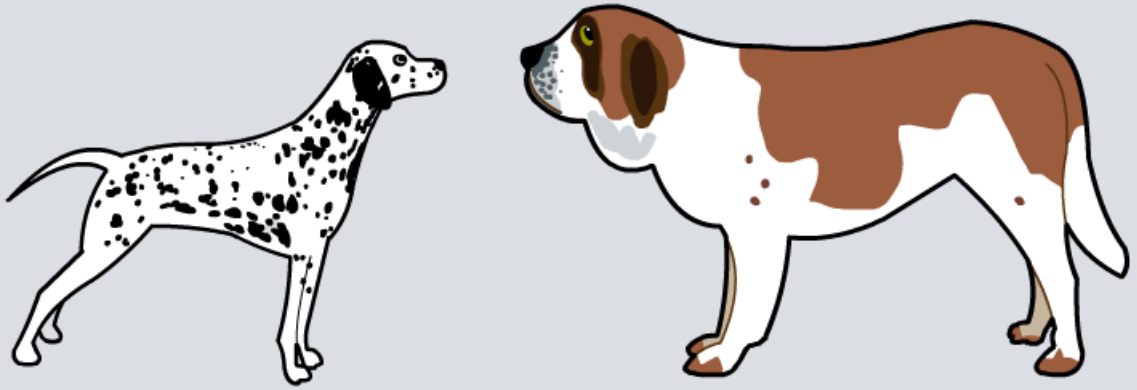
What is a Species?



What is a species?

It can seem obvious when two individuals are of different species, e.g. the lion and the tiger. What about the Bengal tiger and the Siberian tiger – are these different species?

If two populations are geographically isolated, it can be difficult to tell if they are capable of interbreeding to produce fertile offspring. This is one aspect of the **species problem**.

Similarly, the capacity to interbreed cannot be tested in animals that are extinct, such as the dinosaurs. To overcome this problem, other definitions of a species are needed.

Defining a species

The **biological species concept** is the most common definition of a species. It defines a species as a set of individuals who can reproduce to produce fertile offspring. As well as the problem of geographical separation, another disadvantage of this definition is that it only applies to organisms that reproduce sexually.

The **phylogenetic species concept** defines a species by its evolutionary lineage. Where two lines diverge sufficiently they are called separate species. A problem with this definition is deciding what constitutes sufficient divergence.

Binomial naming

When a new species is identified, it is always given a **binomial name**. This is a name with two parts, such as *Panthera tigris* for the tiger.

The first part indicates the **genus** to which the organism belongs. The genus *Panthera* includes other 'big cats' such as the lion and the leopard.

The second word is the **species** to which the organism belongs. This part of the name is never used on its own.

If a subspecies is identified, an extra name is added to the binomial species name. For instance, the Siberian tiger is known as *Panthera tigris altaica*.

Using a dichotomous key

Follow the key to identify the cat species

A **dichotomous key** breaks the process of species identification into a series of simple questions by focusing on distinguishing features.

Click "**start**" to identify 12 cat species.

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Understanding species concepts