

Earth, day, seasons and orbits

Grade 6 science (Year 7 · Class 6) · Test

Name: _____ Date: _____ Class: _____ Mark: ____ / 20

This test has eight questions and is worth 20 marks. Show every step in calculations and give units. Use 365 days for a year and 300 000 km/s for the speed of light. You have 45 minutes.

Level: Grade 6 science (Year 7 · Class 6) · **Curriculum:** MS-ESS1-2

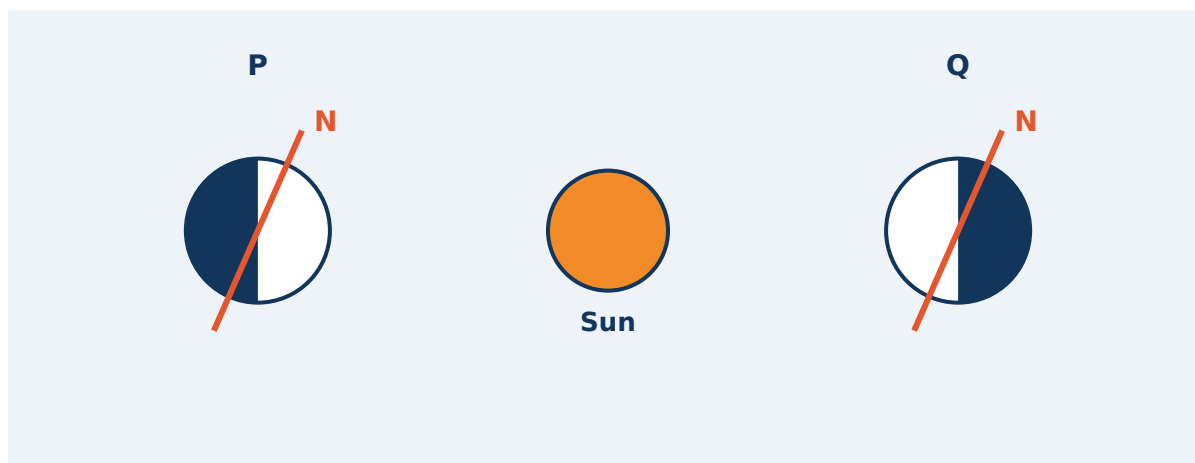
Time: 45 minutes · 8 questions · Total: 20 marks · Calculator allowed

Question 1 Rotation and revolution (2 marks)

- Define *rotation*. (1 mark)
- Define *revolution* and give its time for the Earth. (1 mark)

Question 2 Seasons diagram (3 marks)

The figure shows the Earth at P and Q.



Two positions of the Earth in its orbit.

- At which position is it summer in the northern hemisphere? (1 mark)
- Explain your answer using the tilt of the axis. (2 marks)

Question 3 Time difference (3 marks)

Town A is at 30° east and town B is at 75° east. The Earth turns 15° per hour.

- Calculate the difference in longitude. (1 mark)
- Calculate the time difference in hours. (1 mark)
- State the time in B when it is 09:00 in A. (1 mark)

Question 4 Mars year (3 marks)

Mars takes 687 days to orbit the Sun.

- a. Calculate how many Earth years this is, to two decimal places (1 year = 365 days). (1 mark)
- b. A child has lived 3650 days. Calculate the child's age in Mars years to one decimal place. (2 marks)

Question 5 Warm summers (2 marks)

Explain why it is warmer in summer than in winter in the northern hemisphere. (2 marks)

Question 6 Orbit and gravity (3 marks)

Explain why Earth stays in orbit around the Sun. Your answer should mention gravity and the Earth's motion. (3 marks)

Question 7 Planet groups (2 marks)

Name the four inner planets and state one way they differ from Jupiter. (2 marks)

Question 8 Light from Mars (2 marks)

Mars is 228 million km from the Sun. Calculate the time light takes to travel this distance at 300 000 km/s, in seconds and in minutes. (2 marks)