



Year 7

Biology

Homework

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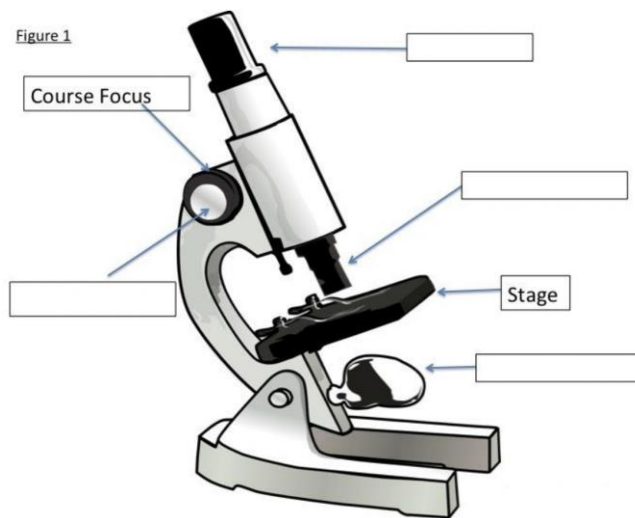
Scientific vocabulary	Definition
Microscope	An optical instrument used to magnify objects, so small details can be seen clearly.
Eyepiece Lens	The lens at the top of the microscope that you look through. The eyepiece is usually 10x or 15x power.
Stage	The flat platform where you place your slides. Stage clips hold the slides in place.
Objective Lens	Usually, you will find 3 or 4 objective lenses on a microscope. They consist of 4x, 10x, 40x and 100x powers. When coupled with a 10x eyepiece lens, we get total magnification of 40x (4x times 10x), 100x, 400x, and 1000x.
Fine adjustment	Used to adjust the focal point of the microscope and allow a clear image to be seen. Fine tunes the focus and increases the detail of the specimen.
Course adjustment	Used to adjust the focal point of the microscope and allow a clear image to be seen. Brings the specimen into general focus.
Illuminator	This is the microscopes light source, located at the base. In most light microscopes it is a bulb with adjustable brightness that shines through the specimen slide. Some use a mirror to direct sunlight through
Specimen	The object being examined. Most specimens are mounted on slides, flat rectangles of thin glass.
Iris Diaphragm	Adjusts the amount of light that reaches the specimen.

Questions:

- 1) Electron microscopes provide many advantages to scientists. Circle one **disadvantage** of electron microscopes listed below.
 - a. Higher magnification
 - b. Expensive
 - c. Lower resolution

HWK 7B1- Parts of the Microscope

The diagram below shows a light microscope. Complete the labels.



- 2) Calculate the actual size of an onion cell if it measures 20mm using a 100X magnification. Remember to show your calculation.

Length of cell =

- 3) What is the magnification if the image size is 5cm and the size of the real object is 0.2mm?

Magnification =



Name:

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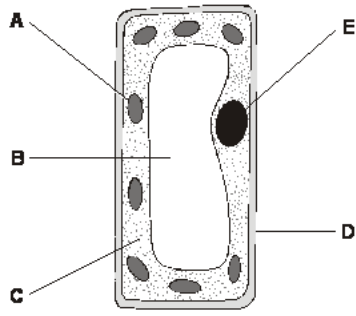
New Words

Scientific vocabulary	Definition
Cell	The smallest functional unit of a living organism. It contains parts to carry out life processes.
Nucleus	The cell component that contains genetic material (DNA), which controls the cell's activities.
Cell membrane	The cell component that surrounds the cell and controls movement of substances in and out.
Cell wall	The cell component that surrounds the cell and strengthens it. In plant cells it is made of cellulose.
Cytoplasm	Jelly-like substance (found in cells) where most chemical processes happen.

Q1

Anagram	Definition	Scientific vocabulary word
comic spore	An optical instrument used to _____ objects, so _____ details can be seen clearly.	
Elsy epicene	The lens at the top of the microscope that you look through. The eyepiece is usually _____ x or _____ x power.	
belove injects	Usually, you will find 3 or 4 _____ lenses on a microscope. They consist of _____ x, _____ x, _____ x and 100x powers. When coupled with a 10x eyepiece lens, we get total magnification of 40x (4x times 10x), 100x, 400x, and _____ x.	
fanjet mistuned	Used to adjust the _____ point of the microscope and allow a clear image to be seen. Fine tunes the focus and increases the _____ of the specimen.	
adjusters contume	Used to adjust the focal point of the microscope and allow a _____ image to be seen. Brings the specimen into _____ focus.	
Arlin ultimo	This is the microscopes light source, located at the base. In most _____ microscopes it is a bulb with adjustable _____ that shines through the specimen slide. Some use a _____ to direct sunlight through	
esp mince	The object being examined. Most _____ are mounted on slides, flat rectangles of thin _____.	

Q2. The diagram shows a plant cell



a) Give the name of part A.

.....

b) Give the function of part A.

.....

c) Give the name of part E.

.....

d) Give the function of part E.

.....

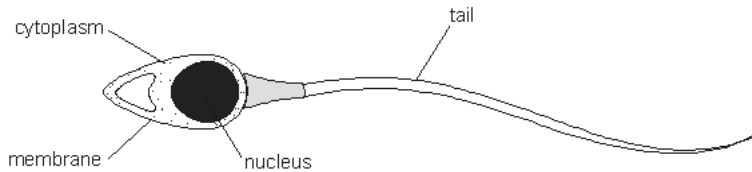
e) Give the letters of **two** parts that are present in plant cells but **not** in animal cells.

..... and

f) How can you tell that the cell in the diagram is from a leaf and **not** from a root?

..... 1 mark

Q2. The diagram below shows a sperm cell. Sperm cells are adapted for fertilisation.



Sperm cells use their tails to swim towards an ovum (egg).
Give **one** other way the sperm cell is adapted for fertilisation.

.....

.....



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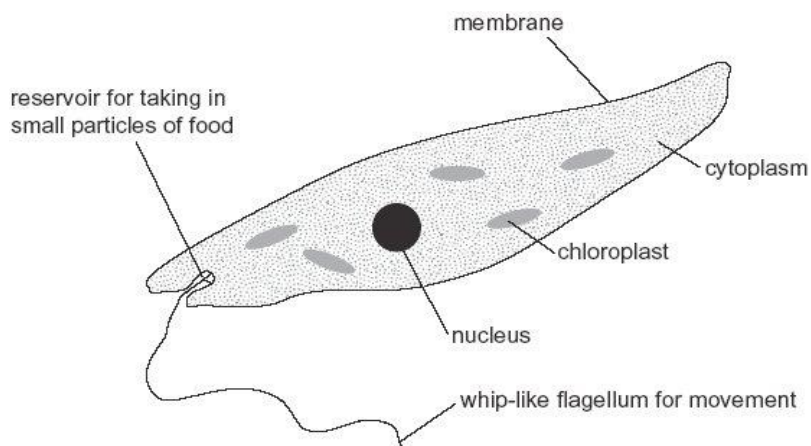
Anagram	Definition	Scientific vocabulary word
lecl	The smallest functional unit of a living _____. It contains parts to carry out life processes.	
clue nus	The cell component that contains _____ material (DNA), which controls the cell's activities.	
amply cost	Jelly-like substance (found in _____) where most _____ processes happen.	
bellman creme	The cell component that surrounds the _____ and controls _____ of substances in and out.	

New Words

Scientific vocabulary	Definition
amoeba	A unicellular organism.
concentration	A measure of the number of particles in a given volume.
euglena	Unicellular organism that performs photosynthesis.
flagellum	A tail-like structure that allows euglenas to move.
mitochondria	Part of the cell where food molecules are broken down during the process of respiration, enabling energy transfer.
unicellular (organism)	Living things made up of one cell.
diffusion	The movement of a substance from an area of high concentration to an area of low concentration. Diffusion happens in liquids and gases because their particles move randomly from place to place.

Questions

Q1. The diagram below shows a Euglena



(a) Look at the diagram of Euglena.

Give **two** pieces of evidence which suggest it is an **animal** cell and **not** a plant cell.

1.

1 mark

2.

1 mark

(b) Plant cells can carry out photosynthesis.

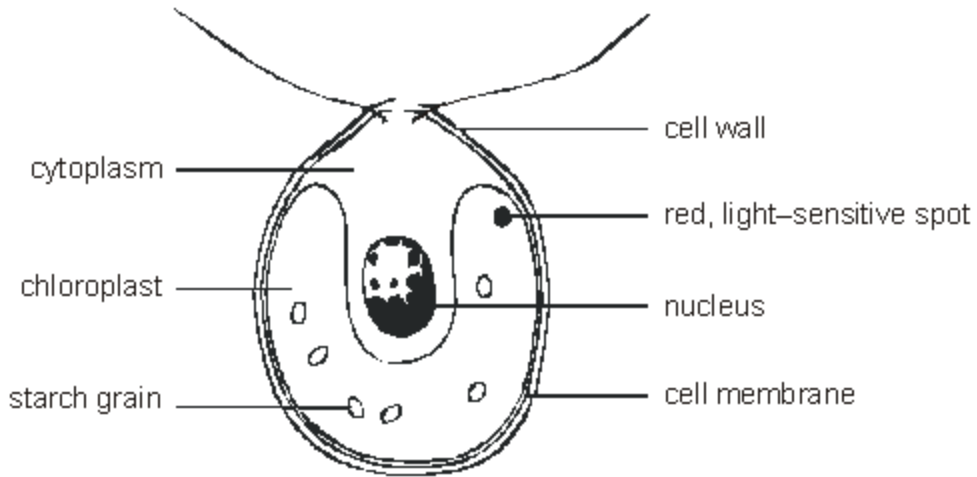
How can you tell from the diagram that Euglena can carry out photosynthesis?

.....

1 mark

Q2.

The diagram below shows a single-cell organism called Chlamydomonas. It lives in pond water.



Use the information in the diagram to help you answer the questions below.

(a) Give **two** features of Chlamydomonas which show that it is more like a plant cell than an animal cell.

1.

2.

2 marks



Name:	Due Date
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Anagram	Definition	Scientific vocabulary word
Ameabo	A _____ organism.	
Annicecontort	A measure of the number of _____ in a given volume.	
Fifinodus	The movement of a substance from an area of _____ concentration to an area of _____ concentration. Diffusion happens in liquids and gases because their _____ move randomly from place to place.	
Aleengu	_____ organism that performs photosynthesis.	

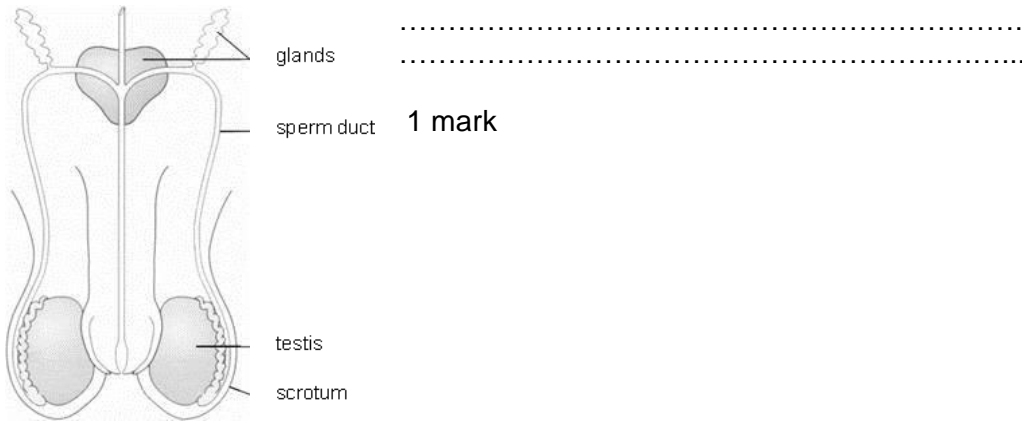
New Words

Scientific vocabulary	Definition
adolescence	The period of time when a child changes into an adult.
Cervix	The ring of muscle at the entrance to the uterus. It keeps the baby in place while the woman is pregnant.
Egg cell	The female sex cell.
Embryo	A ball of cells that forms when the fertilised egg divides.
Fertilisation	Joining of a nucleus from a male and female sex cell.
Menstrual cycle (period)	The monthly cycle during which the uterus lining thickens and then breaks down.
Menstruation	Loss of the lining of the uterus during the menstrual cycle.
Ovary	Organ that contains eggs.
Oviduct (fallopian tube)	Carries an egg from the ovary to the uterus and is where fertilisation occurs.
Penis	Organ that carries sperm out of the male's body.
Puberty	The physical changes that take place during adolescence.
Semen	Fluid containing sperm.
Sperm cell	Male sex cell containing male genetic material.
Sperm duct	Tube that carries sperm from the testicles to the penis.
Urethra	Tube that carries urine or sperm out of the body.
Uterus (womb)	Where a baby develops in a pregnant woman.
Vagina	Where the penis enters the female's body and sperm is received.

Questions

Q1. The diagram shows the human male reproductive system. The testes are outside the main part of the body. Suggest the relationship between temperature and sperm production.

HWK 7B4: Adolescence and Reproductive Systems



Q2. A chemical called a hormone, which changes a boy's body, is produced from adolescence onwards.

(i) Where is this hormone produced?

..... 1 mark

(ii) Describe **one** change caused by this hormone.

.....
 1 mark

Q3. During sexual intercourse about 250 million sperm are released at a time into the body of a woman.

Why is it necessary to release so many sperm at a time?

.....
 1 mark

Q4. The table below contains descriptions of parts of the human reproductive system. Complete the table to give the name of each part.

name of part	description
	the tube that carries an egg to the uterus
	the organ that produces sperm
	he organ that produces the egg

3 marks



Name:	Due Date
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Anagram	Definition	Scientific vocabulary word
Accede Noels	The period of time when a child changes into an _____.	
Berm Yo	A ball of cells that forms when the fertilised ___ divides.	
Alfiorientist	Joining of a _____ from a male and female ___ cell.	
Bertyup	The physical changes that take place during _____.	
Artureh	Tube that carries urine or _____ out of the body.	
Suture	Where a _____ develops in a pregnant woman.	

New Words

Scientific vocabulary	Definition
amniotic fluid	Liquid that surrounds and protects the foetus.
condom	A barrier method of contraception that prevents semen being released into the vagina.
fetus	The developing baby during pregnancy (from eight weeks after fertilisation).
gamete	The male gamete (sex cell) in animals is a sperm, the female gamete is an egg.
gestation	Process where the baby develops during pregnancy.
implantation	The process where an embryo attaches to the lining of the uterus.
placenta	Organ that provides the fetus with oxygen and nutrients and removes waste substances. It also acts as a barrier, stopping infections and harmful substances reaching the fetus.
umbilical cord	Connects the fetus to the placenta.

Questions

Q1. The diagram below shows an unborn baby.



Complete the sentences below by filling in the gaps.

In humans, normal pregnancy lasts for months.

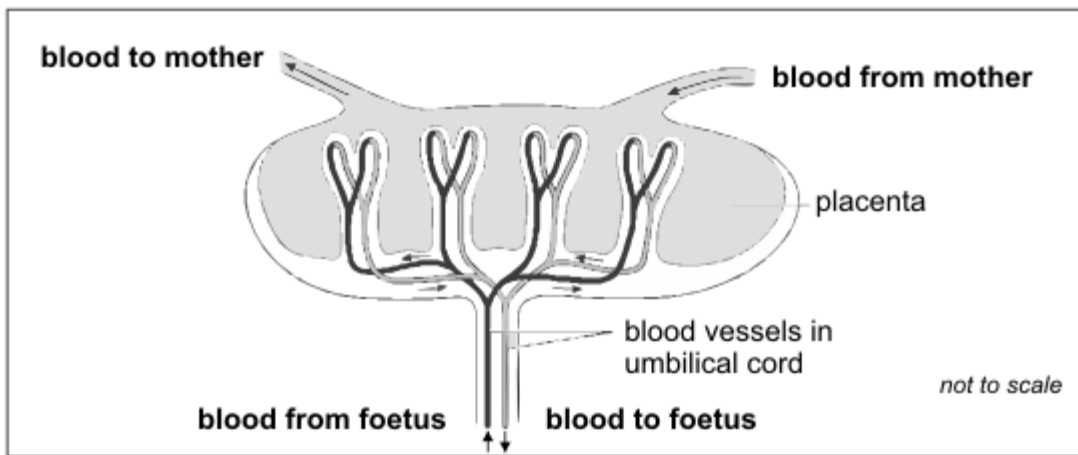
When the foetus is ready to be born, muscles in the uterus wall start to

2 marks

After the baby is born, the connecting the foetus to the mother is cut.

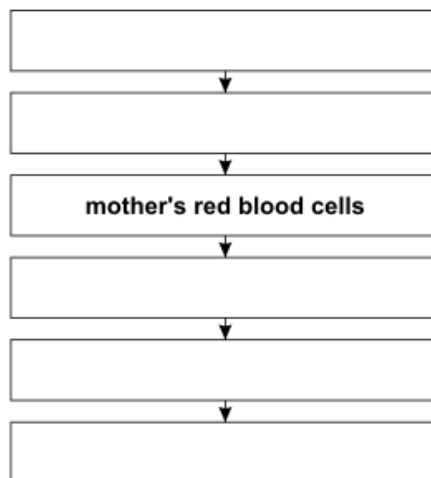
1 marks

Q2. The diagram shows the blood supply in the placenta and umbilical cord. When the mother breathes, oxygen and other gases pass to the foetus.



Complete the flow diagram below to show how oxygen passes from the mother to the foetus. Use **all** the words from the list below.

- | | | | | |
|-------|----------------|-----------------|----------|----------|
| lungs | umbilical cord | blood of foetus | windpipe | placenta |
|-------|----------------|-----------------|----------|----------|



2 marks



Name:	Due Date
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Anagram	Definition	Scientific vocabulary word
eftus	The developing baby during pregnancy (from _____ weeks after fertilisation).	
metage	The male _____ (sex cell) in animals is a _____, the female _____ is an _____.	
agnestito	Process where the baby develops during _____.	
ampliationtn	The process where an _____ attaches to the lining of the uterus.	
acplanet	Organ that provides the fetus with _____ and nutrients and removes _____ substances. It also acts as a barrier, stopping infections and harmful substances reaching the _____.	

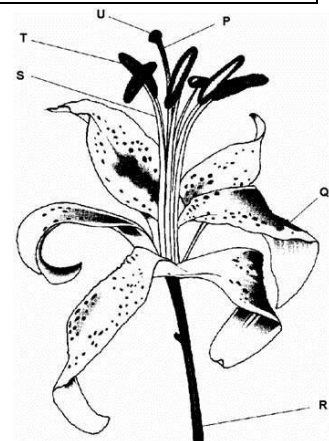
New Words

Scientific vocabulary	Definition
anther	The male part of a flower that produces pollen.
carpel	The female part of the flower, made up of the stigma where the pollen lands, style, and ovary.
filament	The part of a flower that holds up the anther.
fruit	Structure that the ovary becomes after fertilisation, which contains seeds.
ovule	Female sex cells in plants found in the ovary.
petal	A brightly coloured part of a flower that attracts insects.
pollen	Contains the plant male sex cells found on the stamens.
pollination	Transfer of pollen from the male part of the flower to the female part of the flower on the same or another plant.

Questions

Q1. The drawing shows a flower. Six parts are labelled P, Q, R, S, T and U.

(a) The names of three of these parts are given in the table. Write the letter of each part next to its name in the table.



HWK 7B6: Flower Structure and Pollination

name of part	letter of part
anther	
style	
stigma	

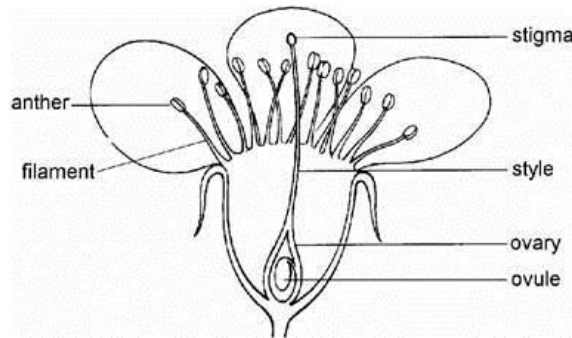
3 marks

(b) Which **two** letters on the drawing show parts of the stamen?

..... and

1 mark

Q2. (a) The diagram shows a section through a flower from a cherry tree.



(i) Which part becomes the seed?

1 mark

(ii) Which part becomes the fruit?

1 mark

(iii) What is the function of the anther?

1 mark

Q3. Complete the sentences below by choosing words from the list:

3 marks

- anthers fertilisation germination ovule**
pollination seed production sepal stigma

When a bee with pollen on it visits a flower, pollen rubs off the bee onto the of the flower. This process is called A tube grows from each pollen grain until it reaches an ovule. A nucleus of the pollen grain joins with a nucleus in the ovule. This process is called



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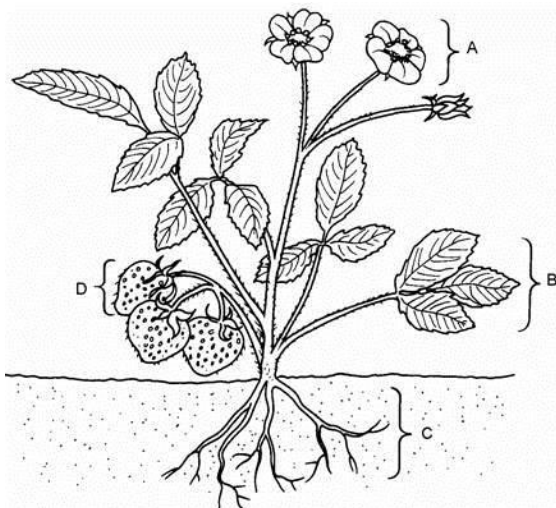
Anagram	Definition	Scientific vocabulary word
tehran	The male part of a flower that produces _____.	
placer	The female part of the flower, made up of the _____ where the pollen lands, style, and ovary.	
aftlimen	The part of a flower that holds up the _____.	
oleuv	Female sex cells in plants found in the _____.	
leapt	A brightly coloured part of a flower that attracts _____.	
ellpon	Contains the plant _____ sex cells found on the stamens.	

New Words

Scientific vocabulary	Definition
fertilisation	Joining of a nucleus from a male and female sex cell.
germination	The period of time when a seed starts to grow.
embryo	The young root and shoot that will become the adult plant
food store	Starch for the young plant to use until it is able to carry out photosynthesis
seed coat	A tough protective outer covering of the plant embryo
tuber	A swollen, fleshy underground stem of a plant, such as the potato, bearing buds from which new plant shoots arise.

Questions

Q1. The diagram shows a strawberry plant. Four organs of the plant are labelled A to D.



Write the names of organs A to D in the correct spaces in the table.

Write the function or job of each organ next to its name.

Only choose functions from the list below.

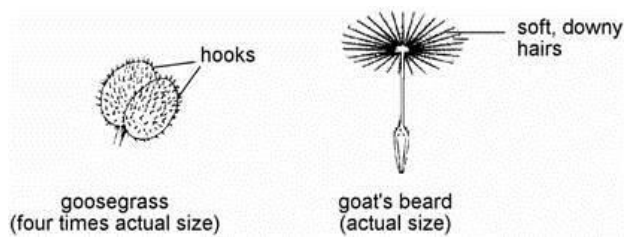
- to attract insects for pollination
- to attract birds for pollination
- to attract animals for seed dispersal
- to take up water
- to absorb light

to protect the plant from animals 4 marks

letter	name of organ	function
A		
B		
C		
D		

4 marks

Q2. The drawings below show the fruits of two different plants.



For each fruit, suggest how its structure helps the seeds to be scattered away from the parent plant.

Goosegrass:

.....

Goat's beard:

.....2 marks



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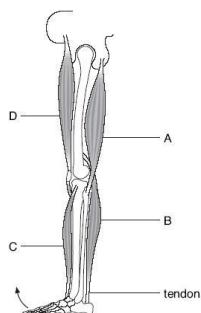
Anagram	Definition	Scientific vocabulary word
airliftostein	Joining of a _____ from a male and female sex cell.	
aeonmitring	The period of time when a ____ starts to grow.	
bermyo	The young ____ and shoot that will become the adult plant	
dfoo sotre	Starch for the young plant to use until it is able to carry out _____	
dees tcoa	A tough protective outer covering of the plant _____	
buret	A swollen, fleshy underground ____ of a plant, such as the potato, bearing buds from which new plant _____ arise.	

New Words

Scientific vocabulary	Definition
antagonistic muscle pair	A pair of muscles working in unison to create movement at a joint – as one muscle contracts, the other relaxes.
bone	A tissue that forms a hard structure, used to protect organs and for movement.
cartilage	Smooth tissue found at the end of bones. This reduces friction between them preventing rubbing.
ligaments	Connect bones in joints.
skeleton	All the bones in an organism.
tendons	Connect muscles to bones.
tissue	Group of cells of one type, working together to perform a function.

Questions

Q1. The diagram below shows muscles and bones of a human leg.



HWK 7B8: Organisation, Skeleton, Muscles and Joints

(i) Which muscle contracts to move the foot in the direction shown by the arrow?
Give the letter.

.....

1 mark

(ii) Which **two** pairs of muscles are antagonistic pairs?
Tick the **two** correct boxes.

A and B

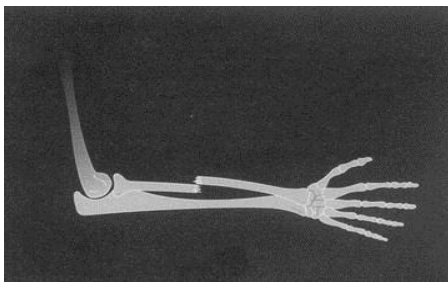
B and C

C and D

D and A

2 marks

Q2. Jamie has an X-ray photograph taken after injuring his arm. The image below shows the X-ray photograph.



(a) Complete the sentence.

The parts of Jamie's arm which show up on the X-ray are made of

..... . 1 mark

(b) What did the X-ray photograph show had happened to Jamie's arm?

.....
.....

1 mark

(c) The parts which contract to move the arm do **not** show up on an X-ray.
What are these parts called? Tick the correct box.

blood vessels

glands

muscles

skin

1 mark



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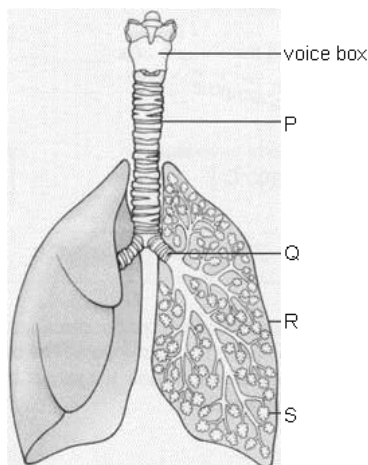
Anagram	Definition	Scientific vocabulary word
acingstation clemus apri	A pair of muscles working in unison to create movement at a _____ – as one muscle contracts, the other _____.	
neob	A tissue that forms a hard structure, used to protect _____ and for movement.	
acarigelt	Smooth tissue found at the end of bones. This reduces _____ between them preventing rubbing.	
densnot	Connect _____ to bones.	
suites	Group of _____ of one type, working together to perform a function.	

New Words

Scientific vocabulary	Definition
alveolus	Small air sacs found at the end of each bronchiole where gas exchange takes place with the blood.
breathing	The movement of air in and out of the lungs.
bronchus	One of two tubes which carry air into the lungs.
diaphragm	A sheet of muscle found underneath the lungs which is used in breathing.
gas exchange	The transfer of gases between an organism and its environment.
lungs	The organ in which gas exchange takes place.
red blood cell	An animal cell that transports oxygen around the body.
trachea	Tube which carries air from the mouth and nose to the lungs.

Questions

Q1. The diagram below shows part of the respiratory system.



- (a) From the diagram, give the letters which label:
 (i) the trachea; 1 mark
 (ii) alveoli. 1 mark

- (b) (i) Which gas passes into the blood from the alveoli?
 1 mark
 (ii) Which gas passes out of the blood into the alveoli?
 1 mark

(c) The walls of the capillaries and the alveoli are very thin. Why do they need to be thin?
1 mark

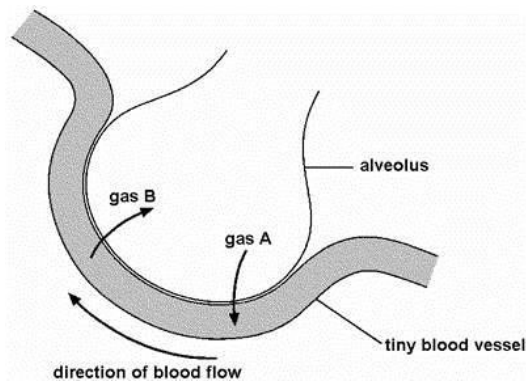
(d) There are millions of alveoli in the lungs. They provide a very large surface area.

Why is a large surface area necessary?

.....

 1 mark

Q2. The diagram below shows one alveolus and its blood supply.



- (i) Look at diagram 2, above.
 Gas A **enters** the blood from the alveolus.
 Gas B **leaves** the blood and enters the alveolus.
 What are the names of gases A and B?

gas A

gas B

1 mark

- (ii) Give **one** reason why it is easy for gases to pass across the wall of an alveolus.

.....

1 mark