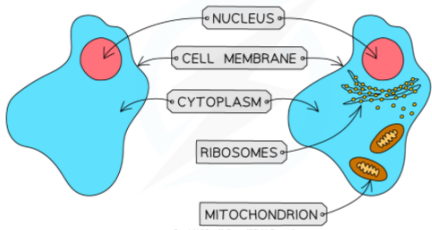


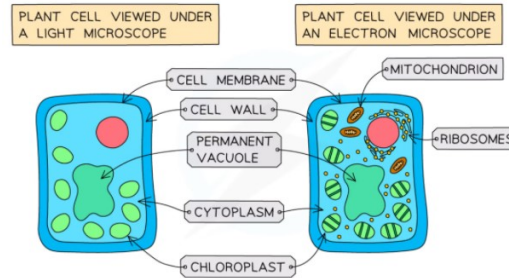
## Animal Cells

STRUCTURE	FUNCTION
NUCLEUS	<ul style="list-style-type: none"> <li>CONTAINS THE GENETIC MATERIAL (DNA) WHICH CONTROLS THE ACTIVITIES OF THE CELL</li> </ul>
CYTOPLASM	<ul style="list-style-type: none"> <li>A GEL-LIKE SUBSTANCE COMPOSED OF WATER AND DISSOLVED SOLUTES</li> <li>SUPPORTS INTERNAL CELL STRUCTURES</li> <li>SITE OF MANY CHEMICAL REACTIONS, INCLUDING ANAEROBIC RESPIRATION</li> </ul>
CELL MEMBRANE	<ul style="list-style-type: none"> <li>HOLDS THE CELL TOGETHER, SEPARATING THE INSIDE OF THE CELL FROM THE OUTSIDE</li> <li>CONTROLS WHICH SUBSTANCE CAN ENTER AND LEAVE THE CELL</li> </ul>
RIBOSOMES	<ul style="list-style-type: none"> <li>FOUND IN THE CYTOPLASM</li> <li>SITE OF PROTEIN SYNTHESIS</li> </ul>
MITOCHONDRIA	<ul style="list-style-type: none"> <li>SITE OF MOST OF THE REACTIONS INVOLVED IN AEROBIC RESPIRATION, WHERE ENERGY IS RELEASED TO FUEL CELLULAR PROCESSES</li> <li>CELLS WITH HIGH RATES OF METABOLISM (CARRYING OUT MANY DIFFERENT CELL REACTIONS) HAVE SIGNIFICANTLY HIGHER NUMBERS OF MITOCHONDRIA THAN CELLS WITH FEWER REACTIONS TAKING PLACE</li> </ul>

ORGANELLES NOT VISIBLE UNDER A LIGHT MICROSCOPE

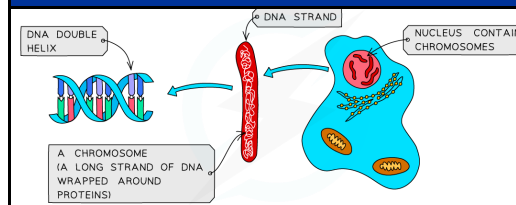


## Plant Cells



STRUCTURE	FUNCTION
CELL WALL	<ul style="list-style-type: none"> <li>MADE OF CELLULOSE (A POLYMER OF GLUCOSE)</li> <li>GIVES THE CELL EXTRA SUPPORT, DEFINING ITS SHAPE</li> </ul>
CHLOROPLASTS	<ul style="list-style-type: none"> <li>CONTAINS GREEN CHLOROPHYLL PIGMENTS (TO ABSORB LIGHT ENERGY) AND THE ENZYMES NEEDED FOR PHOTOSYNTHESIS</li> </ul>
A PERMANENT VACUOLE	<ul style="list-style-type: none"> <li>CONTAINS CELL SAP; A SOLUTION OF SUGARS AND SALTS DISSOLVED IN WATER</li> <li>USED FOR STORAGE OF CERTAIN MATERIALS</li> <li>ALSO HELPS SUPPORT THE SHAPE OF THE CELL</li> </ul>

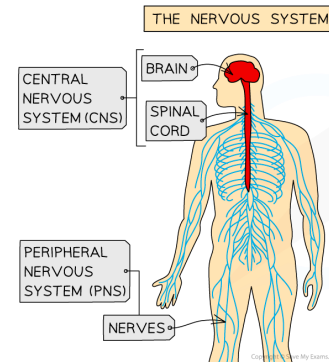
## DNA



**Chromosome** – Tightly coiled structure made of DNA  
**DNA** – Chemical that carries genetic information  
**Gene** – Small section of DNA that codes for a particular sequence of amino acids to make a specific protein.  
**Genome** – All the genetic material of an organism

## The Nervous System

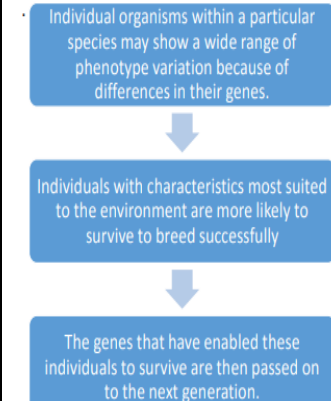
- The human nervous system consists of the:
  - central nervous system (CNS) - the brain and the spinal cord
  - peripheral nervous system (PNS) - all of the nerves in the body
- It allows us to make sense of our surroundings and respond to them and to coordinate and regulate body functions
- Information is sent through the nervous system as nerve impulses - electrical signals that pass along nerve cells known as neurones
- A bundle of neurones is known as a nerve



## Natural Selection

**What is Darwin's theory of evolution?**  
 All species of organisms arise through natural selection of small inherited variations that increase the individual's ability to compete, survive and reproduce.

### The three main stages of natural selection.



## Specialised Cells

- You, as a human being, are made from trillions of cells, but only of about 250 different types
- A specialised cell is a cell that has a particular structure and composition of subcellular structures
- Structural differences between different types of cells enable them to perform specific functions within the organism
- Cells specialise by undergoing a process known as differentiation

## Variation

- the genes they have inherited (genetic causes)
- the conditions in which they have developed (environmental causes)
- a combination of genes and the environment

## Inheritance

**Genotype** – The genes that are present in an organism  
**Phenotype** – the physical characteristics of an organism  
**Allele** – Different version of a gene  
**Recessive** – An allele that only shows the characteristics when there are two copies – (b)  
**Dominant** – An allele that always shows the characteristics (B)  
**Heterozygous** – Having two different alleles (Bb)  
**Homozygous** – Having two of the same alleles (BB or bb)

B – dominant purple  
 b- recessive white

