MeerkatSkool

PRACTICE TEST

Practice test · Term 3
Version 1.6 · 21 October 2026

# Natural Sciences and Technology · Grade 6

Energy and Change

Term 3 | 9 questions | CAPS-aligned

TOTAL 63 MARKS

NAME AND SURNAME _____ CLASS _____ DATE _____

## Instructions

1. This question paper consists of NINE questions. 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 | 3 | |
| 2 | Matching | 4 | |
| 3 | Short questions | 6 | |
| 4 | Electric circuits | 10 | |
| 5 | Energy generation | 8 | |
| 6 | Circuits that solve problems | 6 | |
| 7 | Technology: making a switch | 8 | |
| 8 | Technology: design a circuit system | 10 | |
| 9 | Mains electricity and safety | 8 | |
| | **Total** | **63** | |
| | **Percentage** | | % |

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## 1 Multiple choice

3 marks

*Choose the correct answer and circle its letter.*

**PRACTICE EXAMPLE · DO THIS ONE TOGETHER FIRST**

Where do plants get their energy from?

a The soil  b The Sun  c The wind

Plants capture sunlight to make food, so the answer is b. Circle the b.

This example does not count for marks. It only shows you how to answer.

**1.1** Which one of the following is an insulator of electricity? **(1)**

(a) Copper  (b) Aluminium  (c) Rubber

**1.2** In South Africa most electricity is generated by: **(1)**

(a) Burning coal  (b) Wind turbines  (c) Solar panels

**1.3** Which one of these appliances uses the MOST electricity in one hour? **(1)**

(a) A radio  (b) A kettle  (c) A cellphone charger

## 2 Matching

4 marks

*Match the description in COLUMN A with the correct word in COLUMN B. Write only the LETTER. One word is left over.*

**2.1** **(4)**

| COLUMN A | COLUMN B | Answer |
|---|---|---|
| 1. A material that electricity flows through easily | A. Renewable | 1 = _____ |
| 2. A material that stops electricity | B. Conductor | 2 = _____ |
| 3. A device that opens and closes a circuit | C. Fuel | 3 = _____ |
| 4. An energy source that does not run out | D. Insulator | 4 = _____ |
| | E. Switch | |

## 3 Short questions

6 marks

**3.1** Write next to each material whether it is a CONDUCTOR or an INSULATOR. **(4)**

| Material | Conductor / Insulator |
|---|---|
| Copper wire | |
| Glass | |
| Aluminium foil | |
| Plastic | |

**3.2** Name TWO places where insulators are used to keep people safe from electricity. **(2)**

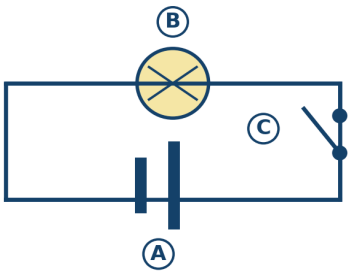
_____

_____

## 4 Electric circuits

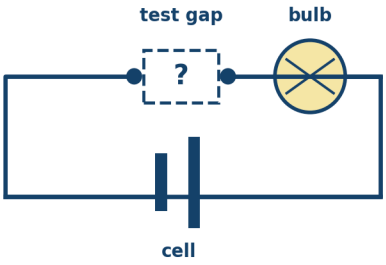
10 marks

**4.1** Study the circuit below and name the parts A, B and C. **(3)**




A: _____ B: _____ C: _____

**4.2** A learner tests materials in the test gap of the circuit below. **(3)**




| Item in the gap | Does the bulb light? Yes / No |
|---|---|
| A copper wire | |
| A rubber band | |
| A coin | |

**4.3** In the circuit in 4.1, switch C is OPEN. Will the bulb light? Explain your answer. **(2)**

**4.4** Sipho joins a bulb to a cell with only ONE wire. The bulb does not light. Explain why. **(2)**

## 5 Energy generation

**8 marks**

**5.1** Write next to each source of energy whether it is RENEWABLE or NON-RENEWABLE. **(4)**

| Source of energy | Renewable / Non-renewable |
|---|---|
| Coal | |
| Wind | |
| Oil (petrol and diesel) | |
| Sunlight | |

**5.2** A town is considering a wind farm instead of a new coal power station. Name TWO advantages and TWO disadvantages of the wind farm. **(4)**

## 6 Circuits that solve problems

**6 marks**

**6.1** Write next to each system the main useful output energy that its circuit produces. **(3)**

| System | Output energy |
|---|---|
| A street light | |
| A burglar alarm | |
| An electric gate motor | |

**6.2** Learners build a steady-hand game. A bare wire is bent into a wavy shape. You must move a metal loop along the bent wire without touching it. If the loop touches the wire, a buzzer sounds. **(3)**

a. What acts as the SWITCH in this game?

b. Why must the bent wire and the loop be bare metal, and not covered in plastic?

c. Name the source of energy in this circuit.

## 7 Technology: making a switch

**8 marks**

Thabo makes a switch for his circuit. He pushes two metal drawing pins into a piece of cardboard, about 3 cm apart. He hooks a steel paper clip around one pin so that it can swing round and touch the other pin. He connects one plastic-covered copper wire to each drawing pin.

**7.1** Write next to each part of Thabo's switch whether it is a CONDUCTOR or an INSULATOR. **(4)**

| Part | Conductor or insulator |
|---|---|
| **Drawing pins** | |
| **Paper clip** | |
| **Cardboard base** | |
| **Plastic covering of the wires** | |

**7.2** Explain how Thabo's switch turns the bulb on and off. **(2)**

**7.3** Name TWO things you would check when you EVALUATE Thabo's switch. **(2)**

## 8 Technology: design a circuit system

10 marks

**THE DESIGN BRIEF**

Ships near a rocky coast must be warned at night, even when there is thick fog. Design a model lighthouse that warns ships in TWO different ways and that can be switched on and off. You may use: one battery, a bulb in a holder, a buzzer, wires, a switch that you make yourself, a cardboard tube and other recycled materials.

**8.1** Which TWO kinds of useful output energy must your circuit produce to warn the ships? Name the part that produces each one. **(2)**

**8.2** Name THREE specifications (requirements) for your lighthouse. **(3)**

**8.3** You may use only ONE battery. Explain how this constraint (limitation) could affect your lighthouse. **(2)**

**8.4** Draw a labelled sketch of your lighthouse. Show where the battery, the bulb, the buzzer and the switch will be. **(3)**

## 9 Mains electricity and safety

8 marks

**9.1** Some people connect wires to the power lines illegally. Give TWO reasons why illegal connections are dangerous. **(2)**

**9.2** Give THREE reasons why it is important to save electricity. **(3)**

**9.3** Name THREE ways to save electricity at home. **(3)**

**Total** **63 marks**



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