



Centre Number

71

Candidate Number

General Certificate of Secondary Education  
2010–2011

## Science: Single Award (Modular)

Human Activity and Health  
Module 2

Foundation Tier

[GSC21]



FRIDAY 20 MAY 2011, MORNING

### TIME

45 minutes.

### INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.  
Write your answers in the spaces provided in this question paper.  
Answer **all seven** questions.

### INFORMATION FOR CANDIDATES

The total mark for this paper is 45.  
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

For Examiner's  
use only

Question Number	Marks
1	
2	
3	
4	
5	
6	
7	

Total  
Marks



1 (a) Complete the following table about pollution.

Choose from:

land : water : recycle : filters on factory chimneys

Type of pollution	Example	Method to reduce amount of pollution
air	acid rain	
	household waste	

[3]

(b) Complete the following sentences.

Choose from:

large : small : decommissioning : over-fishing : quotas

Our fish stocks are at risk due to pollution and also by

\_\_\_\_\_ .

Fish stocks can be protected by using fishing nets with

\_\_\_\_\_ mesh sizes.

[2]

(c) The rapid increase in human population size also harms our planet. One of the reasons why the human population is increasing so fast is that people are living longer.

Suggest two reasons why people are living longer.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

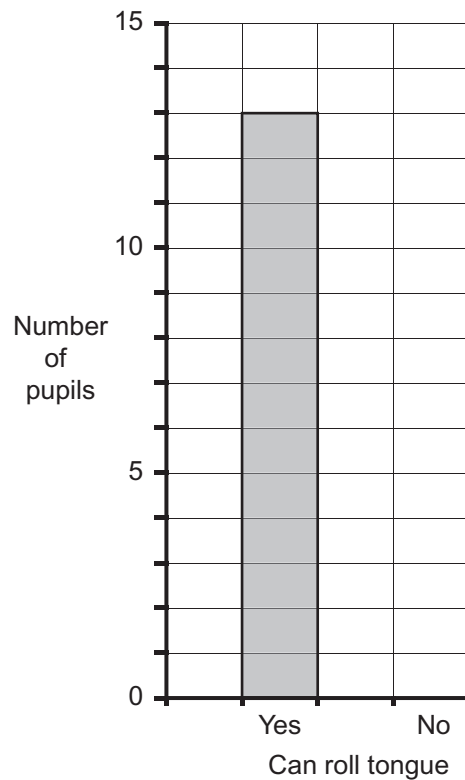
- 2 (a) Variation in living things can be either continuous or discontinuous. Using lines, link each type of variation to one example.

Type of variation	Example
continuous	height
discontinuous	mutation
	tongue rolling

[2]

- (b) Jane is in a class of 20 pupils. She is one of 13 who can roll their tongues.

Complete the bar chart below to show how many pupils cannot roll their tongue.



[1]

Examiner Only	
Marks	Remark



- (i) Calculate the increase in the number attending the clinic from 1990 to 2000.

**Show your working.**

\_\_\_\_\_ [2]

- (ii) Suggest why most of the people attending were cocaine rather than cannabis users.

\_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

- 4 (a) In 1928 Alexander Fleming discovered that if bacteria growing in a Petri dish were contaminated with a particular type of fungus the bacteria stopped growing.



© Science Photo Library

This substance was eventually purified to become the first antibiotic.

- (i) Name the antibiotic developed from this fungus.

\_\_\_\_\_ [1]

- (ii) Name the type of organism that can be killed by an antibiotic.

Choose from:

**virus**      **bacteria**      **fungi**

\_\_\_\_\_ [1]

- (iii) Give **one** example of a disease caused by this type of organism.

\_\_\_\_\_ [1]

- (b) MRSA is sometimes called a 'superbug' and is a problem in many hospitals because it is difficult to destroy.

Give two things that can be done to help reduce the spread of MRSA in hospitals.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

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**(Questions continue overleaf)**

Examiner Only	
Marks	Remark

5 (a) There is increasing evidence that global warming is happening and is harming our planet.

(i) Circle the **two** statements below that have helped convince many people that global warming is occurring.

**ice caps are increasing in size**

**the world climate is changing**

**the temperature of the atmosphere is increasing**

**nitrate levels are increasing**

[2]

(ii) Name **one** gas that is thought to be responsible for global warming.

\_\_\_\_\_ [1]

(b) The environment can be monitored through counting the number of lichens growing on trees.



© Wildscape/Alamy

Lichen is an example of a biotic factor.

(i) What is meant by a biotic factor?

Choose from:

**non-living : chemical : living**

\_\_\_\_\_ [1]



John investigated the number of lichen plants on ash trees at different distances from two towns (Leafyacre and Coalville). He only counted lichens up to 2 metres from ground level and only 5 trees at each distance.

His results are shown in the table below.

Distance from town centre/km	Average number of lichens on each tree	
	Leafyacre	Coalville
0	5	0
5	7	2
10	7	3
15	8	4
20	8	5

Lichens do not grow in very industrial (polluted) areas and grow best when pollution levels are low.

(ii) Give **one** similarity between the results for Leafyacre and Coalville.

\_\_\_\_\_ [1]

(iii) Describe **one** difference between the results for the two towns. Suggest an explanation for this difference.

Difference \_\_\_\_\_ [1]

Explanation \_\_\_\_\_ [1]

(iv) Use the information provided to give two things that John did to ensure he got valid results (fair test).

1. \_\_\_\_\_ [1]

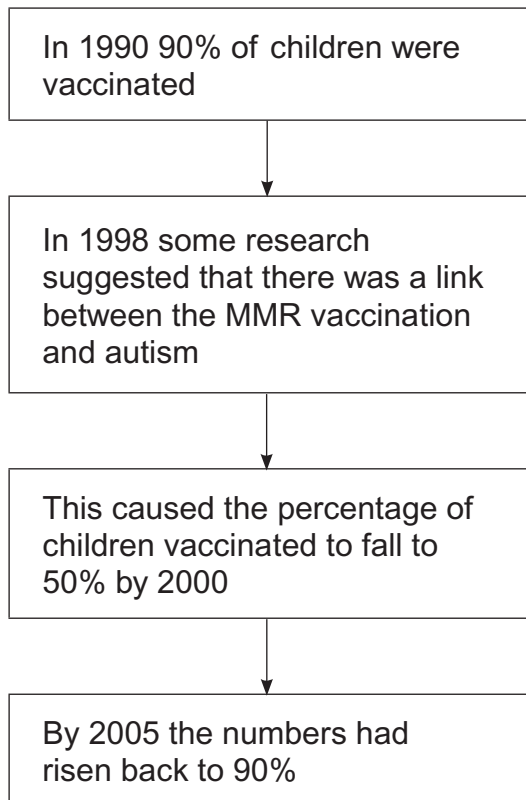
2. \_\_\_\_\_ [1]

(v) State **one** thing John could have done to increase the reliability of his results.

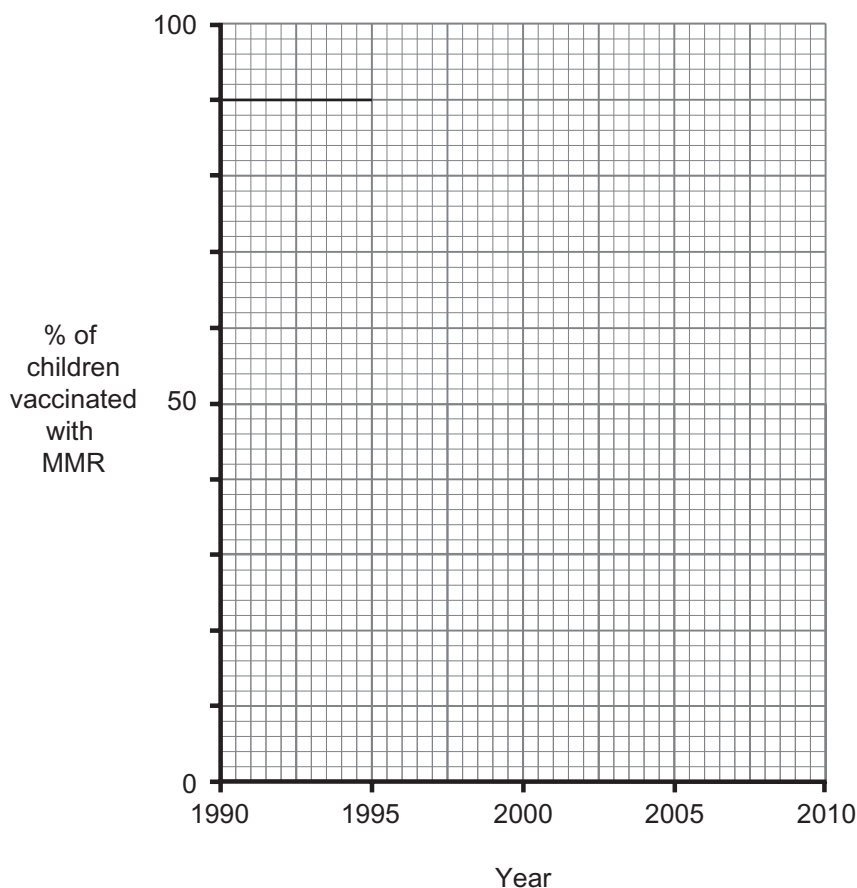
\_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

- 6 (a) The following flowchart outlines how the number of children being vaccinated for MMR changed between 1990 and the present.



- (i) Use the information provided to complete the graph below to show the change in percentage of children being vaccinated.



[2]

Examiner Only	
Marks	Remark

(ii) Explain why the percentage of children being vaccinated for MMR has returned to the 1990 level.

\_\_\_\_\_ [1]

(b) Explain how the following help defend against harmful microbes.

Mucous membranes in the nasal cavity \_\_\_\_\_  
\_\_\_\_\_ [1]

Blood clotting \_\_\_\_\_  
\_\_\_\_\_ [1]

(c) Explain how antibodies protect against disease.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ [3]

Examiner Only	
Marks	Remark

- 7 (a) The primrose plant used to be very common in Northern Ireland; it has pretty flowers and people picked them in large numbers. It grows best in natural unfertilised grassland where it is not in the shade of other plants.



© CCEA

Its numbers have decreased for a number of reasons including the use of fertiliser to increase grass growth for cattle.

- (i) Explain fully how the widespread use of fertiliser could lead to a reduction in primroses.

\_\_\_\_\_  
\_\_\_\_\_ [2]

- (ii) Apart from reducing the use of fertiliser on grassland, suggest **two** things that can be done to help protect the primroses from extinction.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ [2]

- (b) Name **one** other endangered species and suggest one reason why it is at risk of extinction.

\_\_\_\_\_  
\_\_\_\_\_ [2]

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**THIS IS THE END OF THE QUESTION PAPER**

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Examiner Only

Marks Remark







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