



# LIFE IN A DROP OF WATER

What's the name of this plant?



Italian name: *magnolia*

English name: *southern magnolia*

French name: *laurier tulipier*

Swedish name: *kungsmagnolia*

Indian name: *him champa*

German name: *immergrüne magnolie*

Chinese name: 荷花玉兰

And many other... however, the magnolia tree, has an only scientific name known all over the world!! **Magnolia grandiflora**

What's the name of this animal?



Italian name: *leopardo*

English name: *leopard*

South African name: *mdaba*

Indian name: *asnea*

Chinese name: *Jin-qian-bao*

Also this animal has only one scientific name known all over the world!!

**Panthera pardus**

Another one...



"margherita" in Italian,  
"daisy" in English,  
"pâquerette" in French,  
"gänseblümchen" in German ect.  
This plant, too, has an only scientific name  
known all over the world!!  
**Bellis perennis**

The species of living things are indicated by two **latin** words, rich of meaning:

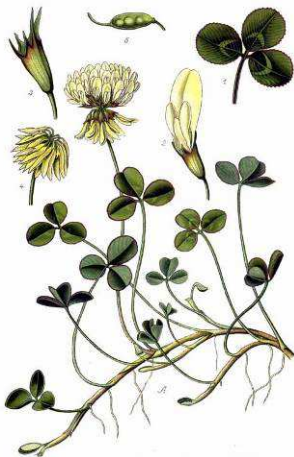
**Bellis perennis** originates by bellus=beautiful and perennis=eternal

### **Bellis perennis**

The first name begins with a capital letter.

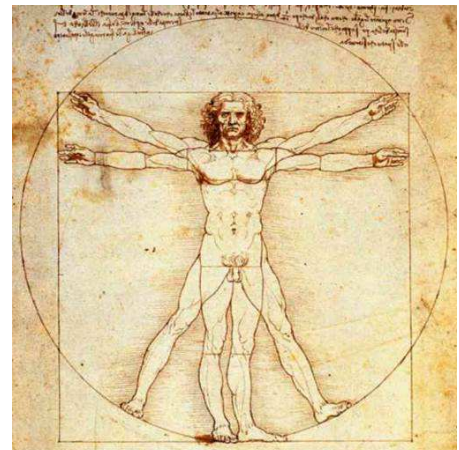
The second name begins with a small letter.

**Trifolium repens** originates by tri=three, folium=leaf and repens=creeping



And what's the name of our species? Uomo, human, ανθρωπινον, umuntu...

### **Homo sapiens**

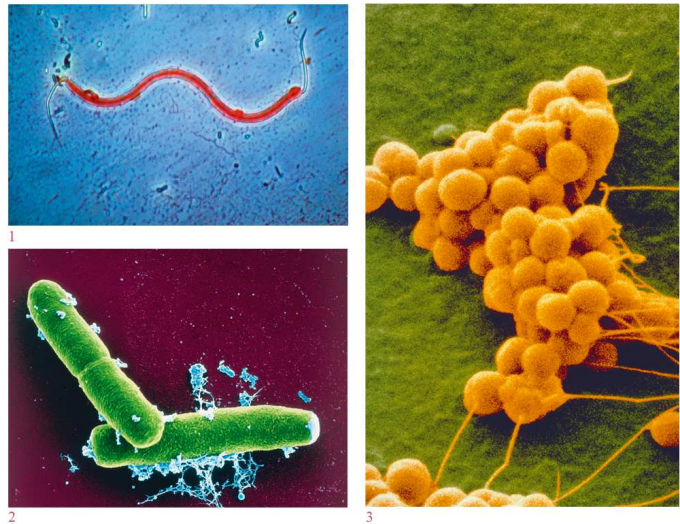






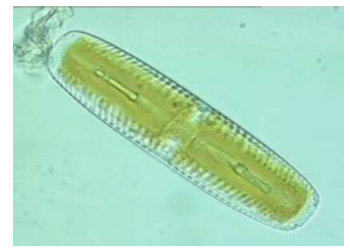
## MONERA

They are **unicellular** organisms with a **prokaryotic** cell organization (they haven't got the nuclear membrane), such as *bacteria*. They are really small; to see it we need a microscope with a big magnification (1000x).



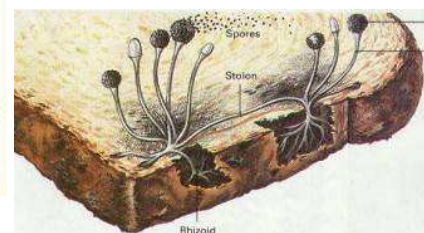
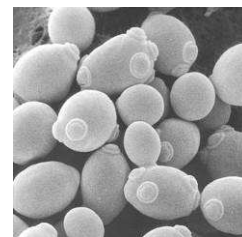
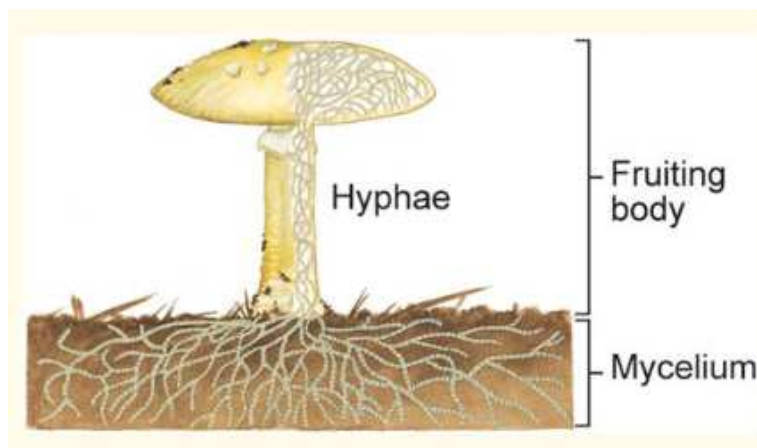
## PROTISTS

Protists are similar to monera because they are **unicellular**. Protists are a bit more complex because they contain a nucleus (**eukaryotic** cell organization). They also have moving parts and can move into their environment. Some of them form chains or colonies.



## FUNGI

They're **eukaryotic** organisms, **unicellular** (like yeast, "lievito" in Italian) or more frequently **multicellular**, formed by filaments (hyphae) more or less tightly hold in a structure called mycelium.





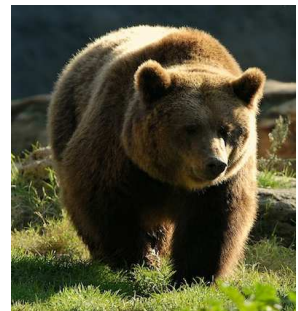
## PLANTS

They're **eukaryotic**, **multicellular**, **autotrophic** organisms (they make photosynthesis).



## ANIMALS

They're **eukaryotic**, **multicellular**, **heterotrophic** organisms.



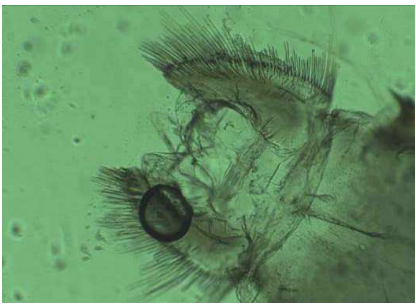
Here there are some our microscope observations:



Diatoms, kingdom Protista



*Lecane lunaris* (kingdom Animalia)



an insect (kingdom Animalia)



*Chironomus plumosus* (kingdom Animalia)



*Rhyzoclonium hieroglyphicum* (kingdom Plantae)



*Acantholeberis curvirostris* (kingdom Animalia)



Let's identify pairs of similar species:



1: *Linaria alpina*, 2: *Linaria tonzigii*, 3: *Papaver rhaeticum*

Which are the two similar plants?      1 ☐                      2 ☐                      3 ☐

Let's identify pairs of similar species:



1: *Papaver rhaeticum*, 2: *Anemone nemorosa*, 3: *Papaver alpinum*

Which are the two similar plants?      1 ☐                      2 ☐                      3 ☐

Another time...



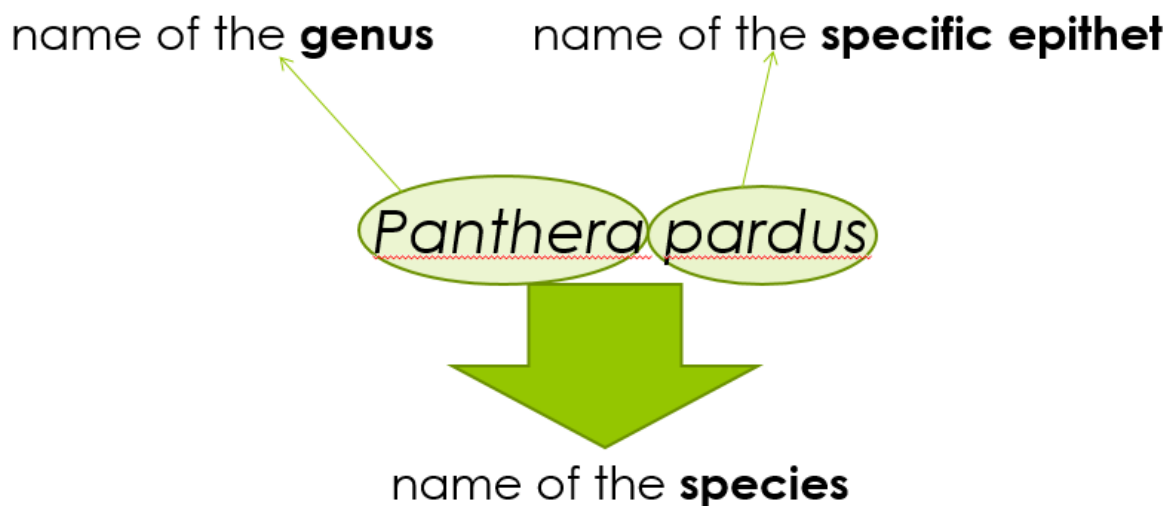
1: *Panthera onca*, 2: *Puma concolor*, 3: *Panthera pardus*

Which are the two similar animals?    1 ☐                      2 ☐                      3 ☐

Different species with similar characteristics are classified into a same group called **genus**.

Considering the name of the species the first word (beginning with a capital letter) indicates the **genus**, the second word (beginning with a small letter) indicates the **specific epithet**.

So, the *leopard* has this scientific name:





Panthera pardus and Panthera onca belong to the same genus Panthera...

They're really similar animals but they aren't the same species... why?

When do two individuals belong to the same species, and when do they belong to two different species?

How can we define the **species**?



We usually define **species** a group of organisms having some characteristics in common so that they can mate, **giving birth to fertile baby animals** (and they can give birth to other baby animals).

To be similar it isn't sufficient to define the belonging to the same species!!

Considering a **horse** and a **donkey**: these two animals are similar in their shape, structure and function but if they mate their offspring is a **mule** (from a female horse and male donkey) or to a **hinny** ("bardotto" in Italian, from a male horse and female donkey) and both are **sterile animals**, they can't give birth to baby animals.



During the last decades there have been matings between animals in captivity belonging to different species. For example, when an African **zebra** and a domestic **donkey** mate, their offspring is a sterile "**zonkey**".

