

IGCSE Year 4 Science

Topic 7: Earth and Space

Teacher's Answer Key

Set 1: Multiple Choice

Choose the single best answer for each question by circling the correct letter.

1. In which direction does the Earth spin on its axis?

- A. North to South
- B. Clockwise
- C. Anti-clockwise (West to East)
- D. Up and down

Answer: C

2. What is located at the very center of our Solar System?

- A. The Earth
- B. The Moon
- C. The Milky Way
- D. The Sun

Answer: D

3. How long does it take for the Earth to make one complete rotation on its axis?

- A. 12 hours
- B. 24 hours
- C. 7 days
- D. 365 days

Answer: B

4. What do scientists call the imaginary line that runs straight through the center of the Earth from the North Pole to the South Pole?

- A. The Equator
- B. The Orbit
- C. The Axis
- D. The Horizon

Answer: C

5. Which of the following is considered an "outer planet"?

- A. Mercury

- B. Mars
- C. Earth
- D. Neptune

Answer: D

6. What is the Sun classified as?

- A. A star
- B. A planet
- C. A comet
- D. An asteroid

Answer: A

7. What causes a comet to form a beautiful tail of gases?

- A. It crashes into an asteroid
- B. The ice melts as it gets close to the hot Sun
- C. It spins very fast
- D. It hits the Earth's atmosphere

Answer: B

8. Why do we have day and night on Earth?

- A. The Sun turns on and off
- B. The Sun moves around the Earth
- C. The Moon blocks the Sun
- D. The Earth rotates on its own axis

Answer: D

9. What is the name of the galaxy where our Solar System is located?

- A. The Andromeda Galaxy
- B. The Milky Way
- C. The Solar Galaxy
- D. The Universe

Answer: B

10. What is a "moon" in astronomy?

- A. A star that reflects light
- B. A chunk of ice orbiting the Sun
- C. A large natural object in orbit around a planet
- D. An asteroid that hits the ground

Answer: C

Set 2: True or False

State whether each statement is True or False, and write your answer on the line provided.

11. The Sun moves across the sky from east to west because it orbits the Earth. False (The Earth spins, making the Sun appear to move)
12. The Earth's axis is completely straight up and down. False (It is tilted at an angle)
13. The Sun's gravity keeps all the planets in their orbits. True
14. An orbit is the path an object takes around something else. True
15. Mercury, Venus, Earth, and Mars are the four inner planets. True
16. If it is daytime in your country, your part of the Earth is facing away from the Sun. False (It is facing the Sun)
17. The Solar System contains only the Sun and eight planets; there is nothing else in it. False (It also contains moons, asteroids, and comets)
18. Earth is the only planet in the Solar System located at the right distance from the Sun to have liquid water and support life. True
19. A meteorite is a space rock that has successfully hit the ground. True
20. The Earth's atmosphere prevents the heat of the Sun from completely escaping into space at night. True

Set 3: Fill in the Blanks

Fill in the missing scientific word to complete each sentence.

21. The Earth is shaped roughly like a giant sphere.
22. The Earth's axis is tilted at an angle of 23.5 degrees.
23. The four planets furthest from the Sun (Jupiter, Saturn, Uranus, and Neptune) are known as the outer planets.
24. As the Earth spins, the Sun seems to rise in the east and set in the west.
25. The Earth moves around the Sun once a year.
26. The Sun is a huge, hot ball of glowing gas at the center of the Solar System.
27. A planetary system is a group of planetary bodies in orbit around a star (or star system).
28. When the Sun seems to sink below the horizon, it creates long shadows on the surface of the Earth.
29. A comet is a chunk of ice and rock that orbits the Sun.
30. The entire universe contains billions of galaxies, and ours is called the Milky Way.

Set 4: Matching Concepts

Match the term on the left with its correct scientific description on the right. Write the correct letter (A–E) on the line next to each term.

Descriptions Bank:

- A. A rock from space that does not completely burn up and hits the ground.
- B. The star at the center of our Solar System.
- C. A small rocky object that orbits the Sun.
- D. The curved path followed by an object going around the Sun or a planet.
- E. A small object with an icy core that has a tail of gases near the Sun.

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|---------------|------------------------------|
| 31. Comet | <u> E </u> |
| 32. Orbit | <u> D </u> |
| 33. Meteorite | <u> A </u> |
| 34. Sun | <u> B </u> |
| 35. Asteroid | <u> C </u> |

Set 5: Short Answer Questions

Write a brief scientific explanation for each question on the lines provided.

36. Why did people in the past think the Sun moved around the Earth?

Answer: Because every day the Sun appeared to travel across the sky from east to west.

37. Name the four inner planets closest to the Sun.

Answer: Mercury, Venus, Earth, and Mars.

38. Explain why Earth is the perfect planet to support life.

Answer: It is at the right distance from the Sun to be warm enough, it has liquid water on its surface, and it has an atmosphere.

39. What happens to the gases on a comet when it moves away from the Sun's heat?

Answer: The gases refreeze.

40. What invisible force from the Sun keeps all the planets, asteroids, and comets safely in their orbits?

Answer: Gravity (or the gravitational pull of the Sun).

Set 6: Scientific Enquiry / Practical Questions

These questions test your ability to model and investigate scientific concepts.

41. Safia is making a papier-mâché model of the Earth. To show how the Earth spins, she pushes a wooden stick straight through the center from top to bottom. What does this wooden stick represent?

Answer: The Earth's axis.

42. Safia wants her model to be completely accurate to the real Earth. Should she hold the stick perfectly straight up and down, or tilted? Explain why.

Answer: She should hold it tilted, because the Earth's axis is tilted at an angle (23.5 degrees).

43. Youssef uses a flashlight to represent the Sun and shines it at Safia's spinning globe. What do the parts of the globe that are in darkness represent?

Answer: The countries experiencing night-time.

44. If you wanted to investigate how shadows change during the day, what observation would you make about a shadow at sunrise versus midday?

Answer: At sunrise the shadow is very long, and at midday the shadow is shorter.

45. Look at a model of the Solar System in a classroom. Why does a physical model fail to show the exact true distances and sizes of planets at the same time?

Answer: Models are not fully representative of the real world because the real distances and sizes are too huge (vast) to fit perfectly to scale in a single classroom model.

Set 7: Exam-Style Structured Questions

These questions mimic the exact phrasing and style used in Cambridge Primary Checkpoint past papers.

46. The Earth is a planet that moves in space.

a) State the name of the path the Earth takes as it travels around the Sun. (1 mark)

Answer: a) An orbit.

b) State how long it takes for the Earth to complete this journey around the Sun. (1 mark)

Answer: b) One year (or 365 and a quarter days).

47. A planetary system contains many different bodies.

a) Name the galaxy that our Solar System is part of. (1 mark)

Answer: a) The Milky Way.

b) What is the main difference between a planet and the Sun? (1 mark)

Answer: b) The Sun is a star (a hot ball of glowing gas that produces light), while a planet orbits a star and only reflects light.

48. Chen builds a model of the Earth and the Sun using a ball and a lamp. He spins the ball on an axis.

a) Explain how this model shows the cause of day and night. (2 marks)

Answer: a) As the ball (Earth) spins, the side facing the lamp (Sun) has daylight. The side facing away is in darkness, showing night.

49. Look at the following space objects: Moon, Asteroid, Comet. Which of these objects is made of ice and rock and forms a tail when it gets close to the Sun? (1 mark)

Answer: A comet.

50. The Earth has an atmosphere. Describe one reason why the atmosphere is important for keeping the Earth warm at night. (2 marks)

Answer: The atmosphere is a mixture of gases that surrounds the Earth. Without it, the heat from the Sun would be lost into space at night, making the Earth much too cold.