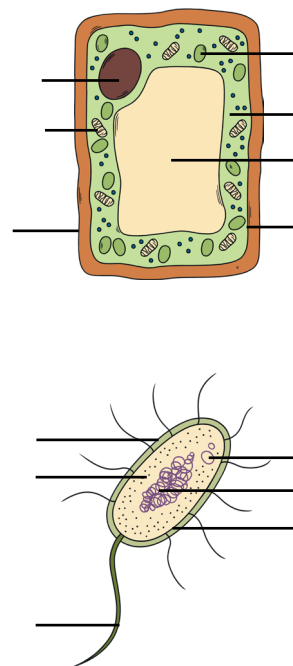


Cells and Organisation (Higher) Revision Mat

Label the cell parts.

a



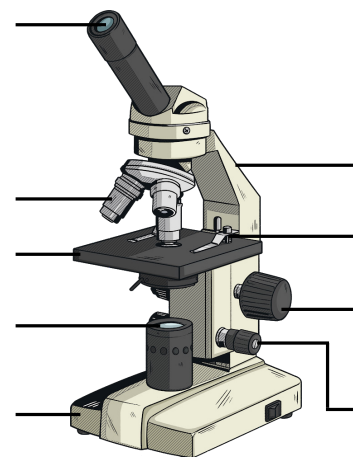
There are three sub-cellular structures found in plant cells that are **not** found in animal cells.

c

Name these structures, describe the function of each and explain why they are not needed in animal cells.

Label the parts of the microscope.

f



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

Name three specialised cells that are adapted to have a large surface area. Describe their adaptations and explain why they are needed.

h

Give the function of each sub-cellular structure.

b

cell membrane _____

cytoplasm _____

nucleus _____

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

d

Bacterial cells often have one or more flagella. One type of specialised animal cell also has a flagellum.

e

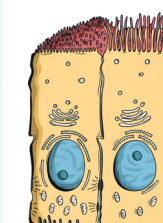
Describe the role of the flagellum and explain which specialised cell is adapted to have one.

Name three types of specialised cell that contain lots of mitochondria. Explain why each cell has this adaptation.

g

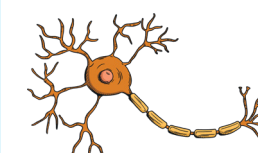
Name each cell type and explain how it is adapted to its function.

i



Name: _____

Adaptations: _____



Name: _____

Adaptations: _____

Cells and Organisation (Higher) Revision Mat

j

Write down the four levels of organisation in order from the smallest to the largest. Give the definition of each level.

Name: _____

Definition: _____

Name: _____

Definition: _____

Name: _____

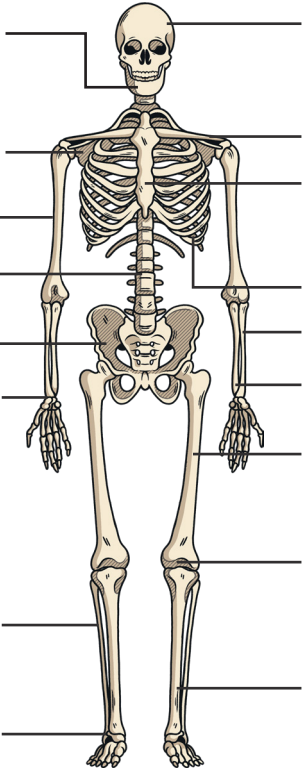
Definition: _____

Name: _____

Definition: _____

k

Label the parts of the skeleton.



m

Describe four functions of the skeleton.

1. _____

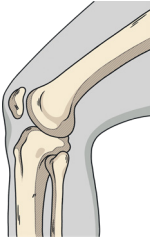
2. _____

3. _____

4. _____

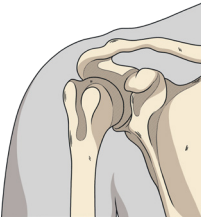
o

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



Joint: _____

Example in body: _____

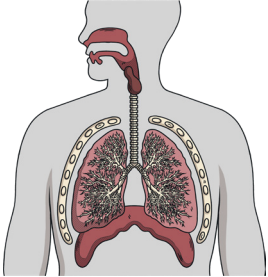


Joint: _____

Example in body: _____

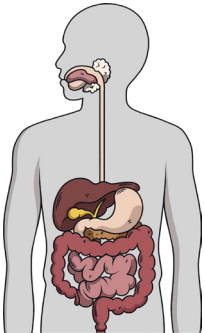
i

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



Name: _____

Function: _____

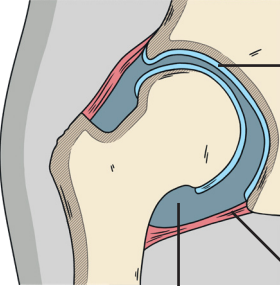


Name: _____

Function: _____

n

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



p

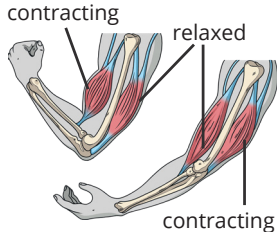
Complete the sentences:

Muscles can't _____, they can only _____.

A pair of muscles that work together are called _____ muscles. The combination of muscles, bones and joints making us move is called _____.

q

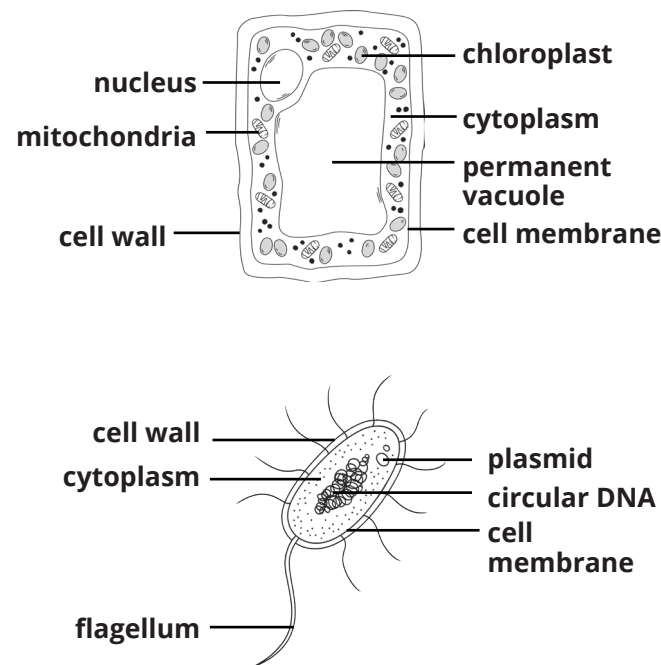
The diagram shows a pair of muscles working together. Describe how the muscles work to bend the arm at the elbow.



Cells and Organisation (Higher) Revision Mat Answers

Label the cell parts.

a



Give the function of each sub-cellular structure.

b

cell membrane

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

cytoplasm

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

nucleus

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

There are three sub-cellular structures found in plant cells that are **not** found in animal cells. Name these structures, describe the function of each and explain why they are not needed in animal cells.

c

Plants have a cell wall and permanent vacuole that help to provide support for the plant.

Animals get this support from their skeletal systems instead.

Plant cells contain chloroplasts. Chloroplasts contain a pigment called chlorophyll, which absorbs light to provide energy for photosynthesis so plants can make their own food.

Animals can catch or collect food to eat, which means that they don't need to make it themselves.

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

d

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.

Bacterial cells often have one or more flagella. One type of specialised animal cell also has a flagellum.

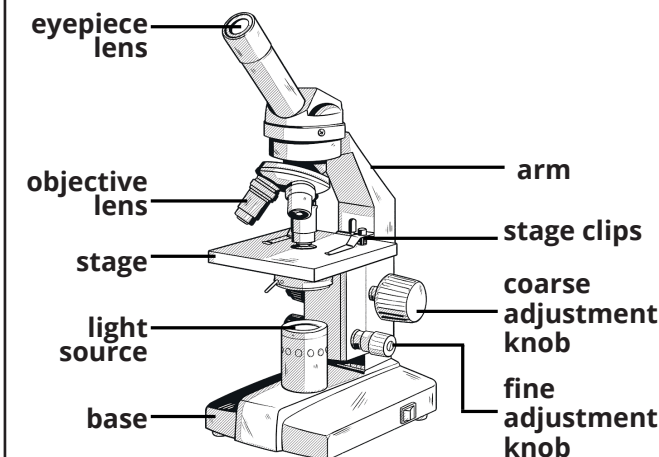
e

Describe the role of the flagellum and explain which specialised cell is adapted to have one.

The flagellum allows the cell to move. A sperm cell is a specialised animal cell which has a flagellum to allow it swim to the egg cell and fertilise it.

Label the parts of the microscope.

f



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.**

Name three types of specialised cell that contain lots of mitochondria. Explain why each cell has this adaptation.

g

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.

A ciliated epithelial cell contains lots of mitochondria to release energy to move the cilia.

Name three specialised cells that are adapted to have a large surface area. Describe their adaptations and explain why they are needed.

h

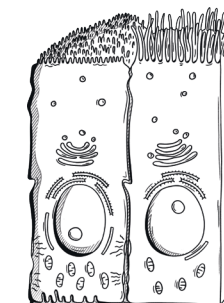
A root hair cell has a long protrusion that increases the surface area for the absorption of water and minerals into the cell.

A red blood cell has a biconcave shape that increases the surface area for the diffusion of oxygen into the cell.

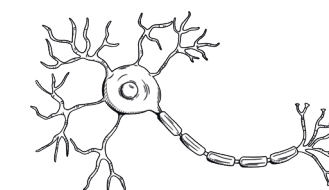
A palisade cell is long and tall to give a large surface area to maximise the absorption of light to provide energy for photosynthesis.

Name each cell type and explain how it is adapted to its function.

i



Name: **ciliated epithelial cell**
Adaptations: **Cilia help to waft mucus with trapped dust and microorganisms away from the lungs.**



Name: **nerve cell**
Adaptations: **Long fibres allow it to carry electrical impulses up and down the body. Branching dendrites at each end connect to other nerves or muscles.**



Write down the four levels of organisation in order from the smallest to the largest. Give the definition of each level.

Level 1: **cell**

Definition: **The smallest unit of a living organism. It contains structures needed to carry out life processes.**

Level 2: **tissue**

Definition: **A group of cells of the same type.**

Level 3: **organ**

Definition: **A group of different tissues working together to carry out a job.**

Level 4: **organ system**

Definition: **A group of different organs working together to perform a particular function**

Label the parts of the skeleton.

mandible (lower jaw)

scapula (shoulder blade)

humerus

vertebrae (spine)

pelvis

carpals (wrist bones)

fibula

talus (ankle bone)

cranium (skull)

clavicle (collarbone)

sternum (breastbone)

ribs

radius

ulna

femur (thigh bone)

patella (kneecap)

tibia

Describe 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.

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**

Complete the sentences:

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

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

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

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.**

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.

The diagram shows a pair of muscles working together. Describe how the muscles work to bend the arm at the elbow.

The top muscle/bicep contracts, the other/bottom muscle/tricep relaxes. The joint is pulled upwards causing the arm to bend.