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Elephants have a similar circulatory system to humans.

(a) Write down the names of the **three** types of blood vessels in an elephant.

- 1 Vein
.....
- 2 Artery
.....
- 3 Capillary
.....

(b) Write down the function of the heart.

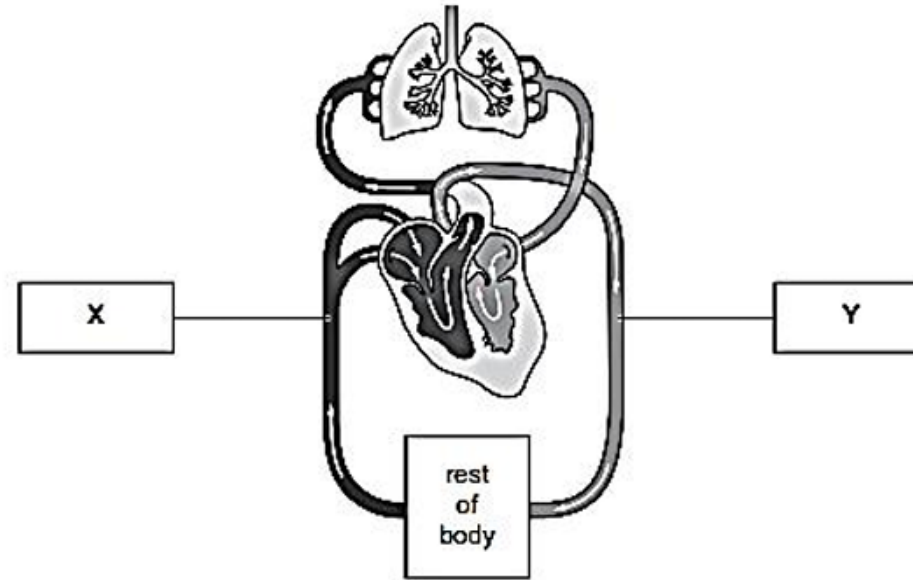
Pump blood
.....

(c) One of the functions of the blood in an elephant is to transport the gas carbon dioxide.

Write down **two other** substances the blood transports.

- 1 Oxygen
.....
- 2 Nutrients
.....

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The diagram shows parts of the circulatory system.

a) Name the types of blood vessels labeled X and Y in the diagram

X.....Vein

Y.....Artery

(b) Name what type of blood that moves in X and Y.

X.....Deoxygenated blood

Y.....Oxygenated blood

Priya investigates pulse rate and exercise.

Pulse rate is the number of times the heart beats in a minute.

Priya:

- step 1 – measures her normal (resting) pulse rate
- step 2 – runs 100 m as fast as possible
- step 3 – immediately measures her pulse rate
- step 4 – rests until her pulse rate goes back to normal
- step 5 – repeats steps 1 to 4
- step 6 – repeats the investigation with some of her friends
- step 7 – looks at her results to make a conclusion.

(a) Priya makes a prediction for her investigation.

Suggest a possible prediction for this investigation.

pulse rate increases with exercise

(b) Which step involves fair testing?

Step 2 or 4

(c) Which step involves pattern seeking?

Step 7

(d) Which step improves the reliability of the data collected by Priya?

Step 5 or 6

(e) Fair testing and pattern seeking are two types of scientific enquiry.

Describe **two other** types of scientific enquiry.

- 1 Observing
- 2 classifying

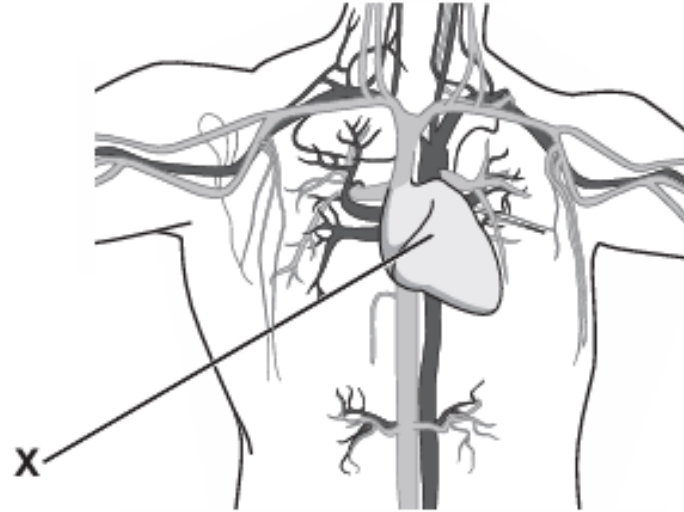
(f) Blood moves around the body through blood vessels.

Capillaries are **one** type of blood vessel.

Write down **one other** type of blood vessel.

Vein/ artery

The diagram shows part of the circulatory system.



(a) Name the organ labelled X.

The heart

(b) Describe the function of the organ labelled X.

Pumps blood

(c) Write down the name of **two** types of blood vessel shown in the diagram.

1 veins

2 arteries

(d) A scientist measures the percentage of oxygen in the blood travelling through different blood vessels.

The table shows the results.

blood vessel	percentage (%) of oxygen
A	99
B	79
C	83
D	75
E	92

The blood vessels are found in different parts of the body.

Which blood vessel transports blood **from** the lungs **to** the heart?

A

.....

Explain your answer.

contains the highest percentage/oxygen

..... [

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Rajiv and Pierre measure their pulse rate before, during and after exercise.

(a) Before Rajiv and Pierre start exercising they consider the risks.

One risk is falling over when running, causing an injury to their ankles.

This risk is reduced by wearing running shoes.

Write down **one other** risk and how to reduce this risk.

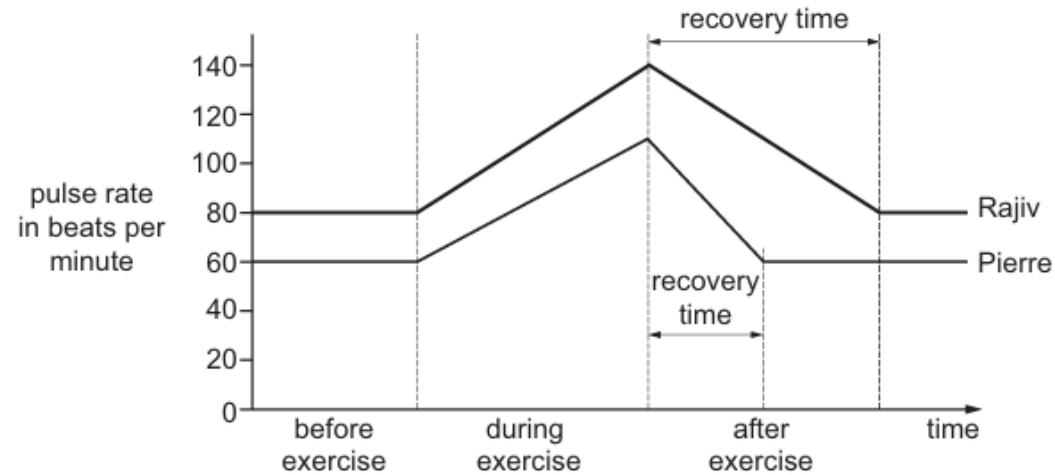
risk

too much exercise may cause addiction /problem breathing/exercise may damage muscles

how to reduce this risk

limit the amount of exercise/carry an inhaler/warm up before exercise

(b) They present their results using a graph.



Write down **one similarity** and **one difference** in the pulse rates of Rajiv and Pierre.

similarity

pulse rates both increase during exercise/ pulse rates both decrease after exercise

difference

Rajiv's recovery time is more than Pierre's / or Rajiv's pulse rate decreases more slowly after exercise

[2]

(c) Rajiv and Pierre also measure their **breathing** rate.

What happens to breathing rate during exercise?

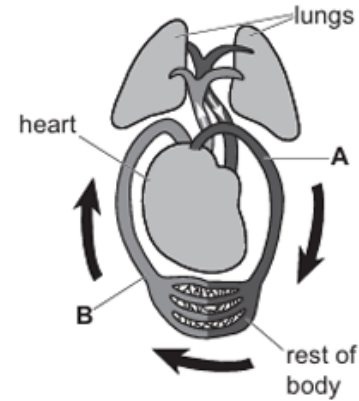
Complete the sentence.

The breathing rate increases or goes up or is more or is greater during exercise because

more oxygen (is needed for exercise)

Q6)

The diagram shows a model of the human circulatory system.



The arrows show the direction of blood flow.

(a) Complete the sentences.

Choose from the list.

an artery

a capillary

a circulation

a system

a vein

Blood vessel **A** is Artery

Blood vessel **B** is Vein

(b) Blood transports oxygen and waste.

Name **one other** thing transported by blood.

Nutrients

Inhaled air is the air we breathe in.

Exhaled air is the air we breathe out.

The table shows how inhaled and exhaled air are different.

gas	inhaled air	exhaled air
carbon dioxide	0.04%	4%
oxygen	21%	16%
water vapour	0.5%	5%

(a) Complete these sentences about exhaled air.

The percentage of carbon dioxide in exhaled air is **more** than in inhaled air.

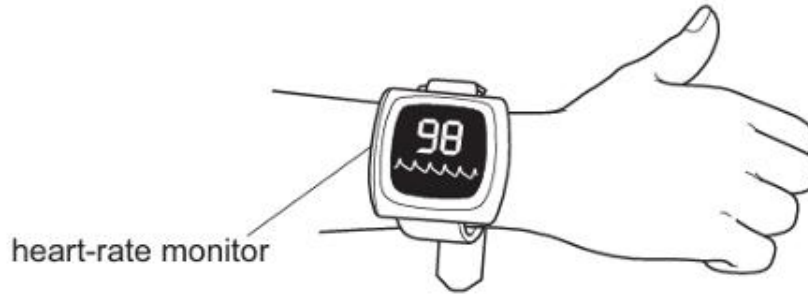
The percentage of water vapour in exhaled air is **more** than in inhaled air.

(b) Explain why the percentage of oxygen in exhaled air is less than in inhaled air
Because it moves inside the body

Q8)

Blessy wants to find out how exercise changes her heart rate.

She uses this equipment.



(a) What does the reading of 98 mean?

Circle the correct answer.

98 heart beats in one day

98 heart beats in one hour

98 heart beats in one minute

98 heart beats in one month

98 heart beats in one second

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(b) Blessy writes a sentence in her book.

I need to measure the heart rate for the same length of time.

Which one of the following describes this sentence?

Circle the correct answer.

a conclusion

a fair test

a prediction

a result

a question

(c) Blessy does an experiment.

She then writes this sentence in her book.

The more exercise I do the higher the heart rate.

Which one of the following describes this sentence?

Circle the correct answer.

a conclusion

a fair test

a method

a prediction

a question

) Carlos investigates how different types of exercise affects his breathing rate.

Carlos:

- counts how many times he breathes in for one minute before exercising
- exercises by walking around the room for one minute
- counts how many times he breathes in for one minute
- rests for five minutes.

Carlos repeats his method two more times but changes the type of exercise each time.

(a) What is the **independent variable** in this investigation?

exercise

(b) Explain why Carlos rests between each type of exercise.

allow breathing (rate to return) to be normal/resting

(c) Here are his results.

type of exercise	number of times Carlos breathes in for one minute
before exercise	25
walking	28
running	45
jumping	52

Complete the sentence about the results.

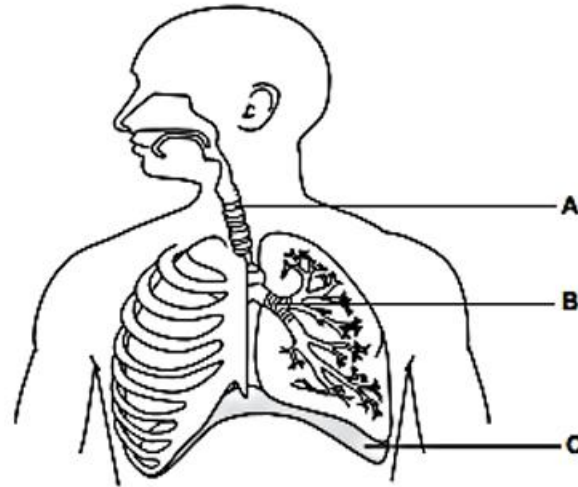
Carlos breathes faster when he exercises.

He does this to get more **oxygen** into his body.

Question (5)



The diagram shows part of the human respiratory system.



Name the structures labelled A, B and C.

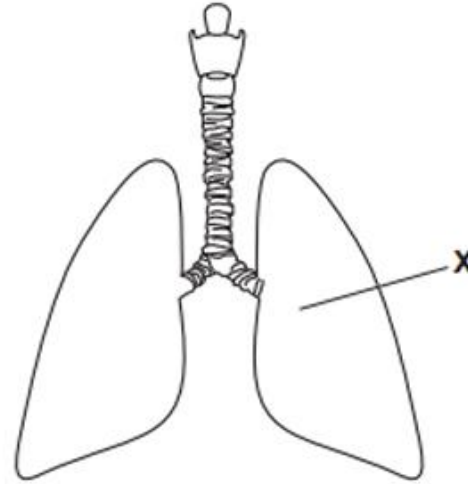
Choose words from the list.

air sac bronchus diaphragm lung rib cage trachea

A Trachea
B Bronchus
C Diaphragm

Q11)

Look at the diagram.



(a) Write down the name of organ X.

lungs

(b) Write down the function of organ X and explain how this function keeps us alive.

function

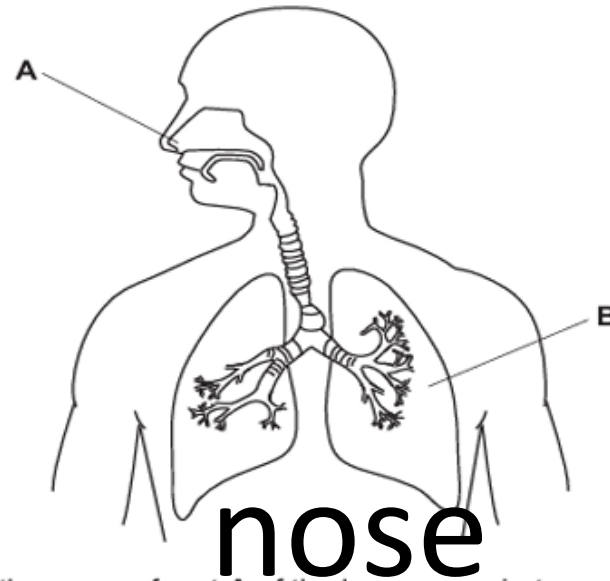
Breathing

explanation

to allow gas exchange between the air and the body

Q12)

Look at the diagram of the human respiratory system.



(a) Write down the name of part **A** of the human respiratory system.

(b) Write down the name of part **B** of the human respiratory system.

(c) Describe the function of the human respiratory system.

lets air into the body or lets oxygen into the body so air reaches the lungs
or so oxygen reaches the lungs oxygen then enters the blood

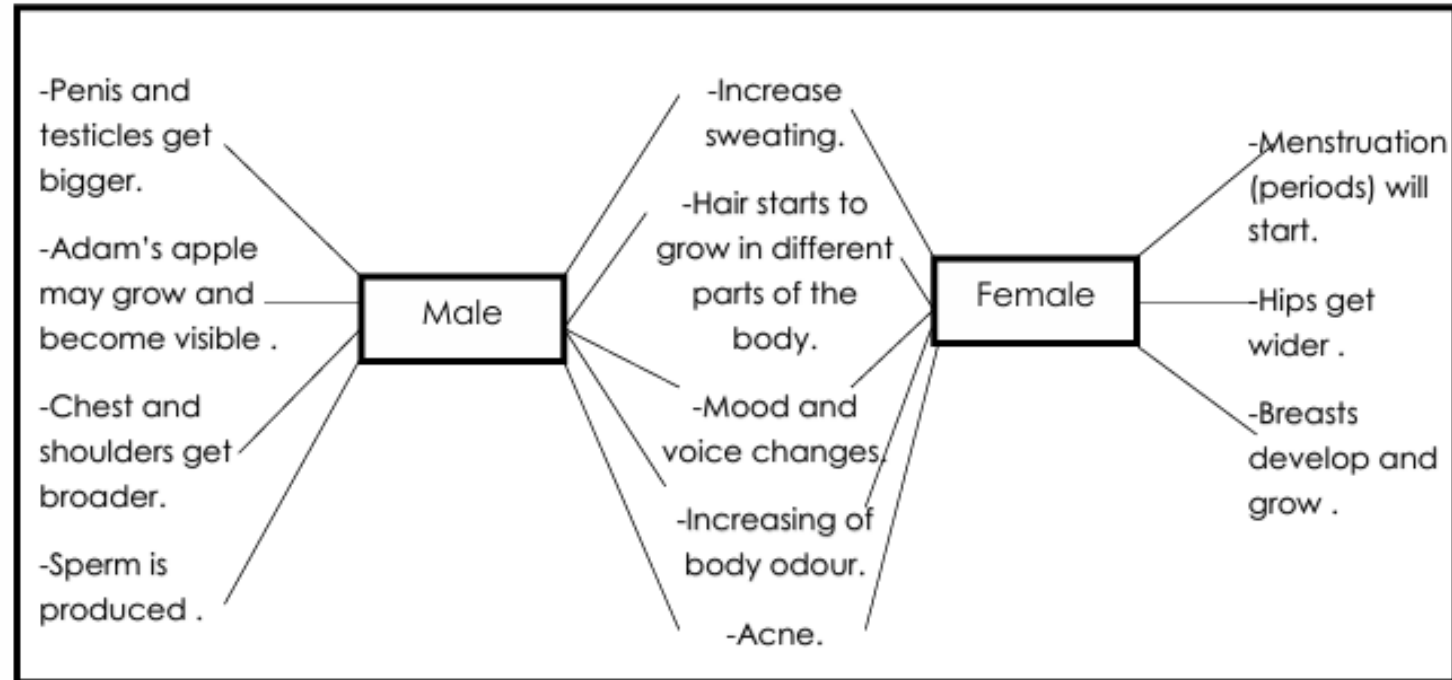
Q13) Increase in height is one physical change that happens to females during puberty.

Describe **two other** physical changes that happen to females during puberty.

- 1 Period start
- 2 Breast develop and grow

Q14

Comparing and contrasting between male and female body physical changes



Physical changes take place during puberty in humans.

(a) Describe **one** physical change that **only** takes place in females.

Period start

(b) Describe **one** physical change that **only** takes place in males.

sperm produced

(c) Describe **one** physical change that takes place in **both** males and females.

acne

Some diseases are caused by infection with different organisms.



(a) Influenza (flu) is caused by a virus.

Complete the sentences.

The influenza virus is passed from the first host to a second host.

The virus travels in the air when the first host cough

The second host knows they have the virus because they feel

..... sick

To stop themselves getting infected by the flu virus, the person

..... Vaccine

(b) Food poisoning is an illness.

Food poisoning may be caused by eating food containing bacteria.

It is important to reduce the spread of bacteria.

Keeping uncooked food and cooked food separate reduces the spread of bacteria.

Describe **two other** ways to reduce the spread of bacteria.

Wach dishes

2 Wash hands

.....

This question is about human diseases.

Look at the table that shows information about some human diseases.

disease	cause of infection	how infection enters the body
cholera	bacteria	unsafe water and food
malaria	parasite	insect bite
Zika	virus	insect bite
tetanus	bacteria	through cuts in the skin
yellow fever	virus	insect bite

(a) Bacteria, parasites and viruses all cause disease in humans.

Write down **one other** type of living thing that causes disease in humans.

fungi [1]

(b) Write down **one** disease from the table that is controlled by using good hygiene.

Cholera [1]

(c) Describe **two** ways to reduce infection with malaria.

1 use insect repellent

2 Cover up skin with clothing

Priya and Rajiv are visiting this rainforest.



Priya and Rajiv are worried they may be bitten by an insect and get an infection.

(a) Describe **two** ways Priya and Rajiv can avoid being bitten by insects in the rainforest.

- 1 use insect repellent
- 2 Cover up skin with clothing

[2]

(b) Some diseases are caused by infection of bacteria.

Write down the name of two **other** types of organisms that may cause a disease by infection.

- 1 Fungi
- 2 parasite

[2]

Disease may be spread by swallowing food or water that contains harmful organisms such as bacteria.

(a) Write down the name of **one other** type of organism that spreads disease.

Bacteria /parasites

(b) Describe **two** ways good hygiene controls the spread of diseases carried in food and water.

1 Wash hands with soap and water

2 Cover food

Some fungi cause diseases in the body.

(a) Name **one other** type of living thing that causes diseases in the body.

Bacteria /parasites

(b) Mucus is a defence mechanism against infectious diseases.

Which organ system of the body contains mucus?

Respiratory system

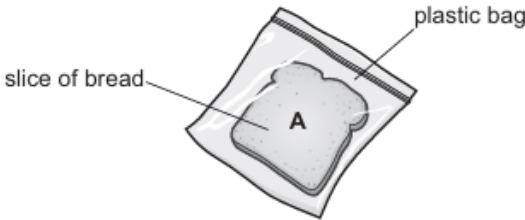
Priya investigates the spread of mould.

Mould is a type of fungus.

Priya:

- puts one slice of bread into four different plastic bags
- prepares each slice of bread differently
- seals each bag closed
- leaves the slices of bread for three days.

The diagram shows one of the slices of bread at the start of the investigation.



After three days Priya records the amount of mould on each slice of bread.

Look at the table.

slice of bread	how slice of bread is prepared	observation after three days
A	touched by hands inside gloves	small amount of mould
B	touched by hands washed in soap and water	no mould
C	touched by hands that have not been washed	mould on part of the bread
D	touched by hands washed in water but no soap	mould on part of the bread

(a) Which scientific question is Priya investigating?

Tick (✓) **one** box.

Is mould a type of fungus?

☐

Does temperature affect the growth of mould?

☐

Which type of mould grows on bread?

☐

Does washing hands stop the growth of mould?

☒

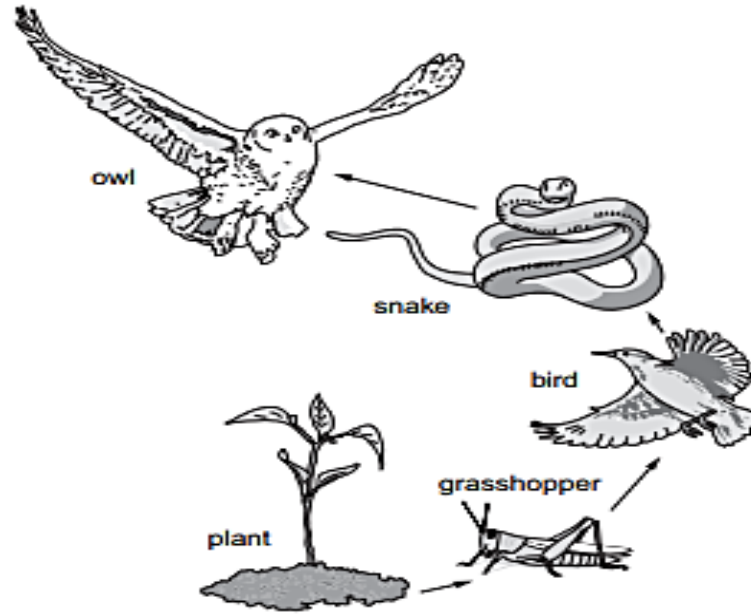
(b) Write down **two** variables Priya **controls** in her investigation.

size of the slices of bread / bread from same loaf
2 size of bread /type of food

(c) Priya does **not** open the bags at the end of the investigation.

Suggest why this is important.
mould causes diseases

Look at the food chain.



Complete the sentences about this food chain.

- (a) The plant is at the start of the food chain.

The plant is a Producer

- (b) The plant gets energy from the Sun

- (c) The owl is a consumer that hunts for food.

The owl is a Predator

- (d) The bird hunts and catches the grasshopper for food.

The grasshopper is Prey for the bird.

Food chains are made up of producers, consumers, predators and prey.

(a) What is a **producer**?

a plant that uses or gets energy from the Sun / a plant that makes (its own) food

(b) What is a **consumer**?

An animal that hunts or catches another animal /prey

(c) What is a **predator**?

an that eats another animal

(d) The number of predators in a food chain increases.

What happens to the number of their prey?

Circle the **best** answer.

always doubles

always halves

decreases

increases

stays the same

Complete the sentences about food chains.

Choose from

consumer

food chain

habitat

producer

predator

prey

All food chains start with a **Producer**

An animal that eats a plant is a **Consumer**

An animal that chases and eats another animal is a **Predator/consumer**

An animal eaten by another animal is a **Prey**

Question (4)

Complete the sentences about **food** chains.

Choose from the following words.

Each word can be used once, more than once, or not at all.

consumer habitat predator prey producer

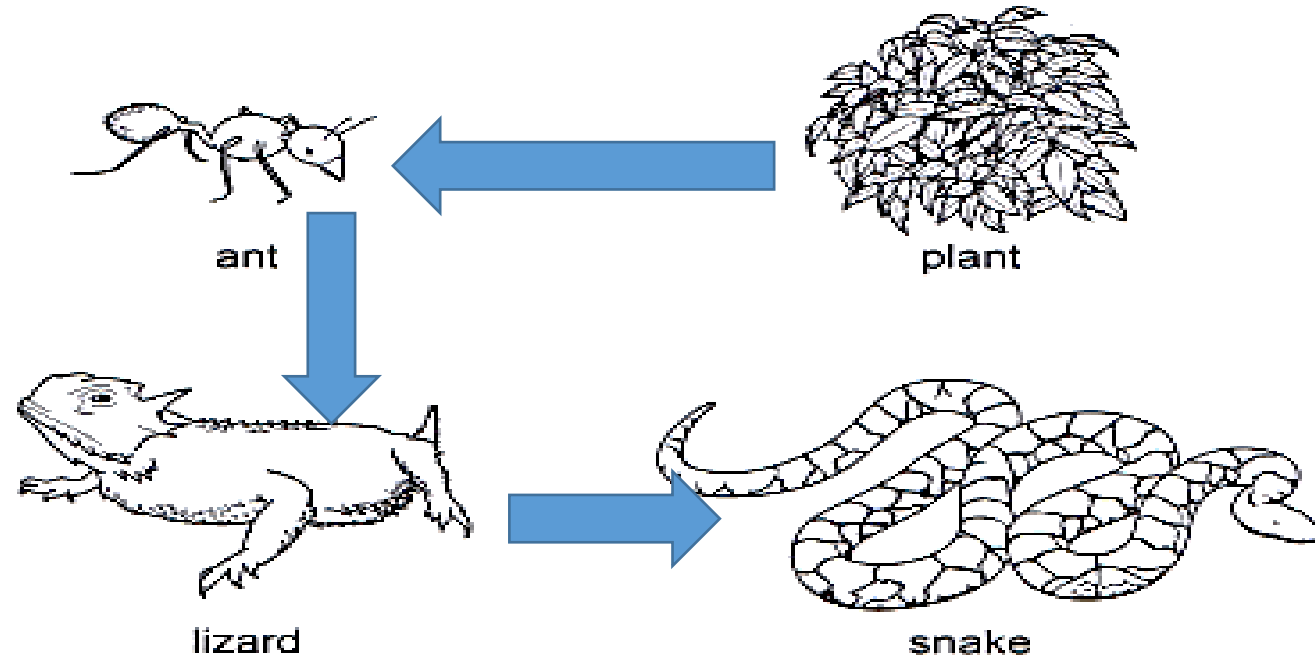
Food chains start with a producer
An animal that eats plants is called a consumer
An animal that eats another animal is called a prey

Question (5)

Complete the sentences about food chains.

A food chain shows the Energy/food relationship.
The animal that chases and eats other animals is called a consumer
A plant that makes its own food is called a producer

The pictures show some living things found in a desert.



(a) Draw arrows (→) between the pictures to make a food chain.

(b) Name the producer in this food chain.

Plant

(c) The producer uses energy.

Where does it get its energy from?

Tick (✓) **one** box.

food	<input type="checkbox"/>
rain	<input type="checkbox"/>
soil	<input type="checkbox"/>
Sun	<input checked="" type="checkbox"/>
wind	<input type="checkbox"/>

(d) Name **one** predator in this food chain.

Snake /Lizard

(e) Use **one** word to complete the sentence.

plant

predator

prey

producer

An animal being hunted by another animal is the **Prey**

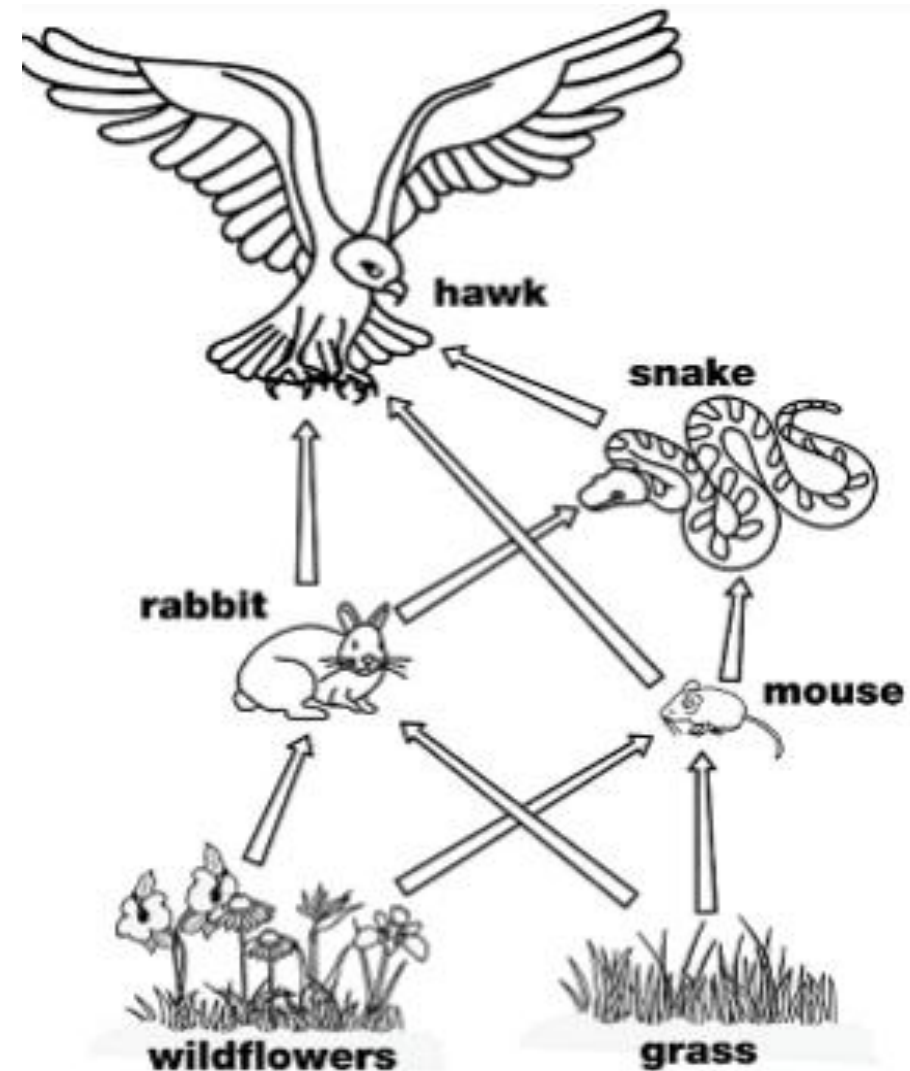
1-grass and wildflowers

2-rabbit, mouse, snake, and hawk

3-rabbit and mouse

4-rabbit, mouse and snake

5-grass and wildflowers



Anastasia finds pictures of some animals.



shrimp



octopus



snail



starfish



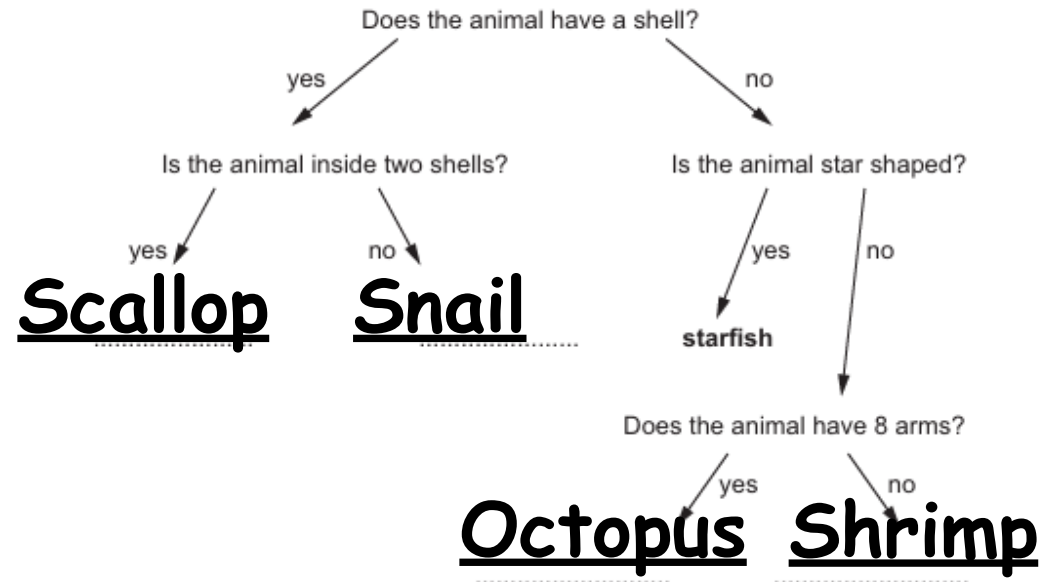
scallop

Not drawn to scale

(a) Anastasia uses the pictures to make a key.

Complete the key.

One animal has been done for you.



(b) The snail is a herbivore in a food web.

A producer starts the food web.

Complete the sentence.

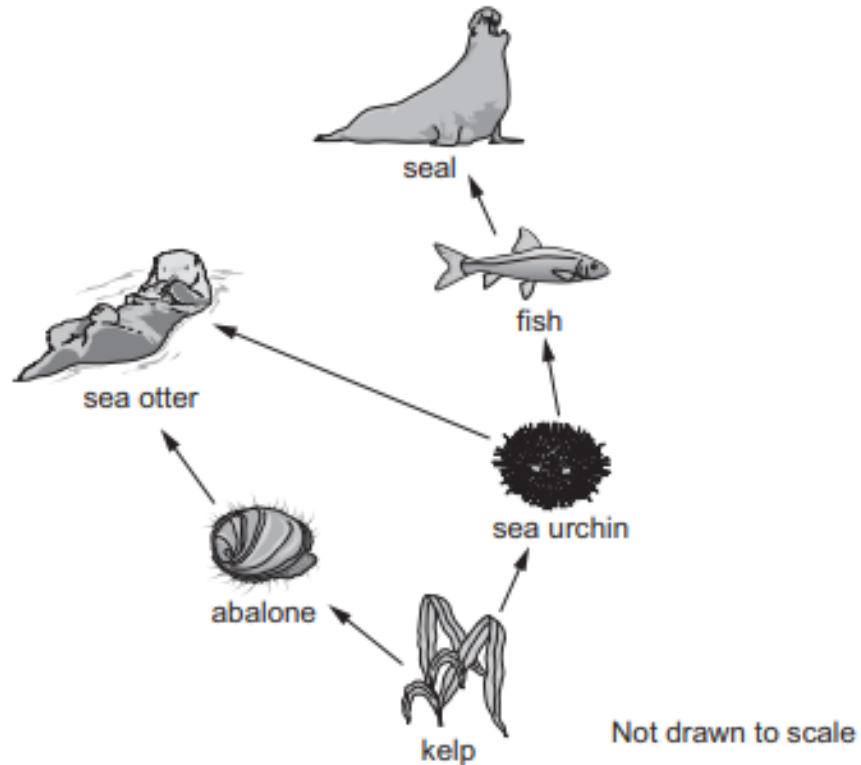
The source of energy for the producer in the food web is theSun.....
[1]

(c) A toxic substance is found in the soil.

Describe how the toxic substance moves from the soil into the body of a snail in the food web.

.....
.....producer takes in the toxin or snail eats the producer.....
.....
[2]

The diagram shows an ocean food web.



(c) A toxic substance enters the ocean.

The kelp absorbs this toxic substance.

Explain how this toxic substance moves from the kelp to the sea otter.

abalone/(sea) urchin eats the kelp

(d) Write down the name of the energy source for the food web.

sun or sunlight

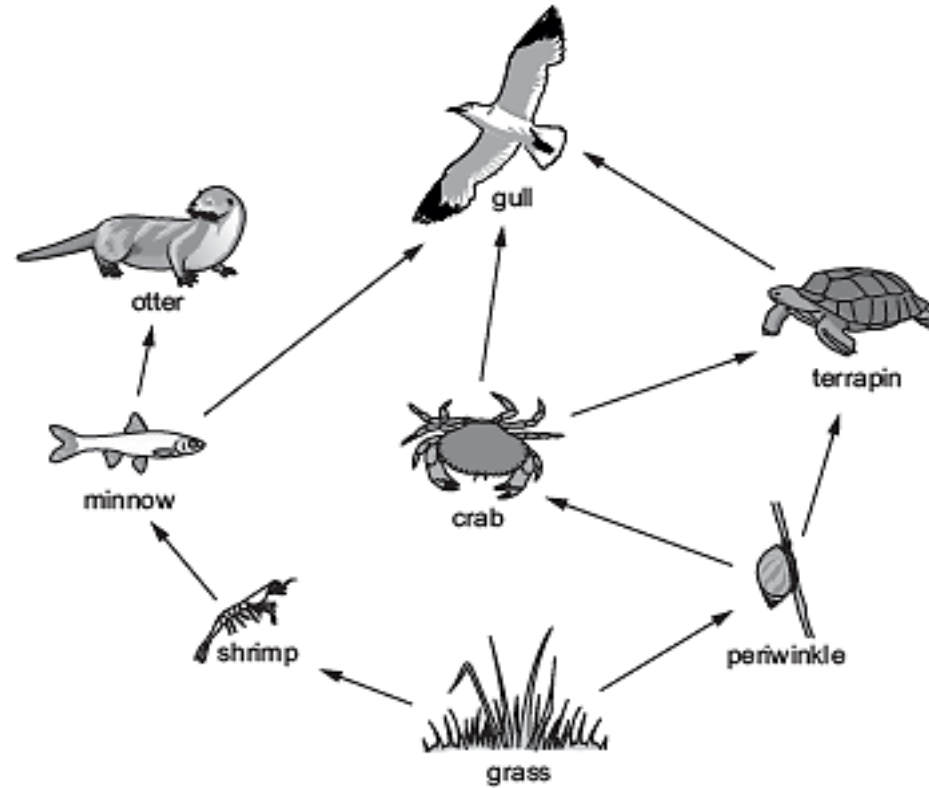
(a) Write down a food chain from the food web that includes the fish.

kelp → (sea) urchin → fish → seal

(b) Write down the name of **one** herbivore in the food web.

sea urchin or abalone

Look at the food web from a wetland habitat.



(a) Write down one food chain from this food web that includes the minnow.

grass → shrimp → minnow → otter

(b) Write down the name of one carnivore from this food web.

minnow or otter or gull or crab or terrapiin

(c) Write down the name of one living thing in this food web that gains energy from the terrapiin.

gull