

LATIN BI-NOMIALS

Latin was the language spoken by the Romans (of Italy) at the time of Jesus (2 000 years ago). This language has changed so much over time that the present language of Italian is not much like the original Latin. And so, Latin is a *dead* language – nobody speaks it any more, so it is not going to change. **That** is why all scientists across the world have decided to use Latin so as to name each living organism.

Each living thing is commonly identified by its two *taxons* of genus and species. *BiNomial* = *two names* in Latin.

To be in the same species, two animals must be able to have sex, and produce a fertile child.



If they are in the same genus, they have many characteristics that are similar. That's why your house cat is in the same **genus** as is a puma (*Felis*), but their **species** is different: *Felis domesticus*, (cat) and *Felis concolor* (puma).

Same GENUS Different SPECIES



Genus = Felis

Species = concolor
"Cougar"

Felis concolor



Genus = Felis

Species = pardalis
"Ocelot"

Felis pardalis



Genus = Felis

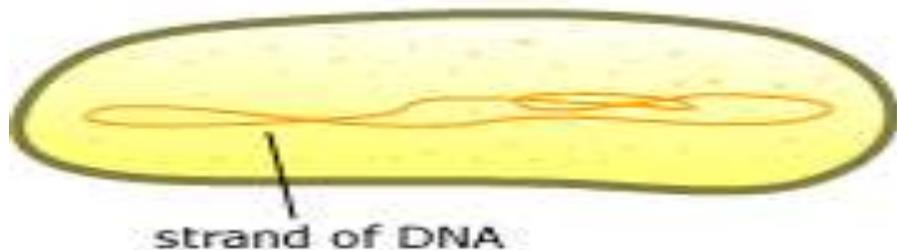
Species = domesticus
"House Cat"

Felis domesticus

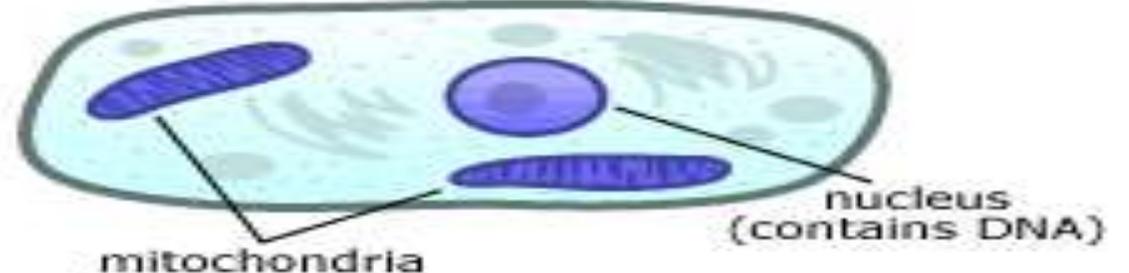
PROKARYOTES and EUKARYOTES

- Some UniCellular plants and animals are so simple in structure that not one of their organelles inside that cell is covered by a membrane. Its nuclear material that controls it (for example) is spread (uncovered) in a section of its cytoplasm. This group is ProKaryotic, and forms the **Kingdom *Monera***. *Bacteria* are examples.

Typical prokaryote cell



Typical eukaryote cell



- **Kingdoms *Plantae* and *Animalia*** are EuKaryotic, because every little unit inside each cell is covered with a membrane. So is **Kingdom *Protista*** (like *Amoeba*) and **Kingdom *Fungi*** (like *yeast, moulds*).

The FIVE KINGDOMS

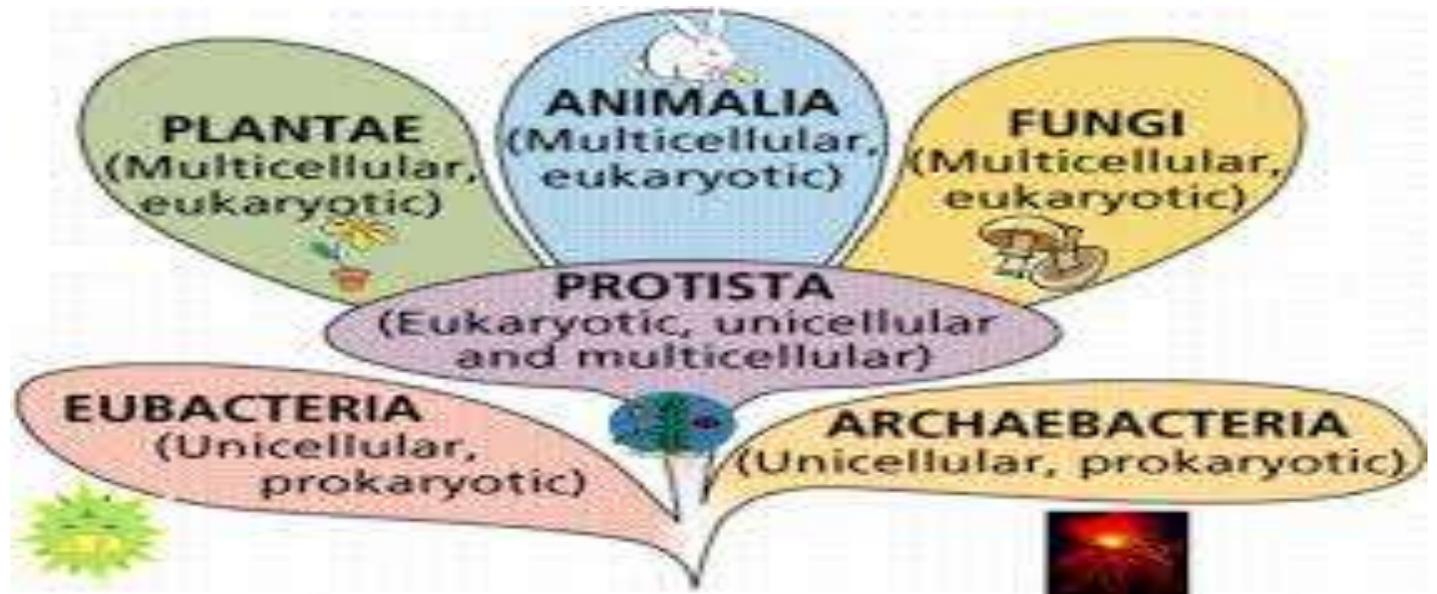
Robert Whitaker (1968)



<u>MONERA</u>	<u>PROTISTA</u>	<u>FUNGI</u>	<u>PLANTAE</u>	<u>ANIMALIA</u>
Bacteria	Amoeba	Yeasts, Moulds	All plants	All animals
Single cell	Single cell	Simple cells	Multi-Cells	Multi-Cells
ProKaryotic	EuKaryotic	EuKaryotic	EuKaryotic	EuKaryotic
AutoTrophic	AutoTroph	SaproPhyte	AutoTroph	HeteroTroph
(HeteroTroph)	HeteroTroph	Chitin walls	Cellulose walls	No walls

DOMAINS

Woese and Fox (1977)



- They formed three **DOMAINS** – one splitting the **ProKaryotes**, the other including all the **EuKaryotes**.
 1. The EuKaryote domain now includes its own 4 Kingdoms. (See table in previous slide.)**ProKaryotic *Monera*** now divided into two domains:
 2. **ArchaeBacteria** = Ancient living fossils.
 3. **EuBacteria** = all the *Bacteria* we know today.

B. Classification

Question 1



1. – To be able to identify organisms easily.
 - To be able to recognise organisms and communicate this information internationally.
2. Organisms with similar characteristics were placed together.
3. Plants and animals
4. Carl Linnaeus
5. a. *Panthera leo*
b. *Homo sapiens*
6. - Latin was the language used by the students of the academic world.
 - Latin does not change and the scientific names will remain constant.



Question 2

<u>PROKARYOTES</u>	<u>EUKARYOTES</u>
No nucleus and cell organelles present.	Have a true nucleus with organelles.
Genetic material is not contained within a nuclear membrane.	Genetic material is contained within a nuclear membrane.

Question 3

Monera, Protista, Fungi, Plantae, Animalia

Question 4

1. Robert Whittaker
2. Domains are a larger classification unit than kingdoms.
3. REFER TO STUDY GUIDE.

