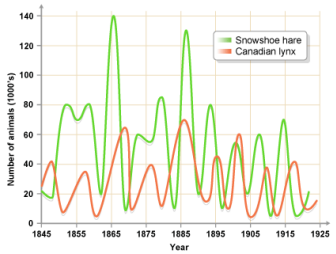
YEAR 9 BIOLOGY: ECOLOGY KNOWLEDGE ORGANISER

Key terms

Ecosystem	The **interaction** of a **community of living organisms (biotic)** with the **non-living (abiotic)** parts of their environment.
Habitat	The **area** in which an organism **lives**.
Community	**Two or more different species** in an ecosystem**.** A **stable community** is one **where all the species and environmental factors are in balance** so that **population sizes remain fairly constant.**
Population	The **total number of organisms** of **one species** in an ecosystem**.**
Competition	**Plants** often compete for **light, space, water** and **mineral ions. Animals** often compete for **food**, **mates** and **territory**
Interdependence	Within a community each **species depends on other species** for **food, shelter, pollination** etc.
Adaptations	A **feature** that an organism has that allows it to **survive** in its ecosystem.
Biodiversity	The **variety** of all the **different species** of organisms **on Earth**, or **within an ecosystem.**

End Point F: Predator Prey

The population of the **prey increases**
More food is available for the **predators**, so their population increases.
There are **more predators** so the **population of the prey decreases**.
There is **less prey to feed on** so the population of **predators decreases.**



End Point A & B: Adaptations and Competition

Living organisms need to survive and reproduce

- **Plants need**: light, carbon dioxide, water, oxygen, nutrients
- **Animals need**: food, water, shelter, mates, territory
- **Microorganisms** needs depend - some are light plants, some like animals and some need no oxygen or light

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

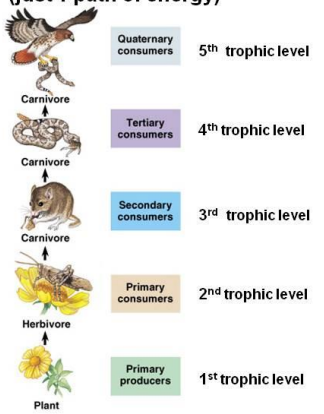
Dry climates
Deserts may be hot in day and freezing at night. Lack of water. Often **active at night** rather than day. Can't sweat or will lose water. **Large surface area:volume** to lose heat through skin. **Big ears**- lose heat. **Thin fur, little body fat**

Remember:
Plants have adaptations too. They need **light, water and space with nutrients to grow.**

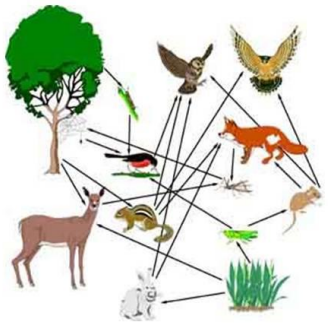
Cold Climates:
Small surface area:volume
e.g. Ears. **Insulation** – blubber (thick layer of fat under skin), fur coat Fat layer also provides a food supply during winter)

End Point C, D & E: Food chains and food webs

Food Chain
(just 1 path of energy)



Food Web
(all possible energy paths)



The *arrow* points to the eater and shows the transfer of energy.

End Point H: human activities and their effect on the environment

Human activity	Why it happens	Effects
Polluting water with fertiliser and sewage	Farmers spread **fertiliser** on fields. **Rain** washes fertiliser into **rivers** and ponds. Sewage is released directly into rivers.	Fertilisers and sewage cause an **increase in growth of algae**. When the algae **die**, they are **decomposed by bacteria** that **use oxygen**. Other animals **die due to a lack of oxygen.**
Using land	Humans **construct buildings**, create **quarries** and **farm**.	**Habitat** for plants and animals is **reduced**.
Deforestation	To provide **land for cattle and rice fields**. To **grow crops for biofuels**.	**Burning** or **decomposing trees releases CO_2. Fewer trees to remove CO_2 from the atmosphere. Loss** of **biodiversity.**
Producing acidic gases	**Combustion** of **fossil fuels** releases **carbon dioxide, sulfur dioxide** and **nitrogen oxides.** These gases **dissolve in water** making it **acidic**.	**Acid rain. Damages plants.** Can cause **rivers** and **lakes** to become acidic, killing animals and plants.
Polluting water with toxic chemicals	**Pesticides** and other toxic chemicals (e.g. from **landfill**) are washed into rivers and lakes by **rain**.	**Toxic chemicals accumulate** in animals. The **further up** the **food chain**, the **greater the accumulation**. Top predators die or fail to breed.
Increasing temperature of the planet (global warming)	Humans release extra **greenhouse gases** (**CO_2** and **methane**) into the atmosphere and **less CO_2 is absorbed** by plants through photosynthesis. **Greenhouse gases absorb heat** and stop it escaping to space.	**Loss of habitat** as **sea levels rise**; animals and plants can **no longer survive** in certain areas; **reduced biodiversity**; **change in migration patterns** of animals.