



Firrhill High School



Summary Files B1: Ecology



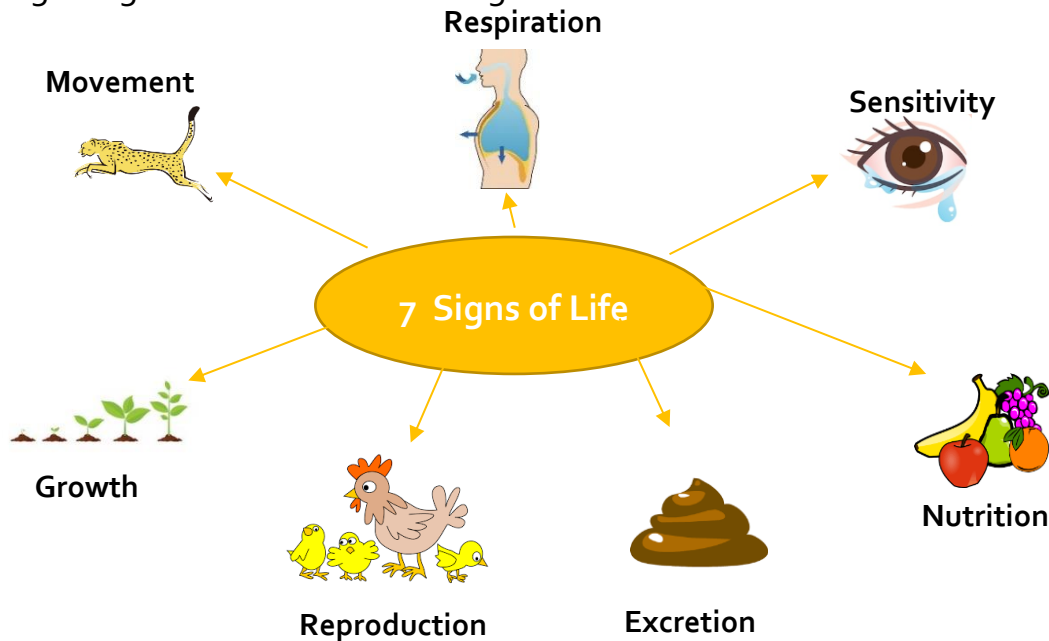
WHAT SHOULD I KNOW?

Success Criteria	Before reading	After reading	Before my test
I can state the seven signs of life.			
I can decide if something is living or non-living.			
I can name the five kingdoms of life.			
I can classify living things in to each of the five kingdoms.			
I can safely use a microscope.			
I can view animal and plant cells under a microscope.			
I can identify different organelles.			
I can explain the role of each organelle.			
I can explain why sampling an environment is important.			
I can suggest the best sampling technique to use in different situations.			
I can explain what the arrows in a food chain show.			
I can draw a food chain or food web.			
I can explain what the words producer and consumer mean.			
I can explain what the words predator and prey mean.			
I can list ways that humans have caused animals to become endangered.			
I can suggest ways to protect animals that are endangered.			
I can give an example of an extinct animal.			

SIGNS OF LIFE

MRS GREN – the word to remember the 7 signs of living things!

All living things can do the seven things listed below. Just remember **MRS GREN!**



All living things are called **organisms**.

In class we discussed how **all** organisms can do these seven things. Even plants are sensitive – they will grow towards the sun and some can open and close petals when the sun come out.

CLASSIFYING LIFE

How can we tell if a living thing is an animal, plant or something else?

There are five kingdoms of life. These are:

- Animal Kingdom (i.e. cows, fish, spiders)
- Plant Kingdome (i.e. Oak tree, dandelion)
- Fungi Kingdom (i.e. mushroom, thrush infection)
- Protist (one cell organisms with a nucleus and can move)
- Monera Kingdom (one cell organisms without a nucleus and can't move)



USING A MICROSCOPE

Microscopes are used to view objects too small to see with the naked eye.

When using a microscope it should always be carried by the **arm**.

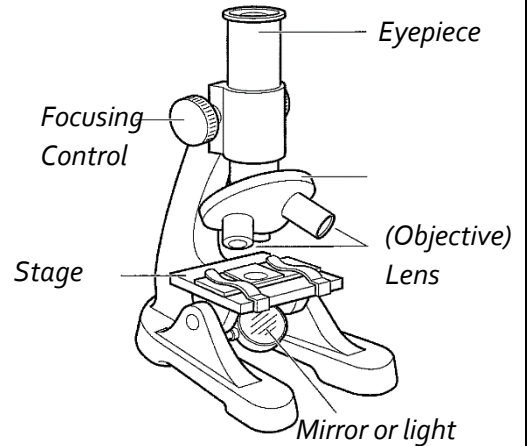
Switch on the light and place the microscope slide on the **stage** and use the **clips** to attach it.

Select the **lens** you want to magnify the object.

Now move the lens as close to the slide as you can.

Using the **focusing control** to focus the image whilst looking through the **eyepiece**.

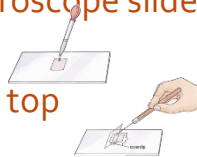
In class you made and viewed two types of microscope slides.



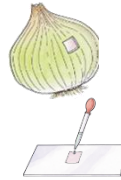
Animal Cell Slide (Cheek)



1. Use a cotton bud to swab cheek
2. Smear swab on microscope slide
3. Add a drop of **stain**
4. Place cover slide on top



Plant Cell Slide (Onion)



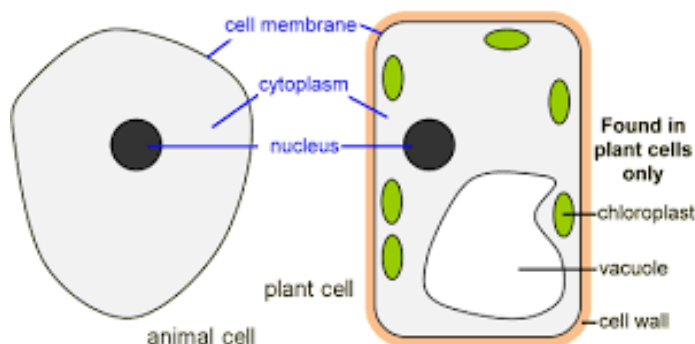
1. Cut a small piece of onion
2. Remove a thin layer of onion
3. Place on microscope slide
4. Add a drop of **stain**
5. Place cover slide on top



Stain is added to microscope slides to make them easier to view. All microscope slides must be thin enough to let light through so that we can see them!

LOOKING AT CELLS

Plant cells and animal cells are very different



Organelles are the parts inside the cell. Each organelle has a different role (job to do).

Organelle	Role
Nucleus	Controls the cell
Cytoplasm	The 'jelly' where chemical reactions occur
Cell Membrane	Controls what enters and leaves the cell
Cell Wall	Provides structure and support for the cell
Vacuole	Contains cell sap
Chloroplast	Contains chlorophyll needed for photosynthesis

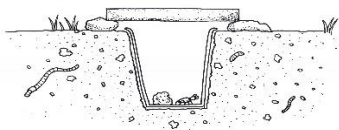
THE ENVIRONMENT

Sampling

The **environment** of an area is every living and non-living thing in that area.

Sampling is when a small area is observed and the living or non-living things are counted to get an idea of the whole environment.

Sampling Techniques



Pitfall Trap – used to sample small insects on the ground

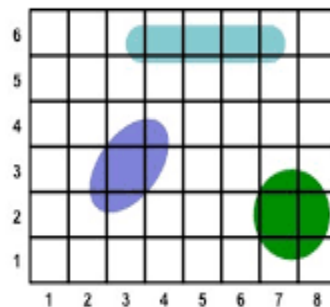


Pooter – Used to sample insects on plants



Sweep Nets – Used to sample flying animals (i.e. butterflies)

Another common sampling technique is a **quadrat**. This is a grid of squares that is placed on top of the grass. The number of plants (i.e. clovers) on each square can be counted and average number of plants can be found. Results can be made more accurate by taking more readings.

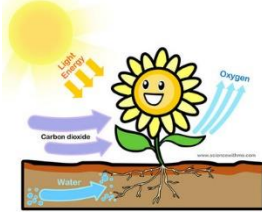


Quadrat Sampling

- Define a sampling region
- Select random areas – e.g. (1,2)
- Count individuals in area
- Determine population density

FOOD CHAINS & FOOD WEBS

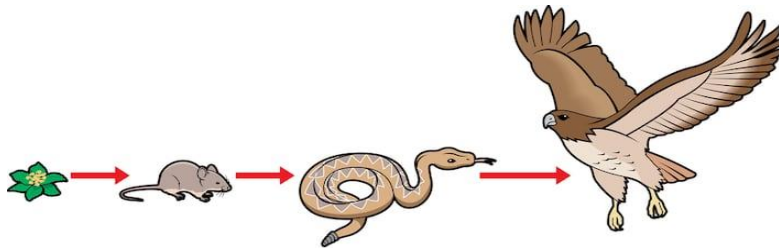
How energy flow from one organism to another



All green plants can change light energy from the sun to chemical energy which the plant can use as food. Green plants are called **producers** because they can produce their own food.

All other organisms are **consumers**, this means they have to eat either plants or animals to gain their energy.

In a food chain the arrow shows the **direction of energy flow** (who eats who).



Predators are animals who eat other animals. **Prey** are animals that are eaten.

Some animals can be predators and prey!

ENDANGERED ANIMALS

Humans have endangered many animals

An animal is said to be **extinct** when there are no animals of that type left. The Dodo is a common animal that became extinct, it was hunted by Dutch sailors until there were none left.

More recently the white rhino became extinct in 2018. This was mainly due to poaching and selling the Rhino's horn.

Animals are said to be **endangered** when there are not many of them left.

Humans have led to many animals become endangered by hunting them for food, destroying their habitats, selling on animal fur and horns and by heating up the atmosphere (global warming).

Many people think it is now our responsibility to protect these animals.