

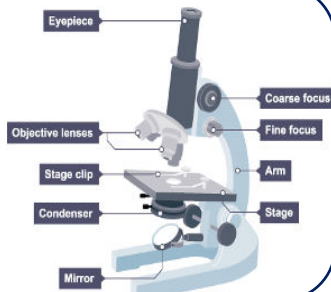


## Year 7 Cells

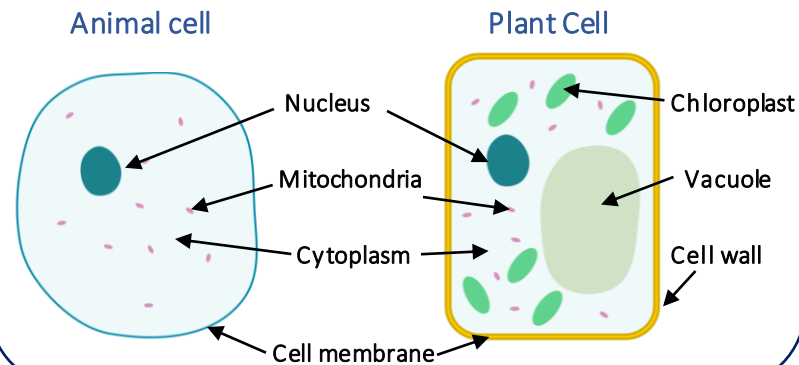
| Keyword         | Definition                                                                                                    |
|-----------------|---------------------------------------------------------------------------------------------------------------|
| Nucleus         | Controls the activities of a cell and contains the genetic material.                                          |
| Cytoplasm       | Where most chemical reactions occur.                                                                          |
| Cell membrane   | Controls what enters and exits the cell.                                                                      |
| Mitochondria    | Where aerobic respiration occurs to release energy.                                                           |
| Chloroplast     | Only found in plant cells and it is where photosynthesis occurs                                               |
| Vacuole         | Only found in plant cells and it provides support and shape for the cell.                                     |
| Cell wall       | Only found in plant cells and is strengthens the cell.                                                        |
| Diffusion       | The movement of particles from an area of higher concentration to lower concentration.                        |
| Concentration   | Measurement of how many particles there are in a given volume.                                                |
| Tissue          | A group of similar cells with a similar function working together.                                            |
| Organ           | A group of different tissues working together to perform a specific function.                                 |
| Organ system    | A group of different organs working together to perform a specific function.                                  |
| Muscles         | Muscles are tissues which attached to bones by strong tendons. When a muscle contracts, it pulls on the bone. |
| Joints          | The place where bones meet. Most joints allow different parts of the skeleton to move.                        |
| Digestion       | The process in which food is broken down into small particles within the body.                                |
| Stomach         | An organ within the digestive system where food is mixed up and broken down.                                  |
| Small intestine | The organ which absorbs small digested food molecules into the blood stream.                                  |
| Large intestine | The organ where water is absorbed into the blood stream.                                                      |

### Microscopes

Always begin viewing with the lowest power lens to see the biggest field of view. Focus the image and then you can increase the magnification.



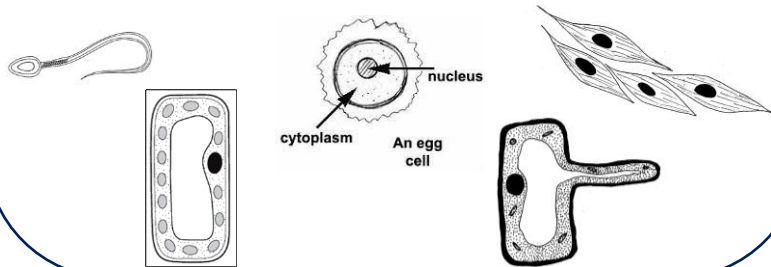
### Cell Structure



### Specialised cells

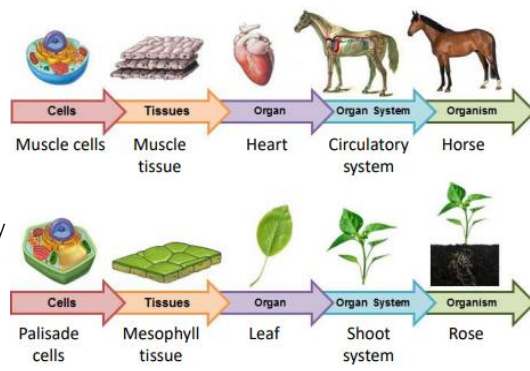
Animal and plant cells have **adaptations** which allow them to carry out their function:

| Cell               | Function                                                  |
|--------------------|-----------------------------------------------------------|
| 1. Sperm cell      | Has a tail to swim                                        |
| 2. Egg cell        | Contains a food supply for growing embryo                 |
| 3. Muscle cell     | Can contract to allow movement                            |
| 4. Plant leaf cell | Contains lots of chloroplast for photosynthesis           |
| 5. Root hair cell  | Large surface area to absorb lots of water from the soil. |



### Organisation

Cells are the building blocks of life. In multicellular organisms, cells rarely work alone. Instead, they group together by **structure and function** (their job). Here is an example of this in an animal and plant:



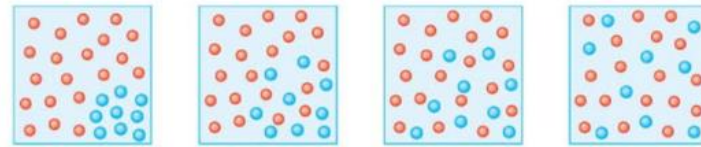
### Enzymes in digestion

Digestive enzymes found in the mouth, stomach and small intestine, break down food into smaller particles so they can be **absorbed** into the blood.



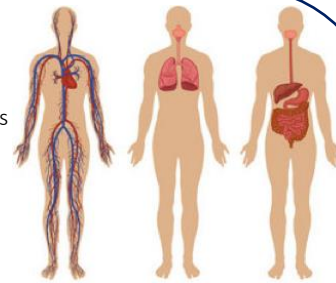
### Diffusion

The random movement of particles from a **higher** to a **lower** concentration. This is how most substances move in or out of cells. The difference in **concentration** is one factor that affects how fast diffusion occurs. The greater the difference, the faster the rate of diffusion.

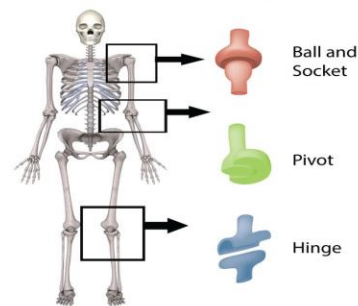


### Organ systems

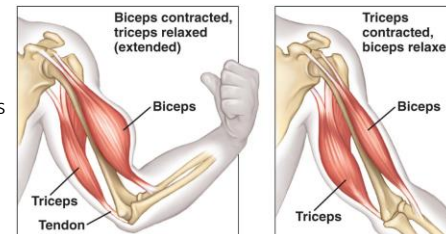
Examples of human organ systems include:  
**Circulatory system** – to transport substances around the body in the blood,  
**Respiratory system** – to take in oxygen and remove carbon dioxide,  
**Digestive system** – Break down food and absorb nutrients.



#### Movable Joints



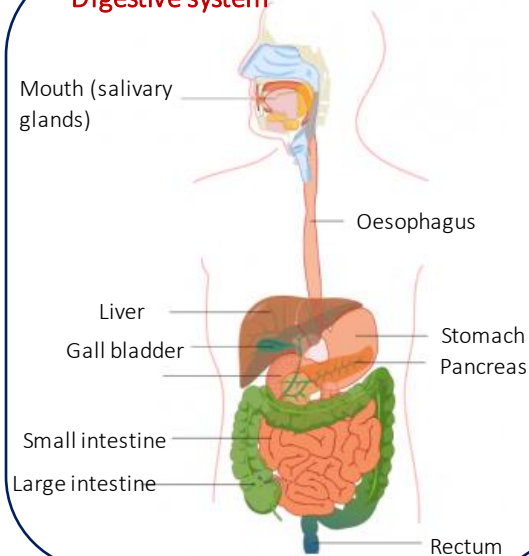
Muscles work in pairs called **antagonistic pairs** to move bones about a joint. As one muscle contracts the other relaxes allowing the joint to move in both directions.



#### Musculoskeletal system

The function of the musculoskeletal system is support, movement, protection and making of blood cells. It is mainly made from bones, muscles and tendons. Most joints (where bones meet) allow different parts of the skeleton to move.

### Digestive system



### Useful YouTube links:



[Cells](#)



[Organ systems](#)



[Digestion](#)

### Skills:

**Practical:** Identifying variables  
**Application:** Using hazards symbols, identifying hazards and risks.  
**Maths:** Calculating averages, drawing scales and plotting points.  
**Analysis:** Analyse information and ideas to develop experimental procedures.  
**Extended response:** Identifying trends in data and writing conclusions.

### Balanced diet

A healthy diet consists of:  
Carbohydrate – provide energy,  
Protein – for growth & repair,  
Fat – provide energy  
Vitamins & minerals – keep you healthy,  
Fibre – to move food through intestine,  
Water – the major component of blood

