Adaptation	Natural selection	Extinction	Preserving biodiversity
Describe how organisms are adapted to their environment	Describe the process of natural selection	Define extinction and examples of it within species	Describe biodiversity

Knowledge Organiser

Natural Selection:

1. Reproduction= more offspring than environment can support
2. **Survival of the fittest**
3. Pass on **useful characteristics**

Variation

Variation maybe be due to differences in:

- the genes that have been inherited (genetic causes);
- the conditions in which they have developed (environmental causes);
- a combination of genes and the environment.

Fossils

Fossils could be:

- the actual remains of an organism that has not decayed;
- mineralised forms of the harder parts of an organism, such as bones;
- traces of organisms such as footprints or burrows.

Many early life forms were soft-bodied so have left few traces behind.

Fossils help us understand how much or little organisms have changed as life developed on earth.

Evolution

Change in the inherited characteristics of a population over time through a process of natural selection, which may result in the formation of a new species.

The theory of evolution by natural selection states that all species of living things have evolved from simple life forms that first developed more than three billion years ago.

Natural selection of variants that give rise to phenotypes best suited to their environment.

- Variation (mutation)
- Adaptation
- Survival

& Reproduction

Extinction

The permanent loss of all the members of a species

Reasons for extinction:

- Introduction of a NEW disease
- Introduction of a NEW competitor
- Introduction of a NEW predator / overhunting
- Lack of food / prey
- Environmental change (temp., rainfall, loss of habitat etc.)
- Natural disaster

Biodiversity and Waste Management

Biodiversity is the variety of living organisms on the earth or in an ecosystem. It is important in helping to maintain stable ecosystems. Organisms are often interdependent, relying on others as food sources, or to create suitable environmental conditions to survive. Human survival is also dependent on this biodiversity.

The global human population has exceeded 7 billion.
Human population has increased due to modern medicine and farming methods, reducing famine and death from disease.
This means a greater demand for food, resources and water.
It also means more waste and emissions are created.

Sewage, toxic chemicals, household waste and gas emissions pollute the water, land and air, killing plants and animals and reducing biodiversity.