

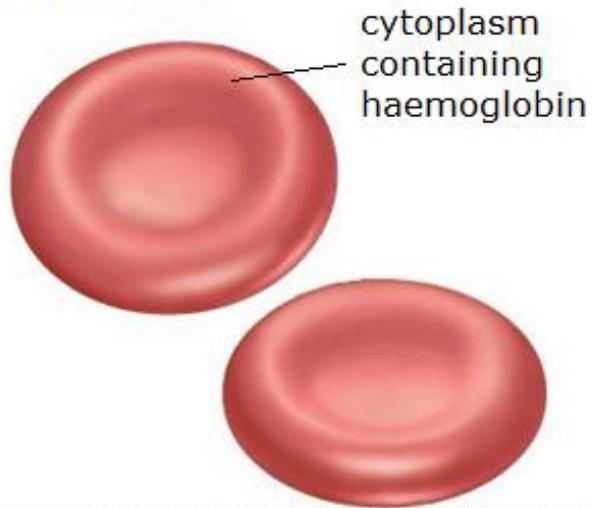
# Cell Biology



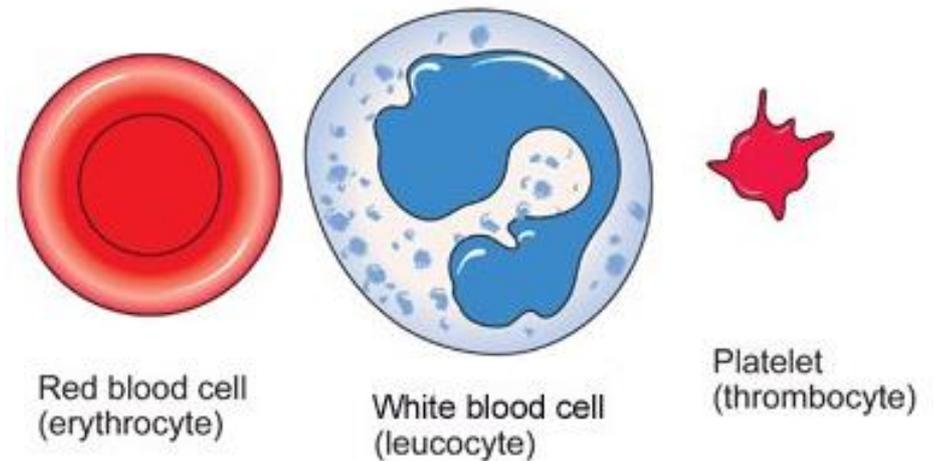
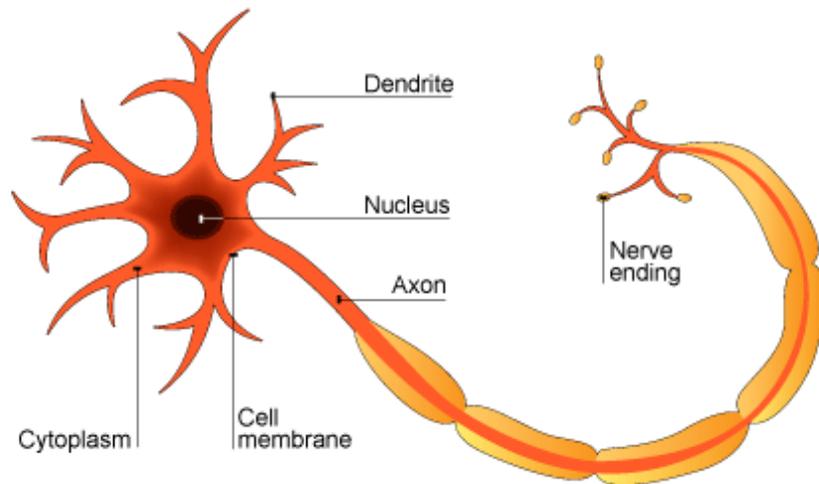
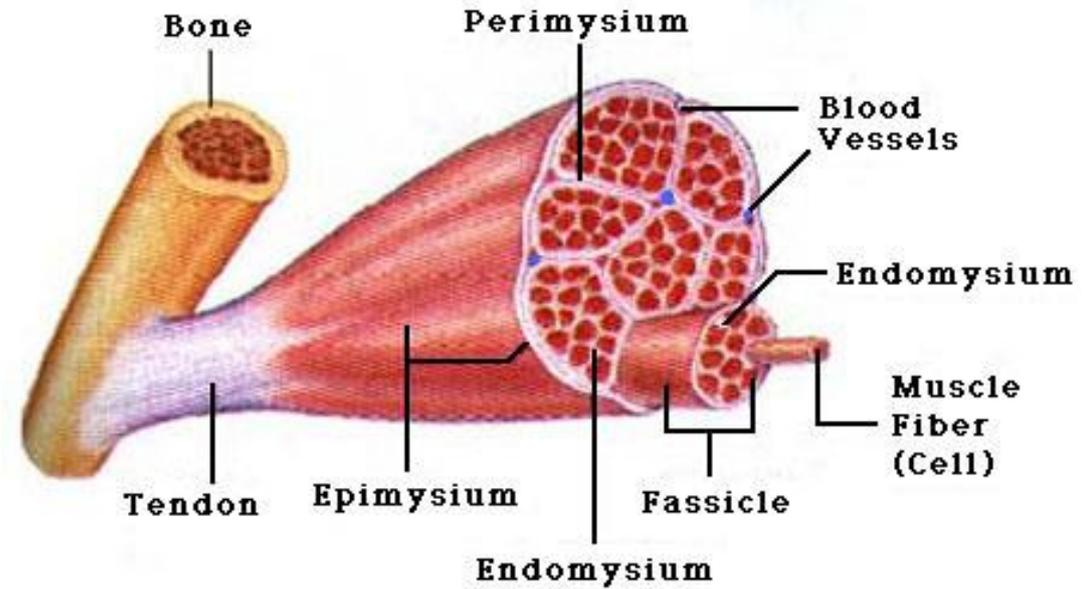
# Functions of the cells that are in the human body

- A human body has about 200 different types of cells.
- Some examples of the types of cells are blood cells, muscle cells, skin cells and nerve cells.
- There are 2 types of blood cells, there is red and white blood cells.
- Red blood cells carry oxygen around the body. They are created in the red bone marrow of the short bones such as our ribs.
- White blood cells protect our bodies from infection. The white blood cells are created in the white bone marrow of our long bones such as the humerus.
- Muscle cells produce movement through force in our bodies and also they have to maintain posture. Muscle cells contain protein fibres.
- The functions of our skin cells is to protect our body.

## Red blood cells



biconcave discs with no nucleus, carry oxygen



# Structure of the cell that are in the human body

- The structure of the red blood cells are that they look like flattened biconcave discs. The red blood cells contain haemoglobin, this carries the oxygen around our bodies.
- The white blood cells are a lot larger than red blood cell, however they can squeeze through tiny blood vessels. This is because white blood cells can change their shape.
- Muscle cells contain individual muscle fibres that are long and cylindrical. This is what gives skeletal muscles their appearance.
- Skin cells have two layers to them and they are Epidermis and Dermis. The Dermis layer is where the nerves are.

# What is inside an animal cell?

The main components that are in a cell are the Nucleolus, Cell Membrane, Nuclear Membrane, Smooth ER, Rough ER, Golgi Body, Centresome, Mitochondrion, Ribosomes, Lysosome, Cytoplasm, Vacuole and the Nucleus. Here are some of functions of these components:

**Nucleolus-** The main function of this is that it rewrites ribosomal ribonucleic acids (rRNA). It combines these with proteins. The structure is made up of proteins and ribonucleic acids (RNA).

**Cell Membrane-** This is something that keeps everything inside. It is not a solid structure, it is made of millions of smaller molecules that create a flexible and permeable container.

**Smooth Endoplasmic Reticulum-** This creates and stores lipids and steroids.

# What is inside an animal cell? (Continued)

Rough Endoplasmic Reticulum- This is covered with Ribosomes and this is the place where protein synthesis happens. It is called 'rough' because the Ribosomes are attached to the membrane of the ER.

Golgi Body- This is a structure that processes molecules before they are exported out of the cell.

Mitochondrion- This is known as the powerhouse of the cell, this is because they take the nutrients and break them down and turn them into energy.

Ribosomes- Their main function is to build proteins or even to become the protein synthesizer of the cell.

Lysosome- Their main function is to digest things.

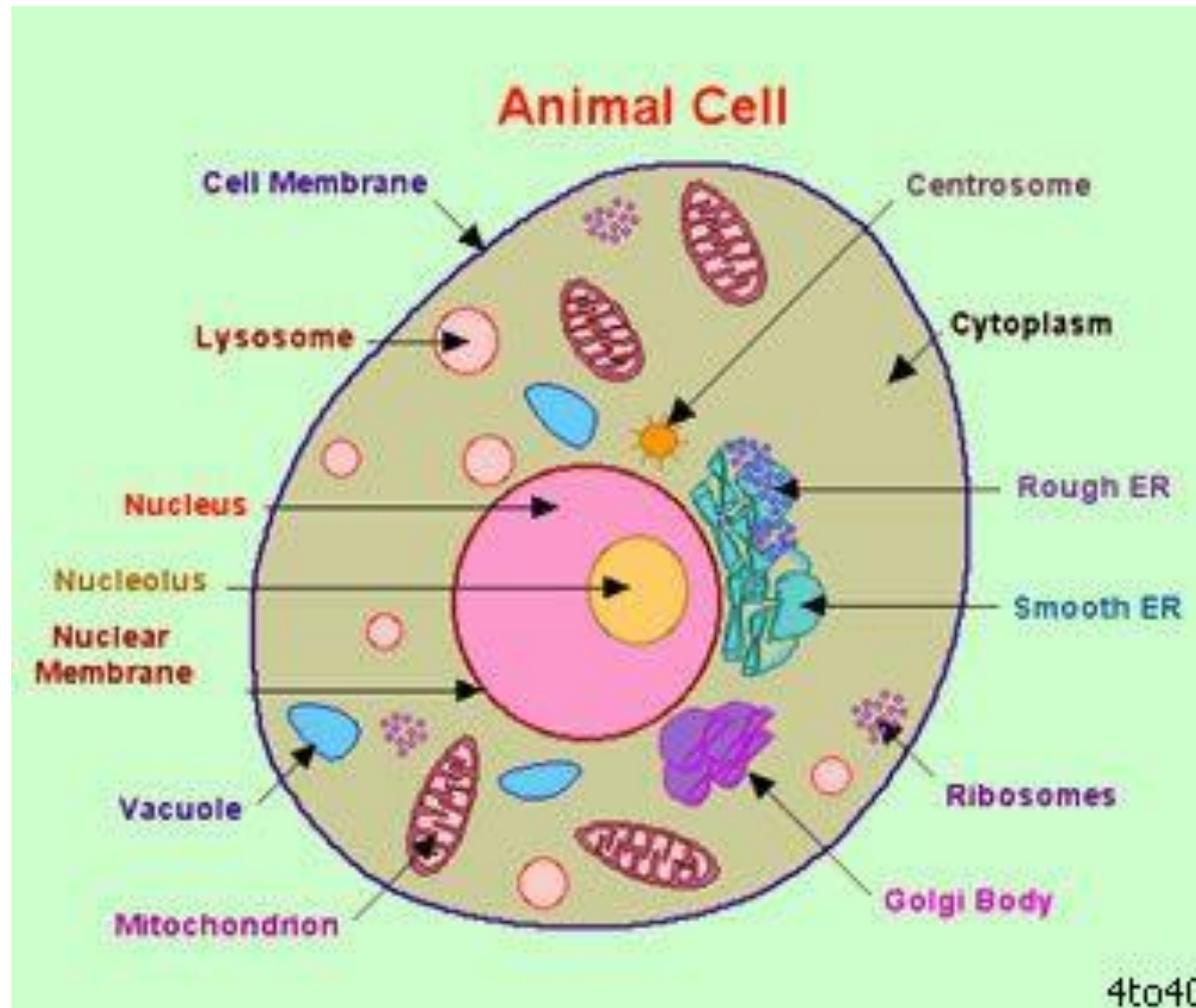
# What is inside an animal cell? (Continued)

**Cytoplasm-** This is a thick solution which fills the cell. It is enclosed by the cell membrane. It is composed of water, protein and salt.

**Vacuole-** They will store things that the cell will need to survive like food and nutrients. .

**Nucleus-** The Nucleus is like the brain of the cell because it helps control eating, movement and reproduction.

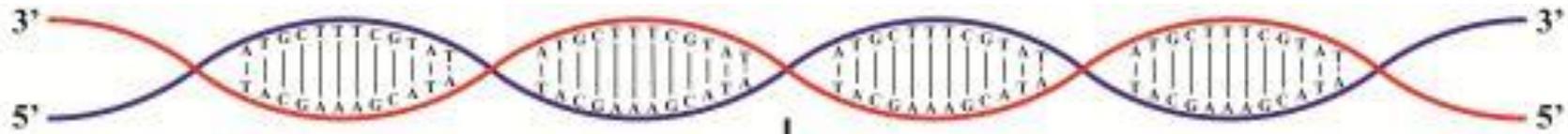
# What the inside of an animal cell looks like?



# What is the relationship between DNA, RNA and protein?

- DNA is short for Deoxyribonucleic acid and the DNA that lies in every nucleus of an organism is the same in every cell.
- RNA is short for Ribonucleic acid.
- To create protein from DNA you would first need to make RNA from DNA. RNA is synthesized in the nucleus of a cell. This is very similar to DNA.
- When RNA is synthesized it uses bases just like DNA. However, instead of using Thymine it uses Uracil. The synthesis of RNA from DNA is called transcription.
  - RNA uses a single strand, whereas DNA uses a double strand. RNA uses uracil but DNA uses thymine.
- The synthesis of protein from RNA is called translation. Protein is made up from amino acids and these form a strand. During the translation process, 1 amino acid is added to the protein strand for every 3 bases in the RNA.

**DNA**



**Transcription**

**RNA**



**Translation**

**Protein**

