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TEST 2 OF 2

Practice test · Term 3–4
Version 1.6 · 21 October 2026

Natural Sciences · Grade 7

Energy and Change, Planet Earth and Beyond

Term 3–4 | 6 questions | CAPS-aligned

TOTAL 63 MARKS

NAME AND SURNAME _____ CLASS _____ DATE _____

Instructions

1. This question paper consists of TWO sections. 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	6	
2	Column A and B	5	
3	Terminology	7	
4	Case study	18	
5	Diagrams and data	14	
6	Longer questions	13	
	Total	**63**	
	Percentage		%

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Section A Short questions

1 Multiple choice

6 marks

Choose the correct answer and circle the letter.

1.1 Which one of these has KINETIC energy? **(1)**

(a) a battery lying on a shelf (b) water falling over a waterfall (c) a book lying on a table

1.2 An electric drill is used to drill a hole. Which form of energy is WASTED? **(1)**

(a) sound (b) the movement of the drill bit (c) electrical energy

1.3 Which appliance changes electrical energy mainly into movement energy? **(1)**

(a) a kettle (b) a light bulb (c) an electric fan

1.4 When the Sun's rays fall at a slant (obliquely) on the Earth's surface, the same amount of solar energy is spread over: **(1)**

(a) a smaller area (b) a larger area (c) exactly the same area

1.5 Which scientist used mathematics to describe the orbits of the planets accurately (1609)? **(1)**

(a) Kepler (b) Newton (c) Copernicus

1.6 What causes day and night? **(1)**

(a) the Earth's revolution around the Sun (b) the Earth's rotation on its axis (c) the Moon's orbit around the Earth

2 Column A and B

5 marks

2.1 Match the term in Column A with the description in Column B. Write only the LETTER next to the number. One description is left over. **(5)**

Column A	Column B	Answer
1. Turbine	A. A machine in a power station that produces electricity	1 = _____
2. Telescope	B. A renewable fuel made from plants, for example wood	2 = _____
3. Biofuel	C. The unit in which energy is measured, for example on food labels	3 = _____
4. Joule	D. A wheel with blades that is turned by steam, wind or falling water	4 = _____
5. Generator	E. An instrument that Galileo used to observe the planets and their moons	5 = _____
	F. The force that keeps the Moon in its orbit around the Earth	

3 Terminology

7 marks

3.1 Write the correct term next to each description. **(7)**

Description	Term
A renewable energy source that uses falling water to make electricity	
A small generator, for example on a bicycle light or in a wind-up torch, that changes movement into electricity	
The network of power stations, power lines and substations that carries electricity across the country	
The imaginary line around the middle of the Earth that divides it into the northern and southern hemispheres	
Tides that are bigger than usual because the Sun, the Moon and the Earth are in a straight line	
The amount of solar energy that falls on one unit of area (for example one square metre)	
The scientist who showed (in 1687) that the pull between the Sun and the planets holds the Solar System together	

Section B Longer questions

4 Case study

18 marks

SOURCE A · THE WONDER BOX INVESTIGATION

The Grade 7 class wants to make a wonder box (hotbox) that keeps a pot of food hot so that it can finish cooking without the stove.

They filled five identical tins with 200 ml of water at 80 °C. They put four tins inside containers made of different materials. Tin E stood in the open with nothing around it.

After 30 minutes they measured the temperature of the water in each tin.

An investigation by the Grade 7 class.

Tin	Container material	Temperature after 30 minutes
A	Polystyrene (styrofoam) box	71 °C
B	Box lined with newspaper	64 °C
C	Plastic tub	58 °C
D	Glass jar	55 °C
E	Nothing (open)	49 °C

4.1 Name the independent variable (what the class changed) and the dependent variable (what they measured). **(2)**

4.2 Name THREE things the class kept the same to make it a fair test. **(3)**

4.3 Arrange the four container materials from the BEST insulator to the WORST insulator. **(2)**

4.4 Why did the class include Tin E, with nothing around it? **(1)**

4.5 The water in Tin E lost heat to the air around it. Name the THREE ways in which heat is transferred, and say where each one happened at Tin E. **(3)**

4.6 Which material should the class use for their wonder box? Use the results to explain your choice. **(2)**

4.7 Explain how cooking with a wonder box helps a family to save electricity. **(2)**

4.8 Many traditional homes in South Africa, such as rondavels with thick mud walls and thatched roofs, stay cool in summer and warm in winter. Explain why. **(3)**

5 Diagrams and data

14 marks

5.1 The table shows the hours of daylight in Cape Town on two days. **(3)**

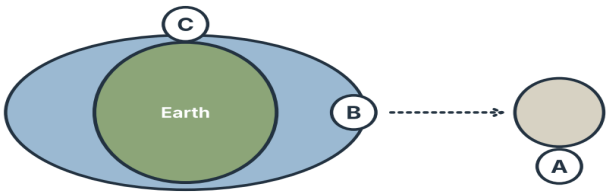
Date	Hours of daylight
21 June	9 h 54 min
21 December	14 h 26 min

a. In which season is 21 December in Cape Town? (1)

b. Explain why Cape Town has longer days in December than in June. (2)

5.2 Draw a labelled diagram of the Sun and the Earth when it is SUMMER in the southern hemisphere. Show the Earth's axis and the Sun's rays. **(3)**

5.3 Study the diagram below. A is the Moon. Name B and C, and explain in ONE sentence why the water bulges at B. **(4)**



B: _____ C: _____

5.4 A horse eats grass and then pulls a cart. Complete the table to show the form of energy at each stage of this biological system. **(4)**

Stage	Form of energy
Energy that reaches the grass from the Sun	
Energy stored in the grass that the horse eats	
Energy of the moving cart	
Energy that the horse's body loses to the surroundings as it works ('wasted' energy)	

6 Longer questions

13 marks

6.1 Lerato pulls back the rubber of a catapult and lets go. The stone flies up, falls back and stops on the ground. **(3)**

a. What form of energy is stored in the stretched rubber? (1)

b. Into what form of energy is it changed when the stone flies through the air? (1)

c. When the stone stops, has its energy been destroyed? Explain. (1)

6.2 Draw a flow diagram with FOUR boxes and arrows to show how energy from the Sun came to be stored in coal. **(4)**

6.3 An astronaut on the Moon can jump about six times higher than on the Earth. **(4)**

a. Explain why. (2)

b. Name the TWO things that determine how strong the pull of gravity between two objects is. (2)

6.4 Long before printed calendars, people in southern Africa watched the Moon to measure time. **(2)**

a. How did they know that one month had passed? (1)

b. Give ONE other way in which people used the patterns of the Sun, the Moon or the stars. (1)

Total **63 marks**



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