Health

Looking after your body — from diet and exercise to the effects of drugs and disease — is an important part of KS3 biology and links directly into GCSE Science.

10. (a) Carbon monoxide, nicotine and tar get into the lungs when a person smokes.

Draw a line from each substance to the effect of the substance on the body.
Draw only **three** lines.

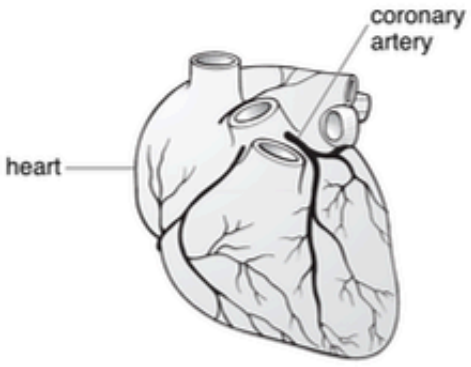
substance	effect of the substance
carbon monoxide	causes addiction to smoking
nicotine	causes influenza (flu)
tar	causes lung cancer
	causes red blood cells to carry less oxygen

10a 1 mark

10a 1 mark

10a 1 mark

(b) The coronary arteries carry blood to the heart muscle.
The drawing below shows the heart and coronary arteries.



KS3 Science SATs, Tier 3-6, Paper 1 (2005) - Q10(a)

(i) Diagram 1 shows a section through a coronary artery.

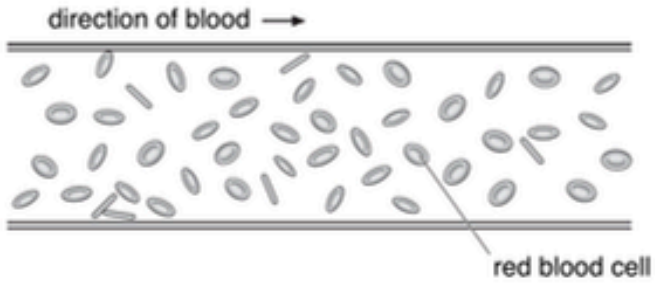


diagram 1

Smoking can cause damage to the coronary artery.
Diagram 2 shows a section through part of a damaged artery.

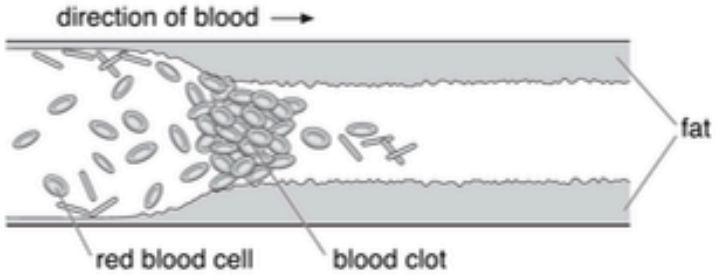


diagram 2

not to scale

Look at diagram 2. A blood clot has formed.

Give **one** other change in the coronary artery.

_____

_____

10bi
1 mark

(ii) Respiration takes place in the muscle cells of the heart.

Explain why a blood clot in the coronary artery prevents these cells respiring normally.

_____

_____

_____

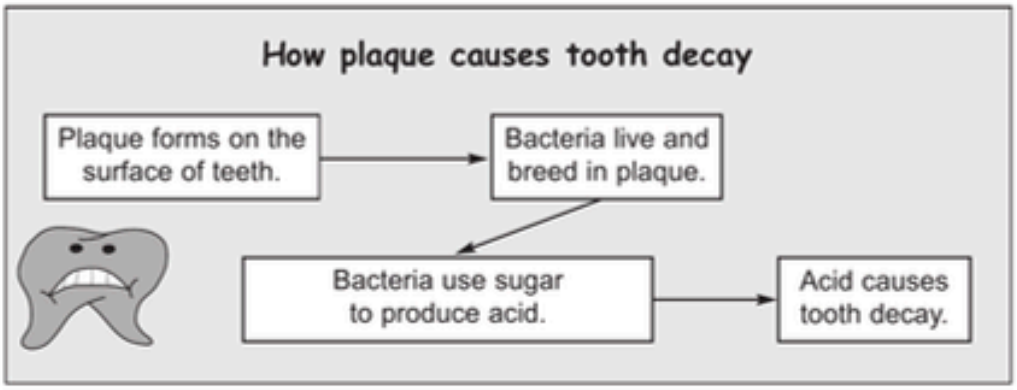
_____

10bii
1 mark

10bii
1 mark

maximum 6 marks

Modern Tuition



(a) (i) Explain how reducing the amount of plaque can reduce tooth decay.
Use the leaflet to help you.

16ai
1 mark

16ai
1 mark

(ii) Using an alkaline toothpaste also reduces tooth decay.
Give the reason for this.

16aii
1 mark

(b) A group of boys wanted to find out how well plaque is removed by brushing teeth.

Every day, before they brushed their teeth, the boys chewed a tablet that stains plaque red.

Explain why the boys looked at their teeth **before and after** brushing.

16b
1 mark

Modern Tuition

(b) Some athletes take glucose tablets before a race.

Why do they take glucose?
Tick the correct box.

for growth	☐	for healthy bones and teeth	☐
to prevent disease	☐	to provide energy	☐

☐ 6b
1 mark

(c) The table below shows what four people ate for lunch.

name	lunch
Jon	chicken and salad
Nadia	cheeseburger and chips
Clare	lemonade and a jam doughnut
Zak	mushroom soup and an orange

(i) Whose lunch had the most sugar in it?

_____

☐ 6ci
1 mark

(ii) Whose lunch had the most fat in it?

_____

☐ 6cii
1 mark

(iii) Eating too much fat is bad for you.
Give **one** reason for this.

_____

_____

☐ 6ciii
1 mark

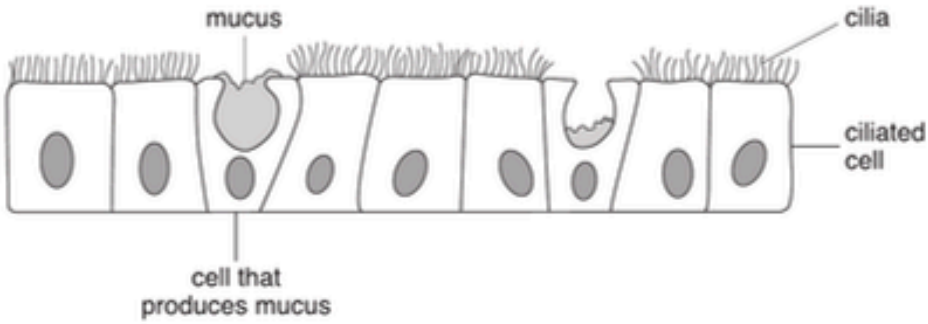
maximum 7 marks

Total ☐ 7

KS3 Science SATs, Tier 3-6, Paper 2 (2005) - Q6(b)-(c)

Modern Tuition

10. (a) The diagram shows two types of cell in the lining of the airway leading to the lungs.



When a person breathes in cigarette smoke, cilia are damaged and much more mucus is produced.
What will be the consequences of this?

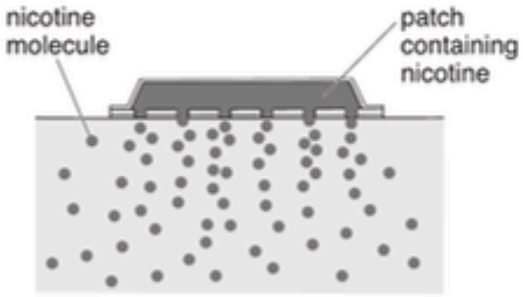
10a
1 mark

10a
1 mark

(b) Sharna is addicted to smoking and wants to stop.
Instead of smoking she puts nicotine patches on her skin.



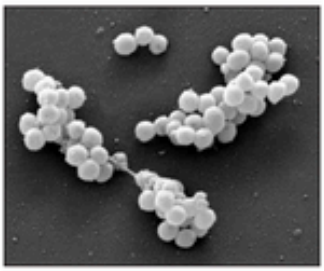
nicotine patch on Sharna's skin



a section through a nicotine patch on Sharna's skin

Modern Tuition

10. The photograph below shows bacteria that have developed resistance to antibiotics. They are called MRSA bacteria.



(a) When MRSA bacteria reproduce, they pass on their resistance to antibiotics to the next generation.

What part of a cell passes on information?

_____

10a
1 mark

(b) MRSA bacteria can cause serious infections in people who are ill in hospital. The bacteria can live on a healthy person's **skin** or in their **lungs** without causing any harm.

Use this information to fill in the table below.
Suggest **two** ways MRSA bacteria can be spread from person to person.
Suggest how the spread of the bacteria can be prevented for each method.

	method of spread	method of prevention
1		
2		

10b
1 mark

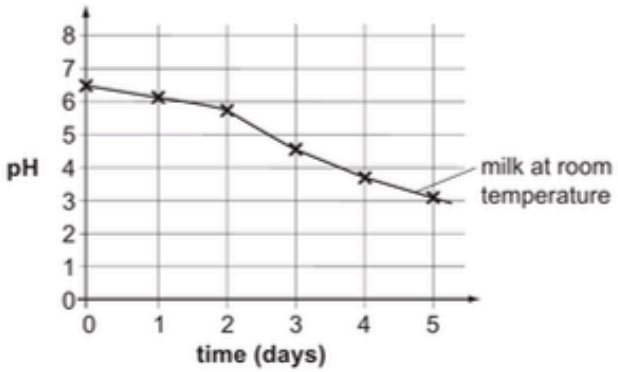
10b
1 mark

Modern Tuition

9. Jane stored some milk at room temperature for five days in a sealed container. She used a pH sensor and data logger to record the pH of the milk for 5 days.

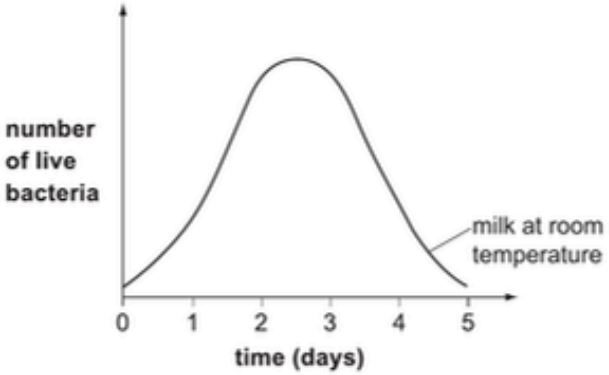
Her results are shown below.

graph 1



(a) Jane predicted that the number of live bacteria in the milk would change as shown below.

graph 2



(i) Suggest one reason why the number of live bacteria would start to decrease after 3 days.

1 mark

Modern Tuition

(ii) What evidence from **graph 1** suggests that there were still some live bacteria in the milk on day 5?

_____

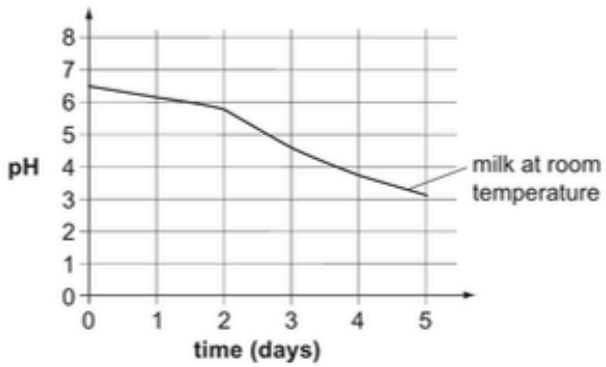
_____

1 mark

(b) Jane put some fresh milk in a sealed container in the fridge.
She measured the pH of the milk every day for five days.

(i) On **graph 3** below, draw a line to show the pH of the **refrigerated milk** for five days.

graph 3

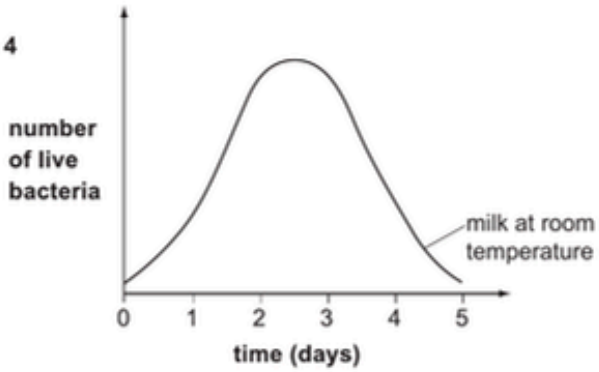


1 mark

1 mark

(ii) On **graph 4** below, draw a line to predict how the number of live bacteria in **refrigerated milk** will change over five days.

graph 4



1 mark

maximum 5 marks

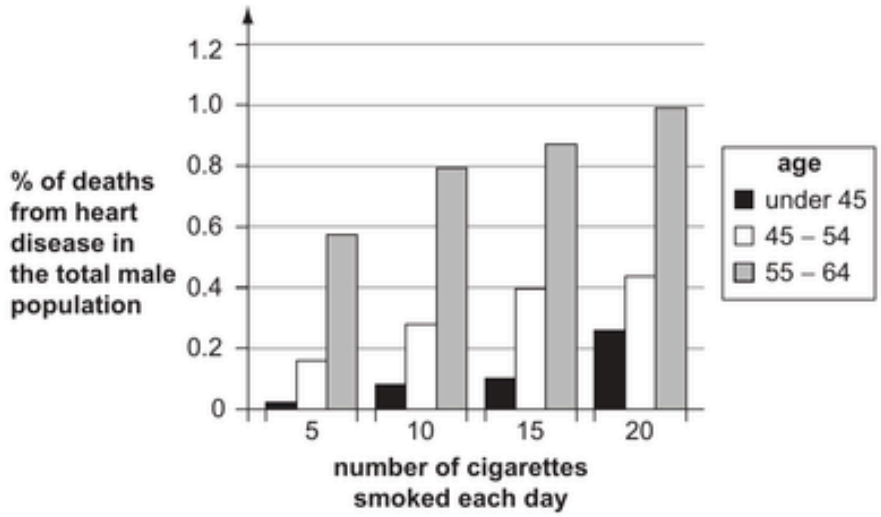
Total

5

KS3 Science SATs, Tier 5-7, Paper 1 (2009) - Q9(a)(ii)-(b)

Modern Tuition

11. The bar chart below shows how the number of cigarettes smoked is linked to the percentage of deaths from heart disease in the total male population.



(a) Use the information in the bar chart to write **two** conclusions about the relationship between smoking and the number of male deaths from heart disease.

1. _____

_____

2. _____

_____

11a 1 mark

11a 1 mark

(b) Smoking can cause fat to be deposited in the arteries to the heart muscle.

Explain how this could prevent the heart muscle from working properly.

_____

_____

_____

_____

_____

_____

11b 1 mark

11b 1 mark

11b 1 mark

Modern Tuition

(c) (i) Which animals produce milk to feed their young?
Tick the correct box.

amphibians	☐	birds	☐
mammals	☐	reptiles	☐

☐ 3ci
1 mark

(ii) A baby fed on its mother's milk gets fewer infections.
What is the reason for this?
Tick the correct box.

The milk contains antibodies.	☐
The milk contains water.	☐
The milk is at body temperature.	☐
The milk is a liquid.	☐

☐ 3cii
1 mark

KS3 Science SATs, Tier 3-6, Paper 1 (2007) - Q3(c)

(c) People can be vaccinated against some diseases caused by bacteria or viruses.

Describe how vaccination prevents a person getting a disease.

_____

_____

_____

_____

_____

☐ 10c
1 mark

☐ 10c
1 mark

☐ 10c
1 mark

KS3 Science SATs, Tier 5-7, Paper 1 (2008) - Q10(c)

2. (a) Drinking alcohol can cause changes in the body.

(i) Draw a line from each **change** to the **effect** on the body.
Draw only **three** lines.

change	effect
	reactions are slower
more blood travels to the surface of the body	
	a person loses weight
activity of the brain slows down	
	skin gets warmer
sense of pain is reduced	
	a person can get hurt without knowing it

2ai
1 mark

2ai
1 mark

(ii) People who drink alcohol and then drive a car are likely to have accidents.

From the information above, which **effect** of drinking alcohol causes accidents?

_____

2aii
1 mark

Modern Tuition

The table shows the mass of nicotine in different patches and the number of weeks each type of patch is used over an eight-week period.

mass of nicotine in each patch (mg)	weeks
21	1–4
14	5–6
7	7–8

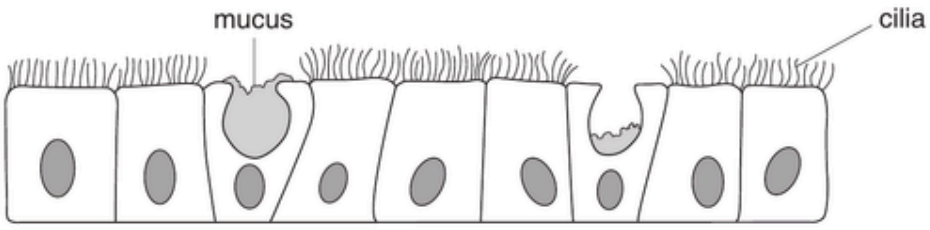
Use information in the table to describe how this eight-week course of treatment should help to reduce Sharna's addiction to smoking.

_____

10b
1 mark

KS3 Science SATs, Tier 5-7, Paper 1 (2007) - Q10(b)

(c) The drawing below shows part of the lining of the airway leading into the lungs.



(i) Describe how mucus and cilia help to keep the airway free of dust and bacteria.

mucus _____

_____

cilia _____

_____

11ci
1 mark

11ci
1 mark

(ii) Cigarette smoke contains tar.

What effect does tar have on the cilia?

_____

_____

11cii
1 mark

KS3 Science SATs, Tier 5-7, Paper 2 (2008) - Q11(c)

(b) (i) Starch is a carbohydrate.

Which two of the following foods are good sources of starch?
Tick the two correct boxes.

bread	☐	cheese	☐
chicken	☐	tomatoes	☐
fish	☐	pasta	☐

10bi
1 mark

10bi
1 mark

(ii) What other type of nutrient, needed as part of a balanced diet, keeps the intestine working well and prevents constipation?
Tick the correct box.

fat	fibre	minerals	protein	vitamins
☐	☐	☐	☐	☐

10bii
1 mark

KS3 Science SATs, Tier 3-6, Paper 1 (2006) - Q10(b)

(c) Cheese is a source of calcium.

Why do we need calcium?

_____

5c
1 mark

(d) Draw a line from each nutrient to a good source of that nutrient in our diet.

nutrient	source of nutrient
starch	lean chicken meat
fat	jam
protein	pasta
sugar	margarine

5d
1 mark

5d
1 mark

KS3 Science SATs, Tier 3-6, Paper 2 (2009) - Q5(c)-(d)

(c) **Not** all the types of nutrients needed for a balanced diet are shown in **table 1**.

Give the name of **one** of the missing types of nutrient.

_____

15c
1 mark

(d) **Table 2** shows the recommended daily amount of calcium for a person in four stages of the human life cycle.
We need calcium for healthy teeth and bones.

person	recommended daily amount of calcium (mg)
a baby aged 6 months	600
a woman before she is pregnant	500
a pregnant woman	1200
a breast-feeding woman	

table 2

(i) Use information in **table 2** to estimate how much calcium a breast-feeding woman should have each day.

_____ mg

15di
1 mark

(ii) Explain why she would need this amount of calcium.

_____

_____

15dii
1 mark

Modern Tuition