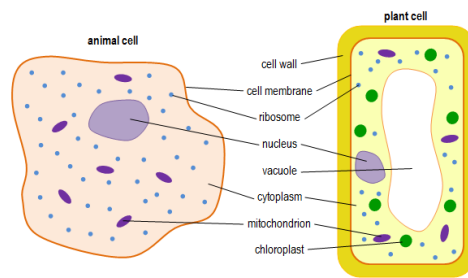


Name: _____

Year 9 Biology Homework Booklet



Homework 1	Key biology terms 1	Due date:	Completed?
Homework 2	Maths in biology 1	Due date:	Completed?
Homework 3	Practical Homework: Specialised cells	Due date:	Completed?
Homework 4	Key biology terms 2	Due date:	Completed?
Homework 5	Maths in biology homework 2	Due date:	Completed?
Homework 6	Practical Homework: Osmosis Practical	Due date:	Completed?
Homework 7	Key biology terms 3	Due date:	Completed?
Homework 8	Maths in biology 3	Due date:	Completed?
Homework 9	Practical Homework - How exercise effect heart rate.	Due date:	Completed?
Homework 10	Key biology terms 4	Due date:	Completed?
Homework 11	Maths in science 4	Due date:	Completed?
Homework 12	Key biology terms 5	Due date:	Completed?

Homework 1 - Key Science Terms 1

Learn the spelling of the key term and their definition. Use each of the terms in a sentence and bring this to your lesson

Term	Definition
Organelle	Sub-cellular structure that carry out a particular function or job
Cell membrane	Controls the passage of substances into and out of the cell
Cytoplasm	Site of the majority of the chemical reactions in a cell.
Nucleus	Contains DNA within a nuclear membrane and controls cell activity
Ribosome	Single membrane organelle. Site of protein synthesis
Mitochondria	Double membrane organelle. Site of cellular respiration

Homework 2 – Maths in Science 1

Complete the questions on the maths in biology homework sheet 1

Homework 3 – Practical Science Homework

Define cell differentiation and specialisation.

Research 4 specialised cells and describe how their function is related to their structure.

Optional extension: Build a model of one of the specialised cells

Challenge Homework:

Research some images produced by light microscopes and electron microscopes. State the advantages and disadvantages of light and electron microscopes, ensure you refer to the magnification and resolution ability of the microscopes

Homework 4 - Key Science Terms 2

Learn the spelling of the key term and their definition. Use each of the terms in a sentence and bring this to your lesson

Term	Definition
Cell Wall	Made of cellulose (plants and algae), which strengthens the cell and give it support
Vacuole (permanent)	A space in the cytoplasm filled with cell sap. It maintains the rigidity of the cell to give cell support
Chloroplast	Double membrane organelle that contains a green pigment called chlorophyll. Chlorophyll absorbs light energy for the reaction photosynthesis.
Flagellum (not present in all)	A tail-like structure that allows for cell mobility
Loop of DNA (Nucleoid)	Single DNA strand coiled not enclosed in a nucleus
Plasmids	Small ring of extra DNA material

Homework 5 – Maths in Science 2

Complete the questions on the maths in biology homework sheet 2

Homework 6 – Practical Science Homework

Osmosis Practical

Half-fill two glasses with warm water. Stir three tablespoons of salt into one of them. Carefully cut the ends off two carrots and stand one in each glass. Leave them overnight then take them out of the glasses and dry them off.

Describe and explain the observed changes, using key *scientific words*.

Produce a mini-science report:

- State your method, including what the independent, dependent and control variables were.
- State your results. This could be a suitable table of results.
- A diagram/photograph of the carrots.
- Research/revise osmosis and explain what has happened to the vegetables.

Homework 7 - Key Science Terms 3

Learn the spelling of the key term and their definition. Use each of the terms in a sentence and bring this to your lesson

Term	Definition
Eukaryote	Cells which have membrane-bound sub-cellular structures, so their genetic material is enclosed in a nucleus. E.g. animal, plant and fungal cells
Prokaryotic cells	Cells which do not have membrane-bound sub-cellular structures, so the genetic material is not enclosed in a nucleus e.g. bacterial cells
Light microscope	Use light and lenses to magnify and form images of specimens
Electron microscope	Use electrons to form images, with much higher magnification and resolution compared than light microscopes
Resolution (biology)	Ability to distinguish between two points, a higher resolution gives a sharper image

Homework 8 – Maths in Science 3

Complete the questions on the maths in biology homework sheet 3

Homework 9 – Practical Science Homework

- Plan and carry out an investigation into how exercise effects heart rate.
- Plan a practical to investigate walking and running speeds on different terrains.
- In your report you should include:
 - What the independent, dependent and control variables are
 - A bullet point method you used
 - Table of results
 - Conclusion (describe how the independent variable affected the dependent)
 - Evaluation (how could you improve the validity of the method)

Homework 10 - Key Science Terms 4

Learn the spelling of the key term and their definition. Use each of the terms in a sentence and bring this to your lesson

Term	Definition
Specialised	When cells have specific structures to enable them to carry out a particular function.
Chromosomes	Coiled up lengths of DNA molecules.
Stem cell	Undifferentiated cells which can divide to produce more stems cells and can differentiate into different types of cell.
Cell cycle	The life cycle of a cell including the stages of growth, DNA replication and mitosis
Differentiation	The process by which cells change to become specialised for their function

Homework 11 – Maths in Science 4

Complete the questions on the maths in biology homework sheet 4

Homework 12 - Key Science Terms 5

Learn the spelling of the key term and their definition. Use each of the terms in a sentence and bring this to your lesson

Term	Definition
Tissue	A group of cells with similar structure, which perform a shared function
Organ	A group of different tissues, working together to perform specific functions
Diffusion	The net movement of molecules from a region of high concentration to low concentration.
Osmosis	The movement of water molecules from a dilute to a concentrated solution through a partially permeable membrane.
Active transport	The movement of substances from a more dilute solution to a more concentrated solution (against a concentration gradient)

