# Natural Sciences and Technology · Grade 4

Memorandum · Term 3–4

TOTAL 40 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 · 5 marks** | | | |
| **1.1** | b. About a month ($29\frac{1}{2}$ days) | **1** | |
| **1.2** | a. A piece of coal | **1** | *Term 3: energy around us, stored energy.* |
| **1.3** | b. Hot gas | **1** | |
| **1.4** | c. The Sun | **1** | |
| **1.5** | b. It pushes exhaust gases out at its back | **1** | |
| **QUESTION 2 · Matching · 4 marks** | | | |
| **2.1** | 1 = B (orbit); 2 = D (pitch); 3 = E (hearing aid); 4 = C (noise pollution) | **4** | *1 mark each. A (volume) is left over.* |
| **QUESTION 3 · True or false · 5 marks** | | | |
| **3.1** | TRUE | **1** | |
| **3.2** | FALSE | **1** | *There is no air and no water on the Moon.* |
| **3.3** | FALSE | **1** | *The Sun's light shines on the Moon, and we see only the part the Sun shines on.* |
| **3.4** | TRUE | **1** | |

| Question | Answer | Marks | Marking note |
|---|---|---|---|
| **3.5** | TRUE | **1** | |
| **QUESTION 4 · Planet Earth · 5 marks** | | | |
| **4.1** | A = a continent (Africa);  B = an island (Madagascar) | **2** | *1 mark each. The name alone ("Africa", "Madagascar") does not earn the mark, because the question asks for the TYPE of land.* |
| **4.2** | Water (oceans and seas) | **1** | |
| **4.3** | Rock | **1** | *Also accept "rock and soil" for the Earth.* |
| **4.4** | Any one that is drawn: ocean/sea; desert; forest; grassland; ice (polar cap) | **1** | |
| **QUESTION 5 · The Sun, the Earth and the Moon · 4 marks** | | | |
| **5.1** | Sun, Earth, Moon | **1** | *All three must be in the correct order for the mark.* |
| **5.2** | The Sun is very far away, much further from the Earth than the Moon is. | **1** | *Also accept "the Moon is much closer to the Earth".* |
| **5.3** | The Earth gets just the right amount of heat and light from the Sun, so it is not too hot and not too cold. | **1** | *Also accept "the Sun gives the heat and light that living things need".* |
| **5.4** | That the Moon is important in people's lives, e.g. for counting months, knowing when to plant, or giving light at night. | **1** | |
| **QUESTION 6 · Technology: balloon rockets · 3 marks** | | | |
| **6.1** | Three bars: A = 4 m, B = 6 m, C = 2 m. Horizontal axis: rocket (A, B, C); vertical axis: distance moved (m). | **2** | *1 mark for three bars at the correct heights; 1 mark for both axes labelled.* |
| **6.2** | Any one: blow more air into the balloon or use a bigger/longer balloon; pull the line tighter; use less tape so it is lighter; make sure the straw slides easily. | **1** | |
| **QUESTION 7 · The human ear and hearing · 5 marks** | | | |
| **7.1** | A = outer ear (ear flap);  B = eardrum | **2** | *1 mark each. Accept "pinna" for A.* |

| Question | Answer | Marks | Marking note |
|---|---|---|---|
| **7.2** | The skin of the drum vibrates (1). The vibrations travel outwards through the air, into the ear canal, and make the eardrum vibrate (1). | **2** | *1 mark for the vibrating drum skin, 1 for the sound travelling through the air to the eardrum.* |
| **7.3** | It can damage your hearing for good, so you can become deaf or hard of hearing. | **1** | |
| **QUESTION 8 · Energy chains, input and output · 4 marks** | | | |
| **8.1** | Sun → maize plant → Thandi (person) | **2** | *1 mark for the correct order; 1 mark for arrows pointing from the Sun to the plant to the person (the direction the energy moves).* |
| **8.2** | Input: electricity from the batteries (energy stored in the batteries) (1). Output: light (1). | **2** | *Do not accept "heat" alone as the useful output.* |
| **QUESTION 9 · Technology: design a musical instrument · 5 marks** | | | |
| **9.1** | Any one, if it fits the instrument described in 9.2 (e.g. bottle flute = blow; tin drum = hit; elastic-band guitar = pluck). | **1** | *Accept SHAKE for a rattle.* |
| **9.2** | A clear sketch of an instrument that could work, with labels showing the materials AND the sound-making part (string/elastic, drum skin, air in bottle, bottle tops). | **2** | *1 mark for the sketch; 1 mark for the labels.* |
| **9.3** | Any change that fits the instrument: tighten, shorten or thin the string/elastic band; use a shorter tube or pipe; put more water in a bottle you BLOW across; tighten the drum skin or use a smaller drum. | **1** | *Mark against the learner's own design.* |
| **9.4** | Play it and listen: does it make a clear sound; can it play loud and soft, or high and low; ask classmates to listen; check that it does not break. | **1** | |

**Total** **40 marks**



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