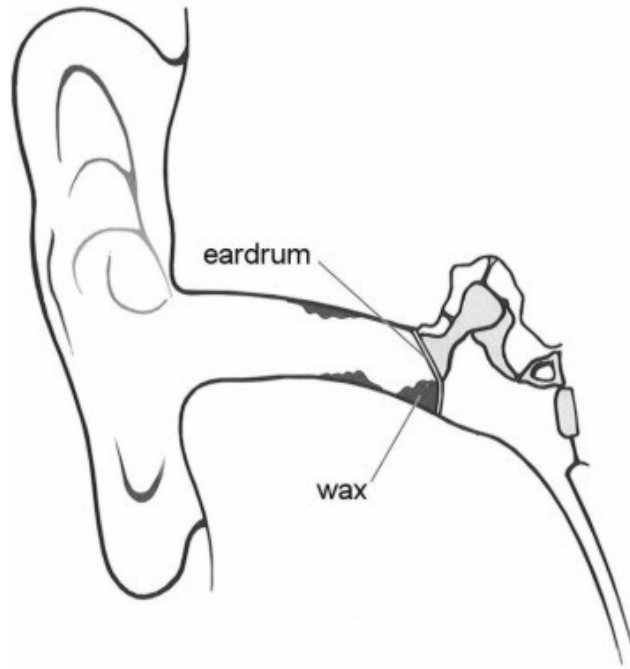


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1. The diagram below shows part of the human ear.



We can hear somebody speaking because sound waves enter our ears.

(a) (i) What do our eardrums do when sound waves reach them?

.....

1 mark

(ii) Sometimes a lot of wax is produced in the ear.  
The wax rests against the eardrum, as shown above.

Give **one** reason why we **cannot** hear very well when our ears contain a lot of wax.

.....

.....

1 mark

(b) The table below shows the lowest and highest frequencies that five living things can hear.

living thing	lowest frequency (Hz)	highest frequency (Hz)
human	20	20 000
sparrow	300	20 000
dog	20	45 000
cat	20	64 000
rabbit	300	42 000

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- (i) Which **three** living things from the table **cannot** hear a frequency of 43 000 Hz?

..... and ..... and .....

1 mark

- (ii) From the table, choose the living thing that can hear the biggest **range** of frequencies.

.....

1 mark

maximum 4 marks

2. The drawings show identical twins, Sara and Helen, and their parents.



father



mother



Sara



Helen

- (a) (i) Sara and Helen have blue eyes like their mother.

Describe how genetic information is passed on from a parent to a child.

.....  
.....  
.....  
.....

2 marks

- (ii) Sara and Helen have brown hair like their father and blue eyes like their mother.

Why do children have characteristics of both parents?

.....  
.....

1 mark

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(b) Sara and Helen are identical twins.

Why do they have identical characteristics?

.....  
.....

1 mark

(c) Sara now spends a lot of her time working outdoors in a hot country.  
Helen now works in an office in England.

The table shows information about three human characteristics.

characteristic	Is it identical for Sara and Helen?
eye colour	yes
skin colour	no
weight	no

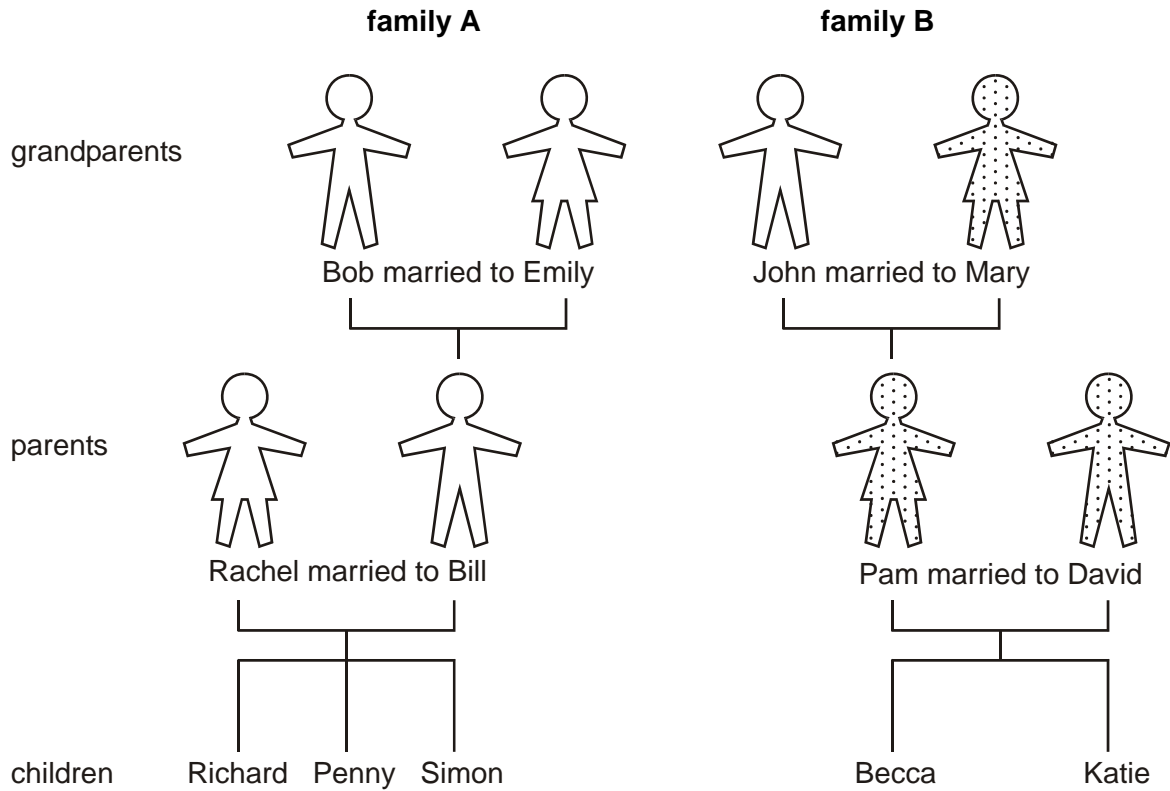
Explain why their eye colour is identical but their weight and skin colour are **not** identical.

.....  
.....  
.....  
.....

2 marks  
maximum 6 marks

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3. The diagram shows two families. Some of the people in the diagram have freckles.



(a) (i) Which children are most likely to have freckles?  
Tick the correct boxes.

Richard	Simon	Katie	Penny	Becca
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 mark

(ii) How did you decide?

.....

.....

1 mark

(iii) Suggest why Bill does **not** have freckles.

.....

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---

1 mark

- (b) (i) Which **two** cells pass on information from parents to their children?  
Tick the **two** correct boxes.

bone cell	<input type="checkbox"/>	cheek cell	<input type="checkbox"/>
egg cell	<input type="checkbox"/>	muscle cell	<input type="checkbox"/>
red blood cell	<input type="checkbox"/>	sperm cell	<input type="checkbox"/>

1 mark

- (ii) Which organ system produces these two cells?  
Tick the correct box.

circulatory system	<input type="checkbox"/>
digestive system	<input type="checkbox"/>
reproductive system	<input type="checkbox"/>
respiratory system	<input type="checkbox"/>

1 mark

maximum 5 marks

- 1 Fran was a Year 9 pupil. She carried out a survey of her classmates. Here are her results:

Characteristic	Number of girls	Number of boys
Blue eyes	9	5
Brown eyes	5	7
Green eyes	1	0
Had freckles	7	8
Had no freckles	8	4

Look at the figures Fran recorded.

Put a tick ( ✓ ) by the correct statements and a cross ( ✗ ) by the incorrect ones:

[6 marks]

- i) more boys had brown eyes than girls
- ii) more girls had freckles than boys
- iii) 15 pupils had blue eyes
- iv) twice as many girls had freckles than boys

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- v) two girls had green eyes
- vi) there were 27 pupils in the class.

2 Some plants such as strawberries and spider plants can reproduce by producing little plants on the ends of special stems called 'runners'.

a) Explain why plants produced at the ends of runners are identical to the main plant. [2 marks]

.....

b) Humans do not reproduce like this. They produce sex cells.

Explain how sex cells are used in reproduction. [2 marks]

.....  
 .....  
 .....

c) Why do children often look like their parents? [2 marks]

.....  
 .....  
 .....

3 Complete this table by filling in the gaps. [5 marks]

Sense	Sense organ	Stimulus
	eye	light
hearing	ear	
taste		chemicals in food
smell	nose	
	skin	receptors in the skin

4 Drugs can be divided into two groups: stimulants and depressants.

a) i) Explain the effect that stimulants have on your brain. [1 mark]

.....

ii) Give an example of a stimulant. [1 mark]

.....

iii) How could you tell if someone has taken a stimulant? [1 mark]

.....

b) i) Explain the effect that depressants have on your nervous system. [1 mark]

.....

.....

ii) Give an example of a depressant. [1 mark]

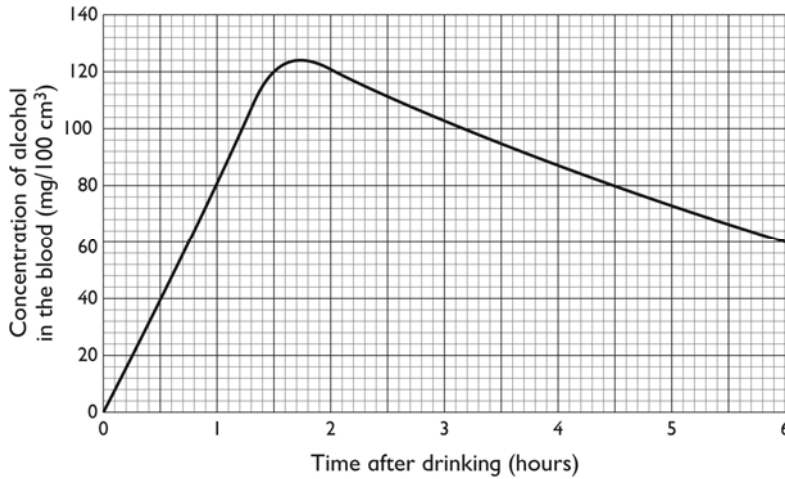
# DO NOT WRITE ON THESE SHEETS

.....  
iii) How could you tell if someone has taken a depressant? [1 mark]

.....  
.....

5 Finnbar is 29 years old. He drove to a friend's birthday party.

This graph shows how the concentration of alcohol in his blood changed after drinking alcoholic drinks.



a) i) How much alcohol was there in Finnbar's blood before he started drinking? [1 mark]

.....

ii) What was the highest amount of alcohol in his blood? [1 mark]

.....

b) It is illegal to drive with more than 80 mg of alcohol per 100 cm<sup>3</sup> of blood.

Use the graph to show how long Finnbar could not drive. [1 mark]

.....

c) Which of the following best explains why the chances of having an accident increase when you have a large amount of alcohol in your blood (tick the right answer): [1 mark]

- your speech becomes slurred and unclear
- your sense of smell reduces
- your reaction time increases
- your reaction time decreases.

d) Use the graph to estimate how long it will take for Finnbar's blood alcohol levels to return to zero (tick the right answer). [1 mark]

- 2 hours
- 6 hours
- 7 hours
- more than 7 hours.