Natural Sciences and Technology · Grade 4

Memorandum · Term 2

TOTAL
60
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 · 4 marks			
1.1	c. A liquid	**1**	
1.2	a. It melts	**1**	
1.3	b. Plastic	**1**	*Plastic is waterproof.*
1.4	c. A shell structure	**1**	
QUESTION 2 · Matching · 4 marks			
2.1	1 = C (solid); 2 = A (melting); 3 = E (condensation); 4 = B (transparent)	**4**	*1 mark each.*
QUESTION 3 · Short questions · 6 marks			
3.1	Milk = liquid; Stone = solid; Air in a balloon = gas; Sugar = solid	**4**	*1 mark each.*
3.2	Any two, 1 mark each: it is transparent — you can see through it and it lets light in (count as ONE property); it is hard and rigid; it is waterproof — it keeps out rain and wind.	**2**	*Any two. 1 mark each.*
QUESTION 4 · Properties of materials · 6 marks			
4.1	Rubber — flexible/strong; sponge — absorbent; steel — strong/stiff. 1 mark each.	**3**	

Question	Answer	Marks	Marking note
4.2	Plastic (accept rubber).	**1**	
4.3	The water was heated and evaporated — it changed from a liquid into a gas (water vapour or steam).	**2**	*1 mark for heating, 1 mark for the change liquid → gas.*
QUESTION 5 · Heating and cooling · 10 marks			
5.1	Melting; Evaporation (also accept boiling); Condensation; Freezing (also accept solidifying). 1 mark each.	**4**	*1 mark each.*
5.2	Heat (1). Any one example, e.g. the sun, a stove, a warm hand (1).	**2**	*1 mark for heat, 1 mark for a source of heat.*
5.3	The water vapour in the air touches the cold can, cools down and condenses into tiny water droplets on the outside. The water comes from the air, not from inside the can.	**2**	*1 mark for condensation, 1 for 'the water comes from the air'.*
5.4	The ice cream takes in heat from the sun (1) and melts — it changes from a solid into a liquid (1).	**2**	*1 mark for heat absorbed, 1 for melting.*
QUESTION 6 · Technology: structures · 4 marks			
6.1	A = frame structure; B = shell structure; C = frame structure	**3**	*1 mark each.*
6.2	Any one: a Nama matjieshuis (mat house); a Zulu beehive hut (uguqa / iqhugwane); a Xhosa hut (rontabile or ungqu-phantsi)	**1**	*Also accept "beehive hut" or "grass/reed hut".*
QUESTION 7 · Investigation: the strongest paper pillar · 5 marks			
7.1	a. The shape of the pillar. b. Any one: the same kind and size of paper; the same height; the same books; stacking the books the same way. c. How many books each pillar can hold before it collapses.	**3**	*1 mark each.*
7.2	The round pillar (1): it held the most books, 9 (1).	**2**	*1 mark for the shape, 1 for the result that shows it.*
QUESTION 8 · Technology: the design process · 8 marks			
8.1	The bird bath falls over in the wind, so the school needs one that stays standing firmly.	**2**	*1 mark for the problem, 1 for a complete sentence.*
8.2	It must be heavy or wide at the bottom; it must hold water; it must be low enough for small birds; it must be able to stand outside without rusting.	**2**	*1 mark each.*

Question	Answer	Marks	Marking note
8.3	1 mark for a clear sketch. 2 marks for labels: 3 or more correct labels = 2 marks; 1–2 correct labels = 1 mark.	**3**	
8.4	Put it outside in the wind and see if it falls over; push it gently; pour in water and see if it stays steady.	**1**	
QUESTION 9 · Strong frame structures · 4 marks			
9.1	A triangle does not change shape when it is pushed, but a square can be pushed skew. Triangles therefore make the frame strong and rigid.	**3**	*1 mark for 'keeps its shape', 1 for the square, 1 for a strong frame.*
9.2	Add a diagonal brace across it, so that it forms two triangles.	**1**	
QUESTION 10 · Raw and processed materials · 9 marks			
10.1	A raw material comes straight from nature. A processed material has been changed by people to make something new.	**2**	*1 mark per kind.*
10.2	Tree → wood, paper or furniture; Clay → bricks or pottery; Wool from a sheep → yarn or a jersey; Sand → glass	**4**	*1 mark each.*
10.3	Milk from a cow = raw; A plastic bag = processed; A stone = raw	**3**	*1 mark each.*

Total **60 marks**



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