



Independent Schools  
Examinations Board

## **COMMON ENTRANCE EXAMINATION AT 13+**

# **SCIENCE**

**LEVEL 2**

**BIOLOGY**

**MARK SCHEME**

*This is a suggested, not a prescriptive, mark scheme.*

**Monday 27 January 2014**

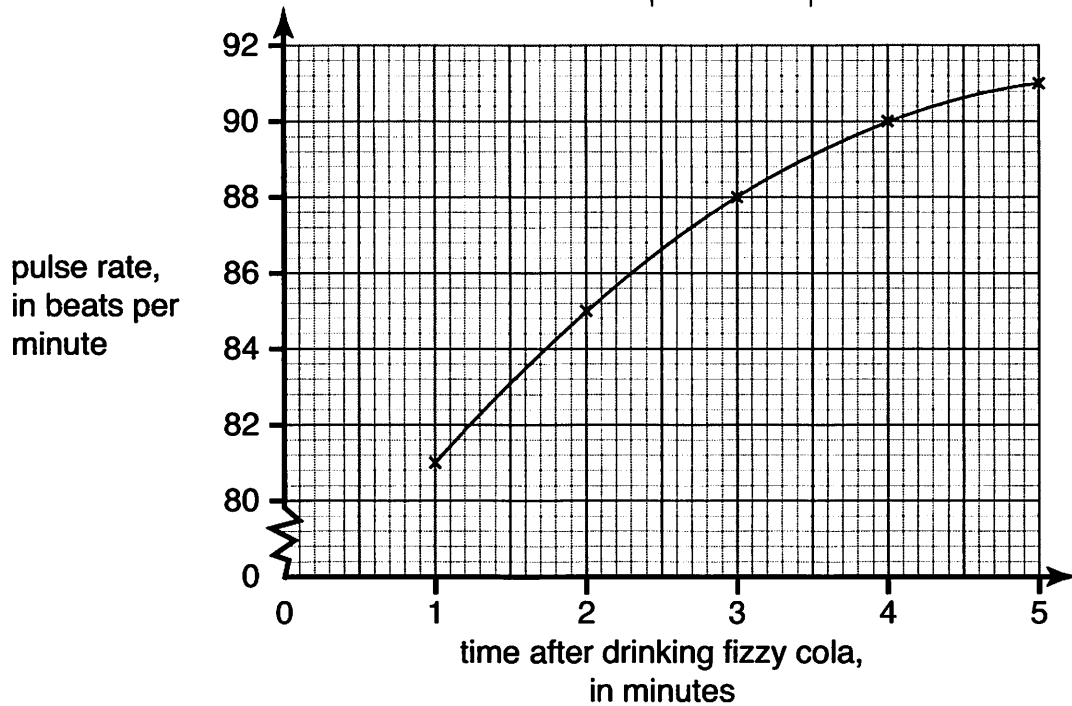


Q.	Answer	Mark	Additional Guidance
1. (a) grow (b) blue/black (c) a carnivore (d) DNA (e) oranges (f) respiration (g) have a large surface area (h) carbon dioxide		8	
2. (a) (i) protein (ii) meat/fish/dairy products (iii) vitamins (iv) minerals		1 1 1 1	accept any suitable example
(b) (i) to help development/bone growth of the baby (ii) cheese		1 1	
(c) weight gain/obesity high blood pressure cause damage/wear to joints		2	1 mark for each valid point
3. (a) cell A		1	
(b) name: sperm (cell) function: reproduction/passing on male DNA/genes/fertilise egg cell (ovum)		1 1	
(c) chloroplast vacuole cell wall		2	1 mark for each valid point

Q.	Answer	Mark	Additional Guidance
(d)	<p>mitochondria — main site of energy release in respiration</p> <p>nucleus — chemical reactions take place here</p> <p>cytoplasm — controls entry and exit of substances into and out of the cell</p> <p>cell membrane — controls the activities of the cell</p>	<b>3</b>	deduct 1 mark for each error
4. (a)	larger surface area absorbs more light energy/photosynthesis	<b>2</b>	
(b)	water glucose	<b>2</b>	
(c)	chlorophyll	<b>1</b>	
(d) (i)	level falls during the day minimum level at midday level rises during the night	<b>2</b>	1 mark each for two valid points
(ii)	during the day there is more light more photosynthesis takes place carbon dioxide is absorbed (by the leaves)	<b>2</b>	1 mark each for two valid points
(e)	<p><i>line drawn shows:</i></p> <p>levels rising during the day</p> <p>levels falling during the night</p> <p><i>e.g. the dotted line below</i></p>	<b>2</b>	

<b>Q.</b>	<b>Answer</b>	<b>Mark</b>	<b>Additional Guidance</b>
5. (a)	sharp teeth/large jaws/space for attachment of large muscles/forward facing eye sockets	1	any suitable suggestion
(b)	seaweed → (herbivorous) fish → (small) dinosaur → pliosaur	2	deduct 1 mark for each error
(c)	scales lay eggs (with leathery shells) cold blooded	2	accept any suitable characteristics
(d) (i)	water can support heavier animals bones cannot support weight of heavier animals on land more abundant food supplies in the sea	1	any suitable suggestion
(ii)	blubber for insulation large lungs large tail fin for diving	2	accept any suitable suggestions 1 mark for each valid point
6. (a)	as a comparison/to be able to look for a change	1	
(b)	71 beats per minute	2	correct answer awarded 2 marks 1 mark for correct working if answer wrong
(c)	more reliable/in case he made a mistake with one of them	1	reject 'fair test'

Q.	Answer	Mark	Additional Guidance
(d) (i)	<p><i>x-axis scale completed correctly</i></p> <p><i>y-axis linear scale completed and use of sensible scale</i></p>	<b>2</b>	
(ii)	<p><i>5 points correctly plotted</i></p> <p><i>points joined together using a curve</i></p> <p><i>for example:</i></p>	<p><b>2</b></p> <p><b>1</b></p>	deduct 1 mark for each error
(iii)	<p>fizzy cola increases the heart rate</p> <p>increase is greater at first, then rate increases at a slower rate.</p>	<b>2</b>	credit correct use of numbers in answer
(iv)	<p>idea of a control/comparison experiment</p> <p>to check it is not just because cola is fizzy</p> <p>to check it is the caffeine which is having the effect</p>	<b>2</b>	1 mark for each valid point



<b>Q.</b>	<b>Answer</b>	<b>Mark</b>	<b>Additional Guidance</b>
(v)	find resting heart rate  suitable type of exercise stated, e.g. star jumps, walking, jogging, sprinting  suitable time period of exercise stated, e.g. 5 minutes  measure heart rate after exercise  repeats  find average	<b>4</b>	1 mark for each valid point
<b>Total</b>		<b>60</b>	