

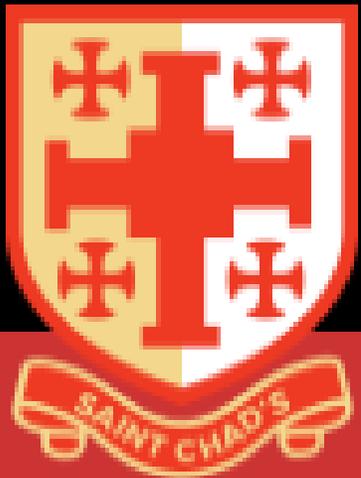


# Classification

Summer 2

Week 11 - 12

Lessons 7 - 8



**Recap:**

HOW do you think living things evolve?

Why do you think ADAPTATION happened?



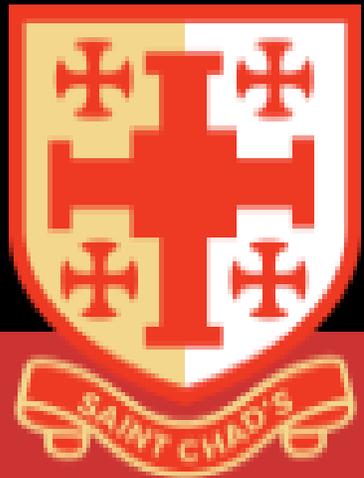
# Classification

Summer 2

Week 11 - 12

Lessons 7

**L.O: To understand why living things are classified into groups scientifically.**



# What is Classification?



# What is Classification?

- the arrangement of animals and plants in taxonomic groups according to their observed similarities (including at least kingdom and phylum in animals, **division** in plants, and class, order, family, genus, and species).
- "the classification of the platypus was one of the critical issues of the 1830s" **WHY DO YOU THINK THIS WAS SO?**

# What is Taxonomy?

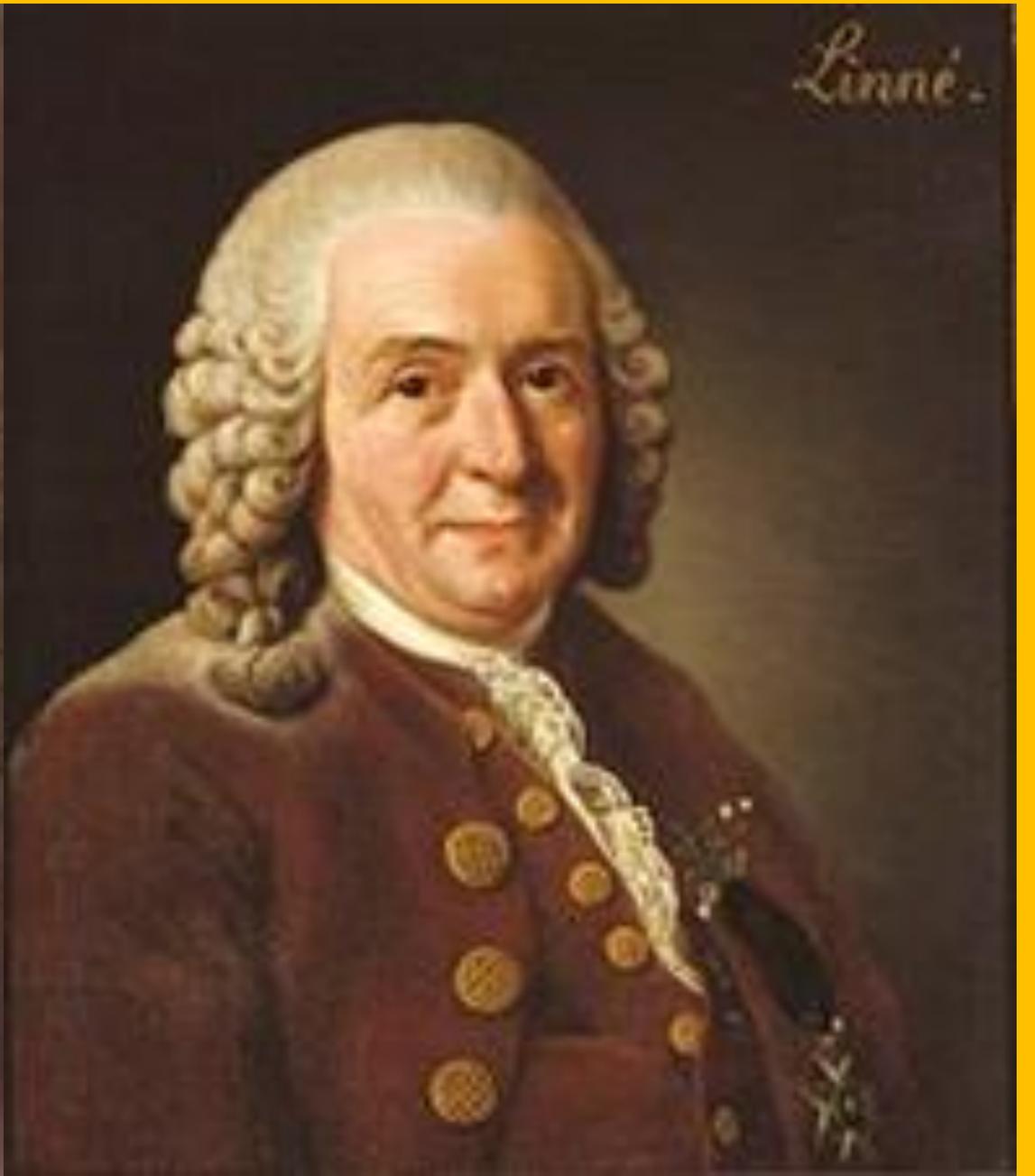


# What is Taxonomy?

**tax·on·o·my**/tak'sänəmə/

Noun: The branch of science concerned with classification, esp. of organisms; systematics.  
The classification of something, esp. organisms:  
"the taxonomy of these fossils".

Carl Linnaeus (Carl von Linné) Who was he? Why was his work in science important?



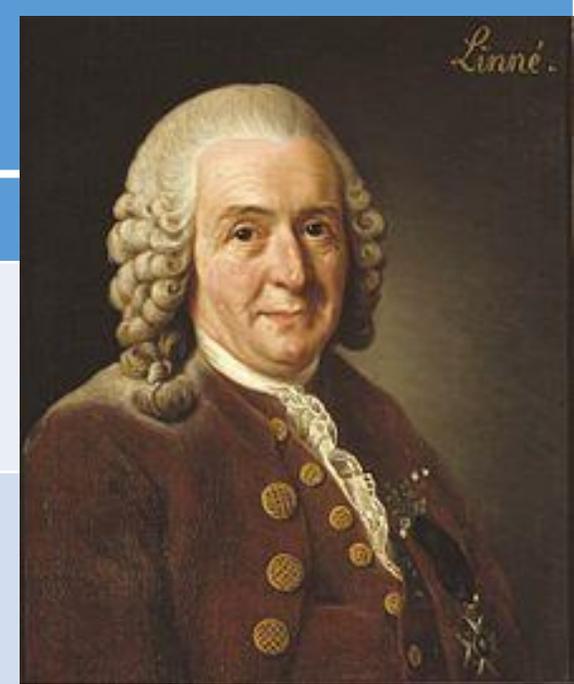
# Carl Linnaeus



The father of modern taxonomy, he created a system of classifying organisms using observable characteristics

The system has since been updated, but it is still named after Linnaeus.

# Carl Linnaeus (Carl von Linné)



*Born*

*23 May 1707*

*Died*

*10 January 1778 (aged 70)*

*Resting place*

*Uppsala Cathedral, Sweden.*

*Residence*

*Sweden*

*Nationality*

*Swedish*

*Fields*

*Botany* / *Biology* / *Zoology*

# Carl Linnaeus

Film about Carl Linnaeus:

[https://www.youtube.com/watch?v=Gb\\_1O-SzLgk](https://www.youtube.com/watch?v=Gb_1O-SzLgk)



**Task 1: watch video and make notes about Carl Linnaeus ready for Task 2**

SYSTEMA  
NATURÆ

REGNA TRIA NATURÆ,

REGNA TRIA NATURÆ,

SECUNDUM

CLASSES, ORDINES,  
GENERA, SPECIES,

CUM

CHARACTERIBUS, DIFFERENTIIS,  
SYNONYMIS, LOCIS.



TOMUS I.



Ordo I.

PRIMATES.

Dentes primores superiores IV paralleli.  
Mammæ pectorales, binæ.

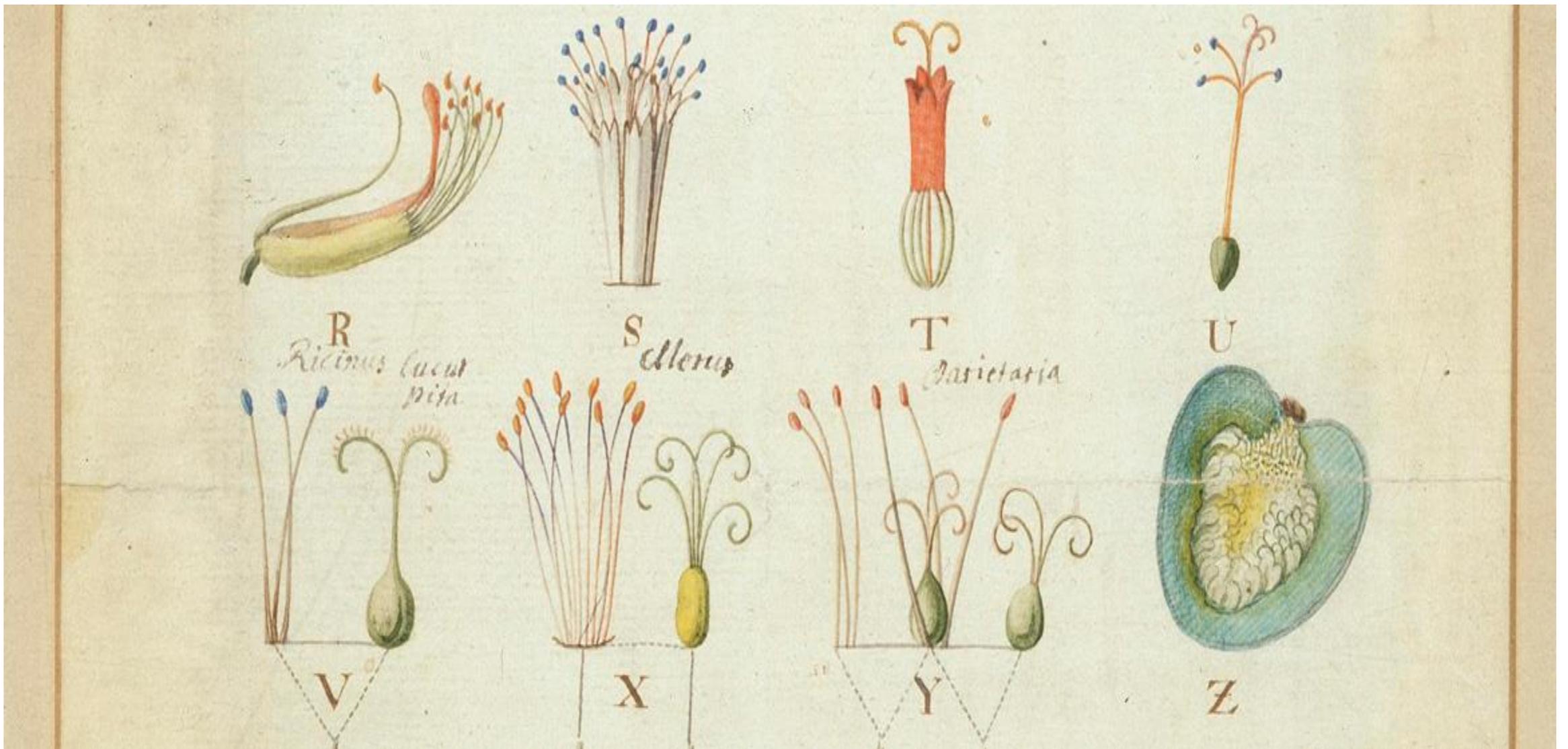
I. HOMO nosce Te ipsum.

1. H. diurnus. (\*) *vagans cultura, loco.*
  - a. H. rufus, cholericus, rectus.
  - β. H. albus, sanguineus torosus.
  - γ. H. luridus, melancholicus rigidus.
  - δ. H. niger, phlegmaticus, laxus.
  - ε. H. monstruosus solo (a), vel arte (b. c.)
    - a. Alpini parvi, agiles, timidi: Patagonici magni, segnes.
    - b. *Monorchides* ut minus fertiles: Hottentotti.  
*Juncæ* puellæ abdomine attenuato: Europææ.
    - c. *Macrocephali* capite conico. Chineses.  
*Plagicephali* capite antice compresso. Canadenses.

Americanus.  
Europæus.  
Asiaticus.  
Afer.

2. Homo nocturnus. Ourang Outang *Bont. jav. 84. t. 84.*

Genus Trogloditæ seu Ourang Outang ab Homine vero diffinitum, adhibita quamvis omni attentione, obtinere non potui, nisi assererem notam lubricam, in aliis generibus non constantem. Nec Dentes laniarii minime a reliquis remoti; nec Nymphae callæ, quibus carent Simiæ, hunc ad Simias reducere admittebant. Inquirant ætote in vivo, qui ratione, modo notæ aliquæ existant, ab Homine



Watercolour illustration by Georg Ehret, of Carl Linnaeus's classification system for plants, from Systema Naturae (1736)

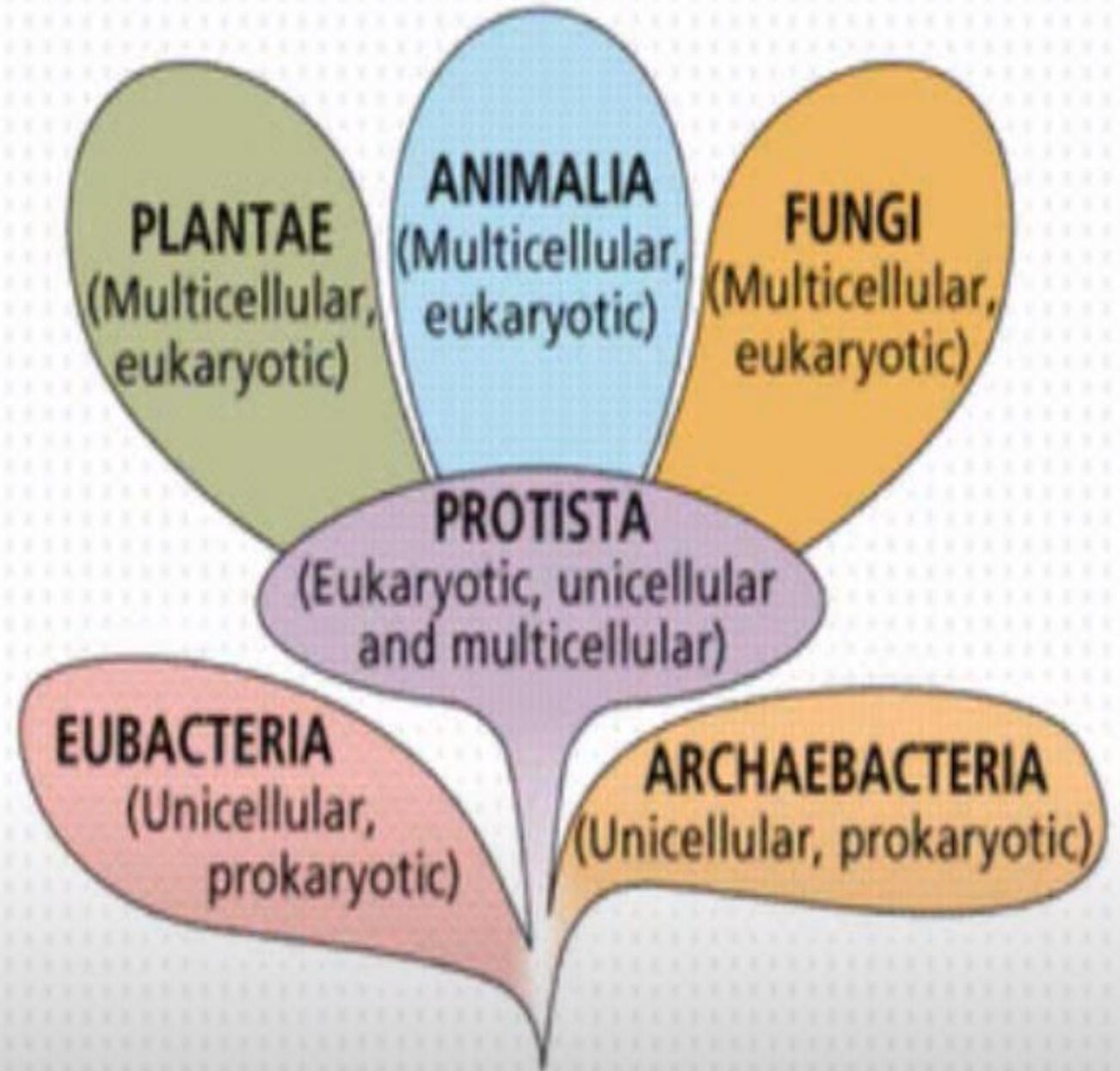
See more at: <http://www.nhm.ac.uk/our-science/departments-and-staff/library-and-archives/collections/linnaean-collection.html#sthash.JxktQnK9.dpuf>

# Linnaeus's System of Classification

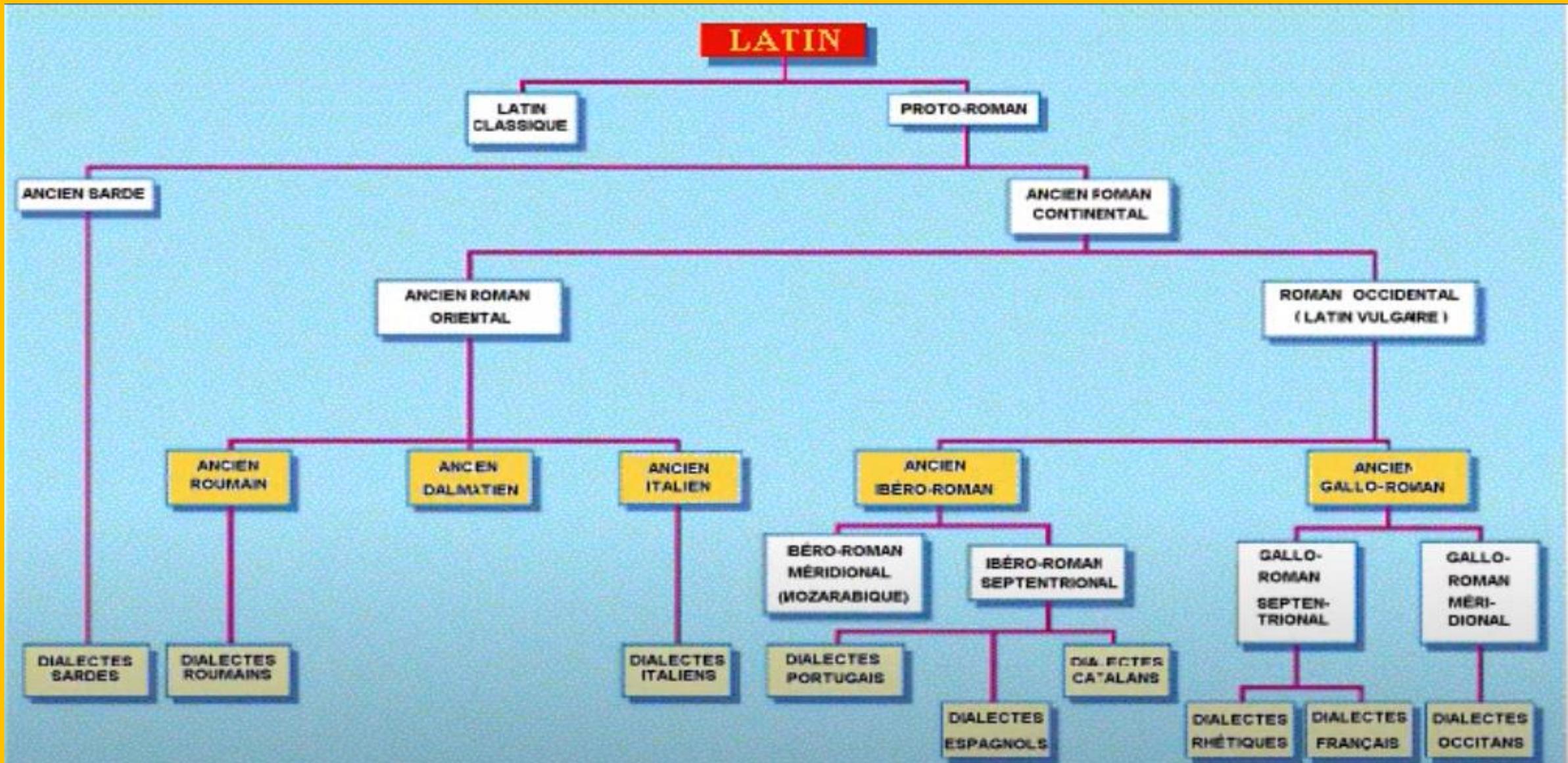


# Main kingdoms for classification

These are the main 'kingdoms' used for classification.



Classification results in us being able to group most things, even language!



Carl Linnaeus was born in Sweden on 23rd May 1707.

He spent a lot of his life studying and collecting plants and animals. At that time, names were very confusing because people in different places would have different names for the same plant or animal.

For example in different parts of the world, the word **squirrel** can mean different animals.

Also the same animal could be called different things in different languages:

English: squirrel

Catalan: esquiol

French: écureuil

Italian: scoiattolo

German: eichhörnchen



Linnaeus wanted a system of naming that could be used throughout the world.

He gave each plant and animal a name made up of two words in Latin:

- The first word is a family name, like your surname. This is called the **genus**.
- The second name is called the **species**, and is like your first name.

Two living things with the same family name (**genus**) are related. So all bushy tailed squirrels were given the genus **Sciurus** meaning "Shadow tail".



Sciurus vulgaris – red squirrel



Sciurus carolinensis- grey squirrel

Linnaeus published this system in a book. Other scientists soon started using this way of naming every living thing on Earth.

Carl Linnaeus invented a way of naming living things that everyone all over the world can understand.

## Task 2

Use the notes that you took to create a ***non-chronological*** report about Linnaeus.

How will you structure it?

What information will it need?

What sub-headings will you use?

## Plenary: Did you know? Fun facts

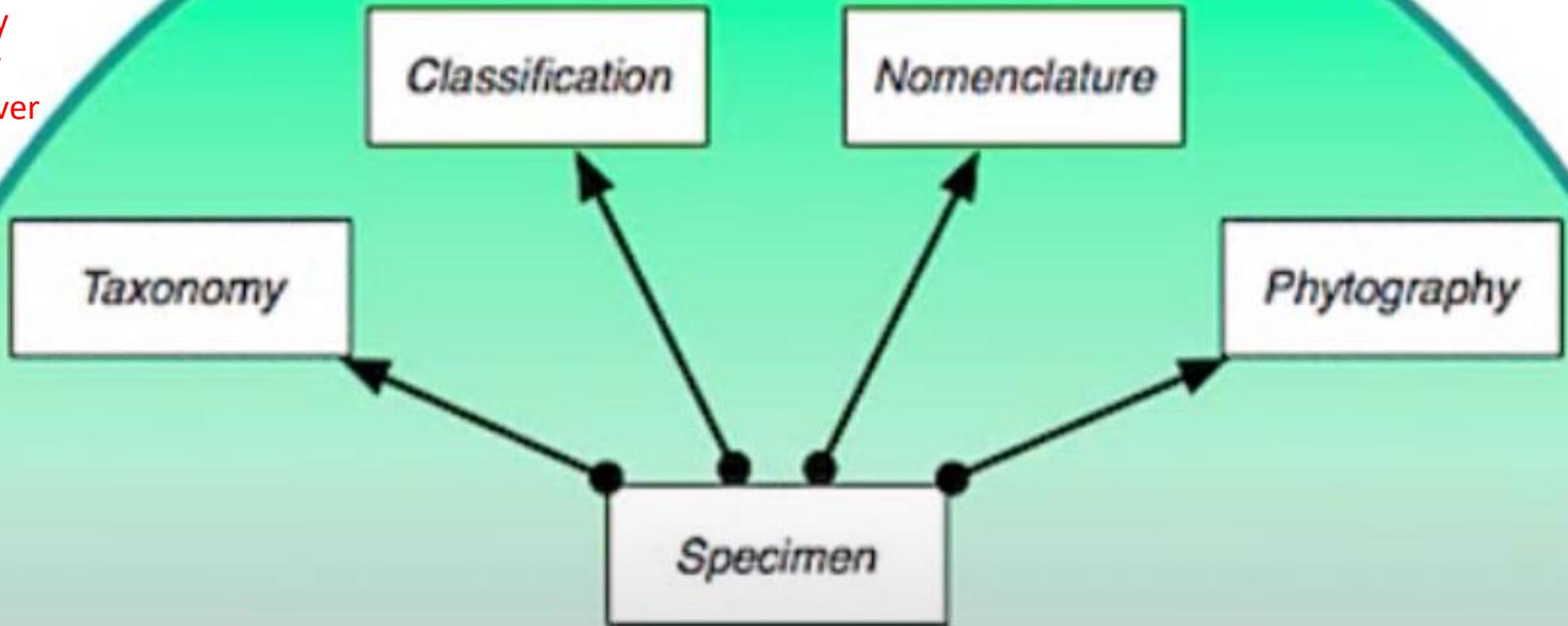
A species is usually defined as individuals that can reproduce (have children).

Pears, peaches and apricots are a member of the rose family.  
Peanuts aren't nuts at all, but a bean.

On average, 1g of soil contains 40 million bacteria.

A prairie dog is not a dog at all – it is a type of squirrel, which is a type of rodent. It's all in the classification!

The classification system has been adapted from its original form and used by many other scientists over time.



## *Systematic Botany*



# Classification

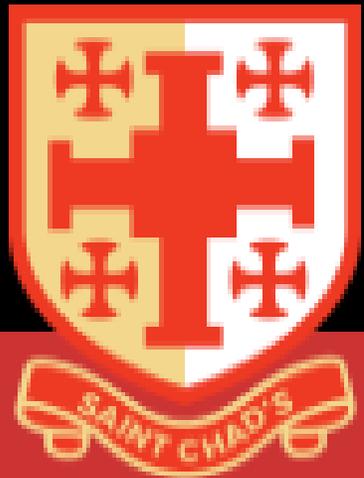
Summer 2

Week 11 - 12

Lessons 8

L.O: To understand how living things can be classified into groups scientifically.

L.O: To observe similarities and differences and use them to classify living things



# What is Classification?



# What is Classification?

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# What is Taxonomy?

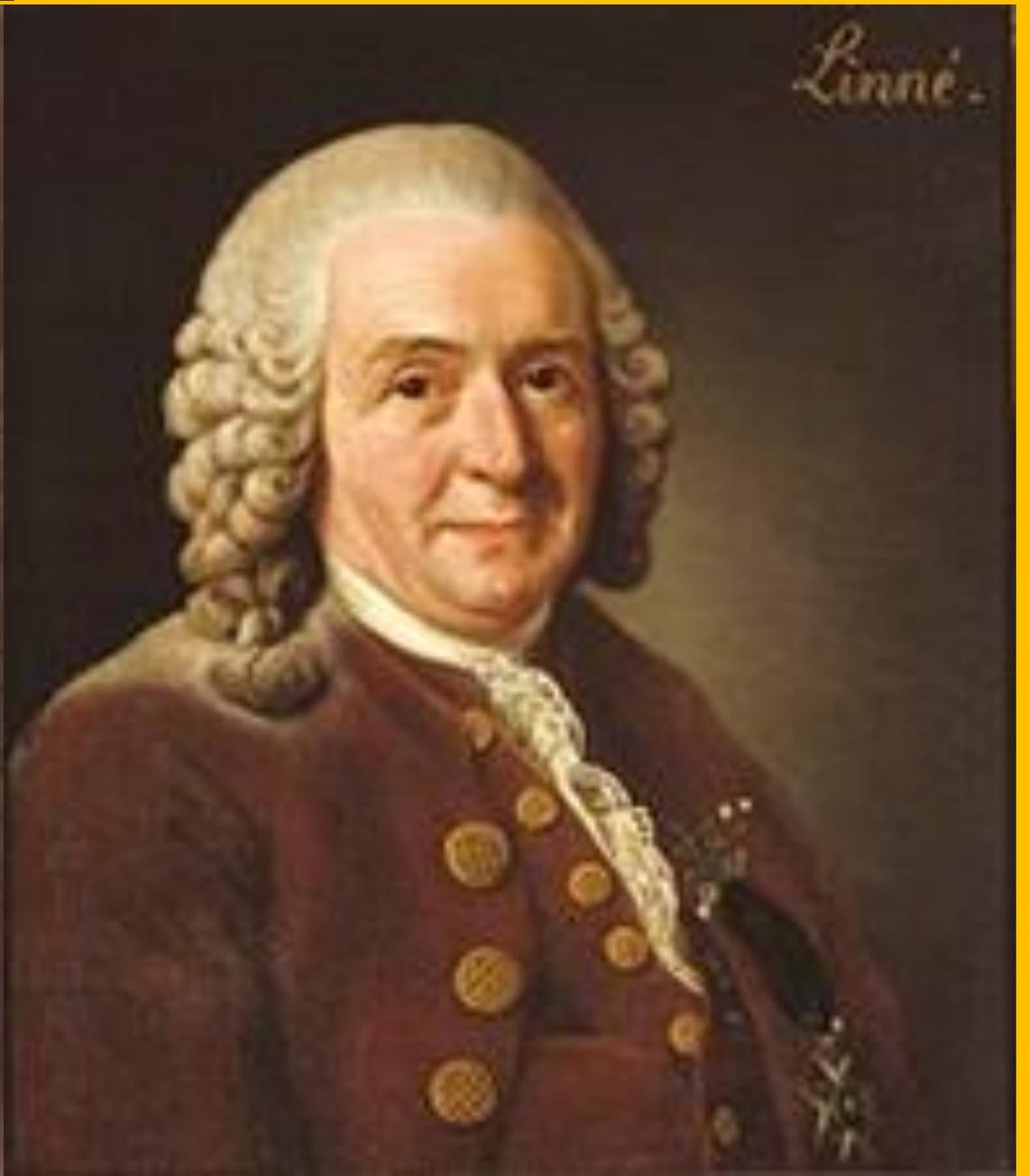


# What is Taxonomy?

**tax·on·o·my**/tak'sänəmē/

Noun: The branch of science concerned with classification, esp. of organisms; systematics.  
The classification of something, esp. organisms:  
"the taxonomy of these fossils".

Carl Linnaeus (Carl von Linné) Who was he? Why was his work in science important?



Animals	Plants	Minerals

**BINOMIAL NOMENCLATURE OF SOME COMMON PLANTS AND ANIMALS**

COMMON NAME	BINOMIAL NOMENCLATURE
-------------	-----------------------

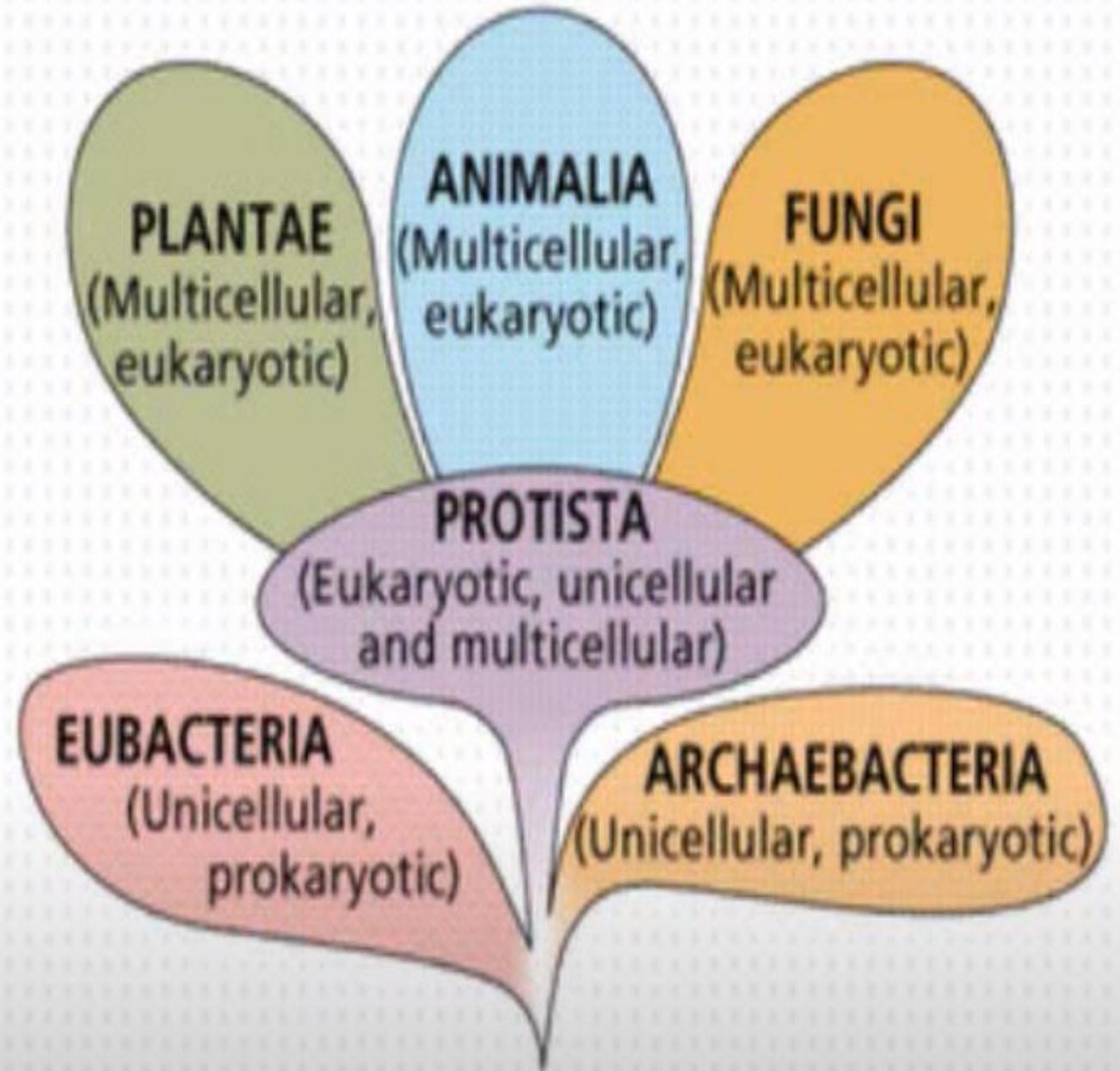
A. PLANTS	
1. Pea plant	<i>Pisum sativum</i>
2. Onion plant	<i>Allium cepa</i>
3. Mango plant	<i>Mangifera indica</i>
4. Wheat plant	<i>Triticum aestivum</i>
5. Banyan tree	<i>Ficus bengalensis</i>
6. Soya bean	<i>Glycine max</i>

B. ANIMALS	
1. Frog	<i>Rana hexadactyla</i>
2. Cat	<i>Felis domestica</i>
3. Dog	<i>Canis familiaris</i>
4. Housefly	<i>Musca domestica</i>
5. Cobra	<i>Naja naja</i>
6. Common carp (Fish)	<i>Cyprinus carpio</i>

When classifying, things can initially be classified (grouped) as animals, plants and fungi, Protista, eubacteria and archaeobacteria, after which they can be further divided...

# Main kingdoms for classification

These are the main 'kingdoms' used for classification.



## Classification:

There are two main kingdoms and that the animal kingdom can be subdivided into vertebrates and invertebrates

KINGDOM	
Vertebrates	Invertebrates

And this is how it  
works!

# Kingdom Animalia

Multicellular  
eukaryotes (cells contain  
complex structures  
inside membranes)  
Heterotrophs (ingest  
organic material)  
No cell walls  
Mobile at some point in  
life cycle





# Phylum Chordata



Organisms possessing a notochord, hollow dorsal nerve, and a tail for at least part of the life-cycle



Grizzly bear

Black bear

Giant panda

Red fox

Abert squirrel

Coral snake

Sea star



**KINGDOM Animalia**



**PHYLUM Chordata**



**CLASS Mammalia**



**ORDER Carnivora**



**FAMILY Ursidae**



**GENUS Ursus**



**SPECIES *Ursus arctos***

# Class Mammalia

Vertebrates that possess hair, 3 middle ear bones, mammary glands, and a neocortex in the brain

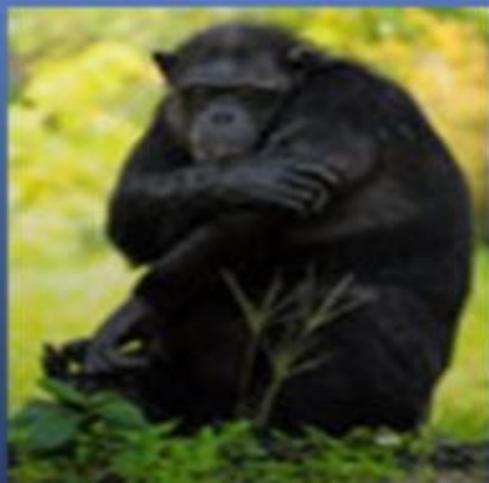




# Order Primate



Mammals with large brains, heavier reliance on vision than smell, opposable thumbs, five digits on hands and feet, three kinds of teeth, and slower development rates





# Family Hominoidea

(the great apes)



Primates that lack a post-natal tail. Males are (on average) larger and stronger than females. Long gestation, post-natal care, and adolescent periods.



# Genus Homo

Bipedal hominoids. Only one surviving species (*H. sapiens*). Large cranial capacity. Possible first use of stone tools



## Species *H. Sapiens*

Fully bipedal hominoids with short, fine, less pigmented body hair. Pelvis allows *H. sapiens* to be one of the best long distance runners in the animal kingdom. The trade-off is that childbirth is far more dangerous than for other primates.

In short...

Genus name



**Homo sapiens**



Specific Name

# All of us!



The summary!

Humans =

Kingdom: Animalia

Phylum: Chordata

Class: Mammalia

Order: Primate

Family: Hominoidea

Genus: Homo

Species: *H. sapiens*

# *Carl Linnaeus - classification*

Classification For kids:

<https://www.youtube.com/watch?v=qj59XXMFjBI>

Film about Carl Linnaeus:

<https://www.youtube.com/watch?v=Gb IO-SzLgk>

## Task 1

What features make a plant different from an animal? Share ideas.

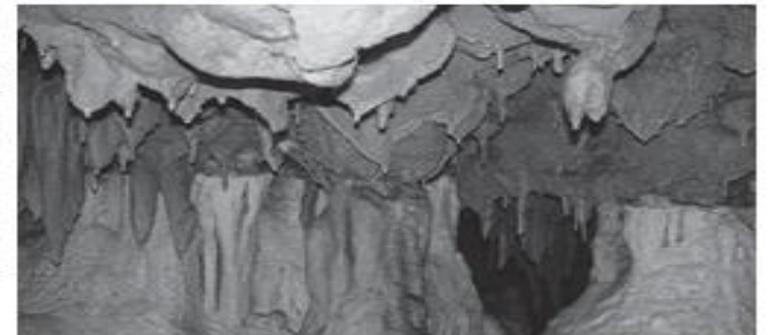
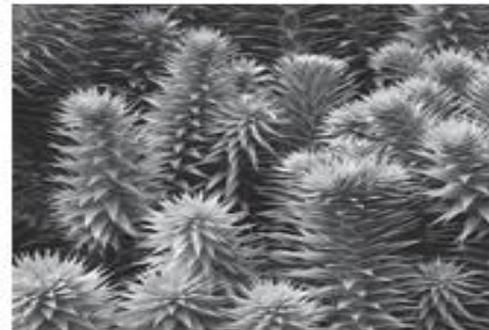
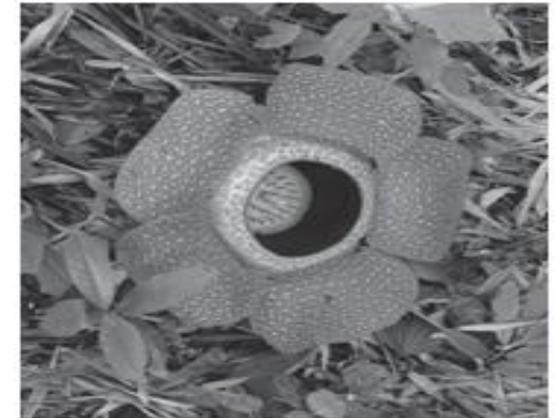
What could these items be classified as and why?

Cut the pictures and stick into your book under the correct heading.

Animal	Vegetable	Mineral



## Animal, vegetable or mineral?





How could we group these creatures?

Group activity



Animalia

Insects

Mammals

Vertebrates

Invertebrates

What else?

What terms could we use?

## Task 1 **ANSWERS**

What features make a plant different from an animal? Share ideas.

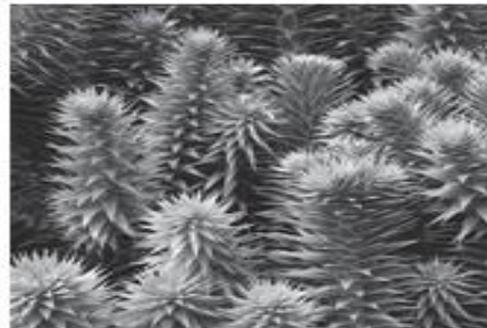
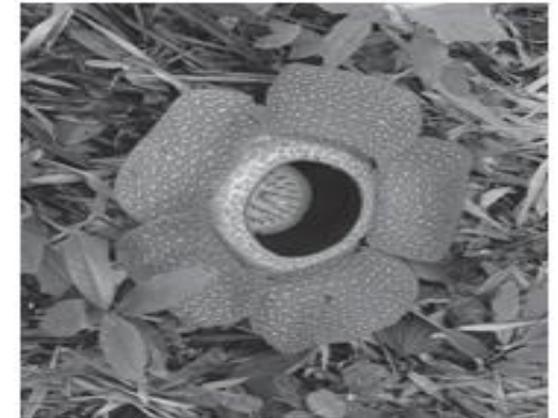
What could these items be classified as and why?

Cut the pictures and stick into your book under the correct heading.

Animal	Vegetable	Mineral
Dugong	Venus Flytrap (Dionaea muscipula)	stalactites
Fish		



## Animal, vegetable or mineral?



## Task 2:

What could you tell me?

### Classification – Test

Answer the questions into your book.

1. Name three features of a plant which make it different to an animal.
2. What three pieces of advice would you give to a Year 4 pupil about how to collect bugs?
3. Give two reasons why microbes are seen as good and two reasons why they might be seen as bad.
4. What might cause a sandwich to go mouldy?
5. Why are fungi not like plants or animals? Name two differences.
6. What are the five kingdoms of classification?
7. What are two facts that you have discovered about Carl Linnaeus?
8. Why do you think that the work of Carl Linnaeus is so important?

**TOPIC 1: CLASSIFYING CRITTERS**

- 1. Any correct answer. One mark per correct answer. Answers might include; they photosynthesise, they make their own food, they have roots and leaves. (3)**
- 2. Any correct/sensible answer. One mark per answer. Answers might include; use the correct equipment (pooters, dishes), be careful and respectful to the creature, make sure that the habitat remains undisturbed (do not drop litter for example) or leave the habitat in a better state than you found it, return the creature to its habitat once you have observed it. (3)**
- 3. Award one mark per reason. Answers might include they carry germs and diseases and they aid digestion. (4)**
- 4. Reasons covered during the investigation include; if it's warmer, not kept in the fridge, if it is exposed to moisture, if it has been left uncovered for days and air gets to it. (2)**
- 5. Any valid difference can be awarded a mark. Might include: fungi do not photosynthesise, fungi create spores. (2)**
- 6. Plants, animals, protists, microbes and fungi. One mark awarded for each. (5)**
- 7. Any two true facts about Carl Linnaeus. Award one mark per fact. (2)**
- 8. Any valid reason here. Answers might include; it enabled scientists to use a common language to identify, it meant that relationships between species could be seen more easily. Award one mark per reason. (2)**