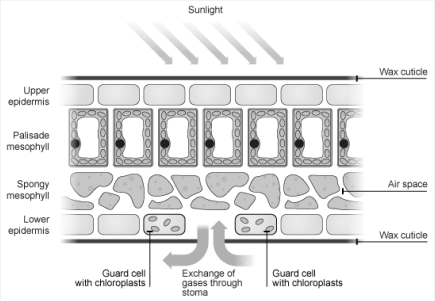
The Respiration System and Ventillation

The process of breathing out	Disease caused by smoking
1. Intercostal muscles and diaphragm realx.	1. It can cause cancer
2. Throrax volume decreases	2. It can cause lung diseases by damiging your airways and the alvioli found in the lungs
3. Air is forced out	3. It affects the heart and blod vessesl

Aerobic Respiration in plants

$6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$

Internal Structure of a Leaf



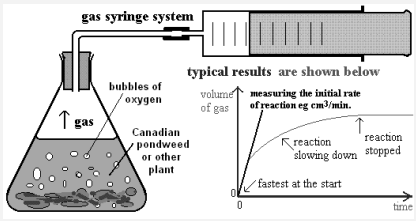
Adaptation of leaves

1. Leaves are broad so there's large surface area exposed to light
2. Most of the chloroplasts are found in the palisade layer so it can get the most light
3. The upper epidemis is transparent so that light can pass through it to the palisade layer
4. Leaves have a network of vascular bundles which deliver water and it helps support the leaf structure
5. The waxy cuticle helps to reduce water loss by evaporation

Rate of Photosynthesis

Light	Carbon Dioxide	Temperature
Chlorophyll uses light energy to perform photos-ynthesis	CO_2 is one of the raw materials needed for photosynthesis	Temperature affects the rate of photosynthesis because it affects the enzymes involved

Experiment to measure the rate of p/s



Pathogens

Pathogens are microorganisms that cause disease *e.g certain types of bacteria and viruses*

Plants, Animals and Bacteria

Plants	Animals	Bacteria
Multicellular	Multicellular	Single-celled and microscopic
Have chloroplasts which means they can photosynthesise	No chloroplast	Some can photos-ynthesise
They have cell walls made out of cellulose	No cell walls	No nucleus
Store carbohydrates as sucrose or starch	Store carbohydrates as glycogen	They feed off other organisms - both living and dead
	Most have nervous coordination and can move around.	They have circular chromosomes of DNA

Osmosis

Osmosis is the **net mocement of water molecules** across a partially permeable membrane from a region of higher **water** consentration to a region of lower **water** concentration

Active Transport

Active Transport is the net movement of particles against a concentration gradient using energy released during respiration. Oxygen is essential because of respiration

Test for Glucose and Starch

Benedict's test for Glucose	**Iodine test** for Starch
- Add Benedict's reagent (blue) to a sample and heat it. Make sure the solution doesn't boil.	- Just add iodine solution to the test sample
■ If Glucose is present it will form a coloured precipitate	■ If **starch** is present the sampe changes from browny-yellow to **blue-black** colour
■ Blue -> Green -> Yellow -> Orange -> Brick Red	■ If there is no starch it stays browny-yellow

Mineral Ions

Nitrates	**Potassium**
Contain nitrogen for making amino acids and proteins. These are needed for cell growth.	To help the enzymes needed for photosynthesis and respiration.

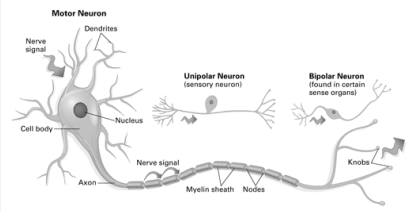
Variables

Independent	**Dependent**
The variable you CHANGE	The variable you MEASURE

Factors

Biotic	**Abiotic**
Living	Non-Living

Motor Neurone



Stages of a Reflex Arc

Reflex Arc

- **Reflexes are Automatic, involuntary responses to changes occurring inside or outside the body. Some involve the brain (such as blinking the eye), while others do not (such as moving your hand away from a hot object).**
- **Why does the brain not have to be involved? If it were, by the time the impulse traveled to the brain, the brain figured out what was happening, and sent a response to the body, serious damage might occur. So the body evolved a method of by passing the brain.**

Stages of Reflex Arc

1. Receptor is stimulated and formulate message. ie. nerve impulse
2. Sensory neuron takes the message to the Central Nervous System. (spinal cord)
3. Interneuron passes the message to a motor neuron.
4. Motor Neuron takes the message away from the C.N.S. to the effector (muscle/organ)
5. The muscle receives the message and contracts.
*****The brain finds out later what had happened*****

CORMMSS

Change

Organism

Repeat

Measure x 2

Same x 2