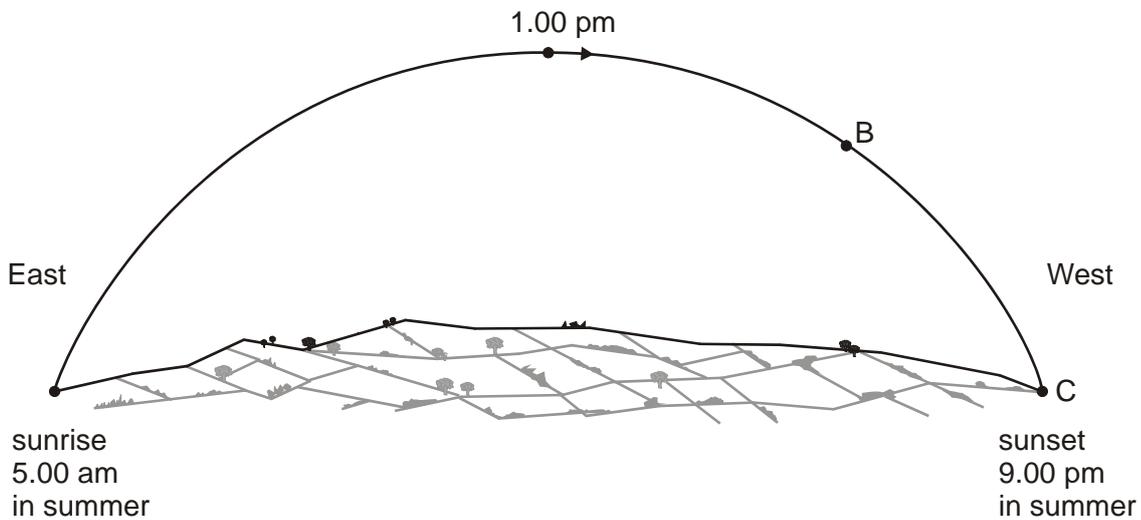
### KS3 - Questions on the Earth in Space

Q1. The diagram below shows the Earth, the Sun, the Moon and an artificial satellite.



*not to scale*

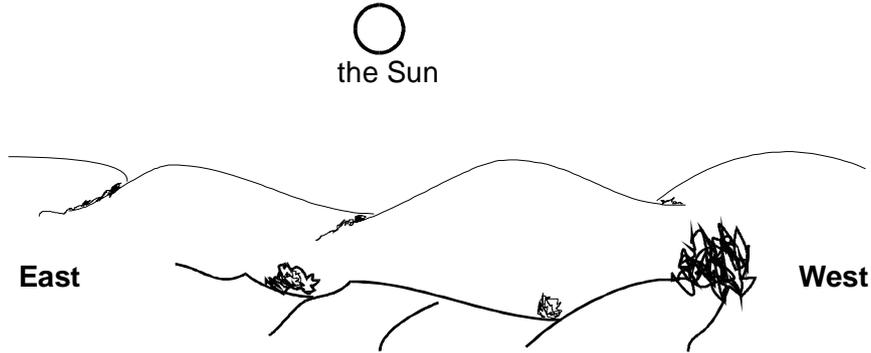
- (a) Which letters, on the diagram, show the Earth, the Sun and the Moon? 2 marks
- (b) Give one use of a satellite. 1 mark
- (c) Which of the following is a source of light?  
- the Earth, the Moon, the Sun or a satellite 1 mark
- (d) The curve shows the path of the Sun in the sky from sunrise to sunset in England one day in summer.



- (i) On the curve, mark the position of the Sun at 9.00 am. Label this point A. 1 mark
- (ii) The Sun seemed to move from point B to point C. How many hours did this take? 1 mark
- (e) On the diagram above, draw the path of the Sun from sunrise to sunset on a day in winter. 1 mark

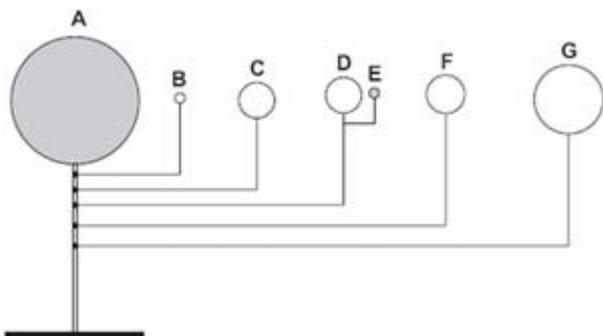
**KS3 - Questions on the Earth in Space**

**Q2.** The Sun appears to move across the sky each day. The drawing shows the position of the Sun at mid-day on the 21st March.



- (a) (i) Draw the path which the Sun appears to take from sunrise to sunset on the 21st March. Label the path 'March'. 1 mark
- (ii) Put an arrow on the line you have drawn to show the direction in which the Sun appears to move across the sky. 1 mark
- (b) Draw another line to show the path which the Sun appears to take from sunrise to sunset in December. Label the path 'December'. 2 marks
- Maximum 4 marks**

**Q3.** Alfie made a model of part of the solar system. He used metal balls for the Sun, the Moon and the planets.



'E goes around D' AND 'B, C, D, F and G go around A'.

- (a) Give the letter that is used to label:
- (i) the model Sun;
- (ii) the model Earth;
- (iii) the model Moon;
- (iv) the model planet with the largest orbit. 4 marks

(b) The bar chart on the right shows the force of gravity on eight of the planets.

(i) The gravity on Neptune is 12 N/kg. On the chart, use a ruler to draw a bar for the planet Neptune.

1 mark

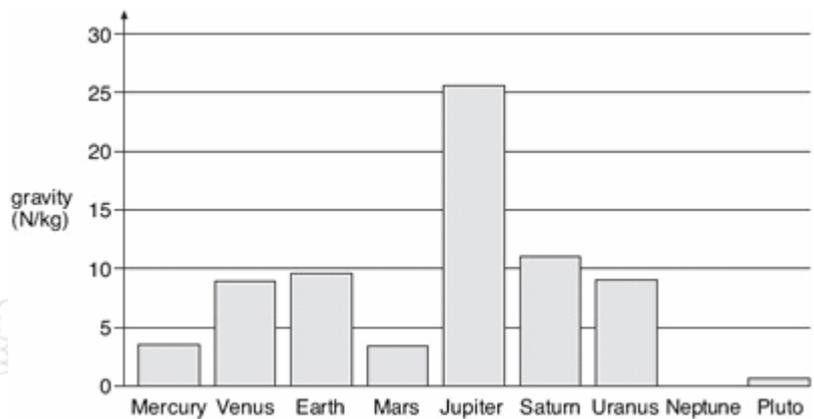
(ii) Give the name of a planet where you would weigh more than you weigh on Earth.

1 mark

(iii) On which planet would a spaceship need the largest force to take off?

1 mark

**maximum 7 marks**



**KS3 - Questions on the Earth in Space**

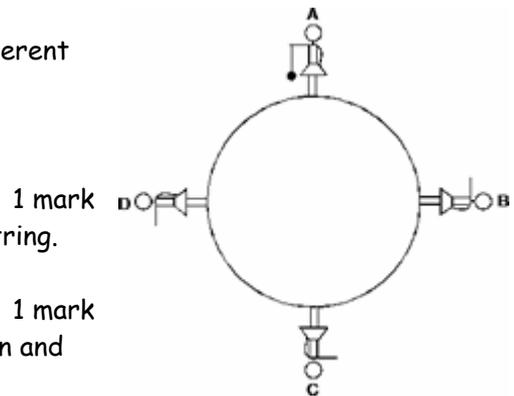
- Q4.** David lives in Britain. He sees that the Sun seems to move across the sky.
- (a) Where does the Sun rise in the morning?  
In the north, in the south, in the west or in the east? 1 mark
- (b) (i) At what time of day is the Sun highest in the sky? 1 mark
- (ii) In which direction will David see the Sun when it is highest in the sky?  
Towards the north, towards the south, towards the west or towards the east? 1 mark
- (c) Where does the Sun set in the evening?  
In the north, in the south, in the west or in the east? 1 mark
- (d) Explain why the Sun seems to move across the sky. 1 mark
- (e) Light from the Sun takes about 8 minutes to get to the Earth.  
How long does light from other stars take to get to the Earth?  
More than 8 minutes, 8 minutes, less than 8 minutes or zero minutes? 1 mark

**Maximum 6 marks**

**Q5.** Lisa drew a picture of herself standing at four different positions on the Earth,

(a) (i) Draw an arrow at each of the four positions to show the direction of the force of gravity on Lisa.

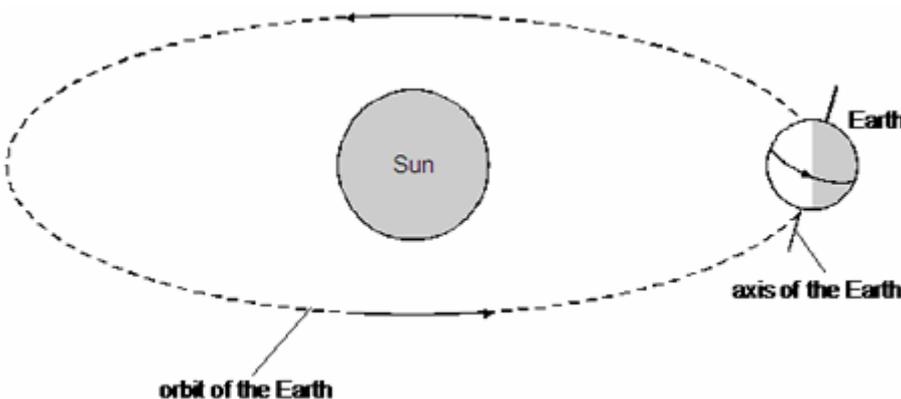
(ii) The drawing at position A shows Lisa holding a ball on a string. Draw the ball and string in positions B, C and D.



1 mark

1 mark

(b) The drawing below shows: that the Earth goes round the Sun and that the Earth rotates on its axis.



Choose from the list of times below to answer parts (i) and (ii).

- 60 seconds
- 60 minutes
- 24 hours
- 7 days
- 28 days
- 365 days

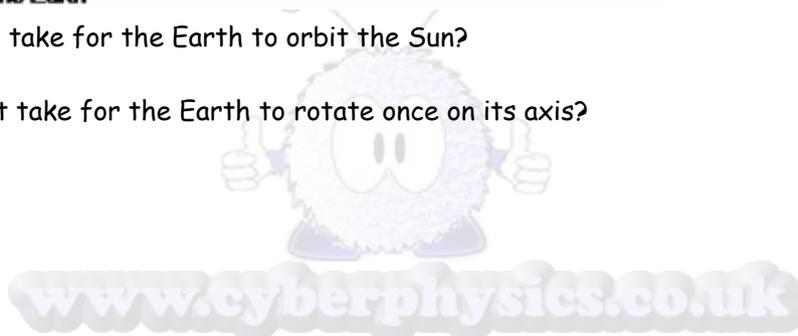
(i) How long does it take for the Earth to orbit the Sun?

1 mark

(ii) How long does it take for the Earth to rotate once on its axis?

1 mark

**Maximum 4 marks**

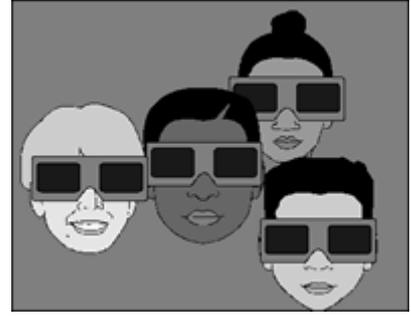


KS3 - Questions on the Earth in Space

Q6. Some children watched an eclipse of the Sun. During the eclipse, the Moon passed between the Sun and the Earth. It blocked out sunlight.

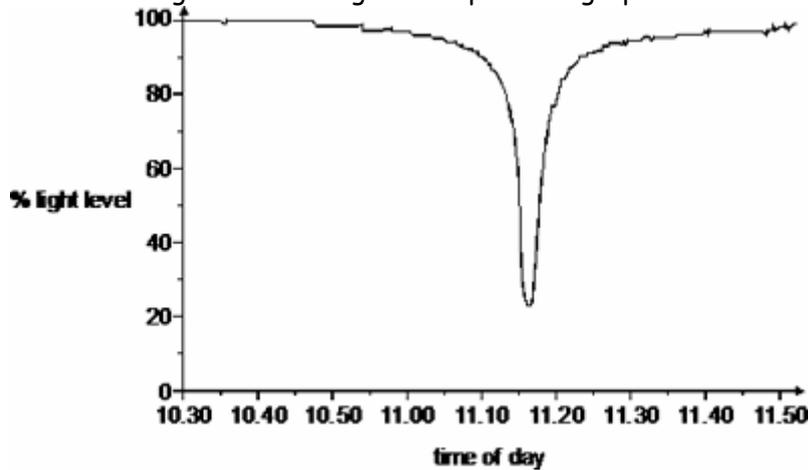
(a) Amrik watched the eclipse. He knew that the Sun is much bigger than the Moon but they looked about the same size. Why did they look the same size? Choose from the reasons given below:

1 mark



- The Moon is nearer to the Earth than the Sun is.
- The Sun is nearer to the Earth than the Moon is.
- The Sun goes round the Earth faster than the Moon does.
- The Moon goes round the Sun faster than the Earth does.

(b) Amrik's class measured the light level during the eclipse. The graph below shows their results.



(i) At what time did the Moon block out most of the Sun's light? Use the graph to help you.

1 mark

(ii) What happened to the air temperature during the eclipse? Give the reason for your answer.

1 mark

Maximum 3 marks

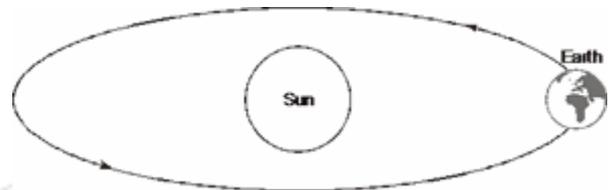
Q7. The diagram on the right shows the Earth in orbit around the Sun.

(a) (i) Give the name of one planet in the Solar System which is closer to the Sun than the Earth is.

1 mark

(ii) Give the name of one planet in the Solar System which is further away from the Sun than the Earth is.

1 mark



(b) Night-time is when Britain is in the Earth's shadow. Daytime is when Britain is in sunlight. Explain why Britain has both day and night.

1 mark

(c) (i) On the diagram, draw the position of the Earth nine months later than shown.

1 mark

(ii) Explain why you have drawn the Earth in this position.

1 mark

Maximum 5 marks

KS3 - Questions on the Earth in Space

Q8. Satellites can sometimes be seen, looking like stars as they slowly move across the night sky.

(a) We can see stars because they are light sources. They give out their own light.

Satellites do not give out their own light. Explain why satellites can be seen in the clear night sky.

2 marks

(b) Sometimes a satellite suddenly stops being visible. However, you can usually see it again in another part of the sky later the same night. This can happen when there are no clouds in the sky and the satellite is overhead. Why does the satellite suddenly stop being visible?

1 mark

(c) Give one use of satellites in orbit around the Earth.

1 mark

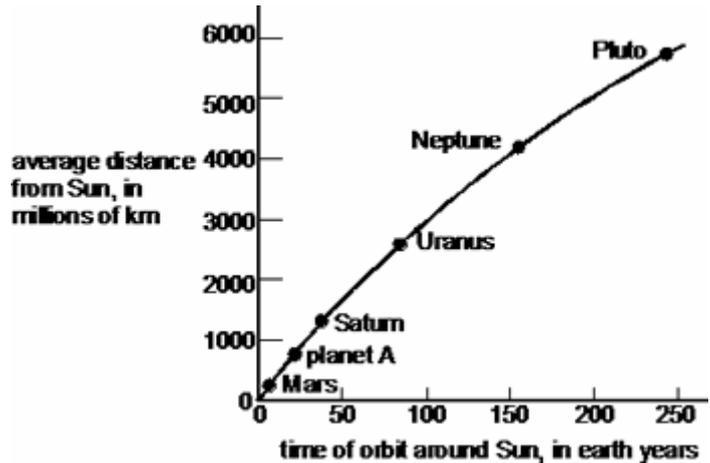
Maximum 4 marks

Q9. The graph on the right gives information about some of the planets in the Solar System.

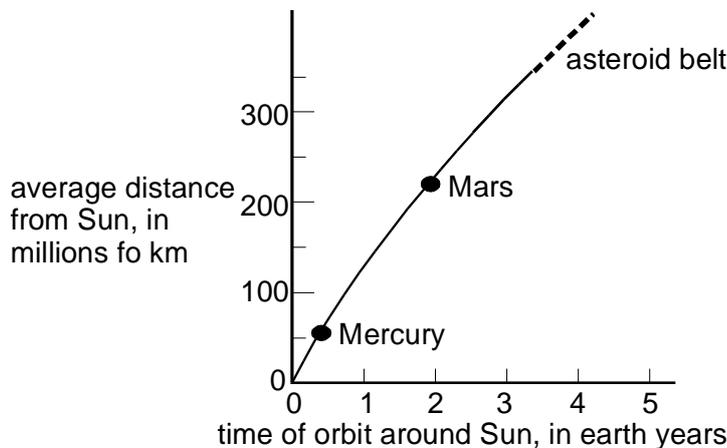
(a) Planet A is shown on the graph above. The orbit of planet A is between Saturn and Mars.

What is the name of planet A?

1 mark



(b) Part of the graph opposite is shown in more detail below.



(i) Use a dot (●) to mark the position of the Earth carefully on the graph above. Label the dot 'Earth'. Explain why you put the dot at this position.

2 marks

(ii) On the same graph, mark with a cross (x) the approximate position of Venus and label it 'Venus'.

1 mark

(c) Asteroids orbit the Sun just like the planets. Information about five asteroids is given in the table below.

name of asteroid	Eugenia	Hestia	Iris	Melpomene	Psyche
time of orbit in Earth years	4.49	4.01	5.51	3.48	5.00

Which asteroid is the greatest distance from the Sun? Give the reason for your answer.

1 mark

Maximum 5 marks

### KS3 - Questions on the Earth in Space

**Q10.** The table below gives information about the planets of the Solar System. They are listed in alphabetical order.

planet	average distance from the Sun in million km	diameter in km	time for one orbit round the Sun	time for one rotation on its axis in hours	temperature on surface of planet in °C
Earth	150	13 000	365 days	24	+22
Jupiter	780	140 000	12 years	9.8	-150
Mars	230	6800	687 days	25	-23
Mercury	58	4900	88 days	1400	+350
Neptune	4500	51 000	165 years	16	-220
Pluto	5900	2300	248 years	150	-220
Saturn	1400	120 000	29 years	10.2	-180
Uranus	2900	51 000	84 years	17	-210
Venus	110	12 000	225 days	5800	+480

- (a) Explain why Neptune and Pluto are the coldest planets. 1 mark
- (b) Explain why there could be no liquid water on the surface of:  
 (i) Mars  
 (ii) Venus 2 marks
- (c) On which planet would the time between sunrise and sunset be shortest? 1 mark
- (d) Which planet has the shortest year? 1 mark
- (e) Give the name of the force which keeps the planets in their orbits. 1 mark
- Maximum 6 marks**

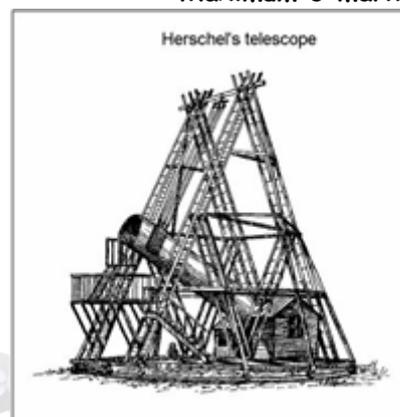
**Q11.** Mars is the fourth planet from the Sun.

- (a) Name one planet which is closer than Mars to the Sun. 1 mark
- (b) A day and night on Mars lasts nearly 25 Earth hours. Explain why there is daytime and night-time on Mars. 1 mark
- (c) Like Earth, Mars has summers and winters. Suggest why there are seasons on Mars. 1 mark
- Maximum 3 marks**

**Q12.** Until 1781 scientists thought there were only six planets in the solar system. Then a scientist called Herschel looked through a very large telescope that could turn to follow objects in space. He watched a bright object in the night sky for a few months and made drawings of what he saw. He concluded it was a planet.

(a) What method did Herschel use to discover the new planet?

- A He carried out practical tests in the laboratory.  
 B He observed the environment.  
 C He asked scientists' opinions.  
 D He gathered data from books.



1 mark

### KS3 - Questions on the Earth in Space

(b) Scientists today use satellites as well as telescopes to observe the universe. Suggest one way that developments in equipment have changed the information scientists collect about planets.

1 mark

(c) Before 1781, scientists believed there were 6 planets in our solar system. Now scientists believe there are 10 planets. What do these ideas suggest about our knowledge of our solar system?

1 mark

(d) What causes scientists to reject an idea and replace it with a new one?

1 mark

**maximum 4 marks**



[www.cyberphysics.co.uk](http://www.cyberphysics.co.uk)