

More on Characteristics – Species.

Organisms of the **same species** share **many characteristics**. Organisms are defined as the same species if they can **interbreed** to produce **fertile offspring**.

However this definition of a species is not always 'clear cut' for the following reasons.

1. Some organisms don't need to interbreed to produce offspring. Many plants, fungi and bacteria reproduce offspring **asexually**, but they are still the **same species**. Bacteria for example reproduce by **splitting in half**. The bacteria offspring is **identical** to its parent, so it belongs to the **same species**.
2. It is possible for **two closely related species** to breed and produce an offspring called a **hybrid**. Hybrids are usually **infertile**, so can't have offspring of their own to pass on their genes.

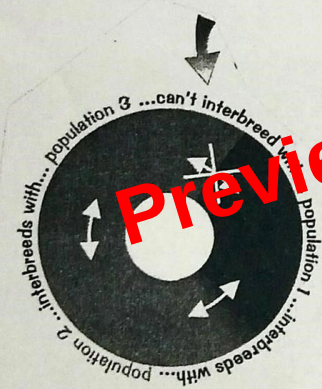
However **some** hybrids are fertile. For example, many duck species (mallard duck and Yellow billed duck) interbreed to produce fertile hybrids. This contradicts the definition of species because **two different species of duck** have bred and produced a **fertile hybrid offspring**. The fertile hybrid ducks are not the **same species** of either parent because they are **different genetically**.

The fertile hybrid ducks can then interbreed with **other hybrids** or other **closely related ducks**. This will produce ducks with a **continuous range** of characteristic rather than **separate species**.

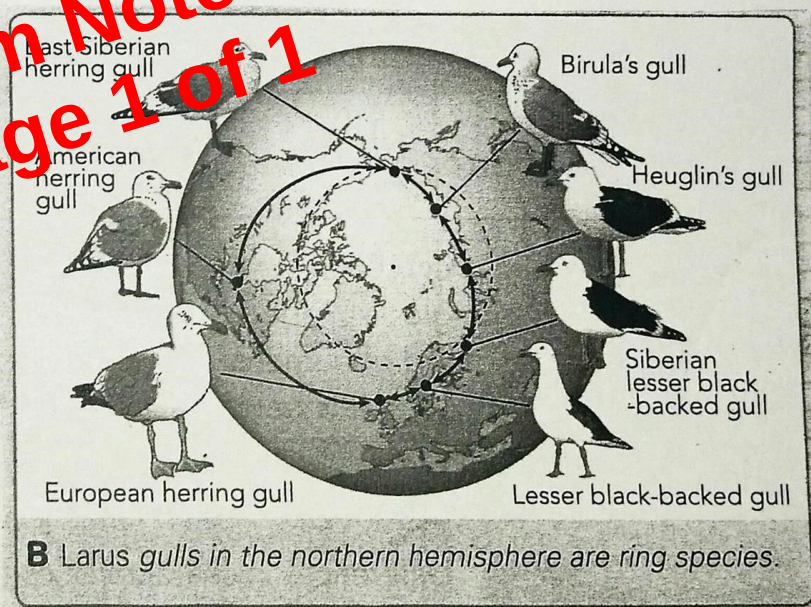
3. Members of the same species are sometimes difficult to identify because of **variation** within the species. E.g. there are many breeds of dog that look different, but they are **all the same species**.
4. **Groups of related populations** that live in **neighbouring areas** are called **ring species**. The populations that live **next to each other** can interbreed to produce **fertile offspring**, but the population that live further apart **can't**.

Interbreeding between the neighbouring populations form a 'breeding chain', but the population at **each end** of the chain can never breed because of the distance factor.

Examples of Ringed species



This diagram shows two species of gulls.



It's difficult to tell if populations of ring species are **different species**, because there is a **gradual** change of characteristics between the species. This makes it difficult to **divide** them into **separate species**.

(dog) (have puppies)
Interbreed → offspring that are fertile
able to reproduce