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90167

NZQA

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

*For Supervisor's use only*

# Level 1 Biology, 2008

## 90167 Describe plant processes

Credits: Four
9.30 am Monday 17 November 2008

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should answer ALL the questions in this booklet.

If you need more space for any answer, use the page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–12 in the correct order and that none of these pages is blank.

**YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.**

| For Assessor's use only | Achievement Criteria | | |
|---|---|---|---|
| **Achievement** | **Achievement with Merit** | **Achievement with Excellence** | |
| Describe biological ideas relating to the functioning of plant processes. | Explain biological ideas relating to the functioning of a plant process. | Discuss biological ideas relating to the functioning of a plant process. | |
| **Overall Level of Performance** | | | |

You are advised to spend 50 minutes answering the questions in this booklet.

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## QUESTION ONE

The diagram below shows some parts of an **insect-pollinated** flower. Use it to help you answer the questions.


Relph, Pedder, DeLacey, *Life Science* (Auckland: Heinemann, 1989), p 232.

(a) Complete the table below to **describe** the function of the anther and the stigma.

| Part of the flower | Description of the function (what it does) |
|---|---|
| anther | |
| stigma | |

The diagram below shows some parts of a **wind-pollinated** flower. Use it to help you answer the questions.

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Relph, Pedder, DeLacey, *Life Science* (Auckland: Heinemann, 1989), p 233.

(b) **Explain** why the shapes of the stigmas are different in wind-pollinated and insect-pollinated flowers.

(c) **Describe** what happens inside a flower **after** pollination has occurred.

(d) **Discuss** the advantages to the plant of cross-pollination and self-pollination.

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In your discussion:

- **describe** cross-pollination AND self-pollination
- **explain** why cross-pollination AND self-pollination can be an advantage to the plant.

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(e) Some plants can reproduce using TWO different methods, sexual reproduction and asexual reproduction.

For example, as shown in the diagram, the potato plant can reproduce **sexually** with flowers, and **asexually** with tubers**.**


Adapted from www.bbc.co.uk/schools/gcsebitesize/img/bipotato.gif

**Explain** the differences between sexual AND asexual reproduction in a plant like the potato.

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## QUESTION TWO

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The diagram below shows the parts of a seed. Use it to help you answer the questions below.


Relph, Pedder, DeLacey, *Life Science* (Auckland: Heinemann, 1989), p 234.

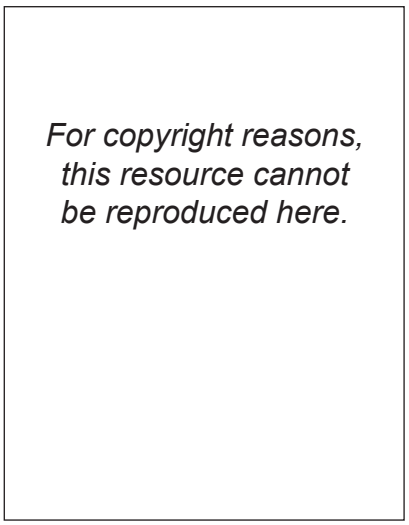
(a) **Describe** the conditions seeds need to germinate.

(b) **Explain** how seed germination occurs.

## QUESTION THREE

Assessor's use only

The diagram below shows a plant. Some parts of the plant that grow are circled.




Adapted from Relph, Pedder, DeLacey, *Life Science* (Auckland: Heinemann, 1989), p 221.

(a) **Describe** what is happening to the cells at the circled parts of the plant to make the plant grow bigger.

(b) **Explain** how the trunk of a tree grows **wider**.

(c) As a plant increases in size, the plant roots grow longer.

**Explain** why a bigger plant needs longer roots.

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## QUESTION FOUR

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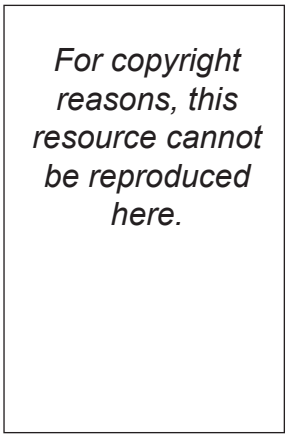
Some of the raw materials a plant needs to carry out photosynthesis are water, carbon dioxide, chlorophyll and light.

The diagram below shows some parts of a green plant involved in collecting the raw materials for photosynthesis and carrying out photosynthesis.




Adapted from www.phschool.com/science/biology_place/biocoach/images/plants/plant.gif

**Discuss** how water, carbon dioxide, chlorophyll and light AND the parts of the plant work together to allow a plant to carry out photosynthesis.

In your discussion you should LINK the following:

- a **description** of the process of photosynthesis
- an **explanation** of how the parts of the plant are involved in photosynthesis
- an **explanation** of how water, carbon dioxide, chlorophyll and light AND the parts of the plant work together to allow photosynthesis to occur.

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**Extra paper for continuation of answers if required.**
**Clearly number the question.**

Assessor's use only

Question number