

# GCSE

## COMBINED SCIENCE: TRILOGY

### Biology Paper 2 Foundation Tier

**Mark scheme** Practice Paper Series – Set 1 SGC/S1/B/2F

Version 1.1

This mark scheme is an original resource written for sciencegcse.co.uk to accompany the Set 1 practice paper SGC/S1/B/2F. It is not an AQA mark scheme and has not been produced or endorsed by AQA. It follows the structure and conventions of AQA GCSE science mark schemes so that students and teachers can mark the practice paper in the same way that a real paper is marked.

Marking should be carried out using the Information to Examiners on the following pages. The paper has not been standardised, so raw marks should not be converted into grades using any published grade boundaries.

Specification references are to the AQA GCSE Combined Science: Trilogy (8464) specification, Biology section 4.5–4.7. AO = assessment objective; WS = working scientifically; MS = mathematical skills; RP = required practical.

## Information to Examiners

### 1. General

The mark scheme for each question shows:

- the marks available for each part of the question
- the total marks available for the question
- the answer(s) expected, including alternative acceptable wording, in the **Answers** column
- guidance on which answers are and are not creditworthy in the **Extra information** column
- the assessment objective (AO) and specification reference for each marking point.

Award marks positively. Do not deduct marks for incorrect additional material unless it contradicts a correct answer (see 3.1). Marks are awarded for what the student has written, not for what they might have meant.

### 2. Emboldening and underlining

- 2.1 Where a list of acceptable answers is given and more than one mark is available, **any two from** (or similar) is used, followed by the acceptable answers.
- 2.2 A bold **and** indicates that both parts of the answer are needed to gain the mark.
- 2.3 Alternative answers acceptable for the same mark are separated by **or**. Different words that are acceptable within a marking point are separated by a forward slash (/).
- 2.4 Words in bold in the Answers column are the essential words that must be present, or their equivalent, for the mark to be awarded.

### 3. Marking points

#### 3.1 Marking of lists

For a question asking for a fixed number of responses, consider the whole answer, including extra responses. Each incorrect or contradictory response cancels one correct response; ignore neutral additions. Numbered answer lines do not limit marking to the first responses. This rule does not apply to extended answers.

#### 3.2 Marking procedure for calculations

Full marks can be awarded for a correct numerical answer without working, unless the question asks for working to be shown. If the answer is incorrect, marks may be awarded for the correct stages of working shown in the mark scheme. Anything shown in brackets in the Answers column (for example the unit) is not required for the mark.

#### 3.3 Interpretation of 'it'

Answers using the word 'it' should be given credit only if it is clear that the 'it' refers to the correct subject.

#### 3.4 Errors carried forward

Any error in the answer to a structured question causes the loss of the mark(s) for that part only. Later parts should be marked on the assumption that the incorrect answer was correct, where the mark scheme indicates that error carried forward (ECF) applies.

#### 3.5 Phonetic spelling

Accept misspelled or phonetic scientific terms when the intended answer is clear, unless the spelling could be confused with a different technical term. This also applies when the question asks for the name of a process or structure.

#### 3.6 Brackets

Words shown in brackets in the Answers column are not required to gain the mark but help to set the context.

#### 3.7 Allow

Answers that are acceptable but which would not normally be expected are shown as **allow**.

#### 3.8 Ignore

Statements shown as **ignore** are neither creditworthy nor penalised. Mark the rest of the answer normally.

#### 3.9 Do not accept

Statements shown as **do not accept** are incorrect and, where they contradict or replace the expected answer, mean the mark is not awarded.

### 4. Level of response marking instructions

Extended-response questions (question 09.3 in this paper) are marked using a level of response mark scheme. The scheme has three levels, each covering two marks, plus a level descriptor and indicative content.

**Step 1 – Determine a level.** Read the whole answer and decide which level descriptor best fits it. Use a 'best-fit' approach: an answer does not need to meet every part of a descriptor to be placed in that level, and a weak part of the answer need not prevent it from reaching the higher level if the overall quality matches the descriptor.

**Step 2 – Determine a mark within the level.** Award the higher mark in the level if the answer meets the descriptor fully and the points made are well linked; award the lower mark if the answer only just meets the descriptor or contains minor errors or omissions.

The indicative content is not a checklist: students need not include every point to reach the top level, and other relevant, correct points should be credited. An answer that lists points without linking them into a coherent answer should be placed in a lower level than one that develops and connects them.

| Question     | Answers                                                                                                                                                                                                                                                                                                                                                                                              | Extra information                                                                                           | Mark     | AO / Spec. Ref.                  |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------|----------------------------------|
| 01.1         | the regulation of conditions inside the body                                                                                                                                                                                                                                                                                                                                                         | if more than one box is ticked,<br>no mark                                                                  | 1        | AO1<br>4.5.1                     |
| 01.2         | (A) sensory (neurone)                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                             | 1        | AO2<br>4.5.2.1                   |
|              | (B) motor (neurone)                                                                                                                                                                                                                                                                                                                                                                                  | if the two names are reversed,<br>no marks                                                                  | 1        | AO2<br>4.5.2.1                   |
| 01.3         | muscle                                                                                                                                                                                                                                                                                                                                                                                               | if more than one box is ticked,<br>no mark                                                                  | 1        | AO2<br>4.5.2.1                   |
| 01.4         | synapse                                                                                                                                                                                                                                                                                                                                                                                              | allow phonetic spelling                                                                                     | 1        | AO1<br>4.5.2.1                   |
| 01.5         | (the response) does not involve the conscious part of the brain <b>or</b> the person does not have to think about the response, so it is faster                                                                                                                                                                                                                                                      | allow the impulse takes a short route / the response happens before the brain has processed the information | 1        | AO1<br>4.5.2.1                   |
|              | (so) the body is <b>protected from harm</b> / damage <b>or</b> the hand is pulled away before it is badly injured                                                                                                                                                                                                                                                                                    | allow it prevents injury                                                                                    | 1        | AO1<br>4.5.2.1                   |
| <b>Total</b> |                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                             | <b>7</b> |                                  |
| 02.1         | the distance the ruler fell                                                                                                                                                                                                                                                                                                                                                                          | if more than one box is ticked,<br>no mark                                                                  | 1        | AO2<br>4.5.2.1<br>WS 2.2<br>RP 6 |
| 02.2         | $(18.0 + 20.0 + 19.0) \div 3$                                                                                                                                                                                                                                                                                                                                                                        | an answer of 19.0 scores <b>2</b> marks                                                                     | 1        | AO2<br>4.5.2.1<br>MS 2b<br>RP 6  |
|              | (mean =) <b>19.0</b> (cm)                                                                                                                                                                                                                                                                                                                                                                            | allow 19 (cm)<br>an answer of 57 (the total) scores <b>0</b> marks                                          | 1        | AO2<br>4.5.2.1<br>MS 2b<br>RP 6  |
| 02.3         | 25.0 (cm)                                                                                                                                                                                                                                                                                                                                                                                            | allow test 3 after the caffeine drink                                                                       | 1        | AO3<br>4.5.2.1<br>WS 3.4<br>RP 6 |
| 02.4         | any <b>two</b> from: <ul style="list-style-type: none"> <li>the same person catches the ruler</li> <li>the same hand is used</li> <li>the same ruler is used</li> <li>the same starting position / the ruler is held at the same point / the same gap between the fingers and the ruler</li> <li>the same person drops the ruler</li> <li>the same time of day / the same amount of sleep</li> </ul> | allow the same number of tests<br>ignore the same drink                                                     | 2        | AO2<br>4.5.2.1<br>WS 2.2<br>RP 6 |

| Question     | Answers                                                                                                                                                                        | Extra information                                                                                                                                 | Mark     | AO / Spec. Ref. |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|
| 02.5         | any <b>one</b> from: <ul style="list-style-type: none"> <li>tiredness / lack of sleep</li> <li>alcohol / drugs</li> <li>age</li> <li>practice</li> <li>distractions</li> </ul> | ignore caffeine / energy drinks                                                                                                                   | 1        | AO1<br>4.5.2.1  |
| <b>Total</b> |                                                                                                                                                                                |                                                                                                                                                   | <b>7</b> |                 |
| 03.1         | pancreas → insulin<br>adrenal glands → adrenaline<br>ovaries → oestrogen                                                                                                       | all three lines correct = <b>2</b> marks<br>two lines correct = <b>1</b> mark<br>if more than one line is drawn from a gland, that gland scores 0 | 2        | AO1<br>4.5.3.1  |
| 03.2         | in the blood / bloodstream                                                                                                                                                     | allow in the blood plasma<br>do not accept in nerves                                                                                              | 1        | AO1<br>4.5.3.1  |
| 03.3         | (insulin causes) glucose to move <b>from the blood into the cells</b>                                                                                                          | allow glucose is taken up by the cells (of the body / muscles / liver)                                                                            | 1        | AO1<br>4.5.3.2  |
|              | (excess) glucose is converted to <b>glycogen</b> (for storage in the liver and muscles)                                                                                        | do not accept glucagon                                                                                                                            | 1        | AO1<br>4.5.3.2  |
| 03.4         | (by) injections of insulin                                                                                                                                                     | allow an insulin pump<br>ignore diet / exercise on their own                                                                                      | 1        | AO1<br>4.5.3.2  |
| 03.5         | obesity / being overweight                                                                                                                                                     | allow a diet high in sugar / fat<br>allow lack of exercise                                                                                        | 1        | AO1<br>4.5.3.2  |
| <b>Total</b> |                                                                                                                                                                                |                                                                                                                                                   | <b>7</b> |                 |
| 04.1         | oestrogen                                                                                                                                                                      | allow phonetic spelling                                                                                                                           | 1        | AO1<br>4.5.3.3  |
| 04.2         | (in the) ovaries                                                                                                                                                               | allow ovary                                                                                                                                       | 1        | AO1<br>4.5.3.3  |
| 04.3         | testosterone                                                                                                                                                                   |                                                                                                                                                   | 1        | AO1<br>4.5.3.3  |
| 04.4         | (condom) stops sperm reaching / meeting the egg <b>or</b> acts as a barrier to sperm                                                                                           | allow stops sperm entering the vagina / uterus                                                                                                    | 1        | AO1<br>4.5.3.4  |
|              | (oral contraceptive) hormonal                                                                                                                                                  |                                                                                                                                                   | 1        | AO1<br>4.5.3.4  |
|              | (implant) (slowly) releases hormones / progesterone that stop eggs maturing / being released                                                                                   | allow works in the same way as the pill but for a longer time                                                                                     | 1        | AO1<br>4.5.3.4  |

| Question     | Answers                                                                                                                                      | Extra information                                                                                           | Mark     | AO / Spec. Ref.           |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------|---------------------------|
| 04.5         | (a condom also) protects against sexually transmitted infections / STIs                                                                      | allow does not need to be taken every day<br>allow does not have hormonal side effects                      | 1        | AO1<br>4.5.3.4            |
| <b>Total</b> |                                                                                                                                              |                                                                                                             | <b>7</b> |                           |
| 05.1         | meiosis                                                                                                                                      | if more than one box is ticked, no mark                                                                     | 1        | AO1<br>4.6.1.2            |
| 05.2         | top row: <b>Bb, bb</b><br>bottom row: <b>Bb, bb</b>                                                                                          | all four correct = <b>2</b> marks<br>two or three correct = <b>1</b> mark<br>allow bB for Bb                | 2        | AO2<br>4.6.1.4<br>MS 2c   |
| 05.3         | 0.5 <b>or</b> $\frac{1}{2}$ <b>or</b> 50% <b>or</b> 1 in 2                                                                                   | allow ECF from an incorrect Punnett square<br>do not accept 1 : 1 (a ratio)                                 | 1        | AO2<br>4.6.1.4<br>MS 2e   |
| 05.4         | (the mouse has) two <b>different</b> alleles (for the gene)                                                                                  | allow one dominant allele and one recessive allele<br>allow Bb                                              | 1        | AO1<br>4.6.1.4            |
| 05.5         | (sex chromosomes of a male) XY                                                                                                               |                                                                                                             | 1        | AO1<br>4.6.1.6            |
|              | (probability of a boy) 0.5 <b>or</b> $\frac{1}{2}$ <b>or</b> 50% <b>or</b> 1 in 2                                                            | allow 1 : 1 if clearly used as a probability of a half                                                      | 1        | AO1<br>4.6.1.6<br>MS 2e   |
| 05.6         | both parents are <b>carriers</b> / heterozygous <b>or</b> each parent has one (recessive) cystic fibrosis allele                             | allow each parent has one dominant and one recessive allele                                                 | 1        | AO2<br>4.6.1.5            |
|              | the child inherits a cystic fibrosis allele <b>from each parent</b> / two recessive alleles <b>or</b> the child is homozygous recessive      | allow the child has no dominant allele                                                                      | 1        | AO2<br>4.6.1.5            |
| <b>Total</b> |                                                                                                                                              |                                                                                                             | <b>9</b> |                           |
| 06.1         | (genes only) eye colour / blood group / natural hair colour                                                                                  | allow other correct inherited characteristics<br>do not accept height / weight (both genes and environment) | 1        | AO1<br>4.6.2.1            |
|              | (environment only) scars / language spoken / tattoos / accent                                                                                | allow other characteristics acquired during life                                                            | 1        | AO1<br>4.6.2.1            |
| 06.2         | a (random) change in a gene / in the DNA (base sequence)                                                                                     | allow a change in a chromosome                                                                              | 1        | AO1<br>4.6.2.1            |
| 06.3         | a <b>mutation</b> makes some bacteria <b>resistant</b> to the antibiotic <b>or</b> there is variation in the bacteria and some are resistant | allow some bacteria are not killed by the antibiotic                                                        | 1        | AO1<br>4.6.3.4<br>4.6.2.2 |

| Question     | Answers                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Extra information                                                              | Mark     | AO / Spec. Ref.           |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------|---------------------------|
|              | (when the antibiotic is used) the non-resistant bacteria are killed and the <b>resistant bacteria survive and reproduce</b>                                                                                                                                                                                                                                                                                                                                                | allow the resistant bacteria are not killed and multiply                       | 1        | AO1<br>4.6.3.4<br>4.6.2.2 |
|              | (so) the resistant bacteria <b>pass on the (resistance) gene / allele</b> to their offspring, so the population becomes resistant                                                                                                                                                                                                                                                                                                                                          | allow the resistant strain spreads<br>do not accept the bacteria become immune | 1        | AO1<br>4.6.3.4<br>4.6.2.2 |
| <b>06.4</b>  | any <b>two</b> from: <ul style="list-style-type: none"> <li>doctors should not prescribe antibiotics inappropriately, e.g. for viral infections / non-serious infections</li> <li>patients should complete the (whole) course of antibiotics</li> <li>restrict the use of antibiotics in farming / agriculture</li> </ul>                                                                                                                                                  | ignore 'use fewer antibiotics' without detail                                  | 2        | AO1<br>4.6.3.4            |
| <b>Total</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                | <b>8</b> |                           |
| <b>07.1</b>  | phylum                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                | 1        | AO1<br>4.6.4              |
|              | family                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | words must be in the correct positions                                         | 1        | AO1<br>4.6.4              |
| <b>07.2</b>  | <i>Canis</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                               | allow the first word / part                                                    | 1        | AO2<br>4.6.4              |
| <b>07.3</b>  | analysis of the chemicals (such as DNA) in cells                                                                                                                                                                                                                                                                                                                                                                                                                           | if more than one box is ticked, no mark                                        | 1        | AO1<br>4.6.4              |
| <b>07.4</b>  | any <b>two</b> from: <ul style="list-style-type: none"> <li>from the (hard) parts of organisms that do not decay (easily), e.g. bones / shells</li> <li>parts of the organism are replaced by minerals as they decay</li> <li>from parts of organisms that have not decayed because one or more of the conditions needed for decay are absent, e.g. in ice / peat / amber</li> <li>as preserved traces of organisms, e.g. footprints / burrows / rootlet traces</li> </ul> | allow the organism is buried in sediment / mud which turns to rock             | 2        | AO1<br>4.6.3.2            |
| <b>07.5</b>  | any <b>one</b> from: <ul style="list-style-type: none"> <li>a new predator / disease</li> <li>a new (more successful) competitor / species</li> <li>changes to the environment (over geological time)</li> <li>a single catastrophic event, e.g. a volcanic eruption / asteroid collision</li> <li>loss of habitat / hunting by humans</li> </ul>                                                                                                                          | allow climate change                                                           | 1        | AO1<br>4.6.3.3            |
| <b>Total</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                | <b>7</b> |                           |

| Question     | Answers                                                                                                                                                                                                                         | Extra information                                                                  | Mark     | AO / Spec. Ref.                  |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------|----------------------------------|
| 08.1         | to avoid bias <b>or</b> so that the sample is representative (of the whole field)                                                                                                                                               | allow so the results are valid<br>do not accept to make it a fair test             | 1        | AO1<br>4.7.2.1<br>WS 2.4<br>RP 7 |
| 08.2         | $(3 + 5 + 4 + 2 + 6) \div 5$ <b>or</b> $20 \div 5$                                                                                                                                                                              | an answer of 4 scores <b>2</b> marks                                               | 1        | AO2<br>4.7.2.1<br>MS 2b<br>RP 7  |
|              | (mean =) <b>4</b> (per quadrat)                                                                                                                                                                                                 | allow 4.0                                                                          | 1        | AO2<br>4.7.2.1<br>MS 2b<br>RP 7  |
| 08.3         | $4 \times 200$                                                                                                                                                                                                                  | an answer of 800 scores <b>2</b> marks<br>allow ECF from an incorrect mean in 08.2 | 1        | AO2<br>4.7.2.1<br>MS 2b<br>RP 7  |
|              | (estimated number =) <b>800</b>                                                                                                                                                                                                 |                                                                                    | 1        | AO2<br>4.7.2.1<br>MS 2b<br>RP 7  |
| 08.4         | any <b>one</b> from:<br><ul style="list-style-type: none"> <li>light intensity</li> <li>temperature</li> <li>moisture level / amount of water</li> <li>soil pH / mineral content</li> <li>wind intensity / direction</li> </ul> | ignore 'weather'                                                                   | 1        | AO2<br>4.7.1.2                   |
| 08.5         | any <b>one</b> from:<br><ul style="list-style-type: none"> <li>animals grazing / eating the plants (e.g. rabbits)</li> <li>competition from other plants / grass</li> <li>disease / pathogens</li> </ul>                        | allow availability of food for the animals that eat dandelions                     | 1        | AO2<br>4.7.1.3                   |
| 08.6         | (producer) grass                                                                                                                                                                                                                |                                                                                    | 1        | AO1<br>4.7.2.1                   |
|              | (the arrows show) the transfer of <b>energy</b> / biomass (from one organism to the next) <b>or</b> what eats what                                                                                                              | allow the direction of energy flow                                                 | 1        | AO1<br>4.7.2.1                   |
| <b>Total</b> |                                                                                                                                                                                                                                 |                                                                                    | <b>9</b> |                                  |
| 09.1         | the <b>variety</b> of (all the different) <b>species</b> (of organisms) on Earth / in an ecosystem                                                                                                                              | allow the number of different species<br>do not accept the number of organisms     | 1        | AO1<br>4.7.3.1                   |
| 09.2         | (carbon dioxide is removed by plants during) <b>photosynthesis</b>                                                                                                                                                              |                                                                                    | 1        | AO1<br>4.7.2.2                   |

| Question                                                                                                                                                                               | Answers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Extra information                                                                                                                                                                                                     | Mark                           | AO / Spec. Ref.                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------|---|--------------------------------------------|
|                                                                                                                                                                                        | (carbon dioxide is returned when fossil fuels burn, which is called) <b>combustion</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | words must be used in the correct sentences                                                                                                                                                                           | 1                              | AO1<br>4.7.2.2                                                                                                                                                                                                        |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
| 09.3                                                                                                                                                                                   | <table><tr><td><b>Level 3<br/>(5–6 marks)</b></td><td>A clear, detailed and logically linked explanation of at least two effects of deforestation on the environment (with the reasons for them) <b>and</b> a description of at least two ways of maintaining biodiversity.</td></tr><tr><td><b>Level 2<br/>(3–4 marks)</b></td><td>An explanation of some effects of deforestation and/or some ways of maintaining biodiversity, with some links between causes and effects, but the answer may be unbalanced or lack detail.</td></tr><tr><td><b>Level 1<br/>(1–2 marks)</b></td><td>Simple statements about deforestation or about biodiversity, for example that trees are cut down for land or that animals lose their homes, with little explanation.</td></tr><tr><td><b>0 marks</b></td><td>No relevant content.</td></tr></table> |                                                                                                                                                                                                                       | <b>Level 3<br/>(5–6 marks)</b> | A clear, detailed and logically linked explanation of at least two effects of deforestation on the environment (with the reasons for them) <b>and</b> a description of at least two ways of maintaining biodiversity. | <b>Level 2<br/>(3–4 marks)</b> | An explanation of some effects of deforestation and/or some ways of maintaining biodiversity, with some links between causes and effects, but the answer may be unbalanced or lack detail. | <b>Level 1<br/>(1–2 marks)</b> | Simple statements about deforestation or about biodiversity, for example that trees are cut down for land or that animals lose their homes, with little explanation. | <b>0 marks</b> | No relevant content. | 6 | AO1 / AO2<br>4.7.3.4<br>4.7.3.5<br>4.7.3.6 |
|                                                                                                                                                                                        | <b>Level 3<br/>(5–6 marks)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | A clear, detailed and logically linked explanation of at least two effects of deforestation on the environment (with the reasons for them) <b>and</b> a description of at least two ways of maintaining biodiversity. |                                |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
|                                                                                                                                                                                        | <b>Level 2<br/>(3–4 marks)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | An explanation of some effects of deforestation and/or some ways of maintaining biodiversity, with some links between causes and effects, but the answer may be unbalanced or lack detail.                            |                                |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
|                                                                                                                                                                                        | <b>Level 1<br/>(1–2 marks)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Simple statements about deforestation or about biodiversity, for example that trees are cut down for land or that animals lose their homes, with little explanation.                                                  |                                |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
|                                                                                                                                                                                        | <b>0 marks</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | No relevant content.                                                                                                                                                                                                  |                                |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
|                                                                                                                                                                                        | <b>Indicative content</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
|                                                                                                                                                                                        | <b>Effects of deforestation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
|                                                                                                                                                                                        | <ul style="list-style-type: none"><li>forests are cut down to provide land for cattle and rice fields, and to grow crops for biofuels</li><li>habitats are destroyed, so animals and plants lose their homes / food, and species may become extinct</li><li>this <b>reduces biodiversity</b></li><li>fewer trees means less carbon dioxide is removed from the atmosphere by photosynthesis</li><li>burning the trees, or their decay by microorganisms, releases carbon dioxide into the atmosphere</li><li>more carbon dioxide in the atmosphere contributes to <b>global warming</b> / climate change</li><li>soil may be eroded / washed away once the trees are removed</li></ul>                                                                                                                                                     |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
|                                                                                                                                                                                        | <b>Maintaining biodiversity</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
|                                                                                                                                                                                        | <ul style="list-style-type: none"><li>breeding programmes for endangered species (e.g. in zoos)</li><li>protecting and regenerating rare habitats, e.g. nature reserves / protected areas of forest</li><li>reintroducing field margins and hedgerows in farmland where only one crop is grown</li><li>reducing deforestation and reducing carbon dioxide emissions (by governments)</li><li>recycling resources rather than dumping waste in landfill</li><li>replanting trees / sustainable forestry so trees are replaced when they are cut down</li></ul>                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
| Credit other correct, relevant points. Do not credit statements that deforestation reduces the amount of oxygen so people cannot breathe, or that cutting down trees causes acid rain. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
|                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
|                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
|                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
| Total                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                       | 9                              |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |
| TOTAL FOR PAPER                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                       | 70                             |                                                                                                                                                                                                                       |                                |                                                                                                                                                                                            |                                |                                                                                                                                                                      |                |                      |   |                                            |