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90928M



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

SUPERVISOR'S USE ONLY

Koiora, Kaupae 1, 2019

90928M Te whakaatu māramatanga ki ngā ariā koiora e pā ana ki te hurihanga ora o ngā tipu whaipua

9.30 i te ata Rāhina 11 Whiringa-ā-rangi 2019
Whiwhinga: Whā

| Paetae | Kaiaka | Kairangi |
|---|--|--|
| Te whakaatu māramatanga ki ngā ariā koiora e pā ana ki te hurihanga ora o ngā tipu whaipua. | Te whakaatu māramatanga hōhonu ki ngā ariā koiora e pā ana ki te hurihanga ora o ngā tipu whaipua. | Te whakaatu māramatanga matawhānui mō ngā ariā koiora e pā ana ki te hurihanga ora o ngā tipu whaipua. |

Tirohia mēnā e rite ana te Tau Ākongā ā-Motu (NSN) kei runga i tō puka whakauru ki te tau kei runga i tēnei whārangi.

Me whakamātau koe i ngā tūmahi KATOĀ kei roto i tēnei pukapuka.

Mēnā ka hiahia whārangi atu anō koe mō ō tuinga, whakamahia ngā whārangi wātea kei muri o tēnei pukapuka, ka āta tohu ai i te tau tūmahi.

Tirohia mēnā e tika ana te raupapatanga o ngā whārangi 2–15 kei roto i tēnei pukapuka, ka mutu, kāore tētahi o aua whārangi i te takoto kau.

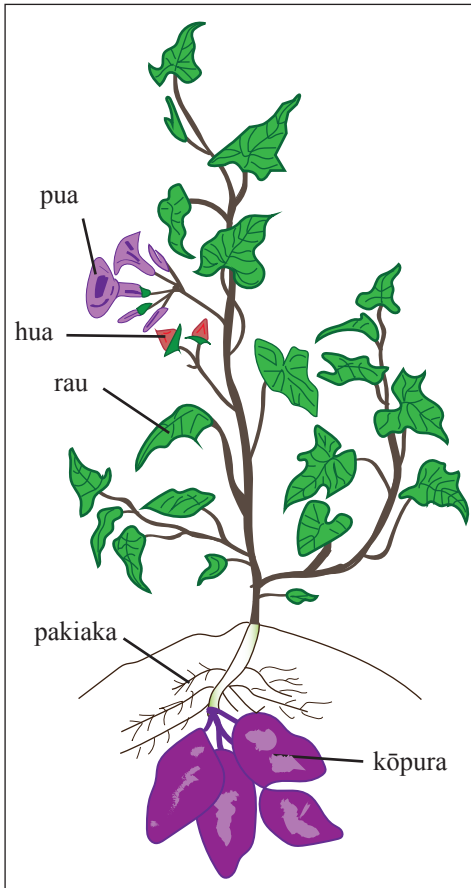
ME HOATU RAWA KOE I TĒNEI PUKAPUKA KI TE KAIWHAKAHAERE Ā TE MUTUNGA O TE WHAKAMĀTAUTAU.

TAPEKE

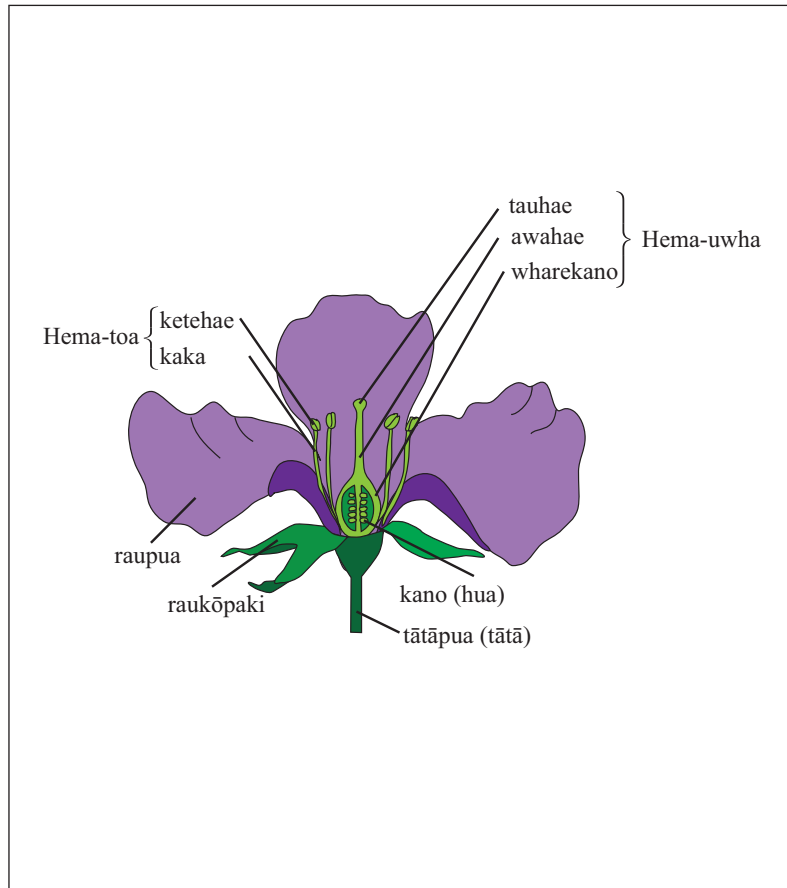
MĀ TE KAIMĀKA ANAKE

TŪMAHI TUATAHI: KŪMARA

Ko ētahi tipu whaipua pērā i te kūmara ka taea te whakaputa uri mā te tukanga tōrua, mā te tōtahi hoki, e ai ki te hoahoa i raro.



Te tipu kūmara.



Hoahoa pua arowhānui.

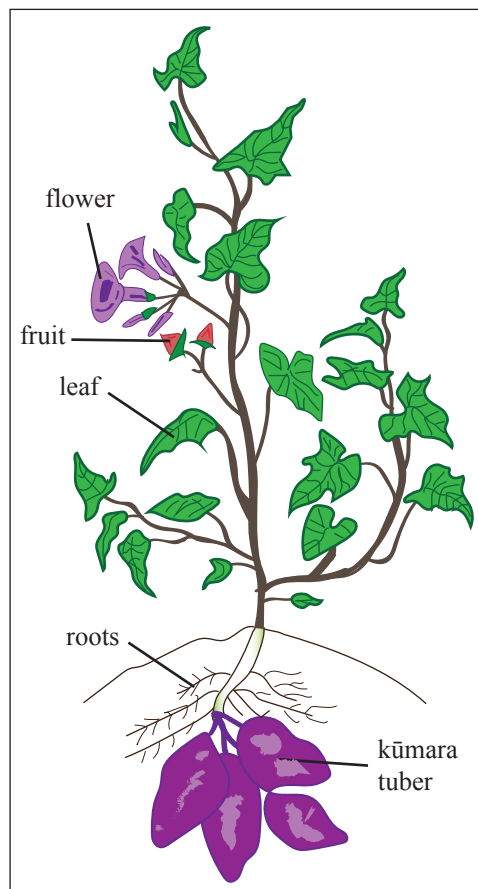
Whakatauritea te whakaputa uri mā te tukanga tōrua me te tōtahi i roto i tētahi tipu whaipua, pērā i te kūmara, mā te:

- whakaahua me te whakamārama he pēhea te whakaputa uri tōrua me te tōtahi a ngā tipu whaipua pērā i te kūmara
- matapaki i ngā painga me ngā kino o ngā whakaputa uri tōtahi me te tōrua i roto i ngā tipu whaipua pērā i te kūmara.

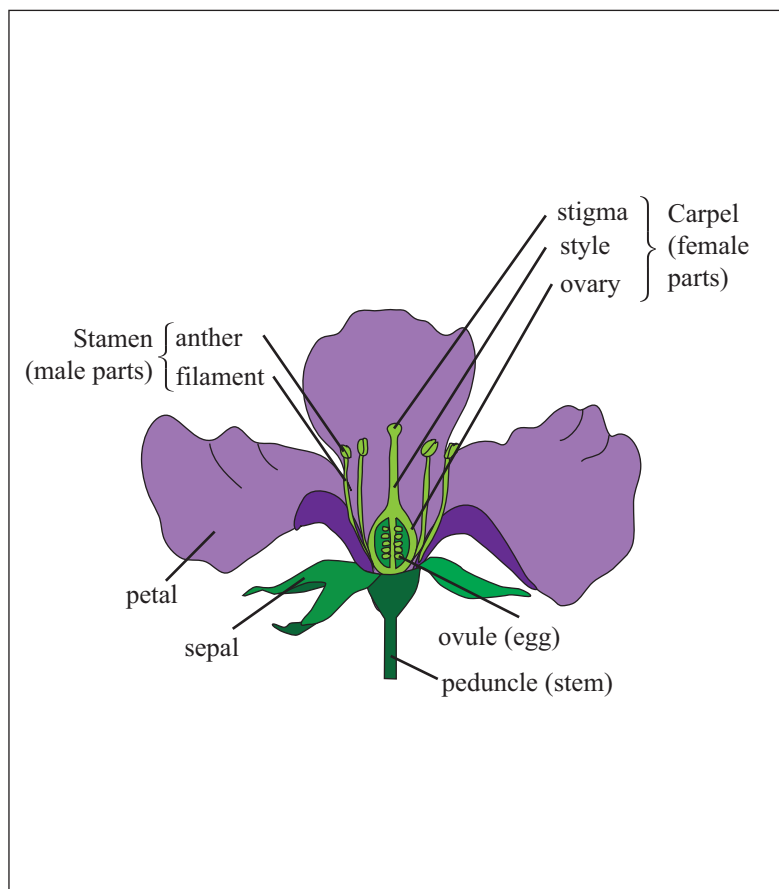
He wāhi anō mō tō tuhinga mō tēnei tūmahi kei te whārangi 4.

QUESTION ONE: KŪMARA

Some flowering plants such as kūmara can reproduce both sexually and asexually, as shown in the diagram below.



The kūmara plant.



Generalised flower diagram.

Compare and contrast sexual and asexual reproduction in a flowering plant, such as kūmara, by:

- describing and explaining how flowering plants like kūmara reproduce sexually and asexually
- discussing the advantages and disadvantages of both sexual and asexual reproduction in flowering plants like kūmara.

There is more space for your answer to this question on page 5.

TŪMAHI TUARUA: TINAKUTANGA KĀKANO ME TE TIPURANGA

Ka nui ake te tinakutanga o ngā kākano me te tipuranga o ngā tipu i te kōanga me te raumati. Kei raro ētahi hoahoa e whakaatu ana i ngā wāhanga o tētahi kākano, te tinakutanga kākano me te tipuranga o te tipu.

Ngā wāhanga o tētahi kākano.

<https://pmgbiology.com/tag/seed/>

Tinakutanga kākano me te tipuranga.

www.vectorstock.com/royalty-free-vector/seed-germination-vector-1035539

Matapakitia ngā hono i waenga i ngā take taiao, pērā i te pāmahana me te wātea o te wai, me ngā pūtake pūngao e hiahiatia ana mō te tinakutanga kākano me te tipuranga mā te:

- whakaahua i ngā tukanga kei roto i te tinakutanga kākano me te tipuranga o tētahi tipu
- whakamārama he aha i nui ake ai te tinakutanga kākano me te tipuranga o ngā tipu i ngā marama o te kōanga me te raumati
- whakataurite i ngā pūtake pūngao kia tinaku ai he kākano, me te pūtake pūngao mō te tipuranga anō o ngā tipu.

He wāhi anō mō tō tuhinga mō tēnei tūmahi kei te whārangi 8.

QUESTION TWO: SEED GERMINATION AND PLANT GROWTHASSESSOR'S
USE ONLY

Seed germination and plant growth increase in spring and summer. Below are diagrams that show parts of a seed, seed germination, and plant growth.



Parts of a seed.

<https://pmgbiology.com/tag/seed/>

Seed germination and plant growth.

www.vectorstock.com/royalty-free-vector/seed-germination-vector-1035539

Discuss the links between environmental factors, such as temperature and water availability, and the energy sources required for seed germination and plant growth by:

- describing the processes involved in seed germination and growth of a plant
- explaining why seed germination and plant growth increase in the spring and summer months
- comparing and contrasting the energy source for a seed to germinate, with the energy source for further plant growth.

There is more space for your answer to this question on page 9.

TŪMAHI TUATORU: TE HAENGA, TE WHAKATŌNGA ME TE HANGA KĀKANO

Ko te haenga, te whakatōnga me te hanga kākano ngā tukanga hira e toru i roto i te hurihanga ora o tētahi tipu whaipua.



Pua kōhure.

https://en.wikipedia.org/wiki/Petal#/media/File:Mature_flower_diagram.svg

Matapakitia ngā tukanga o te haenga, te whakatōnga me te hanga kākano ka puta i ngā tipu whaipua, me te hiranga o ēnei tukanga ki te hurihanga ora o tētahi tipu whaipua mā te:

- whakaahua i ēnei tukanga me te whakamārama he pēhea te pā mai i roto i tētahi tipu whaipua
- matapaki i te hiranga o ngā tukanga o te haenga, te whakatōnga me te hanga kākano ki te hurihanga ora o tētahi tipu whaipua.

He wāhi anō mō tō tuhinga mō tēnei tūmahi kei te whārangi 12.

QUESTION THREE: POLLINATION, FERTILISATION, AND SEED FORMATION

Pollination, fertilisation, and seed formation are three important processes in the life cycle of a flowering plant.



Mature flower.

https://en.wikipedia.org/wiki/Petal#/media/File:Mature_flower_diagram.svg

Discuss the processes of pollination, fertilisation and seed formation that occur in flowering plants, and the importance of these processes to the life cycle of a flowering plant by:

- describing these processes, and explaining how they occur in a flowering plant
- discussing the importance of the processes of pollination, fertilisation, and seed formation to the life cycle of a flowering plant.

There is more space for your answer to this question on page 13.

**He whārangī anō ki te hiahiatia.
Tuhia te (ngā) tau tūmahi mēnā e tika ana.**

TAU TŪMAHI

MĀ TE
KAIMĀKA
ANAKE

English translation of the wording on the front cover

Level 1 Biology, 2019

90928 Demonstrate understanding of biological ideas relating to the life cycle of flowering plants

9.30 a.m. Monday 11 November 2019
Credits: Four

| Achievement | Achievement with Merit | Achievement with Excellence |
|---|--|---|
| Demonstrate understanding of biological ideas relating to the life cycle of flowering plants. | Demonstrate in-depth understanding of biological ideas relating to the life cycle of flowering plants. | Demonstrate comprehensive understanding of biological ideas relating to the life cycle of flowering plants. |

90928M

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 attempt ALL the questions in this booklet.

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

Check that this booklet has pages 2–15 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.