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90929M



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

Koiora, Kaupae 1, 2016

90929M Te whakaatu māramatanga ki ngā ariā koiora e pā ana ki te whāngote hei kaikame

9.30 i te ata Rāapa 23 Whiringa-ā-rangi 2016 Whiwhinga: Toru

Paetae	Kaiaka	Kairangi
Te whakaatu māramatanga ki ngā ariā koiora e pā ana ki te whāngote hei kaikame.	Te whakaatu māramatanga hōhonu ki ngā ariā koiora e pā ana ki te whāngote hei kaikame.	Te whakaatu māramatanga matawhānui ki ngā ariā koiora e pā ana ki te whāngote hei kaikame.

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 2–15 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

TŪMAHI TUATAHI: TE NAKUNAKU ŌKIKO ME TE I TĒTAHI KAIKIKO	NAKUNAKU MATŪ I ROTO I	MĀ TE KAIMĀKA ANAKE
	://images.otagomuseum.govt.nz:8080/img/ nitem/nc/2013/nc2011-74_1!pub.jpg?width=590	
He kaikiko nō te moana te kekeno (<i>Arctocephalus forsteri</i>), tā ngā kekeno, pērā i ētahi atu whāngote, he nakunaku ōkiko hei tukatuka i ngā kai ka kainga.		
Whakatauritea te nakunaku ōkiko, matū hoki, e matapaki an me ngā mahi a te pūnaha nakunaku o tētahi kaikiko noa pēn		
I tō tuhinga me:		
 whakaahua i ngā tukanga o te nakunaku ökiko me te n ngā rerekētanga 	akunaku matū, me te whakamārama i	
• whakamārama he aha i hiahiatia ai ngā tukanga e rua l mai i ngā kai ka kainga	kia puta ai ngā tino uara taiora nui rawa	
• whakamahi i ngā tauira tauwhāiti o te nakunaku ōkīko kaikiko pēnei i te kekeno.	me te nakunaku matū i roto i tētahi	
	He wāhi anō mō tō tuhinga mō tēnei tūmahi kei te whārangi 4.	

QUESTION ONE: PHYSICAL AND CHEMICAL DIGES	TION IN A CARNIVORE	ASSESSOR'S USE ONLY
	mages.otagomuseum.govt.nz:8080/img/ em/nc/2013/nc2011-74_1!pub.jpg?width=590	
The kekeno, or the New Zealand fur seal (<i>Arctocephalus forste</i> mainly squid and fish. Seals, like other mammals, depend on be chemical digestion to process the food that they eat.		
Compare and contrast physical and chemical digestion, discus the structures and functions of the digestive system of a typical		
Your answer should:		
describe the processes of physical and chemical digestio		
 explain why both processes are necessary to gain maxime eaten 	num nutrient value from the food	
• use specific examples of physical and chemical digestion	n in a carnivore like the kekeno/seal.	
	There is more space for your	
	answer to this question on page 5.	

MĀTE
MĀ TE KAIMĀKA ANAKE

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TŪMAHI TUARUA: TE TUKUPŪNGAO

Ina omahia he oma taumano, me kukuti me te pārore ngā uaua o te kaioma hei whakaputa nekehanga mō te 42 kiromita te tawhiti. Mai i te rua ki te rima haora te roa, me nui te pūngao e puta ana i ngā pūtau uaua mā te tukanga tukupūngao, me tētahi putunga nui o ngā matū māori e hiahiatia ana mō te tukupūngao. Ka rato ētahi o ēnei matū māori mā te kai i ētahi kai whāiti i mua i te wā o te tauomaoma, me te ngongo i ngā taiora i nakua.

E whā ngā tīpako kai i tukuna ki ngā ākonga, ā, i whakahaerehia ētahi whakamātautau ki ngā tīpako katoa.

Ngā kitenga whakamātautau mō ngā tīpako kai

Whakamātautau	Whakamātau mō te māngaro	Whakamātau mō te kūhuka	Whakamātau mō te pūmua	Whakamātau mō te ngako
I kitea	tae kikorangi-	tae ārani-whero	tae waereti-	pūata
	pango		poroporo	

Tīpako kai A	ārani	ārani-whero	kikorangi kōmā	kāore i te pūata
Tīpako kai B	kikorangi-pango	kikorangi	kikorangi kōmā	kāore i te pūata
Tīpako kai C	ārani	kikorangi	kikorangi kōmā	pūata
Tīpako kai D	ārani	kikorangi	waereti-poroporo	kāore i te pūata

Matapakitia ko tēhea te tīpako kai me tūtohu ngā ākonga hei kai mā tētahi kaioma taumano i te wā i mua o te tauomaoma, e whai whakaaro ana ki ngā hiahia ā-pūngao o ngā uaua o te kaioma ina whakahaerehia te tukanga tukupūngao.

I tō tuhinga me:

- whakaahua i ngā momo tukupūngao ā-pūtau e rua, tae atu ki ngā matū māori ka whakamahia mō ia tukanga
- whakamārama mai ko tēhea te momo tukupūngao ā-pūtau pai ake mō te kaioma i te wā o te tauomaoma taumano
- whakamārama mai ka pēhea te ngongo i ētahi o ngā matū māori mō te tukupūngao ki te

parau i tō kōwhiringa	tipuno nui.		

tēnei tūmahi kei te whārangi 8.

QUESTION TWO: RESPIRATION

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When running a marathon, the muscles of a runner must contract and relax to generate movement for a distance of 42 kilometres. This can take from two to five hours, requiring a large amount of energy to be produced by the muscle cells through the process of respiration, and a large supply of the raw materials needed for respiration. Some of these raw materials are provided by eating selected food leading up to the race, and absorbing the digested nutrients.

Students were provided with four food samples, and carried out a range of tests on all samples.

Test results for food samples

Test	Test for starch	Test for glucose	Test for proteins	Test for lipids
Positive result	blue-black colour	orange-red colour	violet-purple colour	see-through

Food sample A	orange	orange-red	pale blue	not see-through
Food sample B	blue-black	blue	pale blue	not see-through
Food sample C	orange	blue	pale blue	see-through
Food sample D	orange	blue	violet-purple	not see-through

Discuss which food sample the students should recommend for a marathon runner to eat leading up to the race, considering the energy requirements of the runner's muscles as they carry out the process of respiration.

Your answer should:

- describe the two types of cellular respiration, including the raw materials used for each process
- explain which type of cellular respiration would be more beneficial for the runner during the marathon race
- explain how some of the raw materials needed for respiration are absorbed in the small

	intestine and transported to the runner's muscles	
	justify your choice of food sample.	
_		
_		
_		
		There is more space for your answer to this question on

page 9.

MĀ TE
MĀ TE KAIMĀKA ANAKE
ANAKE

TŪMAHI TUATORU: NGĀ PŪMUA WHĀKŌKĪ ME TE pH I ROTO I TĒTAHI KAIOTA ME TĒTAHI KAIKIOTA

MĀTE
KAIMĀKA
ANAKE

Pūnaha nakunaku o te hōiho	Pūnaha nakunaku o te tangata		
	/2013/11/digestive-system.jpg		
He kaiota te hōiho, he kai matū tipu anake, ēngari anō kai. He whai pūmua whākōkī whānui ngā hōiho me ng	· · · · · · · · · · · · · · · · · · ·		
Matapakitia te mahi a ngā pūmua whākōkī whāiti i rot i te hōiho me tētahi kaikiota pēnei i te tangata, tae atu tino arotau.			
I tō tuhinga me:			
 whakamārama mai i te mahi ake a ngā pūmua w te hōiho me tētahi kaikiota pēnei i te tangata 	hākōkī nakunaku i roto i tētahi kaiota pēnei i		
• whakamārama he pēhea te whakaawe a te pH i r	whakamārama he pēhea te whakaawe a te pH i ngā mahi a ngā pūmua whākōkī		
matapaki i ngā ōritetanga i waenga i te āhua o te mahi a ngā pūmua whākōkī i roto i te pūnaha nakunaku o tētahi kaiota pēnei i te hōiho me tētahi kaikiota pēnei i te tangata, Ā, he pēhea te pupuri kia tino arotau te pH i ngā wāhanga rerekē o ēnei pūnaha nakunaku.			
	He wāhi anō mō tō tuhinga mō tēnei tūmahi kei te whārangi 12.		

QUESTION THREE: ENZYMES AND pH IN A HERBIVORE AND AN OMNIVORE

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	Horse digestive system		Human digestive system	
	www.hygain.com.au/horses-digestive-system/		www.2beingwell.com/wp-content/uploads /2013/11/digestive-system.jpg	
cons diges	horse is a herbivore, consuming only plant materiuming a wide range of foods. Both horses and hurstive systems. uss the role of specific enzymes within the digestion invorce such as a human including the way that	mai	systems of a herbivore such as a horse and	
	mnivore such as a human, including the way that	opt	imum pH levels are maintained.	
Your	answer should:	• • •	within a harbivara such as a harsa and an	
•	describe the specific function of digestive enzymes within a herbivore such as a horse and an omnivore such as a human			
•	explain how pH can affect enzyme activity			
•	discuss similarities between how enzymes function in the digestive systems of a herbivore such as a horse and an omnivore such as a human, AND how optimum pH is maintained in different parts of these digestive systems.			
			There is more space for your answer to this question on page 13.	

MĀTE
MĀ TE KAIMĀKA ANAKE

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

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

Biology 90929, 2016

English translation of the wording on the front cover

Level 1 Biology, 2016

90929 Demonstrate understanding of biological ideas relating to a mammal(s) as a consumer(s)

9.30 a.m. Wednesday 23 November 2016 Credits: Three

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of biological ideas relating to a mammal(s) as a consumer(s).	Demonstrate in-depth understanding of biological ideas relating to a mammal(s) as a consumer(s).	Demonstrate comprehensive understanding of biological ideas relating to a mammal(s) as a consumer(s).

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 2–15 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.