

Name:
Science Class:
Teacher:
Hand in day:

Y7 Science
Term 1: Homework Booklet
Biology

	Hand in Date	Parents Signature
Animal Cells		
Homework 1		
Homework 2		
Homework 3		

Animal Cells: Homework 1

Comprehension Task:

Life Processes

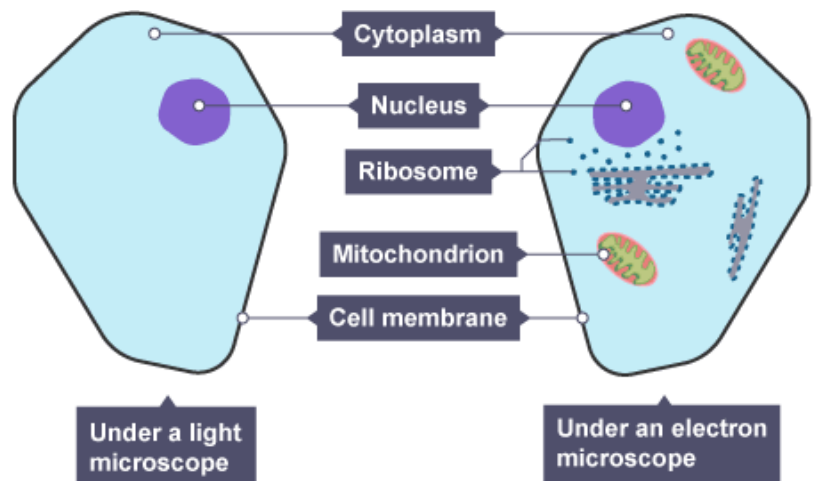
Living organisms have certain **life processes** in common. There are **seven** things that they need to do to count as being alive. The phrase **MRS GREN** is one way to remember them:

- **M**ovement - all living things move, even plants
- **R**espiration - getting energy from food
- **S**ensitivity - detecting changes in the surroundings
- **G**rowth - all living things grow
- **R**eproduction - making more living things of the same type
- **E**xcretion - getting rid of waste
- **N**utrition - taking in and using food

Cells

Cells are the **basic building blocks** of all animals and plants. They are so small, you need to use a **light microscope** to see them.

The basic structure of an animal cell is shown in the diagram, on the left viewed with the light microscope, and on the right with the transmission electron microscope.



The function of each part of an animal cell is described below:

	Function
Cytoplasm	A jelly-like material that contains dissolved nutrients and salts and structures called organelles. It is where many of the chemical reactions happen.
Nucleus	Contains genetic material, including DNA, which controls the cell's activities.
Cell membrane	Its structure is permeable to some substances but not to others. It therefore controls the movement of substances in and out of the cell.
Mitochondria	Organelles that contain the enzymes for respiration, and where most energy is released in respiration.
Ribosomes	Tiny structures where protein synthesis occurs.

Questions

1. How many life processes are there?
2. Which life process means making more living things of the same type?
3. Which life process means getting rid of waste?
4. All living things need to be able to respire. What does this mean?
5. What do we describe cells as?
6. Which part of an animal cell contains DNA?
7. In which part of a cell do most chemical reactions take place?
8. What is the role of the cell membrane?
9. Which parts of a cell can be seen by using just a light microscope?
10. In which part of a cell does respiration take place?

Animal Cells: Homework 2

1. Use the words to label the picture of the microscope:

Base Light Source Coarse Adjustment Knob Arm
Eyepiece Lens Stage Base Fine Adjustment Knob Objective Lens



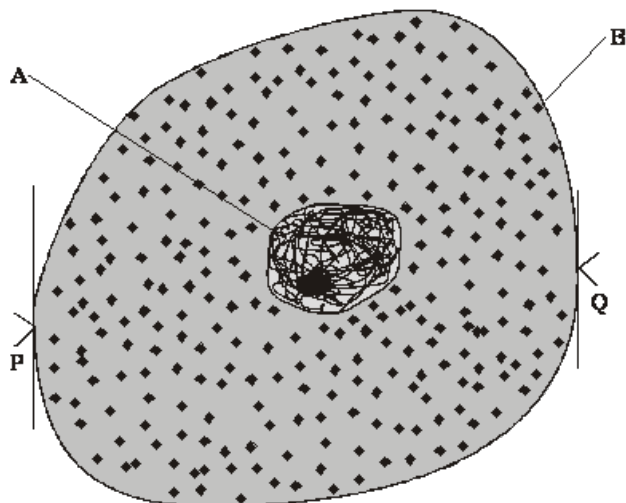
2. Use the words to complete the sentences describing how to use a microscope:

Fine Magnification Microscope Draw Clips Light Stage

1. Plug in the m_____ and turn on the l_____.
2. Place the specimen (the object to observe) on the s_____.
3. Turn the m_____ to the smallest.
4. Make sure that the specimen is in the centre; fasten with the c_____.
5. Look down the m_____.
6. Use the f_____ adjustment knob to observe the specimen.
7. Increase the m_____.
8. D_____/write down any observations.

3. Complete the exam question:

The diagram shows an animal cell.



(a) (i) Name structures **A** and **B** by choosing the correct words from the box.

cell membrane cell wall cytoplasm nucleus vacuole

Structure **A** _____

Structure **B** _____

(2)

(ii) Which structure named in the box controls the passage of substances in and out of the cell?

(1)

Living organisms are made of cells.

(a) Animal and plant cells have several parts. Each part has a different function.

Draw **one** line from each cell part to the correct function of that part.

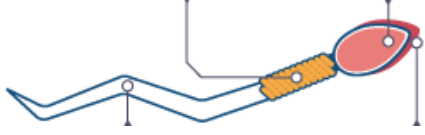
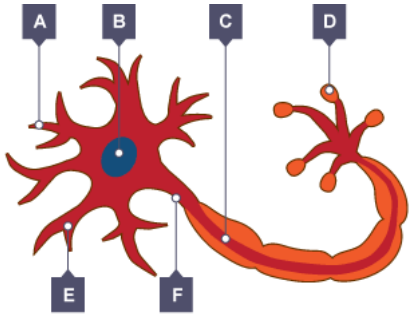
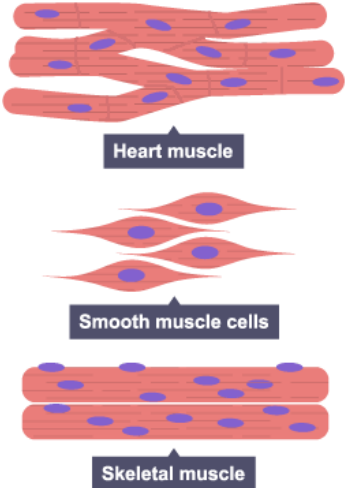
Cell part	Function
Cell membrane	Where most energy is released in respiration
Mitochondria	Controls the movement of substances into and out of the cell
Nucleus	Controls the activities of the cell
	Where proteins are made

(3)

(Total 6 marks)

Animal Cells: Homework 3

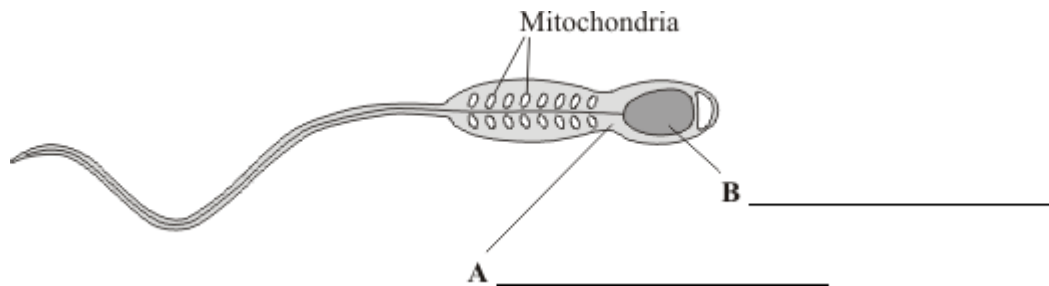
1. Complete the table below:

Type of Cell	What adaptations does this cell have and why?	Diagram of Specialised Cell
		 <p>A diagram of a sperm cell, showing its head, midpiece, and tail. The head is at the right, containing a nucleus and a flagellum. The midpiece is in the middle, containing mitochondria. The tail is at the left, showing a long, thin, wavy structure.</p>
		 <p>A diagram of a neuron, showing its cell body, dendrites, and axon. The cell body is on the left, containing a nucleus. Dendrites are branching structures extending from the cell body. The axon is a long, thin structure extending from the cell body to the right, ending in a terminal button. Labels A, B, C, D, E, and F are placed around the diagram.</p>
		 <p>A diagram showing three types of muscle cells. The top type is labeled "Heart muscle" and consists of branched, striated cells. The middle type is labeled "Smooth muscle cells" and consists of spindle-shaped, non-striated cells. The bottom type is labeled "Skeletal muscle" and consists of long, cylindrical, striated cells.</p>

2. Complete the exam question:

This question is about cells.

- (a) (i) The diagram shows a sperm cell.



Use words from the box to label parts **A** and **B**.

cell membrane	cytoplasm	nucleus
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(2)

- (b) Sperm cells have many mitochondria.

Why do sperm cells need many mitochondria?

Tick (✓) **one** box.

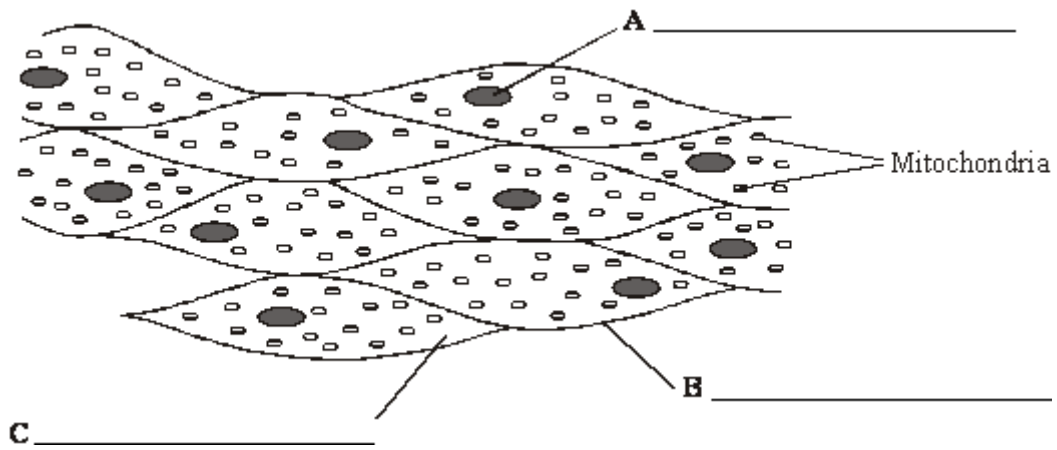
Sperm cells are involved in fertilisation.

Sperm cells are produced in very large numbers.

Sperm cells need a lot of energy to swim.

(1)

The diagram shows a group of muscle cells from the wall of the intestine.



(c) On the diagram, use words from the box to name the structures labelled **A**, **B** and **C**.

cell membrane	cell wall	chloroplast	cytoplasm	nucleus
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(3)

(d) How are these muscle cells adapted to release a lot of energy?

(2)

(Total 8 marks)