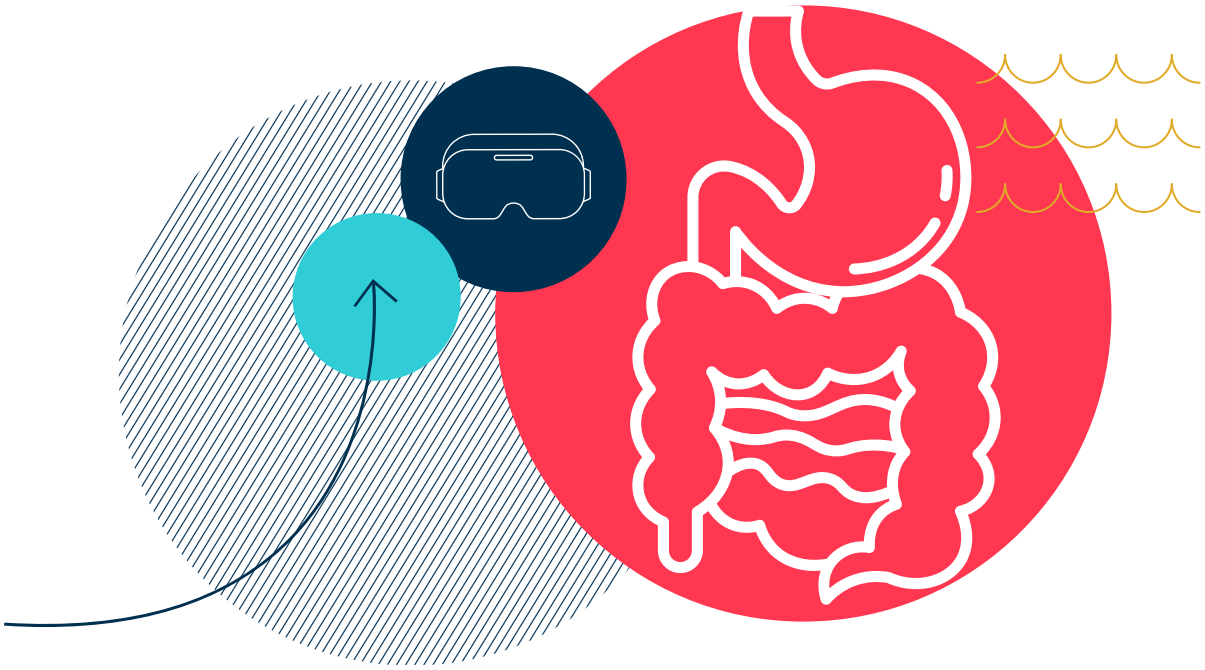
THE BRITISH INTERNATIONAL SCHOOL
ABU DHABI
A NORD ANGLIA EDUCATION SCHOOL

7A CELLS, TISSUES, ORGANS AND SYSTEMS

Guided notes



Name: _____

Class: _____

Teacher: _____

Please remember to ensure your booklets are self/peer assessed using a green pen and the information given in class. Answers can also be found on your class OneNote.

7A: Cells, Tissues and Organs

Draw a ring around a number of stars for each statement. If you are very confident about a statement, draw your ring around all the stars. If you do not know anything about a statement do not draw a ring.

Topic	At the end of the unit:	
7Aa		
	Identify things as being alive or not.	* * * * *
	Describe the life processes.	* * * * *
	Use life processes to justify whether something is an organism or not.	* * * * *
7Ab		
	Recall that the heart is an example of an organ.	* * * * *
	Identify and locate the major organs in humans and plants.	* * * * *
	Describe the functions of the major human and plant organs.	* * * * *
	Describe what happens in photosynthesis.	* * * * *
7Ac		
	Recall some tissues found in the heart and plant roots.	* * * * *
	Describe how organs and tissues are linked.	* * * * *
	Describe the functions of different tissues in some animal and plant organs.	* * * * *
7Ac Working Scientifically		
	Identify and name some parts of a microscope.	* * * * *
	Describe how to make a slide and explain what the coverslip is for.	* * * * *
	Explain how the parts of a microscope work.	* * * * *
	Describe how to use a microscope to look at a specimen on a slide.	* * * * *
	Work out microscope magnifications.	* * * * *
	Estimate the sizes of specimens seen under a microscope.	* * * * *
7Ad		
	Identify a cell as an animal cell or a plant cell.	* * * * *
	Name some of the parts of cells.	* * * * *
	Name the parts of animal and plant cells and describe their functions.	* * * * *
	Identify and name some specialised cells and describe what they do.	* * * * *
	Explain how and why certain cells are specialised.	* * * * *
7Ae		
	Describe how cells, tissues, organs and organ systems are linked.	* * * * *
	Recall some of the organ systems in plants and animals and what they do.	* * * * *
	Recall the organs in some plant and animal organ systems.	* * * * *

Key words and definitions – 7A Cells, tissues and Organs

Key Word	Definition
Adapted	When something has certain features to do a particular function.
Amoeba	A unicellular (one-celled) organism which does not have a definite shape.
Brain	Organ that controls what the body does.
Breathing System (Respiratory System)	Organ system that takes in Oxygen and removes Carbon Dioxide from our bodies.
Cell	The basic unit which living things are made from.
Cell division	When a cell splits in two. Cells are made using cell division.
Cell surface membrane	Controls what goes in and out of the cell.
Cilia	Small hairs on the surface of some cells.
Ciliated epithelial cell	Cells with cilia found in the lungs.
Circulatory System	Organ system that carries Oxygen and food around the body.
Cytoplasm	Jelly inside a cell where the cells activities and reactions take place.
Diffuse	To spread or scatter widely or thinly, by diffusion.
Diffusion	When particles spread and mix with each other without anything moving them.
Digestive system	Organ system that breaks down our food.
Euglena	Green freshwater protozoan (single- celled) with a single flagellum.
Excretory system	Organ system that removes poisonous substances from the body. It includes the liver, kidneys and bladder.
Eyepiece lens	The part of the microscope you look down.
Flagellum	A long, lash like appendage used for locomotion, in protozoa (and sperm cells).
Flower	Organ used for reproduction in plants.
Heart	Organ that pumps blood around the body.
Kidneys	Organs used to clean the blood and make urine.
Intestine	Organ that removes water from unwanted food (large intestine) and digests and absorbs food (small intestine).
Leaf	Plant organ used to make food through photosynthesis.
Lungs	Organs used to take Oxygen out of the air and put waste Carbon Dioxide into the air.
Magnification	How much bigger a microscope makes something appear.

Magnify	To make something look bigger.
Microscope	Used to magnify small things.
Muscle cell	Cell that can change its length and so help us to move.
Nerve	Groups of special cells that carry messages around the body.
Nervous system	Organ system that carries signals around the body.
Neuron	Another name for a nerve cell , which carries signals around the body.
Nucleus	The 'control centre' of the cell.
Objective lens	Part of the microscope that is closest to what you are looking at.
Organ	A large part of a plant or animal that has a very important function. It is made from different tissues.
Organ system	Collection of organs working together to do a very important function.
Pseudopodium	A temporary footlike extension of a one-celled organism, such as an amoeba, used for moving about and for surrounding and taking in food.
Root	Plant organ used to take water out of the soil.
Root hair cell	Cell found in roots. It has a large surface area to help absorb water very quickly.
Specimen	What you look at down a microscope.
Stage	Part of a microscope. You put slides on it.
Stain	Dye used to colour parts of a cell to make them easier to see.
Stem	Plant organ used to take water to the leaves and to support the leaves.
Stomach	Organ used to churn food.
Tissue	A group of the same cells all working together.
Water transport system	Set of organs in a plant needed to carry water up the plant.
Xylem cell	Cell used to form the tubes of xylem tissue, found in roots, stems and leaves, for transport of water.

Date: _____

Lesson 1: Life Processes

Learning objectives:

- Recall and describe life processes
- Explain the differences between organisms and non-living things

Do now:

Explain why a tree is alive but the table is not.

A tree is alive because

_____

_____

_____

A table is not alive because

_____

_____

_____

Life Processes:

Life Process	Meaning
1.	Able to _____ from place to place or move _____ of themselves.
2.	Process that releases _____ from the breakdown of _____. Requires _____.
3.	Ability to _____ and _____ to things in the surroundings.
4.	Ability to _____ in size
5.	Ability to _____ more living things like_____.
6.	Getting _____ of the _____ materials that are made from the organism.
7.	Various _____ needed to help carry out life _____ in an organism.

Is a tortoise an organism or a non-living thing? Why?

_____

_____

_____

Is a stone an organism or a non-living thing? Why?

_____

_____

_____

Is a rose an organism or a non-living thing? Why?

_____

_____

_____

Complete the table below by writing the following objects/ organisms in the correct column:

Cow Car Daffodil Goldfish Mouse Robot Coal Rock

Snake Sun Chair Octopus

Organism	Not an Organism

1.Describe two ways in which you show sensitivity

_____

_____

_____

2. Suggest one difference between how trees grow and how humans grow

_____

_____

_____

3. Suggest one difference between how fish and humans get their oxygen

_____

_____

_____

4a. In What ways is a car like an organism?

_____

_____

_____

4b. Why is a car not an organism?

_____

_____

_____

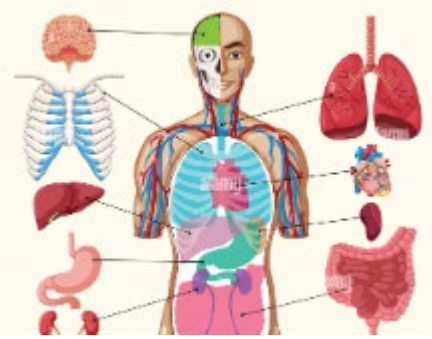
Date: _____

Lesson 2: Organs

Learning objectives:

- **Identify** and locate important and animal organs
- **Describe** the functions of important animal and plant organs
- **Describe** what happens in photosynthesis

Do now:



List as many organs as you can:

_____

_____

_____

An organ is made from a group of different _____, which all work together to do a particular _____.

For example, the heart is made from _____ and _____ tissue.

Organ	Function

Label the plant organs below and write their functions.

Photosynthesis

Plants make their own food using a process called p_____.

Photosynthesis takes places in the l_____ of the plants.

It requires c_____ d_____ from the air and w_____ from the soil.

It also requires l_____.

Photosynthesis produces o_____ and glucose.

1. List the organs that help to get nutrition into the body

_____

_____

_____

2. List the organs that excrete waste materials

_____

_____

_____

3. List two organs that store solid or liquid wastes

_____

_____

_____

Date: _____

Lesson 3: Tissues

Learning objectives:

- Identify and recall named tissues in human and plant organs
- Describe the functions of different tissues in organs

Do now:

1. Write what you think tissues are in Biology

_____

_____

2. We use a _____ to see very small things/ samples
3. MRS GREN stands for:

_____ _____ _____

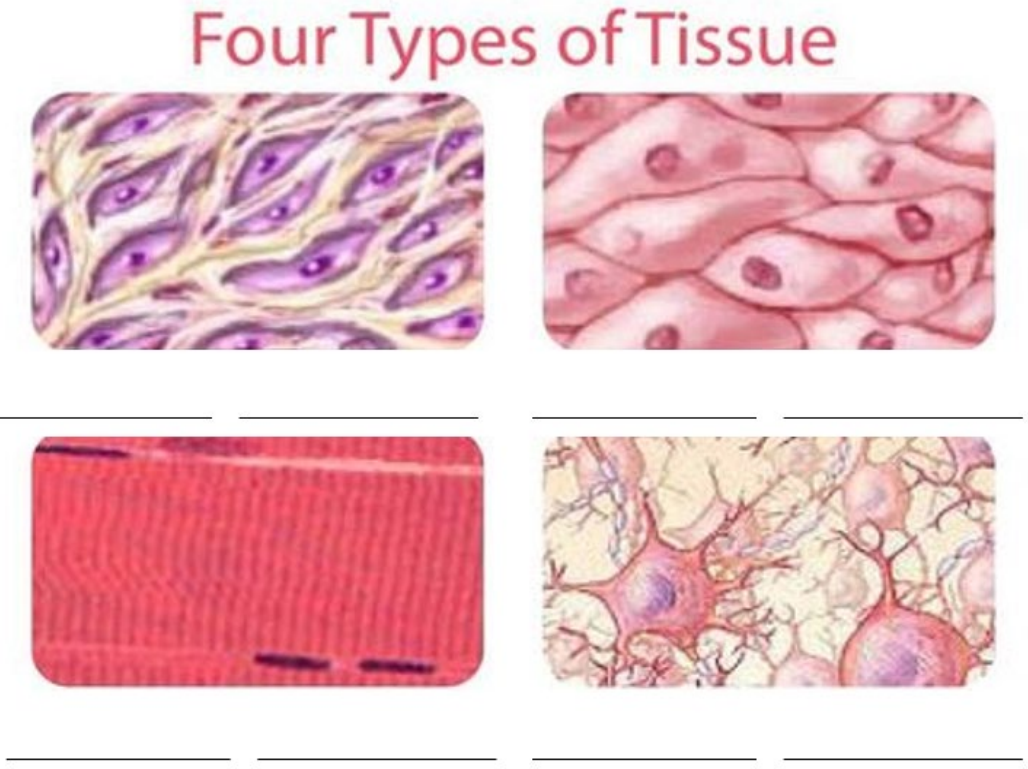
_____ _____ _____

_____

Tissue

Tissue is made from a **group** of _____ _____ with a similar _____ and _____, which all work together to do a particular _____.

Here are some examples of tissues:



_____ _____ _____ _____

_____ _____ _____ _____

A _____ of different _____ working together to do a specific job makes an _____.

Cellular Organisation

The general structures move along a line:

Cells → T_____ → O_____ → O_____

Heart Tissue

The heart is made up the of _____ and _____ tissue.

_____ tissue: White parts of the heart. Helps to _____ the heart.

_____ tissue: Reddish parts of the heart. Moves to pump _____ around the body.

Why does blood need to be pumped round the body?

Carries _____ from the lungs to the cells.

Carries _____ from food to the cells for energy and growth.

Takes away _____ _____ like carbon dioxide to the lungs and other organs to be removed.

Skin Tissue

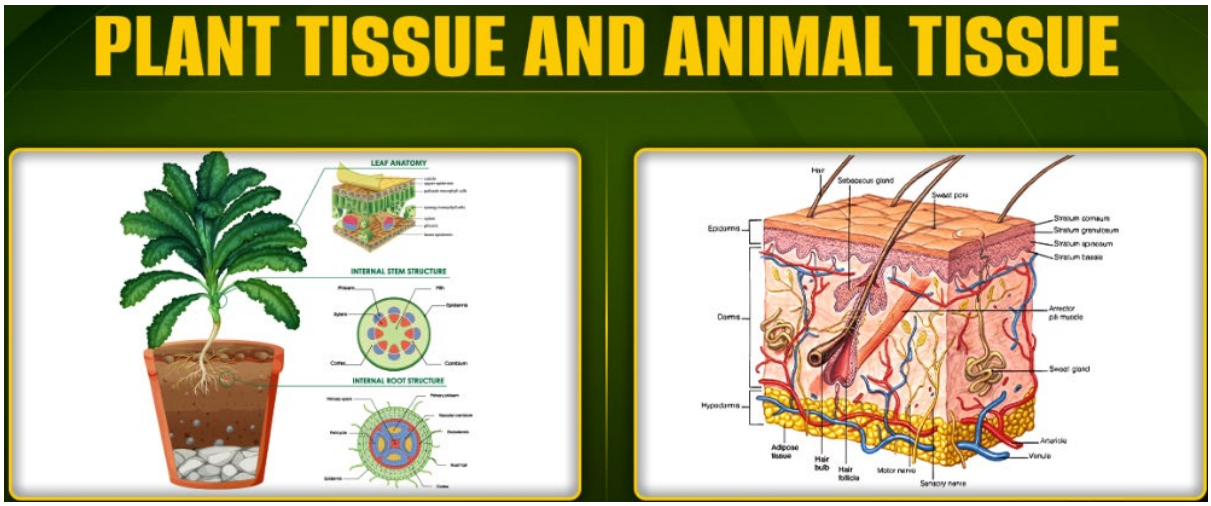
The outer layer of skin is made from _____ tissue.

Plant Tissue

Plants have organs made from t_____.

Roots are made up of root h_____ c_____. It helps the root to take up w_____ out of the soil quickly.

Plants have t_____ systems to move substances (e.g. food, water and minerals). These systems use continuous tubes called x_____ and p_____. Xylem tissue carries w_____ and m_____ and phloem tissue carries food.



Date: _____

Lesson 4: Animal Cells

Learning objectives:

- Identify the main parts of animal cells and plant cells and describe their functions
- Identify some parts of a microscope

Do now:

Write as many safety rules as you can that you should follow when doing a science experiment?

_____

_____

_____

_____

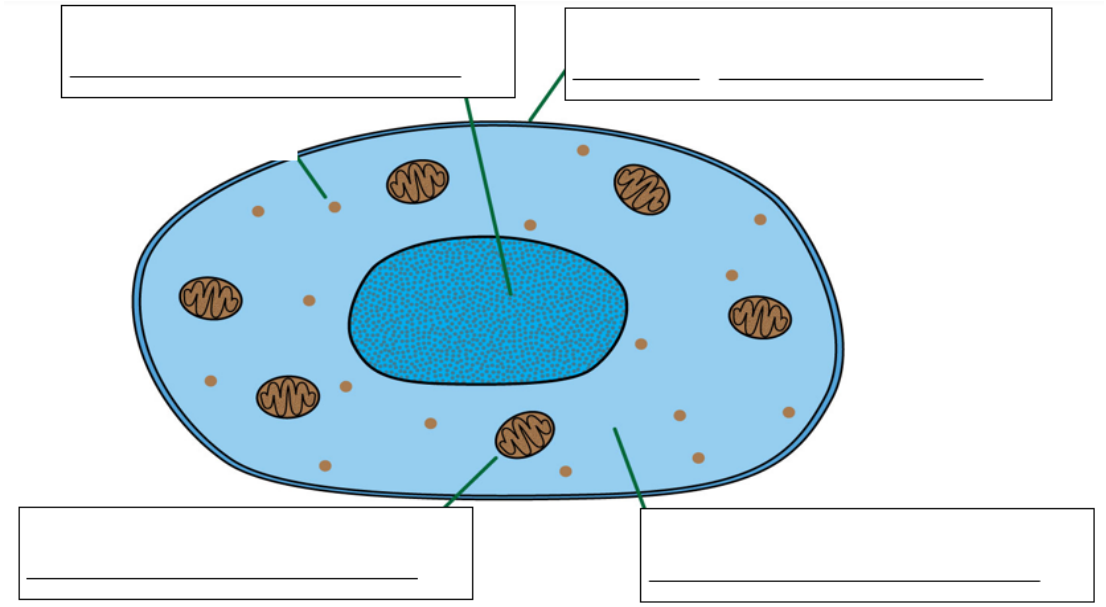
_____

_____

Cells

Cells are the _____ _____ of life.
They are the basic _____ of which all organisms are made from.

Label the cell organelles



While watching the video, complete the following:

Organelles

C_____ m_____: Allows substances to enter and leave the cell.

M_____: Site of aerobic respiration.

R_____: Make proteins.

N_____: Controls cell activity and contains the genetic material.

C_____: Where all the components of a cell are. Site of most reactions.

Cells

Some organisms are _____ – they are made up of only one cell.

For example _____

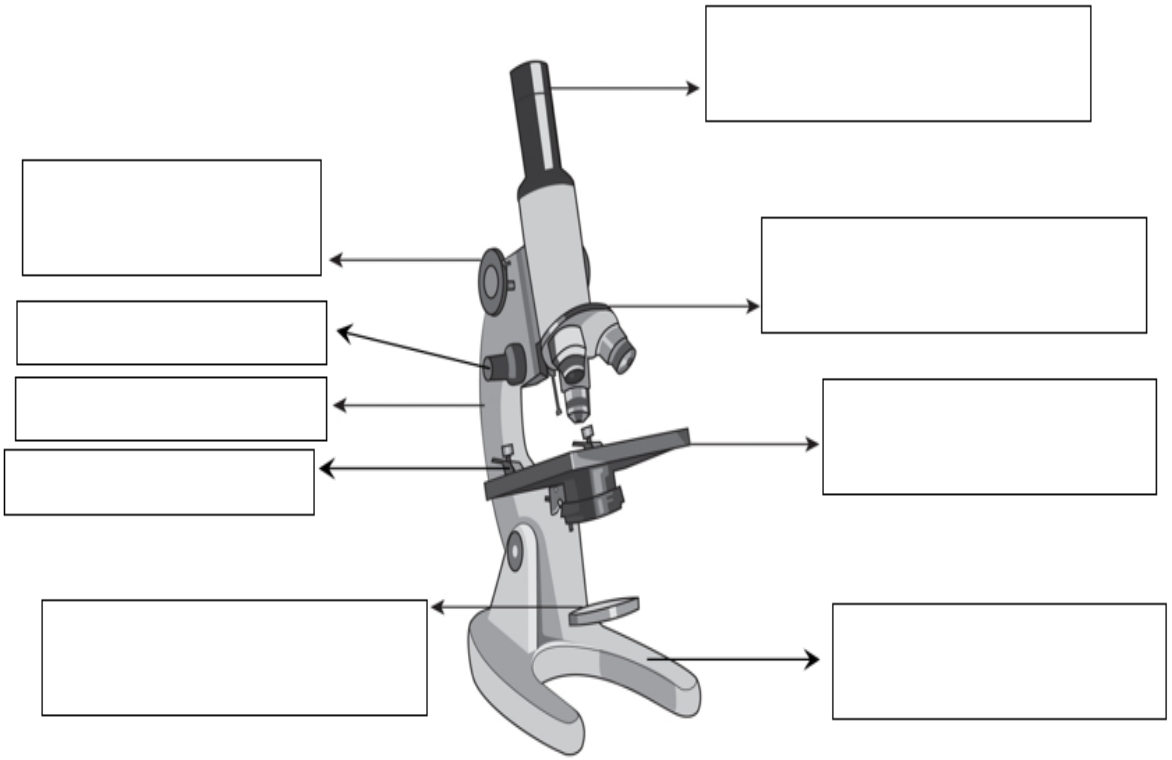
Some organisms are _____ – they are made

up of many types of cells. For example **cats**.

In multicellular organisms a group of the _____ _____

_____ _____ _____ _____

Microscope



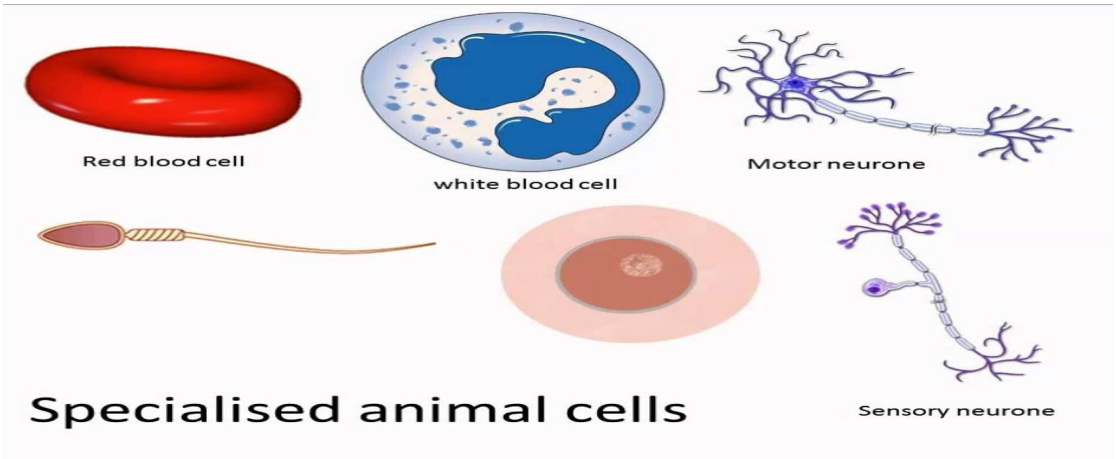
Specialised Cells

All animal and plant cells have the _____ _____ _____

But cells in different tissues have different _____, _____and

_____

The cells are called _____ cells.



Cheek Cell Practical

I will demonstrate the practical to you first.

1. Collect a tray and a microscope.
2. Set up your microscope as I have shown you.
3. Get a cotton bud and open your mouth wide, scrape the inside of your cheek with the cotton bud.
4. Rub the cotton bud tip onto a microscope slide.
5. Gently place a drop of methyl blue stain onto the slide.
6. Now place a cover slip over it, remove any excess stain with a tissue.
7. Put the slide under your microscope and observe. Fill out the practical worksheet (draw your cheek cell).

Date: _____

Lesson 5: Plant Cells

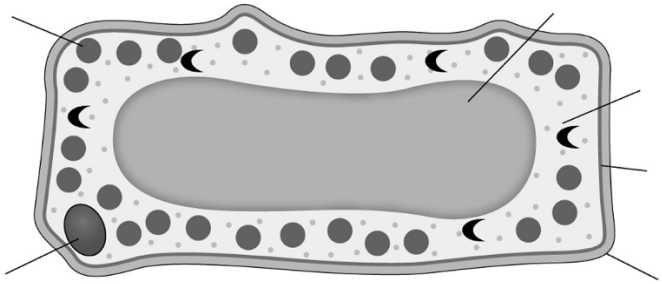
Learning objectives:

- Identify the main parts of animal cells and plant cells and describe their functions.
- Compare plant cells with animal cells to highlight similarities and differences.

Do now:

Without looking at your notes from last lesson - draw an animal cell in the space below and label at least 4 organelles

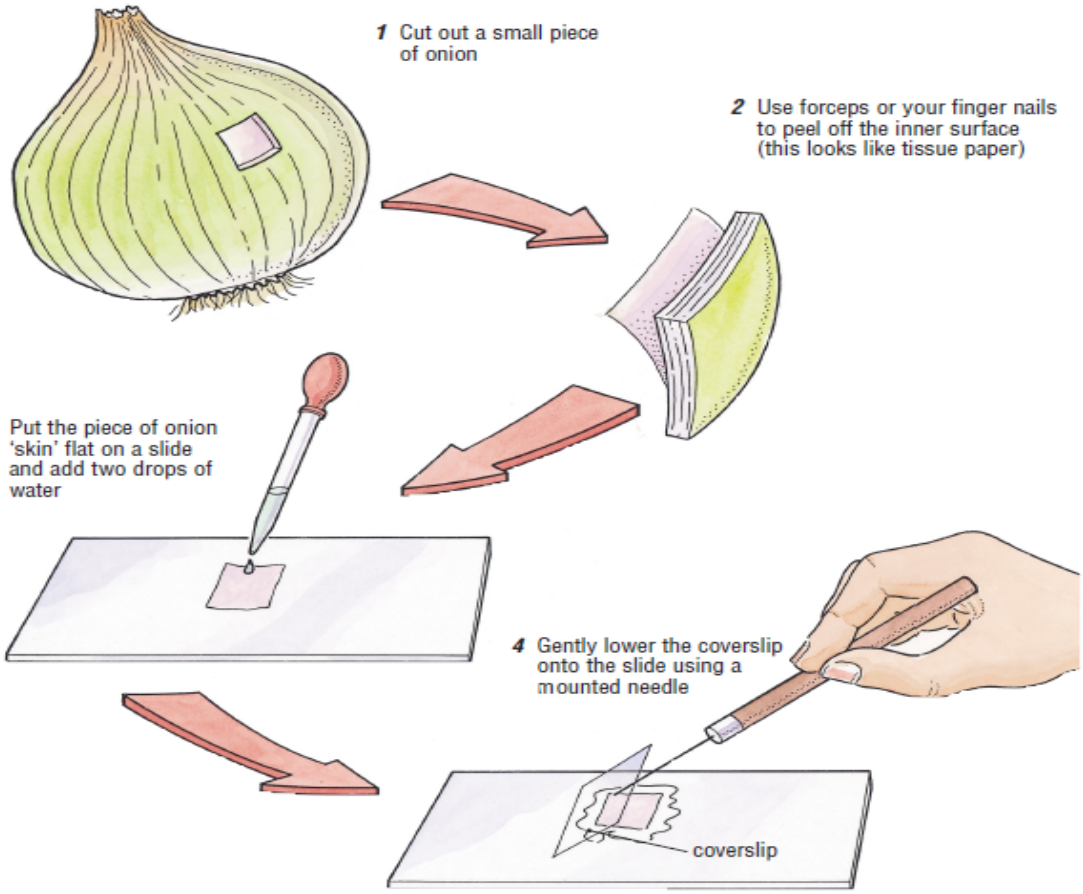
Plant cells



Name of Structure	In animal cells?	In plant cells?	Function
			Contains the genes, made of DNA
			Reactions happen here in the cell
			Allows substances in and out
			Energy is released here through respiration
			Stores sugar as sap
			Trap the sunlight needed for photosynthesis
			Contains cellulose which keeps the cell firm

Practical – Onion Cell

Before you can look at onion cells under the microscope, you must peel off a very thin layer:



5 Place the slide onto the stage of the microscope.

6 Focus carefully onto the onion skin using the lowest power objective lens in your microscope.

7 Turn on to the high power objective lens to see details of the onion cells.

Draw your onion cells

Fill in the gaps

A plant cell contains many different _____.

The _____ tells what the cell to do and contains all the genetic information. The cytoplasm is where all the chemical reactions take place. The mitochondria is where _____ takes place. Respiration transfers _____ for the organism. Plant cells have a _____which strengthens the cell and provides _____. The vacuole keeps the cell firm. The _____ is where photosynthesis happens. Chloroplasts contain chlorophyll which traps energy transferred from the _____.

Words:

organelles respiration cell wall nucleus energy

support chloroplasts sun

Date: _____

Lesson 6: Organ Systems

Learning objectives:

- Describe how cells, tissues and organ systems are linked
- Recall some of the organ systems in plants and animals and their function

Do now:

1. The heart is made up of cardiac t_____.
2. List at least 4 things that an organism must carry out to be classed as living:

_____ _____

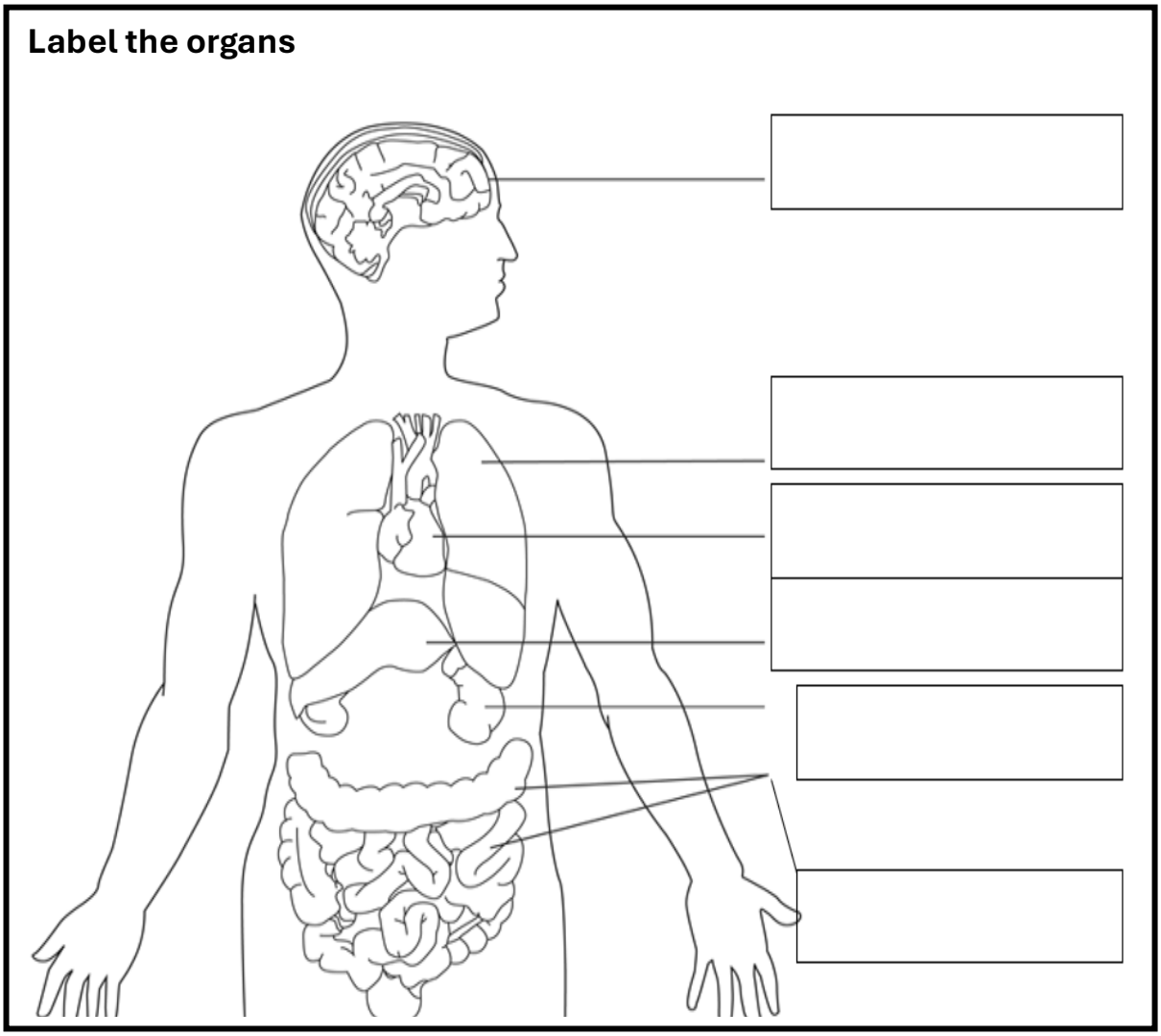
_____ _____

Fill in the gaps

A set of organs working together is called an o_____ s_____.

The c_____ system consists of the h_____ and the b_____ vessels. Other systems in animals include the d_____ system, the n_____ system and the r_____ system (breathing system).

Label the organs



Cell Organisation

_____: The unit of a living _____ contains parts to carry out life processes.

_____: Group of cells of _____ _____.

_____: Group of _____ _____ working together to carry out a job.

_____ _____: Group of _____ _____ working together to carry out a job.

Fill in the gaps

Use the key words:

Bones movement sperm eggs oxygen breaks

Absorbs infections transports Carbon dioxide

Muscular Skeletal System:

Muscles and _____ working together to cause _____ and support the body.

Reproductive System:

Produces _____ and _____ , and is where the foetus develops.

Respiratory System:

Replaces _____ and removes _____ _____ from blood.

CORNELL NOTE TAKING

TOPIC

QUESTIONS / IDEAS	NOTES

SUMMARY

CORNELL NOTE TAKING

TOPIC

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