

Cells

Living things (organisms) have certain functions:

- Movement - changing position
- Respiration - using oxygen to release energy from food
- Sensing - detecting changes around them
- Growth - increasing in size
- Nutrition - making or getting food
- Reproduction - producing young

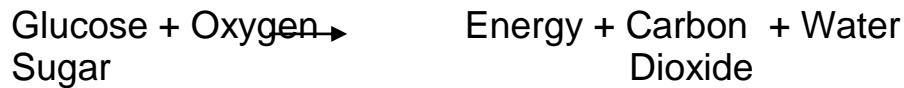
Most living things are made up of microscopic units called cells. Some organisms have only one cell (such as bacteria), while larger plants and animals have millions of cells. All of the life functions take place in every cell. The cell itself is made up of certain parts.

Plant and animal cells are not exactly alike. Plant cells have a cell wall, a cell membrane (a skin covering the cell), cytoplasm (a jelly-like fluid inside the cell) and a nucleus (the control centre of the cell), and some have green chloroplasts (to make food). Animal cells have a cell membrane, cytoplasm and a nucleus, but do not have a cell wall. Animal cells are usually rounder and less rigid than plant cells.

Q1. Draw an animal cell. Label the nucleus, the cell membrane and the cytoplasm.

Q2. Draw a plant cell. Label the nucleus, the cell membrane, chloroplasts and the cytoplasm.

Respiration is the process by which all cells obtain their energy. It is the 'burning' of glucose sugar and oxygen to produce energy, carbon dioxide and water.



Photosynthesis is the process used by plant cells only to make glucose sugar and oxygen using green chlorophyll, sunlight, carbon dioxide and water



Q3. What needed materials enter an animal cell through the cell membrane? _____

Q4. What unwanted materials leave an animal cell through the cell membrane? _____

Q5. What do you think might happen if nutrients were not able to enter the cell? _____

Q6. Answer True or False to the following statements:

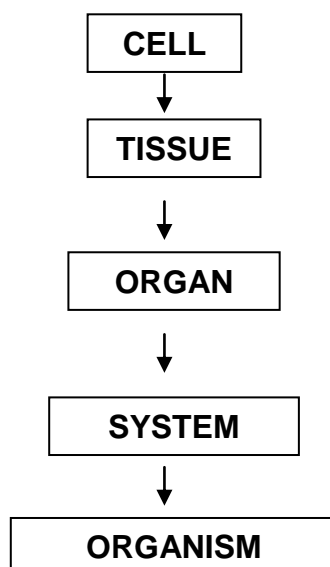
- (a) Every cell has cytoplasm. _____
- (b) Most cells are microscopic in size. _____
- (c) The cell membrane is the control centre of the cell. _____
- (d) A rock is made up of rock cells. _____
- (e) The nucleus of a cell is surrounded by cytoplasm. _____
- (f) A cell produces waste products. _____
- (g) Most of a cell is in the nucleus. _____
- (h) All cells contain chloroplasts. _____
- (i) Animal cells respire but do not photosynthesise. _____
- (j) Plant cells both respire and photosynthesise. _____

Tissues Organs and Systems

You began life as a single cell formed from your father's sperm and your mother's egg. Then that one cell multiplied many times and formed you – an organism with many different types of cells. In your body, there are nerve cells, muscle cells, blood cells, bone cells, fat cells and so on.

Cells often group together to form tissues, and tissues group together to form organs. Your stomach and intestines are examples of digestive organs. They are made of nerve tissue, blood tissue, muscle tissue, fat tissue and other tissue. Your windpipe and lungs are organs used for breathing in oxygen. The lungs also remove waste products such as carbon dioxide, water vapour and heat. Your heart is an organ for pumping blood and is made of muscle tissue, nerve tissue and blood tissue. Your brain and spinal cord are organs made mostly of nerve tissue, plus some blood tissue, fat tissue and connective tissue.

Groups of organs that work together to perform a particular function are called systems. The digestive system is made of organs such as the mouth, the stomach and the intestines. Their function is to break down food and absorb food particles into the bloodstream. The respiratory system needed for breathing is composed of organs such as the nose, the windpipe and the lungs. All these systems work together in a living thing, an organism. The diagram shows the order from the simple cell to the most complex organism.





Q7. Place each word in the list into its correct column in the table.
List – digestive system, heart, blood, skin, human, bone, eye, lung, muscle, nerve, brain, dog, respiratory system, reproductive system, worm

TISSUE	ORGAN	SYSTEM	ORGANISM

Q8. What combines to form: (a) tissues _____ (b) organs _____
(c) systems _____ (d) organisms _____

Q9. What are 2 organs used for breathing? _____

Q10. How many lungs does a healthy person have? _____

Q11. Name the gas needed by humans. _____

Q12. Name the 3 products that the lungs remove. _____

Q13. A plant also has organs. Complete the table to show the functions of these plant organs.

PLANT ORGAN	FUNCTION
Root	
Stem	
Leaf	
Flower	

The figure on the left shows organs inside a person's head and neck.

6. What is the name of: (a) Organ A _____ (b) Organ B _____

7. Of what main tissue are these 2 organs made? _____

Look at the figure on the right. This organ acts as a pump in the human body.

8. What is the name of this organ? _____

9. What are 2 types of tissue that make up this organ? _____

10. The function of the digestive system is to take in, digest and absorb food particles into the body. What are 2 organs in this system? _____

11. What is the name of the system that contains these organs – nose, windpipe and lungs? _____