Science—Topic 5

Year 8 Term 4

(1) Biology—Genetics

DNA Structure:

- Double Helix.
- Complementary base pairs, A-T and C-G.

Natural Selection Process (sometimes called 'survival of the fittest')

- **Mutations** occur randomly, which are changes in the DNA base sequence.
- This causes genetic **variation** within a species.
- The organisms that are best adapted to their environment **survive.**
- This means they are able to **breed,** and **pass on their genes**.

Gene banks

- To prevent species going extinct, scientists can keep records of genetic information called gene banks.

(2) Biology—Other Key Vocabulary

Inheritance—When genes are passed on from parents to offspring.

Characteristic—How an organism looks or behaves.

DNA—A polymer that carries genetic information.

Gene—A section of DNA that codes for a particular characteristic/ protein.

Chromosomes—Coiled strands of DNA that are stored in the nucleus of cells.

Mutation—A change in the DNA base sequence.

Natural selection—The process which organisms change over time.

Extinction—Where there are no more living individuals of a particular species anywhere in the world.

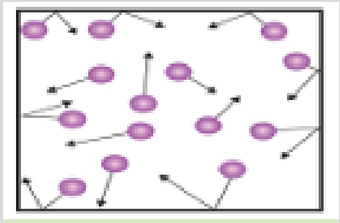
Trinity TV

For more help, visit Trinity TV and watch the following videos:

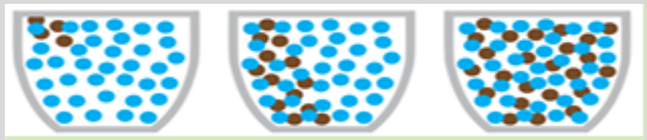
Trinity TV > Year > Subject

(3) Chemistry—Diffusion and Gas Pressure

Gas Pressure—This is caused by particles of gas colliding and exerting a force on a surface, e.g. the inside of a container.



Diffusion—This is when particles spread from an area of high concentration to an area of low concentration along a concentration gradient.



Brownian Motion—The random movement of particles in a liquid or gas (fluid).

(4) Chemistry—Density

Density—A measure of how much space (volume) particles take up.

When a liquid evaporates, particles move further apart from one another because the same number of particles will now take up a larger amount of space. This means that the density has decreased.

Density (g/cm^3) = mass (g) ÷ volume (cm^3)

Density (kg/m^3) = mass (kg) ÷ volume (m^3)

ECSSU Reminder

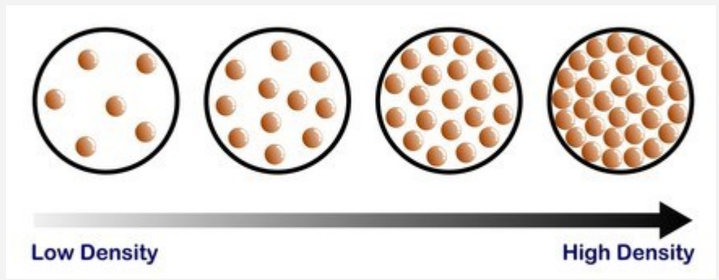
E—Equation

C– Conversion

S—Substitute

S—Solve

U—Units



(5) Physics—The Eye

Retina—The light sensitive part of the eye. It absorbs light waves and turns these into an electrical impulse which travels to the brain along the optic nerve.
Optic Nerve— Carries the electrical impulses from the eye to the brain.
Cornea—The protective outer layer of the eye.
Pupil—A hole, allowing light to pass into the eye.
Iris—A muscle that is able to contact and relax to control the amount of light entering the eye.
Lens—The jelly-like substance that focuses light into the eye.
Light—A **transverse** wave that travels in straight lines at a speed of 300 000 000m/s.
Light doesn't need particles to travel—it can travel through a **vacuum.**
White light is made up of a **spectrum** of colours from high **frequency** violet to low frequency red.
Objects appear different colours because they **reflect** different colours of light.
Primary colours of light—red, green and blue.
Secondary colours— magenta, cyan, yellow.

(6) Physics—Seeing Colour

Objects appear different colours because they **reflect** different colours of light. We see the colour of light reflected into our eyes. All other colours are absorbed.
Objects appear white because the **reflect** all colours. Objects appear black because they **absorb** all colours.