

Inheritance and selection/fit and healthy

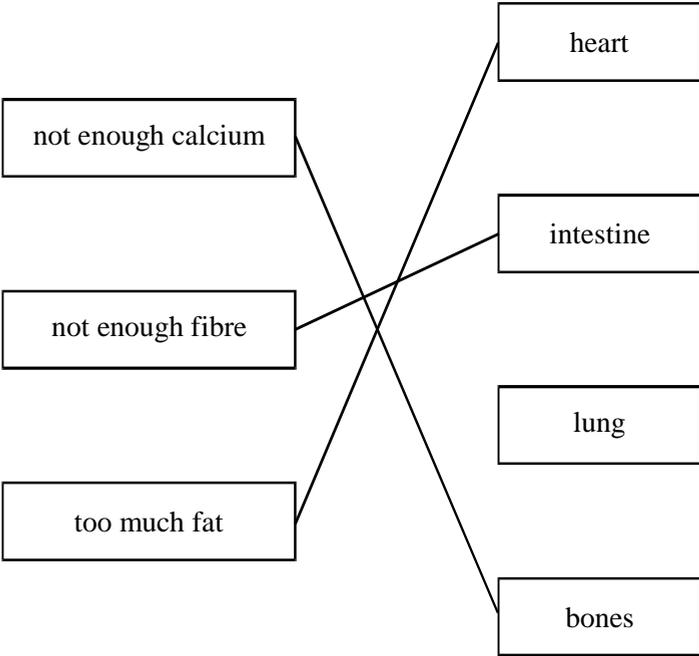
9A & 9B

31 min

31 marks

Q1-L4, Q2-L4, Q3-L5, Q4-L5, Q5-L7, Q6-L7

1. (a) (i) water 1
 (ii) skin **or** peel 1
 (b) 18 1
 28 *answers must be in the correct order*
***both** answers are required for the mark*
 (c) 3



if more than one line is drawn from any fact about the diet, award no mark for that fact

[6]

2. (a) (i) Katie ✓ 1
 Becca ✓
***both** answers are required for the mark*
if more than two boxes are ticked,
award no mark

- (ii) any **one** from 1
- their mother **or** Pam has freckles
 - their father **or** David has freckles
 - their parents have freckles
 - their grandmother **or** Mary has freckles
 - only family B has freckles

accept 'Rachel and Bill do not have freckles'
accept 'a grandparent has freckles'
*accept 'their family **or** the family on the right has freckles'*
accept 'freckles run in the family'
accept 'family A does not have freckles'

- (iii) his parents **or** Bob and Emily do not have freckles 1

accept 'his family does not have freckles'
accept 'his grandparents do not have freckles'
accept 'he is not in family B' if the answer for (ii) is 'only family B has freckles'

- (b) (i) egg cell ✓ 1
 sperm cell ✓

***both** answers are required for the mark if more than two boxes are ticked, deduct one mark for each incorrect tick minimum mark zero*

- (ii) reproductive system ✓ 1

if more than one box is ticked, award no mark

[5]

3. (a) No ✓ 1

if more than one box is ticked, award no mark

and any one from

***both** the answer and the explanation are required for the mark*

- sulphuric acid did not cure scurvy *accept 'some acids did not cure scurvy'*
- not all the sailors recovered *accept 'only pair 5 totally recovered'*
- only two pairs recovered
- only those that had fruit- related additions recovered
- some with acid failed to recover
- a week is not long enough to show the effect

accept 'a week is not long enough'
'only those who received vitamin C recovered' is insufficient

- (b) (i) any **one** from 1

- addition to their diet *do **not** accept 'type of food **or** drink'*
- food **or** drink supplements *do **not** accept 'kind of meal'*
- type of acid *accept 'the acid'*
accept 'amount of acid'

*do **not** accept conclusions such as '4 out of 6 pairs of sailors had scurvy'*

- (ii) any **one** from 1
- whether they recovered
 - return to health
 - recovery from scurvy *accept 'scurvy is cured'*
 - effect after one week

do not accept 'time to recover'

- (c) any **one** from 1
- there must be a different substance
 - or** something present in fruits that cures scurvy

accept 'fruits will cure scurvy'

accept 'vitamin in the fruit would cure scurvy'

accept 'vitamin C will cure scurvy'

accept any named vitamin for vitamin C

accept 'vitamins would have an effect'

'the acids in oranges and lemons cure scurvy' is insufficient

'oranges and lemons will cure scurvy' is insufficient

- (d) any **one** from 1
- effects due to diet may take more than a week to reveal themselves

accept 'one week is too short' or 'you need to see long term effects'

- the body takes time to adjust to the diet
- time is needed for the results to reveal themselves
- the effects do not take place before a week
- the longer the time the more reliable the results

accept 'oranges or lemons might be a short term cure'

[5]

4. (a) (i) one is more active 1
- accept 'one does sport or plays football'*
- accept 'they have different metabolic rates'*
- accept 'one works harder or does more work'*

- (ii) carbohydrates 1
- answers may be in either order*
- accept a named carbohydrate, eg 'sugar' or 'glucose' or 'starch'*

fats 1

- (b) (i) 300 1

- (ii) any **one** from 1
- a boy's bones **or** teeth are still growing

accept '15 year-old male is growing or still developing'

- by 30 the bones have already developed

accept '30 year-old male has stopped growing'

	(c)	any one from		1
		• a pregnant female supplies the baby with protein	<i>accept 'she supplies the baby'</i>	
		• a pregnant female needs protein for herself and the baby	<i>accept 'she needs it for herself and the baby'</i>	
		• the baby needs protein		
	(d)	any one from		1
		• a 15 year-old female menstruates		
		• a 15 year-old female has periods		
				[7]
5.	(a)	any one from		1
		• in the eggs and sperm	<i>accept 'gametes' or 'sex cells'</i>	
		• on chromosomes	<i>accept 'DNA'</i>	
			<i>accept 'at fertilisation'</i>	
			<i>answers must refer to both eggs and sperm</i>	
			<i>'by sexual reproduction' is insufficient</i>	
	(b)	any three from		3
		• choose zebras which look most like quaggas		
		• breed from them or cross them		
		• choose the most quagga- like offspring		
		• breed from the offspring		
		• repeat the process		
			<i>accept for two marks 'mate the zebras with most quagga genes'</i>	
				[4]
6.	(a)	(i)	football requires more energy than bowling	1
			<i>accept 'football is more energetic'</i>	
			<i>accept 'you run more in football'</i>	
			<i>accept 'she is using up more kJ'</i>	
			<i>accept 'playing football uses 2260 kJ/hr and bowling uses 1030 kJ/hr'</i>	
			<i>do not accept 'football is energetic'</i>	
		(ii)	any two from	2
			• alcohol increases the reaction time	
			<i>accept 'it slows reactions' or 'it slows the reaction time'</i>	
			<i>'it slows them down' is insufficient</i>	
			• alcohol reduces co-ordination alcohol causes or increases errors of judgement	
			<i>accept 'they would feel dizzy'</i>	
			• alcohol reduces concentration	
			<i>accept 'they would be sleepy or drowsy'</i>	
			<i>accept 'alcohol makes them lose more heat'</i>	
			<i>accept 'it causes blurred vision'</i>	

(b) any **one** from

1

- glucose can be absorbed
- starch molecules cannot be absorbed
- it takes time for starch to be broken down
- starch has to be digested **or** broken down

accept 'glucose does not need to be digested'

[4]