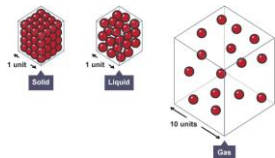


Week 1: Physics Matter Recap



- Density** the mass per unit volume
- Volume of a Regular Object** calculated by length x width x height
- Mass Balance** a piece of equipment used to measure the mass of an object
- Zero Error** any indication that a measuring system gives a false reading when the true value of a measured quantity is zero








- density = mass ÷ volume**
 $\text{kg/m}^3 \quad \text{kg} \quad \text{m}^3$
- Eureka/ Displacement Can** a large container with a spout used to measure the displacement of water when an object is lowered into it
- Displaced** when something is moved from its original position
- Irregular** not even or balanced in shape or arrangement
- Measuring Cylinder** a piece of equipment used to measure the volume of a liquid

Week 2: Diffusion and Osmosis

- Diffusion** The net movement of particles from an area of high concentration to an area of low concentration
- Concentration gradient** The difference in concentration of particles between two areas
- Osmosis** The net movement of water molecules from an area of high concentration of water (more dilute) to an area of low concentration of water (more concentrated)
- Partially permeable membrane** Allows small molecules such as water through, but not larger molecules
- Independent variable** The variable we change in an experiment
- Dependent variable** The variable we measure, count or observe in an experiment
- Control variables** The variables that we keep the same in an experiment
- Percentage change** Percentage change = (change in mass ÷ starting mass) x100
- Active transport** The net movement of particles against the concentration gradient. Requires energy

Week 3: Mitosis

- What is mitosis?** When cells divide to produce daughter cells
- Why does mitosis happen?** For growth, repair of tissue and replacement of cells
- Daughter cells** The cells produced at the end of mitosis. Genetically identical to the parent cell and each other
- Diploid** The full set of chromosomes. In humans this is 46 (or 23 pairs)

	The cell is in interphase where all organelles are copied before the cell begins to divide. The DNA replicates producing identical copies of each chromosome.
	The nuclear membrane dissolves.
	The chromosomes line up along the centre of the cell.
	The spindle fibres begin to form.
	The spindle fibres begin to pull apart the chromosomes which move to opposite sides of the cell.
	Two new nuclear membranes begin to form around each set of chromosomes.
	The cell divides into two identical daughter cells. This is called cytokinesis.

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Week 4: Stem Cells and Specialised Cells

Week 5: The Heart and Blood

Week 6: Transpiration and Translocation

Differentiation	When a cell changes to become a specialised cell
Specialised cell	A cell that carries out a particular function/job
Stem cell	An undifferentiated cell that can divide to produce a range of cell types
Adult stem cell	A stem cell that divides to produce cell types similar to the tissue it is found in
Embryonic stem cell	A stem cell that divides to produce any type of cell
Meristem cell	Undifferentiated cells found in root tips and shoots of plants

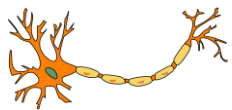
Artery	Carries blood away from the heart at high pressure
Vein	Carries blood into the heart at low pressure
Capillary	Connect arteries to veins. Exchange substances with cells
Plasma	The liquid part of the blood. Carries carbon dioxide, glucose and waste products
Red blood cell	Specialised cell with no nucleus. Carries oxygen.
Double circulatory system	A circulatory system that has two different circuits

Transpiration	The movement of water and minerals from the roots to the leaves
Xylem	Hollow vessels made from dead cells. Carry water and mineral ions through the plant
Potometer	The piece of equipment used to measure the rate of transpiration
Translocation	The movement of sucrose (sugar) down from the leaves to the rest of the plant
Phloem	Vessels made from living cells that carry sucrose (sugar) through the plant
Sieve plate	Tissue separating phloem cells. Allow sugars to pass through

Specialised Cells

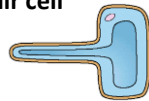


Sperm cell

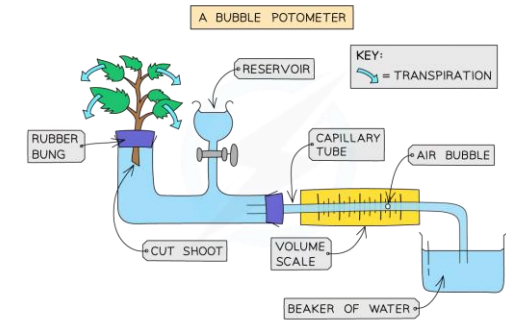
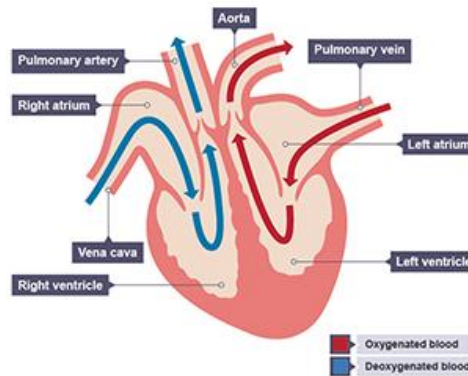
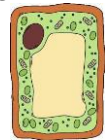


Nerve cell

Root hair cell



Palisade cell



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