

# SMARTWIZ

## GRADE 6 TECHNOLOGY EXAM

**MARKS: 50**

| MARKS |  |
|-------|--|
|-------|--|

**TIME: 1 hour 30 Minutes**

**SCHOOL** \_\_\_\_\_

**CLASS (e.g. 4A)** \_\_\_\_\_

**SURNAME** \_\_\_\_\_

**NAME** \_\_\_\_\_

### Instructions for Learners:

- Read all instructions carefully before beginning the exam.
- Write your name and student number clearly on the answer sheet or booklet.
- Answer all questions unless otherwise indicated.
- Show all workings/calculations where applicable.
- Write clearly and legibly.
- Use only blue or black ink. \* Do not use correction fluid or tape.
- No electronic devices (such as calculators, cell phones, etc.) are allowed unless specifically permitted.
- Raise your hand if you have a question.
- Do not talk to other learners during the exam.
- Any form of dishonesty will result in disqualification.

**This exam consists of 5 pages, including the cover page.**

## SECTION A: STRUCTURES (15 Marks)

1. What is a structure?

\_\_\_\_\_ (2)

2. Name **two** natural structures and **two** man-made structures.

Natural:

a) \_\_\_\_\_

b) \_\_\_\_\_

Man-made:

c) \_\_\_\_\_

d) \_\_\_\_\_ (4)

3. Look at the diagram of a bridge below. Label **two** parts (e.g., deck, pillar, beam).



Label 1: \_\_\_\_\_

Label 2: \_\_\_\_\_ (2)

4. What is the purpose of **triangles** in frame structures?

\_\_\_\_\_  
\_\_\_\_\_ (2)

5. Which structure is stronger: a square frame or a triangle frame? Why?

\_\_\_\_\_  
\_\_\_\_\_ (3)  
\_\_\_\_\_

## SECTION B: MATERIALS AND PROCESSING (15 Marks)

6. Name **two** properties of metal.

a) \_\_\_\_\_

b) \_\_\_\_\_ (2)

7. Match the materials to their correct uses: (Write A, B, C...)




| Material | Use |
|----------|-----|
|----------|-----|

- |            |                      |
|------------|----------------------|
| A. Plastic | ___ Roofing          |
| B. Wood    | ___ Toys             |
| C. Metal   | ___ Furniture        |
| D. Tiles   | ___ Cooking pots (4) |

8. What does it mean to "process" a material?

\_\_\_\_ (2)

9. Look at the image of tools below. Name any **two** tools and say what they are used for.

   (Insert visuals of a wrench, hammer, and saw)

Tool 1: \_\_\_\_\_ Used for: \_\_\_\_\_

Tool 2: \_\_\_\_\_ Used for: \_\_\_\_\_ (4)

10. Why is safety important when using tools?

\_\_\_\_ (3)

## SECTION C: ENERGY & ELECTRICITY (10 Marks)

11. What is energy?

\_\_\_\_ (2)

12. Name **two** sources of energy:

a) \_\_\_\_\_

b) \_\_\_\_\_ (2)

13. Fill in the blanks:

- A circuit needs a \_\_\_\_\_, a \_\_\_\_\_, and wires to work. (2)

14. Is the sun a renewable or non-renewable energy source? Explain.

\_\_\_\_ (2)

15. Look at the diagram of a simple circuit and answer:

**SIMPLE ELECTRIC CIRCUIT**



Will this circuit work? Why or why not?

\_\_\_ (2)

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## SECTION D: DESIGN & PROBLEM-SOLVING (10 Marks)

16. You are designing a lunchbox. Name **two** things to consider when choosing a material.

a) \_\_\_\_\_

b) \_\_\_\_\_ (2)

17. What is the **design process**? (Tick the correct steps)

☐ Plan

☐ Eat

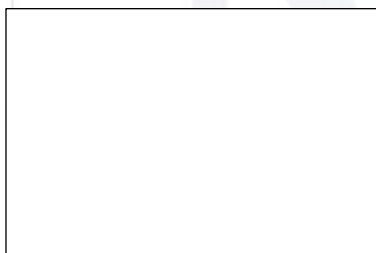
☐ Investigate

☐ Make

☐ Sleep

☐ Evaluate (4)

18. Draw and label a simple design of a pencil holder. (Draw a cylinder or box shape, label “plastic”, “base”, “lid”) (4)



**End of Exam**

## **MEMO**

### **SECTION A: STRUCTURES (15 Marks)**

1. A structure is something that is built or formed to support a load or serve a purpose. ✓✓
2.
  - Natural:
    - a) Tree ✓
    - b) Beehive / Spider web / Mountain ✓
  - Man-made:
    - c) Bridge ✓
    - d) House / Tower ✓
3. Diagram labels (any two correct):
  - Deck ✓
  - Beam ✓
  - Pillar / Support / Arch ✓
4. Triangles make structures stronger and prevent them from collapsing by distributing force evenly. ✓✓
5. A triangle frame is stronger because it does not change shape easily and gives more support. ✓✓✓

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### **SECTION B: MATERIALS AND PROCESSING (15 Marks)**

6.
  - a) Strong ✓
  - b) Shiny / Conducts heat and electricity / Hard ✓
7.
  - A. Plastic – Toys ✓
  - B. Wood – Furniture ✓
  - C. Metal – Cooking pots ✓
  - D. Tiles – Roofing ✓
8. Processing a material means changing its form or shape to make it useful for a product. ✓✓
- 9.

Tool 1: Hammer – Used for hitting nails ✓✓

Tool 2: Saw – Used for cutting wood ✓✓

(Any appropriate tools accepted)

10. Safety is important to avoid injuries, damage to tools, and to work correctly. ✓✓✓

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## SECTION C: ENERGY & ELECTRICITY (10 Marks)

11. Energy is the ability to do work or make things move/change. ✓✓

12.

a) Sun ✓

b) Wind / Coal / Water / Batteries (any valid source) ✓

13. A circuit needs a **battery**, a **bulb** (or load), and wires. ✓✓

14. The sun is a renewable source because it can be used over and over and won't run out. ✓✓

15. Yes, if the battery, bulb, and wires are connected in a complete loop. ✓✓

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## SECTION D: DESIGN & PROBLEM-SOLVING (10 Marks)

16.

a) Waterproof ✓

b) Non-toxic / Easy to clean / Durable ✓

17. Correct steps to tick:

☒ Plan ✓

☒ Investigate ✓

☒ Make ✓

☒ Evaluate ✓

(Do not tick "Eat" or "Sleep")

18. Drawing of a pencil holder with labels such as:

- Plastic or Metal ✓
  - Base ✓
  - Lid or Sides ✓
  - Overall design effort ✓
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✓ Total: 50 Marks

