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NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

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Level 1 Biology, 2009

90167 Describe plant processes

Credits: Four

9.30 am Wednesday 25 November 2009

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 2–7 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.

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Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
Describe biological ideas relating to the functioning of plant processes. <input type="checkbox"/>	Explain biological ideas relating to the functioning of a plant process. <input type="checkbox"/>	Discuss biological ideas relating to the functioning of a plant process. <input type="checkbox"/>
Overall Level of Performance <input type="checkbox"/>		

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

QUESTION ONE: REPRODUCTION

Some flowering plants such as potatoes and strawberries reproduce both sexually and asexually.



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Adapted from www.aces.edu/pubs/docs/A/ANR-0633/figures/figure1.GIF

Using the information above, **discuss the advantages and disadvantages** to the plant of both sexual and asexual reproduction.

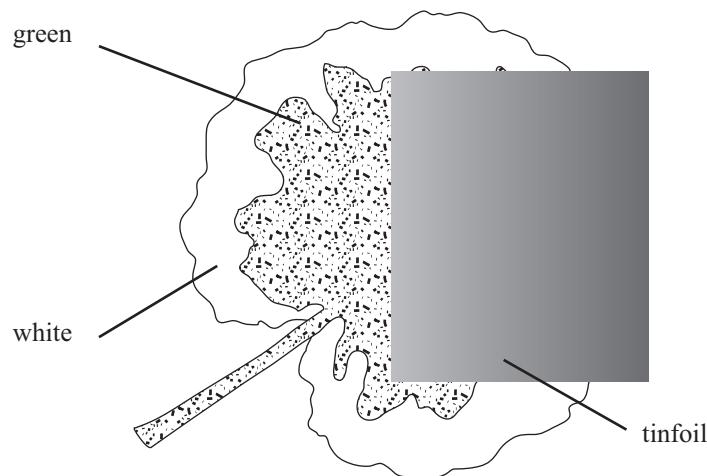
In your answer:

- describe how these plants reproduce both sexually AND asexually
- explain how both sexual **and** asexual reproduction can affect the dispersal **and** variation in plants
- relate the above to reproductive success.

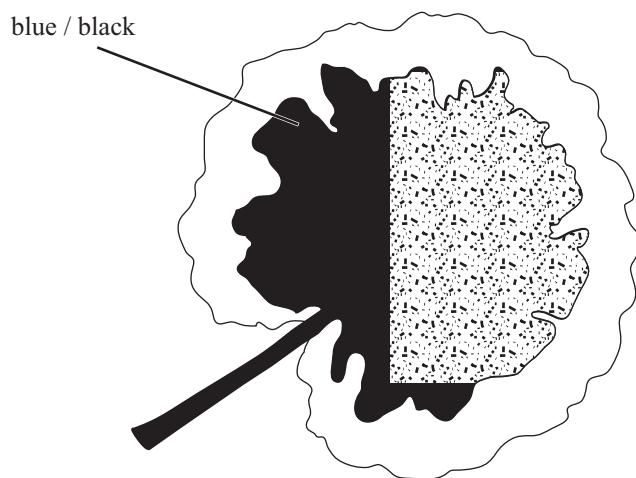
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QUESTION TWO: PHOTOSYNTHESIS

In an experiment to investigate photosynthesis, a leaf from a **variegated, de-starched plant** was treated as shown. The plant was left in a sunny place for two days.



After two days a starch test was carried out. The leaf showed the following results when tested with iodine.



(a) Using the information provided above, **describe** the conditions needed for photosynthesis to occur.

(b) **Discuss** the results in part (a), in terms of photosynthesis, **justifying** the resulting colour changes in **all** parts of the leaf.

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QUESTION THREE: GROWTH

Flowering plants undergo both primary and secondary growth.

Discuss how both primary AND secondary growth occur in the stem of a plant.

In your answer you should consider:

- the role of the **apical meristem** in the growth of plants
- **where** primary AND secondary growth occur in **the stem**
- the **purpose** of primary AND secondary growth.

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

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