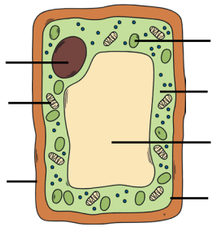
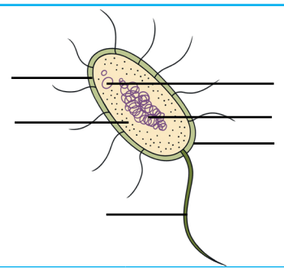
Cells and Organisation (Foundation) **Revision Mat**

a

Label the cells using words from the boxes.



cell membrane	mitochondria	permanent vacuole	
cell wall	cytoplasm	nucleus	chloroplast



cell membrane	cytoplasm
circular DNA	cell wall
flagellum	plasmid

b

Name the sub-cellular structure that carries out each function.

Controls the movement of substances into and out of the cell.

A jelly-like substance that fills the cell, where most chemical reactions occur.

Controls the activities of the cell. It contains genetic material (DNA), which is packaged into structures called chromosomes.

c

Complete the table to identify which sub-cellular structures are found in animal cells.

Sub-Cellular Structure	Animal Cell	Plant Cell
nucleus		✓
circular DNA		×
mitochondria		✓
chloroplasts	×	✓
cell wall		✓
cell membrane		✓
cytoplasm		✓
flagellum		×
permanent vacuole		✓
plasmids		×

d

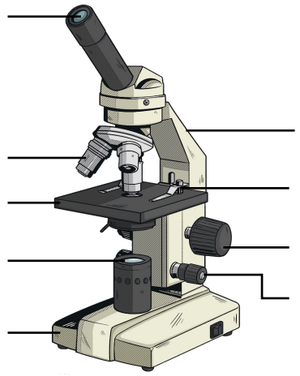
Explain why animal cells do not need chloroplasts.

e

Compare how genetic material is packaged in plant cells and in bacterial cells.

f

Label the light microscope using the words in the box.



eyepiece lens	stage	arm	fine adjustment knob
light source	stage clips	base	coarse adjustment knob
objective lens			

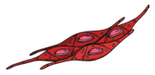
Describe how you would use the microscope to view a pre-prepared slide of blood cells.

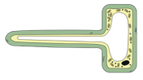
g

Muscle cells and sperm cells both contain lots of mitochondria. Explain why.

h

Name each type of cell, then draw **one** line from each cell to its adaptation.





- Biconcave shape to give it a large surface area for the diffusion of oxygen.
- Long fibres to carry electrical impulses up and down the body.
- Cilia to waft mucus along the airways.
- Contains bands of protein that change shape to contract and relax.
- Contains lots of chloroplasts for photosynthesis.
- Long protrusion to fit between grains of soil to absorb water.
- Tail-like structure and lots of mitochondria to release energy for movement.

Cells and Organisation (Foundation) **Revision Mat**

i

The illustrations show four structures that make up the circulatory system.


circulatory system


heart


red blood cell


blood vessel

Name each **level of organisation** in the correct order from smallest to largest.

smallest

_____

_____

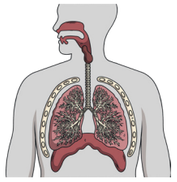
_____

_____

largest

j

Name each organ system and complete the descriptions of their function.

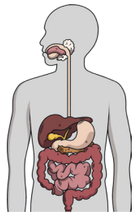


Name: _____

Function: Takes in _____

from the air and removes

_____ from the blood.



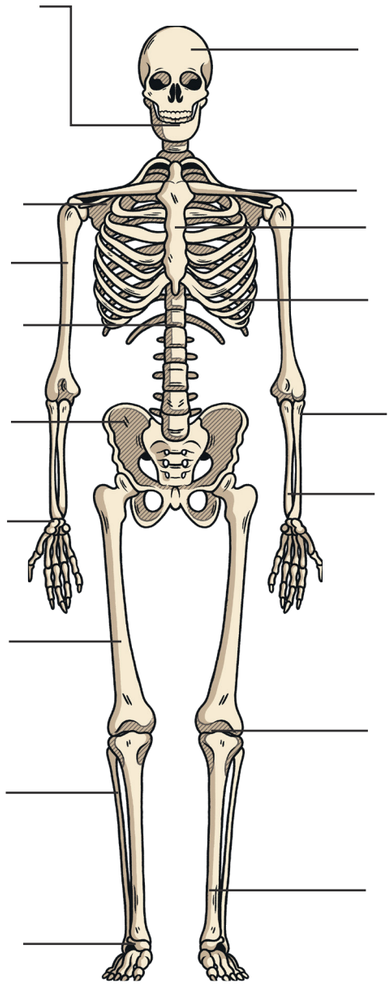
Name: _____

Function: Breaks down and absorbs

_____.

k

Label the parts of the skeleton using the words from the box.



cranium	sternum	radius
clavicle	ribs	tibia
ulna	patella	mandible
scapula	humerus	vertebrae
pelvis	carpals	femur
fibula	talus	

l

Describe the four functions of the skeleton.

1. Support: _____

_____

_____

2. Protection: _____

_____

_____

3. Movement: _____

_____

_____

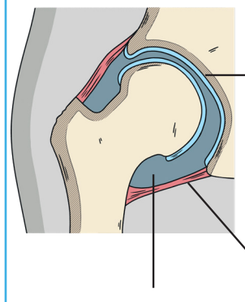
4. Making blood cells: _____

_____

_____

m

Name and describe the function of each part of the joint.



_____ is a strong, smooth tissue that covers the ends of the bones to _____

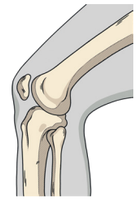
_____

_____ in the joint keeps the _____ slippery to _____

_____ hold _____ _____ _____

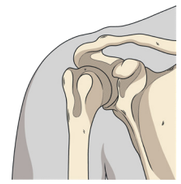
n

Name each joint and give an example of where in the body you would find each type.



Joint: _____

Example in body: _____



Joint: _____

Example in body: _____

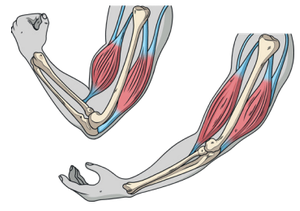
o

Complete the sentences using words from the box.

antagonistic	contracts	push	shrink
biomechanics	expands	pull	relaxes

Muscles can't _____, they can only _____.

A pair of muscles that work together are called _____ muscles.



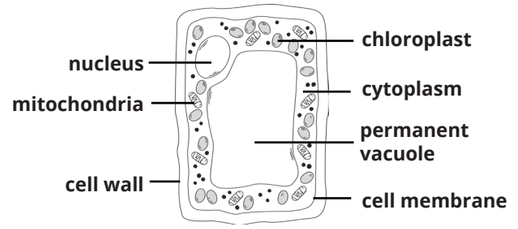
When one muscle _____, the other muscle _____. The joint is pulled in one direction causing movement.

The combination of muscles, bones and joints making us move is called _____ .

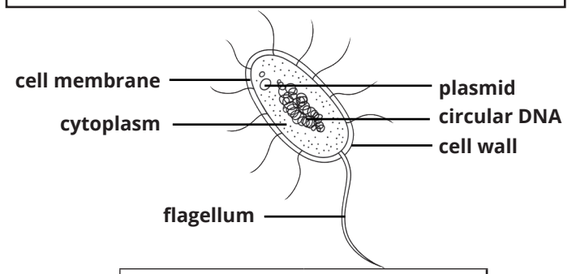
Cells and Organisation (Foundation) **Revision Mat Answers**

a

Label the cells using words from the boxes.



cell membrane	mitochondria	permanent vacuole	
cell wall	cytoplasm	nucleus	chloroplast



cell membrane	cytoplasm
circular DNA	cell wall
flagellum	plasmid

b

Name the sub-cellular structure that carries out each function.

Controls the movement of substances into and out of the cell.

cell membrane

A jelly-like substance that fills the cell, where most chemical reactions occur.

cytoplasm

Controls the activities of the cell. It contains genetic material (DNA), which is packaged into structures called chromosomes.

nucleus

c

Complete the table to identify which sub-cellular structures are found in animal cells.

Sub-Cellular Structure	Animal Cell	Plant Cell
nucleus	✓	✓
circular DNA	×	×
mitochondria	✓	✓
chloroplasts	×	✓
cell wall	×	✓
cell membrane	✓	✓
cytoplasm	✓	✓
flagellum	×	×
permanent vacuole	×	✓
plasmids	×	×

d

Explain why animal cells do not need chloroplasts.

Animals can catch or collect food to eat, which means that they don't need to produce their own food by photosynthesis.

e

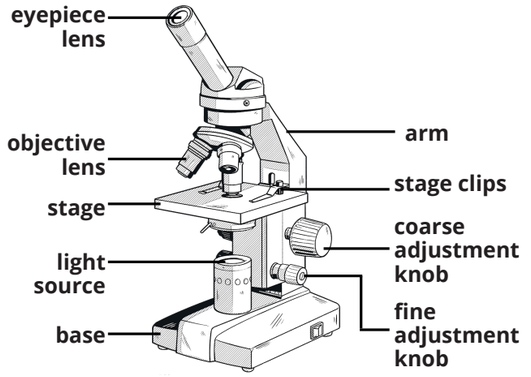
Compare how genetic material is packaged in plant cells and in bacterial cells.

In plant cells, genetic material is packaged into structures called chromosomes in the **nucleus**.

In bacterial cells, most of the DNA is free in the **cytoplasm**. They may also have additional genes on small rings of DNA called **plasmids**.

f

Label the light microscope using the words in the box.



eyepiece lens	stage	arm	fine adjustment knob
light source	stage clips	base	coarse adjustment knob
objective lens			

Describe how you would use the microscope to view a pre-prepared slide of blood cells.

- **Plug in the microscope and turn on the light.**
- **Place the slide on the stage and hold it in place with the stage clips.**
- **Turn to the objective lens with the lowest magnification.**
- **Look down the eyepiece lens and use the adjustment knobs to focus the specimen.**
- **Increase the magnification by turning to a higher power objective lens, then use the fine adjustment knob to bring the cells back into focus.**

g

Muscle cells and sperm cells both contain lots of mitochondria. Explain why.

A sperm cell contains lots of mitochondria to release energy so it can move towards the egg cell for fertilisation.

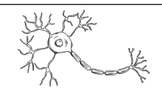
A muscle cell contains lots of mitochondria to release energy for muscle contraction.

h

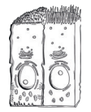
Name each type of cell, then draw **one** line from each cell to its adaptation.

red blood cell

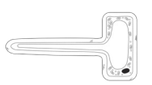
muscle cell



nerve cell



ciliated epithelial cell



root hair cell

sperm cell

palisade cell

Biconcave shape to give it a large surface area for the diffusion of oxygen.

Long fibres to carry electrical impulses up and down the body.

Cilia to waft mucus along the airways.

Contains bands of protein that change shape to contract and relax.

Contains lots of chloroplasts for photosynthesis.

Long protrusion to fit between grains of soil to absorb water.

Tail-like structure and lots of mitochondria to release energy for movement.

Cells and Organisation (Foundation) **Revision Mat Answers**

i

The illustrations show four structures that make up the circulatory system.


circulatory system


heart


red blood cell


blood vessel

Name each **level of organisation** in the correct order from smallest to largest.

smallest

largest

cell

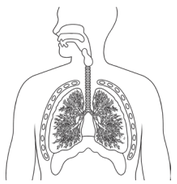
tissue

organ

organ system

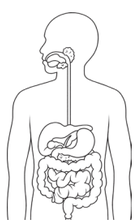
j

Name each organ system and complete the descriptions of their function.



Name: **respiratory system**

Function: Takes in **oxygen** from the air and removes **carbon dioxide** from the blood.

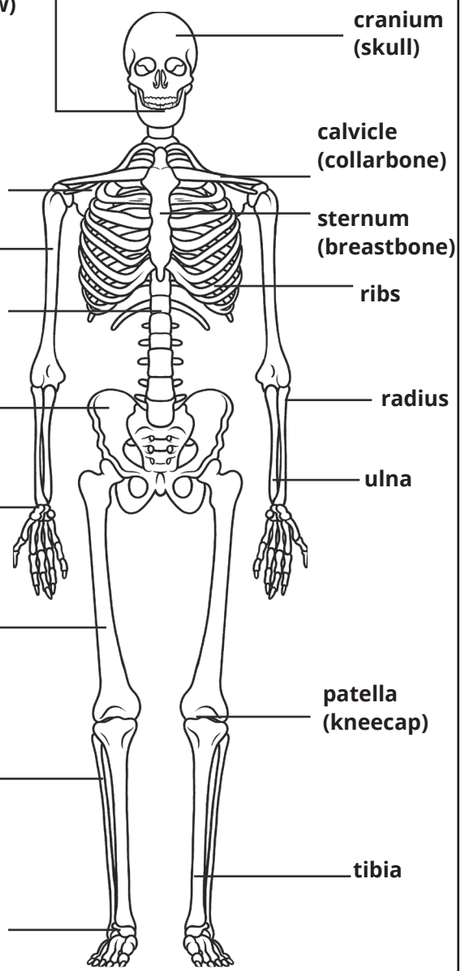


Name: **digestive system**

Function: Breaks down and absorbs **food molecules.**

k

Label the parts of the skeleton using the words from the box.



cranium	sternum	radius
clavicle	ribs	tibia
ulna	patella	mandible
scapula	humerus	vertebrae
pelvis	carpals	femur
fibula	talus	

l

Describe the four functions of the skeleton.

1. Support: **The skeleton provides a frame to hold your body upright and keep your organs in place.**

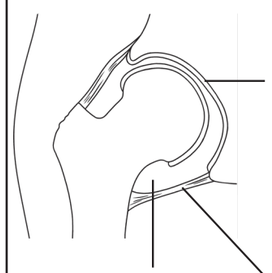
2. Protection: **Bones are hard and strong to protect important organs such as the heart and the brain.**

3. Movement: **Your bones and muscles work together to allow your body to move.**

4. Making blood cells: **Red blood cells and white blood cells are made in the bone marrow.**

m

Name and describe the function of each part of the joint.



Cartilage is a strong, smooth tissue that covers the ends of the bones to **protect them from damage**.

Fluid in the joint keeps the **cartilage** slippery to **reduce friction.**

Ligaments hold **the bones together.**

n

Name each joint and give an example of where in the body you would find each type.

Joint: **hinge joint**

Example in body: **knee or elbow**

Joint: **ball and socket joint**

Example in body: **shoulder or hip**

o

Complete the sentences using words from the box.

antagonistic	contracts	push	shrink
biomechanics	expands	pull	relaxes

Muscles can't **push**, they can only **pull**.

A pair of muscles that work together are called **antagonistic** muscles.

When one muscle **contracts**, the other muscle **relaxes**. The joint is pulled in one direction causing movement.

The combination of muscles, bones and joints making us move is called **biomechanics**.