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91156M





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

Koiora, Kaupae 2, 2018

91156M Te whakaatu māramatanga ki ngā tukanga ora e pā ana ki te pūtau

9.30 i te ata Rāmere 23 Whiringa-ā-rangi 2018 Whiwhinga: Whā

Paetae	Kaiaka	Kairangi
Te whakaatu māramatanga ki ngā tukanga ora e pā ana ki te pūtau.	Te whakaatu māramatanga hōhonu ki ngā tukanga ora e pā ana ki te pūtau.	Te whakaatu māramatanga matawhānui ki ngā tukanga ora e pā ana ki te pūtau.

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

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

Mēnā ka hiahia whārangi atu anō koe mō ō tuhinga, whakamahia te (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 2–21 kei roto i tēnei pukapuka, ā, 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.

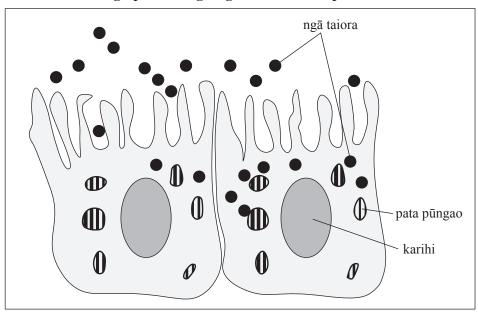
TAPEKE

TŪMAHI TUATAHI: NEKEHANGA O NGĀ MATŪ

MĀ TE KAIMĀKA ANAKE

I roto i te kōpiro iti, ko te mahi a ngā pūtau tīngoingoi he ngongo i ngā taiora. I te urunga tuatahi atu o ngā taiora ki ngā kōpiro, ka taea ngā taiora te kuhu atu ki ngā pūtau tīngoingoi mā te ingotanga. Ka taea anō e ngā pūtau tīngoingoi ēnei taiora te ngongo mā te kawenga hohe.

Ngā pūtau tīngoingoi i roto i te kōpiro iti



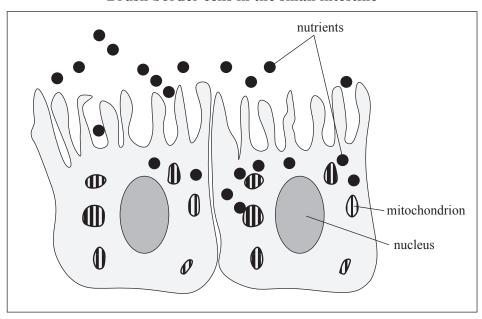
		ıngotanga.		
Whakamā	ramahia te tukan	nga o te kawen	ga hohe.	

QUESTION ONE: MOVEMENT OF MATERIALS

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In the small intestine, it is the function of the brush border cells to absorb nutrients. When nutrients first enter the intestines, the nutrients can move into the brush border cells by diffusion. The brush border cells can also absorb these nutrients using active transport.

Brush border cells in the small intestine



Describe the process of diffusion.
Explain the process of active transport.

(c)

_	ā te iti o te hāora ki te tukupūngao ā-pūtau me te kaw ā kōpiro.	enga hohe o ngā taiora ki ngā pūtau	MĀ TE KAIMĀKA ANAKE		
ā-pū	apakitia he pēhea te pānga o te kukūtanga hāora ki nga tau ME te ngongotanga o ngā taiora ki ngā pūtau tīng				
Me v	vhakauru ki roto i tō tuhinga:				
•	• he whakamāramatanga o te tukupūngao ā-hāora e kōrero ana mō ngā matū kei te hiahiatia ME ngā hua ka whakaputaina				
•	he whakamāramatanga o te tukupūngao hāora-kore hiahiatia ME ngā hua ka whakaputaina	e kōrero ana mō ngā matū kei te			
•	he matapakinga ka pēhea te whai pānga o te kukūtar ā-pūtau ME te kawenga hohe i roto i ngā pūtau tīngo				
		He wāhi anō mō tō tuhinga mō tēnei tūmahi kei te whārangi o muri mai.			

(c)

	of oxygen can affect both cellular respiration and ac of the intestines.	tive transport of nutrients into the	ASSESSOR'S USE ONLY
	uss how oxygen concentration affects the processes of bsorption of nutrients into the brush border cells of the state of t		
In yo	our answer include:		
•	an explanation of aerobic respiration that includes the products made	he raw materials needed AND the	
•	an explanation of anaerobic respiration that include products made	s the raw materials needed AND the	
•	a discussion of how lowered oxygen concentration AND active transport in the brush border cells.	would affect cellular respiration	
		There is more space for your answer to this question on the following page.	

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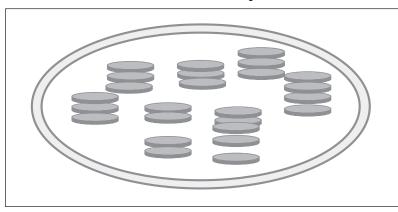
TŪMAHI TUARUA: TE AHOTAKAKAME ME NGĀ PŪMUA WHĀKŌKĪ

KAIMĀKA ANAKE

He hohenga hira te ahotakakame e tautoko ana i ētahi atu tukanga ora i roto i ngā tipu.

- (a) Tuhia he whārite kupu matawhānui mō te ahotakakame.
- (b) Tapaina ngā wāhanga e rua o tētahi pūkāriki kei te hoahoa i raro ME te whakamārama he pēhea te whakahohe a ia wāhanga kua tapaina i te pūkāriki ki te whakahaere i te ahotakakame.

He hoahoa māmā o te pūkāriki

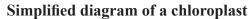


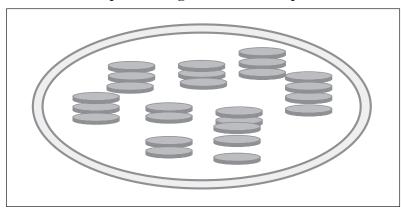
QUESTION TWO: PHOTOSYNTHESIS AND ENZYMES

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Photosynthesis is an important reaction that supports many other life processes in plants.

- (a) Write a complete word equation for photosynthesis.
- (b) Label two parts of a chloroplast on the diagram below AND explain how each of the named parts enables the chloroplast to carry out photosynthesis.





(c) Ka whakamahia ngā pūmua whākōkī i roto i ngā tauhohenga ahotakakame. Ka taea e ngā āhuatanga taiao, pērā i te pH me ngā tāoke, te hohenga pūmua whākōkī te whakaawe. He maha ngā tāoke ka mahi hei kaitāmi whākōkī. Matapakitia he pēhea te whakaawe a ngā kaitāmi whākōkī i ngā mahinga pūmua whākōkī, ā, ka whakataurite i tēnei ki ngā pānga o te pH ki ngā mahinga pūmua whākōkī. Me whakauru ki roto i tō tuhinga: he whakaahuatanga mō tēnei mea te whākōkī he whakamāramatanga e pēhea ana te pātahitanga o te hanganga pūmua whākōkī ki tana mahi he matapakinga e pēhea ana te pānga o ngā kaitāmai whākōkī ME te pH ki te mahinga pūmua whākōkī. Ka whakaaetia te whakamahi hoahoa hei tautoko i tō tuhinga.

\ :	and have any man inhibitory influence and a stirity and a second of the	
	cuss how enzyme inhibitors influence enzyme activity, and compare this with the effects of on enzyme activity.	
	your answer include:	
a description of what an enzyme is		
	an explanation of how enzyme structure is related to its function	
	a discussion of how BOTH enzyme inhibitors AND pH affect enzyme activity.	
You	may use diagrams in your answer.	

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TŪMAHI TUATORU: TE TĀRUATANGA PĪTAUIRA ME TE WHĀŪ PŪIRA

MĀ TE KAIMĀKA ANAKE

Ka pā te whāū pūira me te tāruatanga pītauira i ngā pāpātanga rerekē, e ai ki te wā o te tau, te wāhanga o te tipu, me te wāhanga o te mataora o te tipu.

Hoahoa e whakaatu ana i te tinakutanga o te kākano

 $M\bar{a}t\bar{a}puna:\ www.dreamstime.com/stock-illustration-bean-seed-germination-isolated-white-image 56489327$

Whakaahuahia mai āhea nei pā mai ai te tāruatanga pītauira, me te whakamārama he aha				
hiahiatia ai te tāruatanga pītauira.				

QUESTION THREE: DNA REPLICATION AND MITOSIS

Source:

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Mitosis and DNA replication occur at different rates, depending on the time of year, the plant part, and the stage of the plant's life cycle.

Diagram showing seed germination	
www.dreamstime.com/stock-illustration-bean-seed-germination-isolated-white-image56489	9327

D	Describe when DNA replication happens, and explain why DNA replication is necessary.				

	apakitia he aha i rerekē ai te pāpātanga o te whāū pītauira i ngā wāhanga rerekē o te tipu, e aha i huri ai te pāpātanga o te whāū pūira puta noa i te tau.
I tō 1	tuhinga me:
•	tautohu ngā wāhanga rerekē o tētahi tipu e nui ake ai te whāū pūira ME te matapaki he aha i nui ake ai te pāpātanga o te whāū pūira i ēnei wāhanga o te tipu
•	matapaki he aha e pā ai ngā āhuatanga pērā i te tūrama, paemahana, wai hoki/rānei, ma ngā tukanga o te ahotakakame, ki te pāpātanga o te whāū pūira i roto i tētahi tipu puta noa i te tau.
	re i te hiahiatia he matapakinga āmiki o te hanganga pūmua whākōkī me ngā pūtau tipu i ingoa i roto i tō tuhinga.
	He wāhi anō mō tō tuhinga mō

tēnei tūmahi kei te whārangi o

muri mai.

Your answer should: identify the parts of a plant where mitosis will be greatest AND discuss why the rate of mitosis is greater in these plant parts discuss how factors, such as light, temperature, and/or water availability, and the process of photosynthesis, could affect the rate of mitosis in a plant throughout the year. A detailed discussion of enzyme structure and named plant cells is not required in your answer.		cuss why the rate of mitosis varies in different parts of osis changes throughout the year.	a plant, AND why the rate of	ASSESSO USE ONI
mitosis is greater in these plant parts discuss how factors, such as light, temperature, and/or water availability, and the process of photosynthesis, could affect the rate of mitosis in a plant throughout the year. A detailed discussion of enzyme structure and named plant cells is not required in your answer.				
process of photosynthesis, could affect the rate of mitosis in a plant throughout the year. A detailed discussion of enzyme structure and named plant cells is not required in your answer.	•		eatest AND discuss why the rate of	
answer:	•			
There is more space for your			nt cells is not required in your	
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MĀ TE KAIMĀKA ANAKE

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	He whārangi anō ki te hiahiatia.	MĀ TE KAIMĀK
TAU TŪMAHI	Tuhia te (ngā) tau tūmahi mēnā e tika ana.	ANAKE

	Extra paper if required.	ASS
QUESTION NUMBER	Write the question number(s) if applicable.	

English translation of the wording on the front cover

Level 2 Biology, 2018

91156 Demonstrate understanding of life processes at the cellular level

9.30 a.m. Friday 23 November 2018 Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of life processes at the cellular level.	Demonstrate in-depth understanding of life processes at the cellular level.	Demonstrate comprehensive understanding of life processes at the cellular level.

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 page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–21 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.