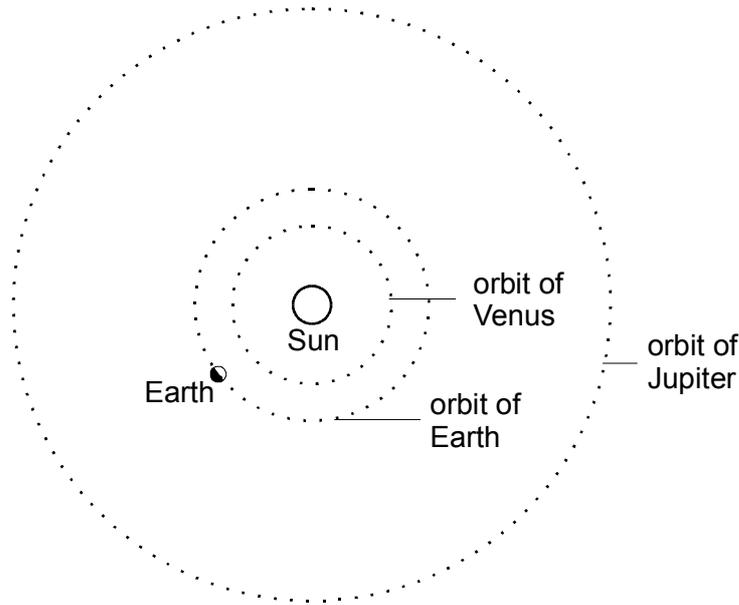


**Level 6 questions**

1. The diagram shows the orbits of the Earth, Venus and Jupiter around the Sun. They are not to scale.



- (a) Where is the orbit of Mars?

Tick the correct box.

It is between the Sun and the orbit of Venus.

It is between the orbit of Venus and the orbit of Earth.

It is between the orbit of Earth and the orbit of Jupiter.

It is outside the orbit of Jupiter.

1 mark

Venus and Jupiter can be seen from the Earth.

- (b) Sometimes Venus appears to be larger than at other times.

- (i) On the diagram, draw the position of Venus where it appears to be largest. Label it **V**.

1 mark

- (ii) Why does the size of Venus appear to change?

.....

.....

1 mark

(c) Even on clear nights, Jupiter sometimes appears to be slightly brighter than at other times.

(i) On the diagram, draw the position of Jupiter where it appears to be brightest. Label it **J**.

1 mark

(ii) Why does the brightness of Jupiter appear to change?

.....  
.....

1 mark

(d) Give **two** reasons why less light is reflected from Jupiter to the Earth than from Venus to the Earth.

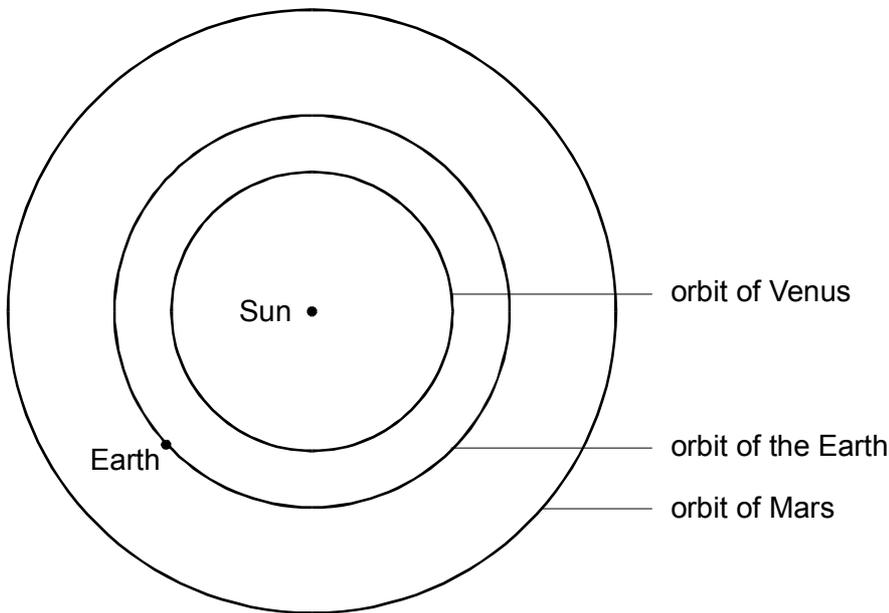
1. ....

2. ....

2 marks

Maximum 7 marks

2. The diagram shows the orbits of the Earth, Mars and Venus. The position of the Earth is shown.



*not to scale*

A person on the Earth observes Mars and Venus.

(a) (i) On the diagram above, draw **two** more dots to show the positions of Mars and Venus when they are closest to the Earth.

Label the dot for Mars with a letter M and the dot for Venus with a letter V.

1 mark

(ii) Why is it easiest to see Mars when it is closest to the Earth?

.....  
.....

1 mark

(b) What force keeps the Earth in its orbit and stops it flying off into space?

.....

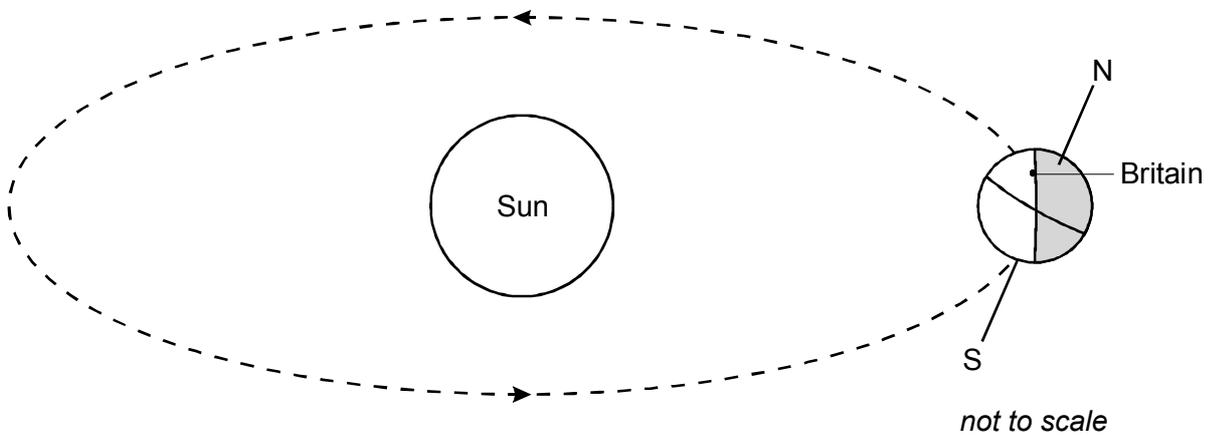
1 mark

(c) From the Earth, the Moon always looks approximately the same size.  
What can you conclude from this about the orbit of the Moon around the Earth?

.....  
.....

1 mark

(d) The diagram shows the Earth in its orbit around the Sun.



What season is it in Britain? Explain your answer.

.....  
.....  
.....  
.....

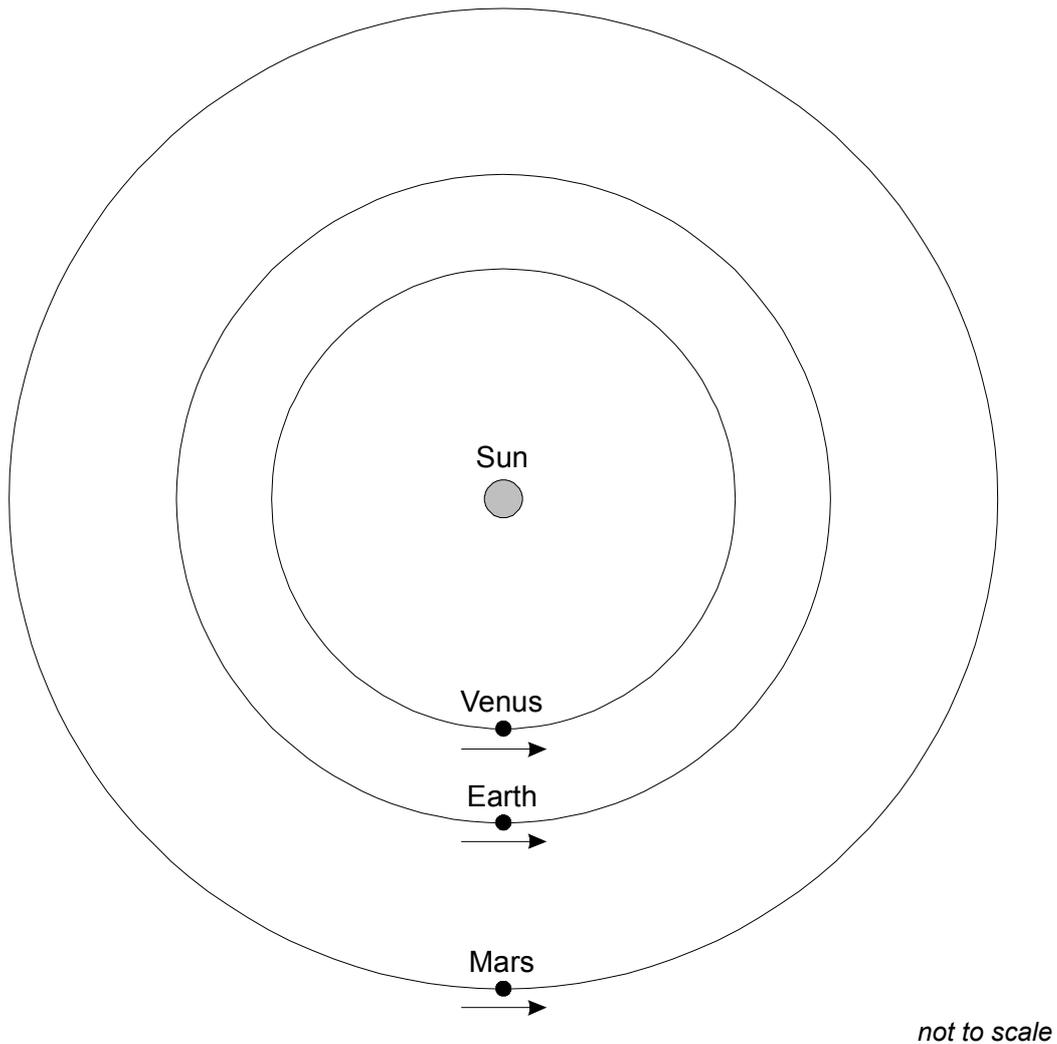
2 marks

Maximum 6 marks

3. The table shows the time taken for the Earth, Mars and Venus to orbit the Sun.

planet	time taken to orbit the Sun, in Earth years
Earth	1.0
Mars	1.9
Venus	0.6

The diagram shows the orbits of the Earth, Mars and Venus round the Sun, at one particular time. The arrows show the direction in which the planets move.



At the time shown in the diagram, the three planets were lined up with the Sun.

- (a) Show the position of the Earth **three** months after the planets were lined up, by marking a point on the Earth's orbit. Label the point E. 1 mark
- (b) (i) Show the approximate position of Mars **three** Earth months after the planets were lined up, by marking a point on Mars's orbit. Label the point M. 1 mark
- (ii) Explain why Mars is in this position.
- .....
- ..... 1 mark
- c) (i) Show the approximate position of Venus **three** Earth months after the planets were lined up, by marking a point on Venus's orbit. Label the point V. 1 mark

(ii) Explain why Venus is in this position.

.....  
.....

1 mark

Maximum 5 marks

4. Our Solar System consists of planets orbiting the Sun. Some of these planets have moons.

(a) Complete the four statements by drawing lines to join the boxes.

the average distance from Mercury to the Sun is	150 million km
the average distance from Pluto to the Sun is	0.38 million km
the average distance from the Earth to the Moon is	5900 million km
the average distance from the Earth to the Sun is	58 million km

4 marks

(b) Give the name of the star in our Solar System.

.....

1 mark

Maximum 5 marks