

Planetary Magnetism

Name & Set

1 Who first discovered that the Earth has a magnetic field?

_____ [1]

2 Why were sailors able to use the Earth's magnetic field to navigate the seas?

_____ [2]

3 How can you tell that the earth has a magnetic field?

_____ [2]

4 For each of the planets listed, find out whether they have a magnetic field or not. [3]

Planet	Does it have a magnetic field?	Is the magnetic field stronger or weaker than Earth's field?
Mercury		
Venus		
Mars		
Jupiter		
Saturn		
Uranus		
Neptune		
Pluto		

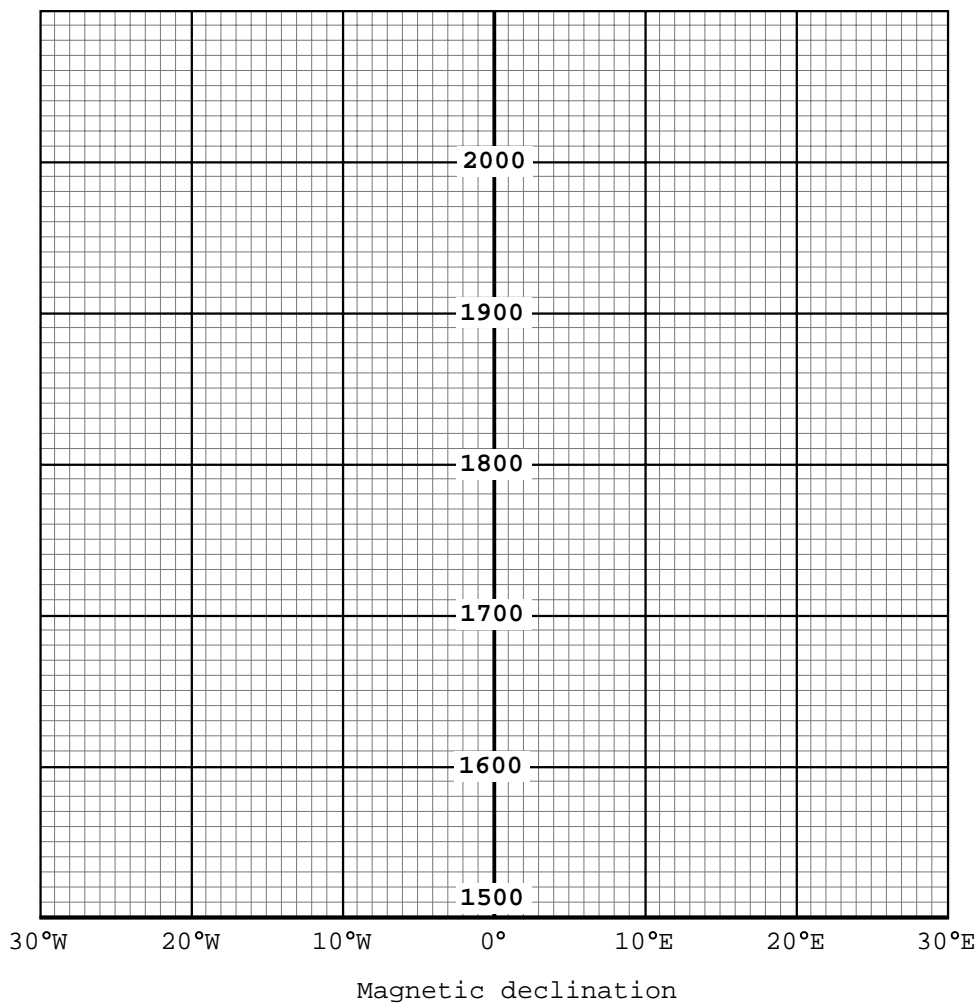
5 Does the Sun have a magnetic field? If so, how does it compare with the Earth's field?

_____ [3]

6 The needle of a magnetic compass does not point at the North Pole. The reason for this is that the Earth's magnetic field is constantly changing direction. The difference between true north and the direction in which a magnetic compass points is known as magnetic declination. The existence of magnetic declination was first noticed by Christopher Columbus in 1493. Records of magnetic declination in London have been kept since the reign of Queen Elizabeth I, The table shows some of these measurements.

Year	1580	1622	1659	1700	1760	1810	1880	1936	1960
Declination	11°E	6°E	0°	4°W	19°W	24.5°W	19°W	12°W	7°W

Draw a graph to show how magnetic declination has varied over the years. Plot the **year** on the vertical axis and the **magnetic declination** on the horizontal axis. In order to distinguish between eastern and western declination the vertical axis should be drawn at the centre of the horizontal axis with eastern declination to the right of this line and the western declination to the left.



By extrapolating your graph to the year 2000 estimate the date on which the magnetic declination in London will next be (i) 0°, (ii) 7°.

(i) _____ [1]

(ii) _____ [1]