Natural Sciences and Technology · Grade 6

Space and Technology

Term 4 | 7 questions | CAPS-aligned

TOTAL 58 MARKS

NAME AND SURNAME _____ CLASS _____ DATE _____

Instructions

1. This question paper consists of TWO sections. Answer all the questions.
2. Answer all the questions on the question paper itself, in the spaces provided.
3. Read each question carefully before you begin writing.
4. Write neatly and legibly. Work that cannot be read cannot be marked.
5. You may use a pencil and a ruler for drawings and diagrams.

Question	Content of the question	Marks	Obtained
1	Multiple choice questions	6	
2	Short questions	9	
3	Day and night	6	
4	The Sun, the Earth and the Moon	9	
5	Information about the planets	10	
6	Technology: testing model rovers	10	
7	Exploring space	8	
	Total	58	
	Percentage		%

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Section A — Multiple-choice and short questions

1 Multiple choice questions — 6 marks

Choose the correct answer and circle its letter.

1.1 Where is the asteroid belt? **(1)**

(a) Between the Earth and Venus (b) Between Mars and Jupiter (c) Beyond Neptune

1.2 Many Mars rovers get their energy from: **(1)**

(a) solar panels (b) petrol (c) the wind

1.3 Who drove the Moon Rover on the Moon? **(1)**

(a) Nobody – it drove itself (b) People controlling it from Earth (c) Astronauts sitting in it

1.4 How long does one full rotation of the Earth take? **(1)**

(a) About 24 hours (b) About 28 days (c) About 365 days

1.5 Which one of these would make the BEST axle for a model rover? **(1)**

(a) A piece of string (b) A rubber band (c) A kebab stick

1.6 In the design process, the step where you test the finished product to see whether it meets the specifications is called: **(1)**

(a) Evaluate (b) Investigate (c) Make

2 Short questions — 9 marks

2.1 Write TRUE or FALSE next to each statement. **(4)**

Statement	True / False
a. All the planets revolve around the Sun in their own orbits.	
b. Only the Earth rotates on its own axis.	
c. People have already walked on Mars.	
d. Mars rovers are controlled by people on Earth.	

2.2 Fill in the missing word in each sentence. **(3)**

a. The Earth takes about $365\frac{1}{4}$ days to travel once around the Sun. We call this time one _____ .

b. The 64 radio dishes of MeerKAT in the Karoo are the first part of a huge telescope project called the _____ .

c. Pluto is not one of the eight planets. It is called a _____ planet.

2.3 Name TWO things that scientists can learn about space by using telescopes. **(2)**

Section B Space and technology

3 Day and night — 6 marks

3.1 It is 12:00 midday in Cape Town. **(3)**

a. Is it day or night at a place on the exact opposite side of the Earth? (1)

b. Explain your answer. (2)

3.2 We say that the Sun 'rises' in the morning and 'sets' in the evening, but the Sun does not move around the Earth. Explain what really happens. **(3)**

4 The Sun, the Earth and the Moon

9 marks

4.1 Sipho is the Moon and a chair is the Earth. Sipho walks once around the chair, and the whole time his face looks at the chair. **(3)**

a. Which movement of the Moon does walking around the chair show?

b. While Sipho walks around the chair once, he also turns once on his own axis. Which movement of the Moon is this?

c. About how long does the real Moon take for EACH of these movements?

4.2 Write YES or NO in each block. **(3)**

	Sun	Earth	Moon
Gives off its own light			

4.3 Apart from light, give TWO differences between the Sun and the Earth. **(2)**

4.4 What shape are the Sun, the Earth and the Moon? **(1)**

5 Information about the planets

10 marks

Read the information in the table.

Planet	Rocky or gas	Number of moons	Time to go once around the Sun
Mars	rocky	2	687 days
Saturn	gas	more than 100	about 29 years
Mercury	rocky	0	88 days
Earth	rocky	1	365 days

5.1 Write the four planets in the table in order, starting with the one closest to the Sun. **(3)**

5.2 Describe the pattern between a planet's distance from the Sun and the time it takes to go around the Sun. Use TWO planets from the table as examples. **(3)**

5.3 The table says that Saturn has 'more than 100' moons. Why do books and websites often give different numbers of moons for the same planet? **(2)**

5.4 Give TWO ways in which Saturn is different from the Earth. Use the table and what you know. **(2)**

6 Technology: testing model rovers

10 marks

Grade 6 learners made three model rovers (A, B and C) with wheels and axles. They let each rover roll down the same ramp and measured how far it rolled across the floor.

Rover	Distance rolled (cm)
A	120
B	75
C	160

6.1 Name TWO things the learners must keep the SAME to make this a fair test. **(2)**

6.2 Draw a bar graph of the results. Give the graph a heading and label both axes. **(3)**

6.3 The wheels of rover B rub against its box. Suggest ONE way to improve rover B, and explain why it will help. **(2)**

6.4 A real Mars rover must drive over rocks and soft sand. Name THREE ways you would change rover C to make it work better on Mars. **(3)**

7 Exploring space

8 marks

7.1 Answer the questions about telescopes. **(4)**

a. What does an optical telescope, such as SALT, collect from far-away objects? (1)

b. Why can a LARGE telescope see fainter and further objects than a small telescope? (1)

c. Give TWO reasons why big radio-telescope dishes are built in remote places, far from towns. (2)

7.2 A Mars rover takes a photograph and sends it to Earth. **(2)**

a. Which part takes the photograph?

b. Which part sends it to Earth?

7.3 Telescopes on Earth and rovers on Mars both help us to learn about space. Give ONE advantage of a rover over a telescope, and ONE advantage of a telescope over a rover. **(2)**

Total **58 marks**



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