education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

PROVINCIAL ASSESSMENT

GRADE 6

NATURAL SCIENCES AND TECHNOLOGY
NOVEMBER 2024

Name of learner: _____

MARKS: 60

DURATION: 1½ hours

This question paper consists of11 pages.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. Answer ALL the questions.
2. Write ALL the answers in the SPACES PROVIDED in the question paper.
3. Use a pencil and ruler when drawing diagrams and graphs.
4 Present your answers according to the instructions for each question.
5 Write neatly and legibly.

SECTION A

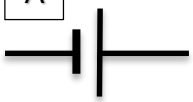
QUESTION 1

1.1 Various options are provided as possible answers to the following questions. Choose the correct answer and Circle ONLY the letter of the correct answer. Example 1.1.8 (A)

1.1.1 Identify the symbol of the component in a circuit that is responsible to provide energy in an electric circuit.

A 

B 

C 

D 

(1)

1.1.2 Any material that is a poor conductor of electric current is referred to as a/an …

A Insulator
B Buzzer
C Bulb
D Insinuator (1)

1.1.3 The diagram below shows an electric circuit with components labelled X, Y and Z.

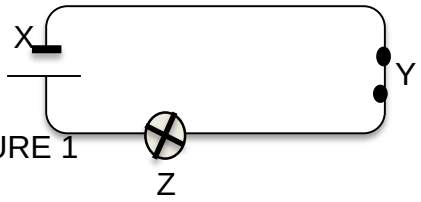


FIGURE 1

Which one of the following correctly represent X, Y and Z?

	X	Y	Z
A	Cell	Switch	Ammeter
B	Battery	Switch	Light bulb
C	Battery	Switch	Voltmeter
D	Cell	Switch	Light bulb

(1)

1.1.4 When clapping your hands, the energy change that takes place is from …

A kinetic energy to wind energy
B kinetic energy to sound and heat energy
C potential energy to chemical energy
D chemical energy to potential and heat energy (1)

1.1.5 In the solar system all the planets keep on moving around the Sun because of …

A power
B asteroid belt
C static force
D gravitational force (1)

1.1.6 The asteroid belt is between …

A Mars and Venus.
B Neptune and Uranus.
C Earth and Jupiter.
D Mars and Jupiter. (1)

1.1.7 The Curiosity rover was used on one of the planets:

A Jupiter
B Mars
C Venus
D Moon (1)
[7]

1.2 Give the correct **scientific term** for each of the following descriptions.
Write only the term in the space provided.

1.2.1 Network of electricity cables transporting electricity from power stations to our homes.

_____ (1)

1.2.2 The natural fuel forming from dead animals and plants over million years.

_____ (1)

1.2.3 Two or more cells connected together to provide electrical energy in a circuit.

_____ (1)

1.2.4 A very light vehicle used on the moon, was made up of aluminium and could only travel at 11 km/h.

_____ (1)

1.2.5 Round holes made by space rocks that hit the moon.

_____ (1)

[5]

1.3 Match the statements in Column A with descriptions in Column B. Write down the LETTERS of your correct answers in Column C.

	COLUMN A	COLUMN B	COLUMN C	
1.3.1	Non –renewable resource energy that is mostly mined in Witbank (Mpumalanga)	A. Renewable energy B. Coal C. Electric insulator D. Heat conductor E. Revolution F. Telescope G. Solar energy H. Microscope	1.3.1 ___	(2)
1.3.2	Ceramic is used in power lines as		1.3.2 ___	(2)
1.3.3	Energy produced by natural phenomena such as wind sunlight, tides etc.		1.3.3 ___	(2)
1.3.4	Instrument used to observe distanced objects		1.3.4 ___	(2)

[8]

TOTAL SECTION A: 20

SECTION B

QUESTION 2

2.1 The diagrams A, B and C below in FIGURE 2 show different connections of a cell and a bulb.

2.1.1 Suggest which bulb will glow by choosing YES or NO and write on the provided space.

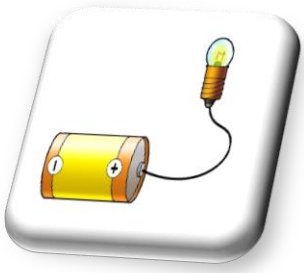
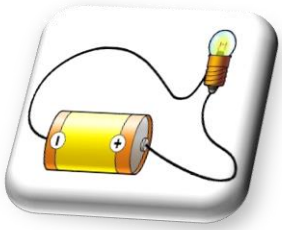
 **A**	 **B**	 **C**
Yes /No **a)**_____	Yes /No **b)**_____	Yes /No **c)**_____

FIGURE 2

(3)

2.1.2 Give reasons why some bulb/s will glow and the other/s will not glow.

_____

_____

_____

(2)

2.1.3 Name the 2 output energies that will be produced by the bulb when it glows.

_____

_____ (2)

2.2 A learner in *Ngaka Modiri Molema* District created a device that will detect criminals when entering a shop. The device has the following components (2 cells, 2 bulbs,1 switch and a buzzer).

2.2.1 Draw a circuit diagram with the above components. Make the switch open.

(5)

2.3 Mrs Kgwathisi and her grade 6 learners are conducting an investigation, testing different materials (such as Iron nails, Copper wire, plastic, coin, cardboard and rubber) in an electric circuit to see if they are conductors or insulators. The results are recorded in a table. On their hypothesis they predicted that all the materials will be insulators.

2.3.1 Help them by placing the (coin and rubber) in the table.

Conductors	Iron nails	a) _____	Copper wire
Insulators	plastic	cardboard	b) _____

(2)

2.3.2 Formulate an investigative question for their investigation.

_____

_____

(2)

2.3.3 Write a conclusion for their investigation. State if you ACCEPT or REJECT their hypothesis.

_____

_____

_____ (3)

[19]

QUESTION 3

3.1 Mr Hops compiled a table to show the amount of electricity usage by some appliances in his home.

Appliances	**Electricity use by an appliance (W)**
Geyser	4 500
Electric stove	9 000
Television	200
Fridge	500
DSTV decoder	150
Kettle	1000

3.1.1 Explain why the electric stove and the geyser use more electrical energy than the television and the fridge.

_____

_____ (2)

3.1.2 Suggest TWO ways in which Mr Hops's family could save electricity.

A._____

B._____ (2)

3.1.3 Provide an example of a renewable source of electricity that his family could invest in.

_____ (1)

[5]

TOTAL SECTION B: 24

SECTION C

QUESTION 4

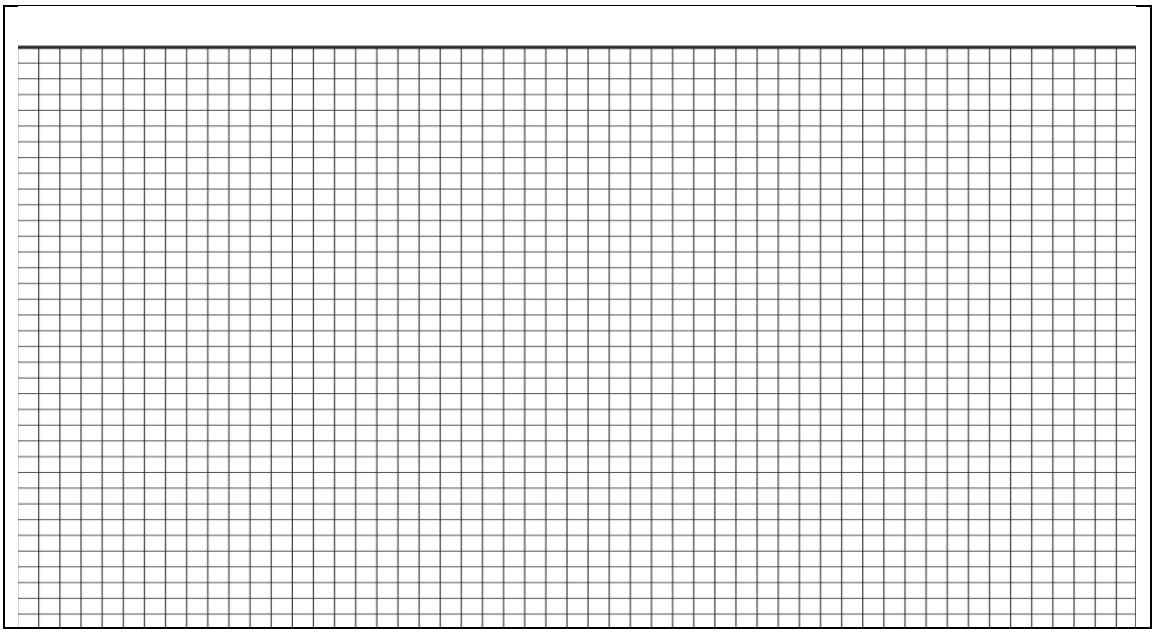
4.1. Use the information in the table below to answer the questions that follow.

Name of planet	Distance from sun (millions of kms)	Number of moons
Jupiter	778	64
Saturn	1429	62
Uranus	2869	27
Neptune	4486	13
Earth	150	1
Mars	228	2

4.1.1 Name the 2 planets that has more number of moons than all the other planets.
a)_____ b) _____ (2)

4.1.2 Name the planet closest to the sun, according to the above information.
_____ (1)

4.1.3 Draw a bar-graph representing the 3 planets with least number of moons (Earth, Mars and Neptune). Use graph paper provided below.



(5)

[8]

QUESTION 5

5.1 FIGURE 3 below shows one of the largest telescopes in South Africa. Read the statement next to it and answer questions that follow.

Telescopes have shown us that there are thousands of millions of stars that we could not see with our naked eyes.

FIGURE 3 shows one of the biggest telescopes in the world, which are located here in South Africa. The telescope is called the Southern African Large Telescope (SALT). SALT will be celebrating 20 years of existence next year 2025. The telescope uses lenses and a very big mirror to see the stars and take photographs of them.

[*source: Thunderboltkids*]

5.1.1 What is the name of the telescope shown in FIGURE 3?

_____ (1)

5.1.2 If SALT will be celebrating 20 years in 2025. Which year was SALT opened to operate? (show basic mathematics calculations)

_____

_____ (3)

5.1.3 Name the 2 components that the telescope use to see stars and take photographs.

_____

_____ (2)

5.2 Explain the difference between the Earth's revolution and the Moon's revolution.

_____

_____

_____ (2)
[8]

TOTAL SECTION C: 16
GRAND TOTAL : 60