

Biology Crib Sheet: Topic 7

Being the most **competitive** means an organism will be more likely to survive and pass its awesome **genes** on to its offspring



Radiation (heat) from the sun provides the energy for all living things. It is captured by **producers** at the start of food chains in photosynthesis.



Predators-Consumers that hunt and kill other animals.
Prey – What predators eat.

Plants are producers .
They are always at the start of food chains, pyramids of numbers and pyramids of biomass.

A **quadrat** is a square frame enclosing a known area. To compare how common an organism is in two sample areas.

Quadrats

EXAMPLE:

Anna counted the number of daisies in 7 quadrats within her first sample area and recorded the following results: 18, 20, 22, 23, 23, 23, 25

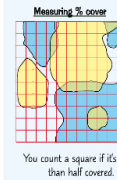
Here the MEAN is: $\frac{\text{TOTAL number of organisms}}{\text{NUMBER of quadrats}} = \frac{154}{7} = 22 \text{ daisies per quadrat}$

A **transect** is used to find out how organisms are distributed across an area.

Transects

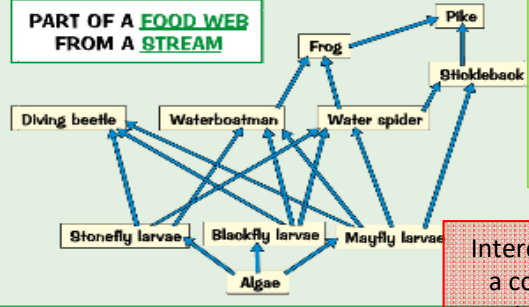
EXAMPLE:

Some students were measuring the distribution of organisms from one corner of a school playing field to another, using quadrats placed at regular intervals along a transect. Below is a picture of one of the quadrats. Calculate the percentage cover of each organism, A and B.



- Count the **number of squares** covered by organism A. Type A = 42 squares
- Make this into a **percentage** — divide the number of squares covered by the organism by the total number of squares in the quadrat (100), then multiply the result by 100. $(42/100) \times 100 = 0.42 \times 100 = 42\%$
- Do the same for **organism B**. Type B = 47 squares $(47/100) \times 100 = 0.47 \times 100 = 47\%$

PART OF A FOOD WEB FROM A STREAM



Plants need light, space, water and mineral ions. Animals need space, food, water and mates.

Interdependence – Each species in a community depends on other species for food, shelter, pollination and seed dispersal.

Adapt to Survive

What **special features** does an organism have to help it survive and how do they help?

Structural

Features of an organisms body structure – shape and colour.

Behavioural

The way an organism behaves – migrating to warmer climates in the winter.

Functional

What goes on inside an organisms body – reproduction and metabolism.

Biotic and Abiotic Factors

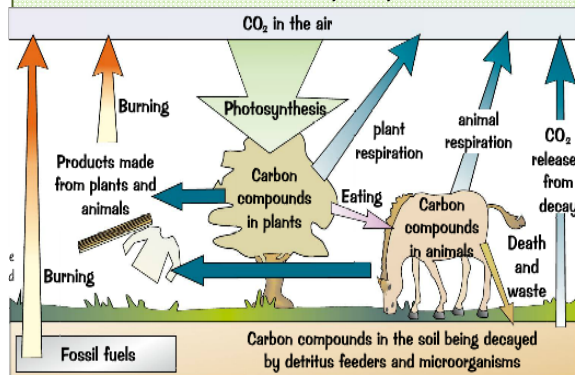
Abiotic Factor – Non Living Factors

- Moisture level
- Light intensity
- Temperature
- Carbon dioxide level
- Wind intensity
- Oxygen Level

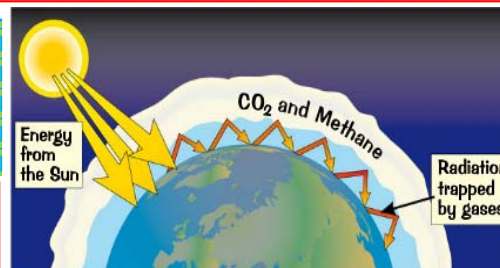
Biotic Factor – Living Factors

- New predators
- Competition
- New pathogens
- Availability of food

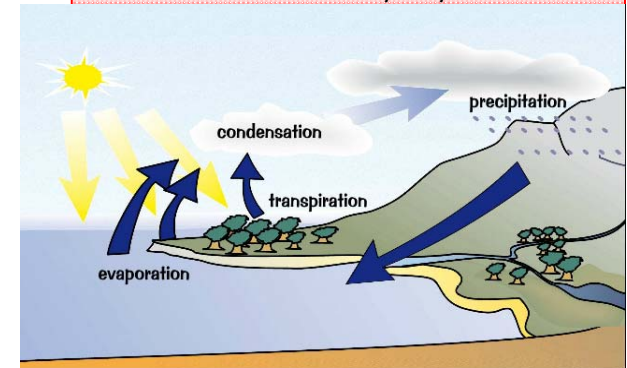
The carbon cycle – The carbon cycle means carbon is endlessly recycled.



Global Warming– Carbon dioxide and methane trap energy from the sun.



The water cycle – The water cycle means water is endlessly recycled.



Deforestation: The cutting down of forests and trees.

Problems:

- Less carbon dioxide taken in
- More carbon dioxide in the atmosphere
- Less Biodiversity

Biodiversity

High biodiversity ensures ecosystems are stable because different species depend on each other for food and shelter.

Pollution affects water, land and air and kills plants and animals – Reduces biodiversity.