

Scatter Graphs-Answers

Key Stage 3: 2003 Paper 1 Level 4-6

1.

Tier & Question				Scatter graphs	
3-5	4-6	5-7	6-8		
22	15	7		Correct response	Additional guidance
a	a	a	1m	<p>Indicates a positive correlation</p> <p>eg</p> <ul style="list-style-type: none"> There is positive correlation between diameter and height As diameter increases, height increases Higher trees have wider trunks Bigger trees are fatter They both increase together 	<p>✓ <i>Minimally acceptable response</i></p> <p>eg</p> <ul style="list-style-type: none"> Big trees have big diameters <p>✗ <i>Incomplete response</i></p> <p>eg</p> <ul style="list-style-type: none"> It's positive Big trees have big heights Higher trees are bigger <p>✗ <i>Incorrect reference to proportion</i></p> <p>eg</p> <ul style="list-style-type: none"> It's directly proportional
b	b	b	1m	<p>Gives a correct explanation</p> <p>The most common correct explanations:</p> <p>Refer to the trend in the data</p> <p>eg</p> <ul style="list-style-type: none"> It would be too far away from the other points It would be an outlier It doesn't fit the general trend It would be a long way from the line of best fit This diameter is far too big for the height It is too small to have such a big diameter <p>Give a value for the height or diameter if the tree were a poplar</p> <p>eg</p> <ul style="list-style-type: none"> If it was a poplar you would expect it to be about 6 metres high Poplars that are 3m high are only about 2cm in diameter 	<p>✓ <i>Minimally acceptable explanation</i></p> <p>eg</p> <ul style="list-style-type: none"> It's on its own on the graph It doesn't fit the correlation It doesn't fit the pattern It doesn't have the same relationship The diameter in cm is bigger than the height in m The diameter is big but the height is small <p>✗ <i>Incomplete or incorrect explanation</i></p> <p>eg</p> <ul style="list-style-type: none"> It's different from the others It's on its own It doesn't fit the graph Poplar trees are tall and thin It would not be on the line of best fit It's not in the same range The diameter is too big Poplar trees don't have diameters bigger than their height For poplars, diameter + 1 = height <p>! <i>Height for diameter of 5cm given</i> Accept values in the range 5.5m to 7m inclusive</p> <p>! <i>Diameter for height of 3m given</i> Accept values in the range 1cm to 2.3cm inclusive</p>
c	c	c	1m	Indicates a value between 4 and 5.2 inclusive	
	d	d	2m or 1m	<p>Indicates that all four statements are false</p> <p>Makes three correct decisions</p>	<p>! <i>Indication other than ticks</i> Accept only if unambiguous</p>

Key Stage 3: 2006 Paper 1 Level 3-5

2.

Tier & Question				Red Kites			
3-5	4-6	5-7	6-8				
10	4			Correct response		Additional guidance	
a	a		1m	1992	✓ <i>Unambiguous indication of year</i> eg • 92		
b	b		1m	1	! <i>Units given</i> Ignore		
c	c		1m	6			

Tier & Question				Red Kites (cont)																						
3-5	4-6	5-7	6-8																							
10	4			Correct response	Additional guidance																					
d	d			<p>1m Gives a correct statement that shows or implies that the number of nests has increased over the years</p> <p>eg</p> <ul style="list-style-type: none"> ■ The number of nests has increased a lot over the years ■ The number of nests has nearly always gone up ■ The ones with eggs increased and the ones without decreased and then increased again ■ They roughly doubled each year, except from 1994 to 1995 when the number didn't change 	<p>✓ <i>Minimally acceptable statement</i></p> <p>eg</p> <ul style="list-style-type: none"> • Increased • Got bigger • They multiplied • More with eggs in • They went 2, 4, 9, 21, 21, 39 <p>! <i>Statement states or implies that the number of nests increased every one of the years</i> Condone</p> <p>! <i>Statement confuses 'nests' with 'birds' or 'eggs' but is otherwise correct</i> Condone</p> <p>✗ <i>Incomplete or incorrect statement</i></p> <p>eg</p> <ul style="list-style-type: none"> • The ones without eggs decreased and increased • They roughly doubled each year • They went 2, 4, 9, 21, 21, 36 <p>Markers may find the following useful:</p> <table border="1"> <tr> <td>Year</td> <td>91</td> <td>92</td> <td>93</td> <td>94</td> <td>95</td> <td>96</td> </tr> <tr> <td>Eggs</td> <td>0</td> <td>4</td> <td>8</td> <td>20</td> <td>21</td> <td>35</td> </tr> <tr> <td>No eggs</td> <td>2</td> <td>0</td> <td>1</td> <td>1</td> <td>0</td> <td>4</td> </tr> </table>	Year	91	92	93	94	95	96	Eggs	0	4	8	20	21	35	No eggs	2	0	1	1	0	4
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				<p>(U1)</p> <p>1m Gives a correct statement that shows or implies an appreciation that some have stayed nearby</p> <p>eg</p> <ul style="list-style-type: none"> ■ More nests have got further away over the years, as well as some staying nearby ■ At first they were only in the small circle, but then some went to the outer circle ■ The range of distances has become bigger ■ Over the years they gradually spread out over a wider area ■ It got crowded in the centre so nests were built further away <p>(U1)</p>	<p>✓ <i>Minimally acceptable statement</i></p> <p>eg</p> <ul style="list-style-type: none"> • Some moved a bigger distance away • There were nests further away • More got further away • They spread out • They expanded • They covered more area • The average distance increased <p>✗ <i>Incomplete statement</i></p> <p>eg</p> <ul style="list-style-type: none"> • They got further away over the years • The distances increased • They went up 																					

Key Stage 3: 2006 Paper 1 Level 4-6

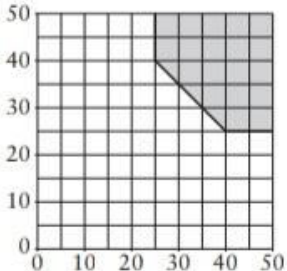
3.

Tier & Question					Red Kites	
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Tier & Question					Correct response	Additional guidance	Test
3-5	4-6	5-7	6-8				
	21	14	7				
a	a	a	1m	N		<p>! <i>N identified only on scatter graph</i> Accept provided unambiguous</p> <p>! <i>Highest total mark given</i> Ignore if given with N If N is not given, accept a value between 82 and 83 inclusive</p>	
b	b	b	1m	<p>Indicates True and gives a correct explanation eg</p> <ul style="list-style-type: none"> ■ The range for coursework is 40, but the range for the test is 30 ■ Coursework goes from 10 to 50, test from 10 to 40 ■ Both start at 10 but coursework goes to 50 rather than to 40 	<p>✓ <i>Minimally acceptable explanation</i> eg</p> <ul style="list-style-type: none"> • 30, 40 seen • Highest to lowest is bigger for coursework marks than for test marks • Coursework marks spread over 8 squares of the graph, test marks over 6 squares • The points are more spread out along the x-axis than along the y-axis • They had a wider span of marks • There's more variation in the cwk marks • They're more scattered (or spread out) • C/w results start at the same mark as test results, but finish at a higher mark <p>! <i>Ambiguous notation</i> eg</p> <ul style="list-style-type: none"> • Test marks 10 – 40 • Coursework 10 – 50 <p>Condone</p> <p>! <i>Incorrect use of % sign</i> Ignore</p> <p>✗ <i>Incomplete explanation</i> eg</p> <ul style="list-style-type: none"> • Coursework has a greater range than test marks • Coursework has lowest 10, highest 50 • Coursework went up to 50, test went up to 40 • Coursework goes from 10 to 50 but test goes from 10 to 30 except for 2 pupils • Coursework marks were varied, but test marks were mostly between 10 and 25 <p>✗ <i>Incorrect explanation</i> eg</p> <ul style="list-style-type: none"> • The range for coursework was 40, but the range for test was 20 • The test marks are more scattered 		

U1

Tier & Question									Test (cont)	
3-5	4-6	5-7	6-8	21						
					Correct response		Additional guidance			
	c	c	c	1m	70			<p>✓ <i>Value on the line excluded</i> eg</p> <ul style="list-style-type: none"> • More than 70 • Just over 70 • 71 <p>! <i>Range of total marks given</i> Accept provided all values win prizes eg, accept</p> <ul style="list-style-type: none"> • At least 70 • 70 or more <p>eg, do not accept</p> <ul style="list-style-type: none"> • About 70 <p>! <i>Incorrect use of % sign</i> Ignore</p>		
	d	d	2m	Indicates the correct region, ie			<p>✓ <i>Unambiguous indication of region</i> eg</p> <ul style="list-style-type: none"> • Correct region labelled R <p>! <i>For 2m or 1m, lines dotted or dashed</i> Accept unless the intention is only to indicate specific points</p> <p>! <i>Lines not ruled or accurate</i> Accept provided the pupil's intention is clear</p> <p>! <i>Line(s) drawn 'below' correct position in order to allow the region to include points on the line(s)</i> Condone provided their line is parallel to the correct line, and is closer to the correct mark than to the correct mark -5 eg, for $x + y = 65$ accept</p> <ul style="list-style-type: none"> • Line parallel to $x + y = 65$ and closer to $x + y = 65$ than to $x + y = 60$ 			
			or 1m	Indicates both the lines $x = 25$ and $y = 25$, even if there are other errors						
				or	Indicates the line $x + y = 65$, even if there are other errors					
								! <i>For 1m, line(s) not full length</i> Accept provided each line spans at least 10 marks		

Key Stage 3: 2009 Paper 1 Level 4-6

5.

Tier & Question						Correlation	
3-5	4-6	5-7	6-8	Mark	Correct response	Additional guidance	
23	14	6					
a	a	a	1m	<p>Indicates B and gives a correct explanation</p> <p>The most common correct explanations:</p> <p>Refer to the 'slope' or 'gradient' of the points eg</p> <ul style="list-style-type: none"> The points make a pattern that is sloping upwards from left to right The line of best fit would have a positive gradient <p>Describe the relationship between the two variables eg</p> <ul style="list-style-type: none"> As the value on the x-axis increases, so does the value on the y-axis 	<p>✓ Minimally acceptable explanation eg</p> <ul style="list-style-type: none"> It slopes upwards It goes up It's like this ✓ <p>✗ Incomplete explanation eg</p> <ul style="list-style-type: none"> It slopes the positive way <p>✓ Minimally acceptable explanation eg</p> <ul style="list-style-type: none"> As one amount gets bigger, so does the other It could be the higher the temperature, the more ice creams are sold <p>✗ Incomplete explanation eg</p> <ul style="list-style-type: none"> They both increase It goes from the left-hand corner It is slanted towards the right 		
b	b	b	1m	<p>Indicates A and gives a correct explanation</p> <p>The most common correct explanations:</p> <p>Refer to the points being closer to a line of best fit eg</p> <ul style="list-style-type: none"> The points are practically in a straight line, so the correlation is very strong If you drew the line of best fit, the points in A would all be close to it but many would be further away in B <p>Refer to the 'line' or sloping pattern being clearer to see eg</p> <ul style="list-style-type: none"> You can see the pattern of a very clear, almost straight line In B you can see a pattern sloping upward, but it's not as clear 	<p>✓ Minimally acceptable explanation eg</p> <ul style="list-style-type: none"> They are closer to one line In B they are less bunched together in a line <p>✗ Incomplete explanation eg</p> <ul style="list-style-type: none"> The points are closer together In B they are more spread out <p>✓ Minimally acceptable explanation eg</p> <ul style="list-style-type: none"> They are in a straight line The pattern sloping downwards is clear In B the line is less easy to see B's points are sloping upwards, but not as definitely as in A <p>✗ Incomplete explanation eg</p> <ul style="list-style-type: none"> The pattern is clearer They are in a line 		