# Natural Sciences and Technology · Grade 6

Memorandum · Term 4

TOTAL
58
MARKS

## Marking guidelines

1. Award the full mark for a correct answer, even if the learner words it differently.
2. Accept any scientifically correct answer, including one not given in the memorandum.
3. Where a question asks for two or more items, award one mark per correct item.
4. For diagrams, award the mark if the label points at the correct part, even with a spelling error.
5. Do not deduct marks for spelling unless the word takes on a different scientific meaning.

| Question | Answer | Marks | Marking note |
|---|---|---|---|
| **QUESTION 1 · Multiple choice questions · 6 marks** | | | |
| **1.1** | b. Between Mars and Jupiter | **1** | |
| **1.2** | a. solar panels | **1** | |
| **1.3** | c. Astronauts sitting in it | **1** | |
| **1.4** | a. About 24 hours | **1** | |
| **1.5** | c. A kebab stick | **1** | |
| **1.6** | a. Evaluate | **1** | |
| **QUESTION 2 · Short questions · 9 marks** | | | |
| **2.1** | a. True; b. False; c. False; d. True | **4** | *1 mark each.* |
| **2.2** | a. year; b. SKA (Square Kilometre Array); c. dwarf | **3** | *1 mark each. For b. also accept 'Square Kilometre Array'.* |
| **2.3** | Any two: what planets and moons look like; discover new moons, planets or other objects; study stars and galaxies far away; see craters and mountains on the Moon; follow how objects move. | **2** | *1 mark each.* |

| Question | Answer | Marks | Marking note |
|---|---|---|---|
| **QUESTION 3 · Day and night · 6 marks** | | | |
| **3.1** | a. Night (1). b. Only the half of the Earth that faces the Sun has day; Cape Town is facing the Sun (1), so the opposite side faces away from the Sun and is dark (1). | **3** | |
| **3.2** | The Earth rotates (spins) on its own axis (1). In the morning our part of the Earth turns towards the Sun, so the Sun seems to rise (1). In the evening our part turns away from the Sun, so the Sun seems to set (1). | **3** | |
| **QUESTION 4 · The Sun, the Earth and the Moon · 9 marks** | | | |
| **4.1** | a. Revolution (revolving around the Earth). b. Rotation. c. About 28 days (about a month). | **3** | *1 mark each. Accept 27 to 29$\frac{1}{2}$ days for c.* |
| **4.2** | Sun = Yes; Earth = No; Moon = No | **3** | *1 mark each. Note: CAPS (Afr.) wrongly says moons give off their own light; the correct answer is No.* |
| **4.3** | Any two: the Sun is a star, the Earth is a planet; the Sun is made of hot gases, the Earth is made of rock; the Sun is much bigger; the Sun is in the centre, the Earth revolves around the Sun; the Sun is very hot. | **2** | *1 mark each.* |
| **4.4** | Round, like a ball (a sphere). | **1** | |
| **QUESTION 5 · Information about the planets · 10 marks** | | | |
| **5.1** | Mercury, Earth, Mars, Saturn. | **3** | *3 = all four correct; 2 = two swapped; 1 = only the first or the last correct; 0 = otherwise.* |
| **5.2** | The further a planet is from the Sun, the longer it takes to go once around it (1). Two correct examples from the table, 1 mark each, e.g. Mercury (closest) takes 88 days; Saturn (furthest) takes about 29 years. | **3** | |
| **5.3** | Scientists keep discovering new moons (1), with better telescopes and spacecraft, so the number keeps changing and older books are out of date (1). | **2** | |

| Question | Answer | Marks | Marking note |
|---|---|---|---|
| **5.4** | Any two: Saturn is a gas planet, the Earth is rocky; Saturn has many more moons; Saturn takes much longer to go around the Sun (its year is about 29 Earth years); Saturn is much bigger; Saturn has large rings; Saturn is much colder and further from the Sun. | **2** | *1 mark each.* |
| **QUESTION 6 · Technology: testing model rovers · 10 marks** | | | |
| **6.1** | Any two: the same ramp; the same height (slope) of the ramp; the same starting point; the same floor; let go without pushing. | **2** | *1 mark each.* |
| **6.2** | 1 mark: three bars of the correct heights (A 120 cm, B 75 cm, C 160 cm). 1 mark: axes labelled (rover A, B, C; distance rolled in cm). 1 mark: a suitable heading. | **3** | |
| **6.3** | One sensible improvement (1): move the wheels further out on the axles; put small spacers (pieces of straw) between the wheels and the box; use bigger wheels. Reason (1): the wheels can then turn freely without rubbing, so the rover rolls further. | **2** | |
| **6.4** | Any three: bigger wheels; wider wheels; wheels with grooves (treads) to grip; more wheels (six); stronger axles and body; a way to steer; its own power source (solar panel and motor). | **3** | *1 mark each.* |
| **QUESTION 7 · Exploring space · 8 marks** | | | |
| **7.1** | a. Light (1). b. Its big mirror (lens) collects much more light (1). c. Any two: few radio signals from cellphones, radios and TVs to disturb them; few people live there; flat, open land with space for many dishes; dry, clear weather. | **4** | *1 mark each.* |
| **7.2** | a. The camera (1). b. The antenna (communication system) (1). | **2** | |
| **7.3** | Rover (1): it can touch, dig and test the rocks and soil up close; it takes close-up photos. Telescope (1): it can look at many objects far away (not only one planet); it is cheaper; it stays on Earth and can be repaired. | **2** | |

**Total** **58 marks**



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