



2009 Science

Standard Grade – General

Finalised Marking Instructions

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2009 Science – Standard Grade

General Level

Marking Scheme

Please note that **FRACTIONAL** marks should **NOT** be awarded for responses to questions on this paper.

Please note that where a question specifies circling or underlining, other forms of clearly indicating a response are acceptable.

			Space for Notes
1	(a) (Both have a) white <u>face</u>	PS1	Same colour of face
	(b) (goose/geese) black feet black face white throat all 3 correct, 2 marks 2 correct, 1 mark	PS2	goose, geese, Canada – irrelevant information so ignore But apply cancelling errors eg it's a white goose -1 mark
2	(a) Stamina or endurance	KU1	
	(b) Strength or power	KU1	Accept 'strong'
3	(a) C and E 1 mark each (increasing the carbon content and heating the steel and cooling it quickly)	KU2	E and C
	(b) A (adding chromium and nickel to steel)	KU1	

				Space for Notes
4	(a)	Paraffin		KU1
	(b)	Naphtha		KU1
	(c)	Bitumen		KU1
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5	(a)	A (metals)		KU1
	(b)	(i) 4 and 6 (silk and cotton) both required		KU1 or 6 and 4 or names
		(ii) 1 and 5 (stone and wood) both required		KU1 or 5 and 1 or names
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6	(a)	(i) D		KU1 Not 'permeable (rock)'
		(ii) Oil (natural) gas	1 mark each	KU2
	(b)	B (the demand for fossil fuels outstrips supply)		KU1
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				Space for Notes	
7	(a)	Wood		PS1	
	(b)	Heating wood <u>in the absence of air</u> Or Destructive distillation		PS1	Not 'heating wood' or 'burning wood'
	(c)	<u>Sugar</u> is converted to <u>ethanol</u>		PS1	
	(d)	<u>Wood</u> alcohol and ethanol	both required	PS1	Any order
8	(a)	B and F	both required	PS1	Or F and B
	(b)	<u>The effect of</u> (increasing) <u>the mass</u> (on the stretch of the spring)		PS1	Not answers referring to breaking of spring Accept: weight, grams, numbers (50g, 100g, 150g) Need more than 1
9	(Type/s of) lemur must be first heading, other headings interchangeable.			PS3	If 'type' written in first heading, lemur has to be entered after all names
	(Type/s of) lemur	Colour (of fur)	(main) diet/food/feeds on/what it eats		If no heading in a column then data does <u>not</u> count
	Bushbaby (lemur)	grey	insects		
	Red-ruffed (lemur)	red, black, white	fruit		
	Ring-tailed (lemur)	grey, black, white	fruit (and) leaves		
	Blue-eyed (lemur)	black	fruit (and) leaves		
	Headings, 1 mark 12 correct entries, 2 marks 8, 9, 10, 11 correct entries, 1 mark				

			Space for Notes
10	Saves money Saves energy Idea of: Reduces pollution/litter/saves the environment/reduces landfill Any two, 1 mark each	KU2	Not can be used again or can be used for something else Not saves resources
11	warmth/heat (not energy/fuel) water food all 3 correct, 2 marks 1, 2 correct, 1 mark	KU2	
12	(a) (i) B	KU1	
	(ii) E	KU1	
	(b) Out 1 mark Up 1 mark	KU2	
	(c) Idea of: in the bloodstream	KU1	Accept: blood, in the blood, by red (blood) cells, haemoglobin

				Space for Notes	
13	(a)	Four chains with arrows Four chains with links Three chains with arrows Three chains with links Two chains with arrows	3 marks 2 marks 2 marks 1 mark 1 mark	PS3	If only arrow (upwards) missing between woodmouse and owl, lose 1 mark for chain 2 and 3 (not 2 marks). Not extra arrow to create a “new” food chain – deduct 1 mark
	(b)	Squirrel		KU1	
	(c)	Idea that: food chain 4 is longer/has more links/has more organisms or vice versa		KU1	More animals, more prey
	(d)	Increases		KU1	
	(e)	Predators, competition for space, competition for food, build up of waste, climate change, loss of habitat, food (supply), hunger, starvation, weather, shelter, warmth, number of prey, pollution		KU1	Not disease, infection, hunting/being shot, birth or death, age
14		Labels on x-axis including legend scale on y-axis Bars (+/- ½ small square)	1 mark 1 mark 1 mark	PS3	Legend, accept ‘tissue’ alone If very small scale used, would lose tolerance. Y-scale must start at zero and be linear (if not, 1 mark max for x-axis + legend/labels) Line graph –1 mark only for correct y-scale. No bar labels –1 mark max for correct y-scale even if bars are correct height. ‘Thin bars’ – labels must be clearly drawn, if not deduct 1 mark for x-axis. Shading – accurate, apply tolerance.

			Space for Notes
15	<p>(a) As <u>mass increases</u>, the <u>temperature</u> (rise) <u>decreases</u> 1 mark</p> <p>The higher the specific heat capacity, the lower the temperature (rise) (for the same mass of metal) + vice versa 1 mark</p>	PS2	Comparing Al + Fe <u>given</u> Accept: temperature, specific heat, heat capacity but <u>not</u> "heat" alone or answers that confuse heat with temperature. <u>Not</u> "Aluminium has a higher specific heat capacity (than iron)"
	(b) Any answer between 11.0 and 22.0	PS1	
16	(a) Corrosion/rusting/oxidation	KU1	Not erosion
	(b) (i) Graham	KU1	
	(ii) Loren	KU1	
17	<p>(a) Any two from</p> <p>Platelets Red (blood) cells Plasma</p> <p>any two, 1 mark each</p>	KU2	Not white blood cells
	(b) (<u>Produce</u>) antibodies or (special) <u>chemicals</u>	KU1	Not antitoxins

				Space for Notes
18	<p>(a) 173</p> <p>correct answer (with or without working) 2 marks</p> <p>865 incorrectly divided by 5 1 mark</p> <p>wrong total correctly divided by 5 1 mark</p>		PS2	Working must be shown for incorrect figure to gain 1 mark.
	<p>(b) Any answer between 768 and 668 668 and 768</p>		PS1	
19	<p>(a) Any two from</p> <p>As indoor temperature increases, the energy used increases (or vice versa)</p> <p>As outdoor temperature increases, the energy used decreases (or vice versa)</p> <p>(At 10°C less energy is used)</p> <p>(For the same energy) the indoor temperature increases as the outdoor temperature increases (or vice versa)</p> <p style="text-align: right;">one mark each</p>		PS2	<p>Must be clear about indoor and outdoor.</p> <p>Examples of answers:</p> <p>The more energy used, the higher indoor temperature and vice versa.</p> <p>The colder it is outside, the more energy you use and vice versa.</p> <p>The hotter it is outside, the hotter it is inside and vice versa.</p> <p>It's always hotter inside than outside.</p> <p>Use professional judgement if there is relevant discussion and conclusion.</p> <p><u>Not</u> The more energy used, the higher the temperature (no indoor/outdoor).</p>
	<p>(b) Accept 72 – 75 inclusive</p>		PS1	
20	<p>(a) Water</p>		KU1	
	<p>(b) Carbon dioxide</p>		KU1	

			Space for Notes	
21	122 (with or without working)	2 marks	PS2	Working must be shown for incorrect figure to gain 1 mark.
	$20 \times 5 = 100$	1 mark		
	= wrong answer + 22 + showing working	1 mark		
22 (a)	Label on y-axis (incl unit)	1 mark	PS3	y-label accept temp ($^{\circ}\text{C}$) Scales must be linear: for x-axis from 0 – 25 for y-axis between 10 – 90 Non linear – 1 mark max for y-axis label + unit Ignore extrapolation to origin Points all correct for the scales shown If scale too small, would lose tolerance
	Scales on both axes	1 mark		
	Points plotted and joined (+/- $\frac{1}{2}$ small square)	1 mark		
(b)	18		PS1	
(c)	Mug	32	PS2	
	Insulated mug with lid	88		
	(Insulated mug	77)		
	Mug with lid	55		
		3 correct, 2 marks 1, 2 correct, 1 mark		

			Space for Notes
23	<p>As age increases, the percentage of men who are overweight increases</p> <p>As age increases, the percentage of women who are overweight increases</p> <p>(As age increases, the percentage of people who are overweight increases – this conclusion could not be given with either shown above)</p> <p>(at any age) there is a higher percentage of men who are overweight (than women).</p> <p style="text-align: right;">1 mark each</p>	PS2	<p>Accept: fat, obese</p> <p>If percentage of ‘people,’ only 1 conclusion therefore 1 mark max. Examples of answers: As you get older, more people are fat/more men/women are fat/ more women are fat (2 answers, 2 marks) As you get older, you get fatter (1 mark) As you get older, men get fatter (2 answers, 2 marks) As you get older, women get fatter (2 answers, 2 marks) More men are overweight/fatter (than women)</p> <p>Not restating of one set of data eg “between 25 – 34, the men are fatter” ie must make a generalisation.</p>
24	<p>(a) Elasticity Strength</p> <p style="text-align: right;">1 mark each</p>	KU2	
	<p>(b) Strength Corrosion resistance</p> <p style="text-align: right;">1 mark each</p>	KU2	

				Space for Notes
25	(a)	10		PS1
	(b)	4.8	2 marks	PS2 Answer in box or line, ignore transcription errors. Working must be shown for incorrect figure to gain 1 mark.
		$\frac{20}{100}$ or $20\% \times$ wrong number correctly calculated	1 mark	
		$\frac{20}{100} \times 24 =$ wrong answer	1 mark	
		$1\% = 24/100$ or 0.24 or $10\% = 2.4$	1 mark	
		$24/5$ or $24 \times \frac{1}{5}$ or $24 \times 0.2 =$ wrong answer	1 mark	
			Totals	KU 40 PS 40

[END OF MARKING INSTRUCTIONS]