



Classification

Summer 2

Week 11 - 12

Lessons 7 - 8



Recap:

HOW do you think living things evolve?

Why do you think ADAPTATION happened?



Classification

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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?

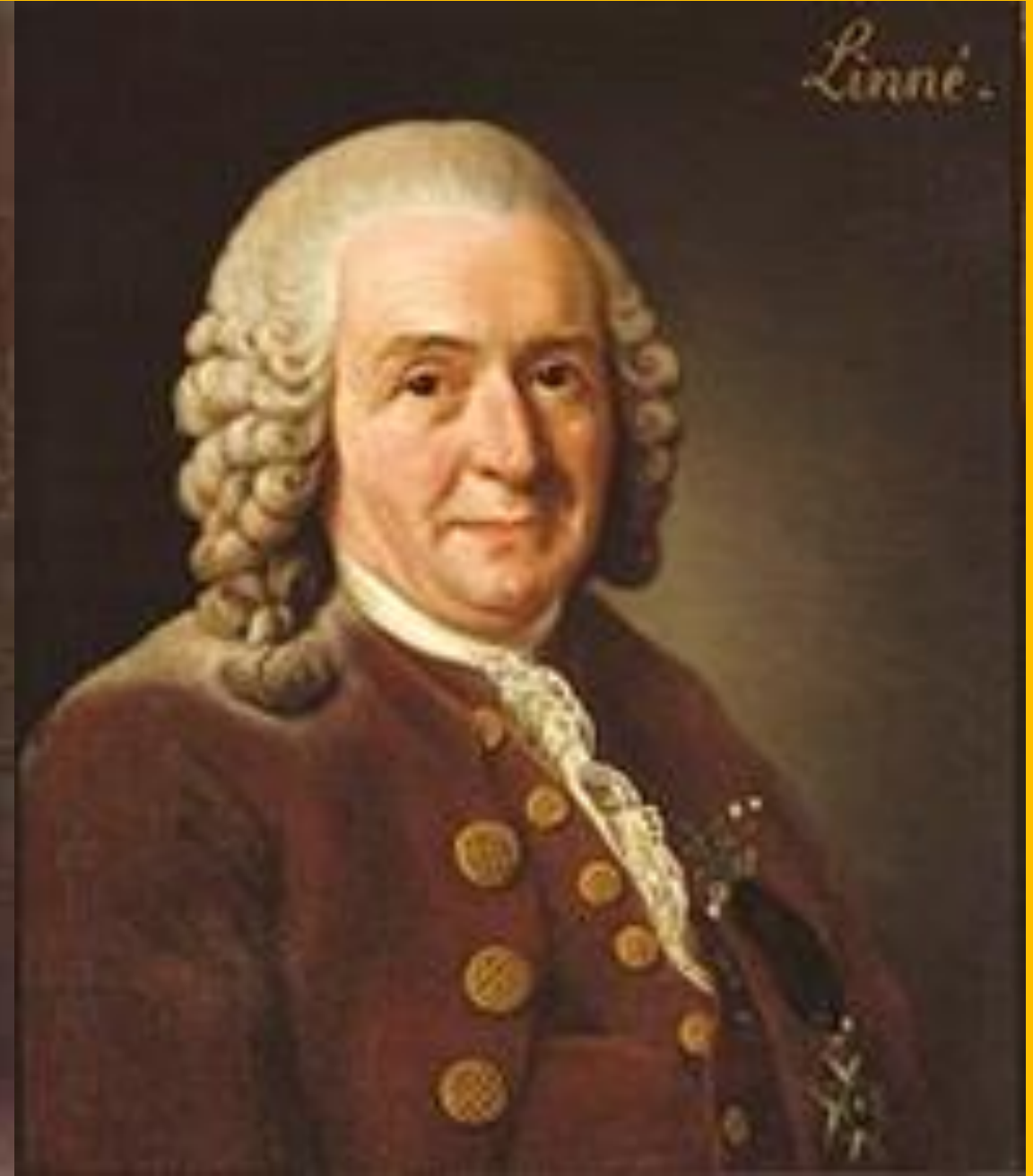


What is Taxonomy?

tax·on·o·my/tak'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?



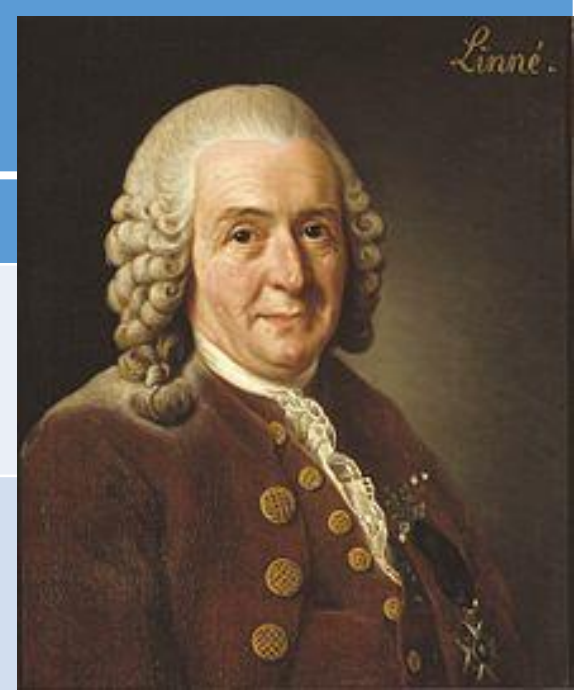
Carl Linnaeus



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_IO-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.



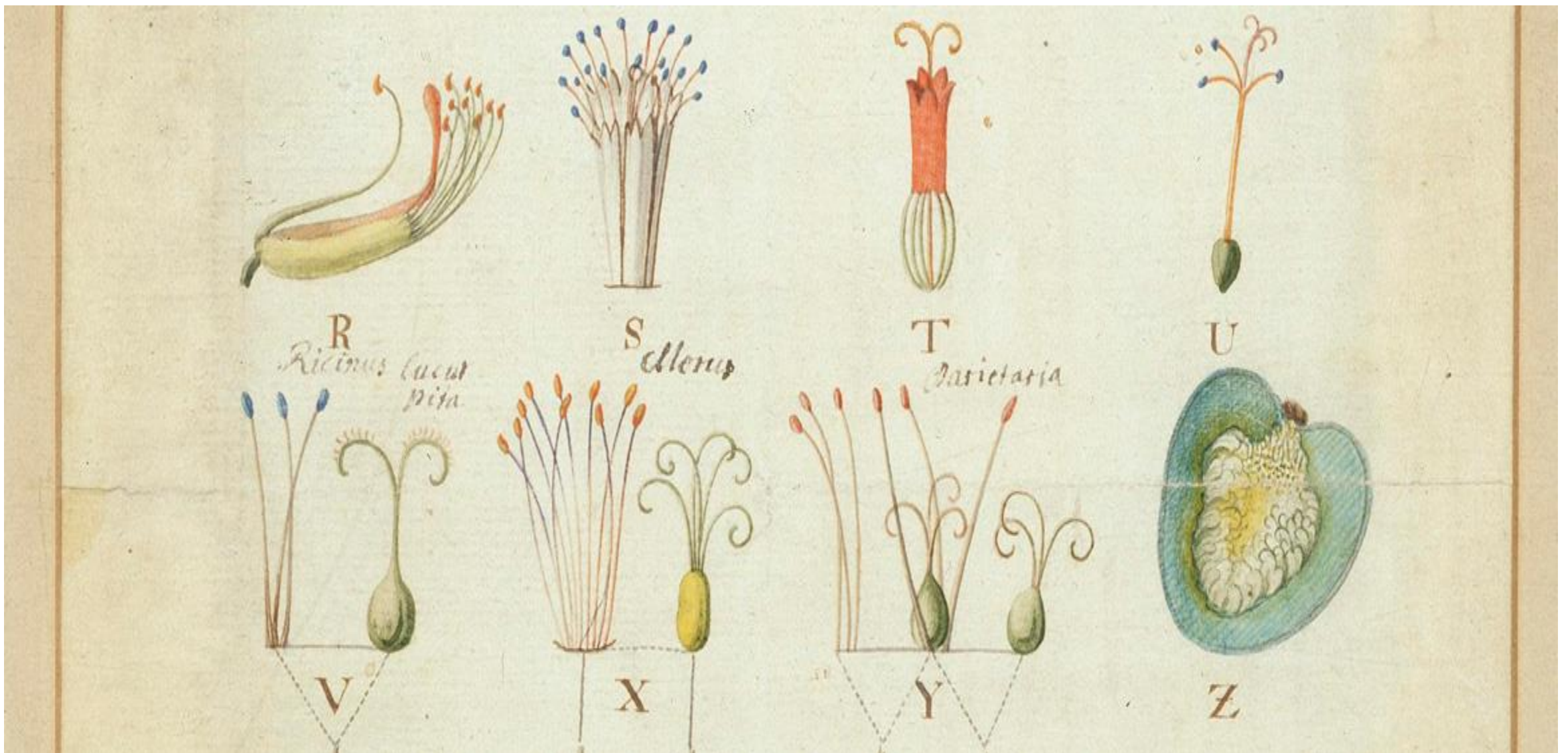
Ordo I.

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. Americanus.
 - β. H. albus, sanguineus torosus. Europæus.
 - γ. H. luridus, melancholicus rigidus. Asiaticus.
 - δ. H. niger, phlegmaticus, laxis. Afer.
 - ε. H. monstrosus solo (a), vel arte (b. c.)
 - a. Alpini parvi, agiles, timidi: Patagonici magni, segnes.
 - b. Monorchides ut minus ferriles: Hottentotti.
Juncæ puellæ abdomine attenuato: Europæi.
 - c. Macrocephali capite conico. Chineses.
Plagicephali capite antice compresso. Canadenses.
2. Homo nocturnus. Ourang Outang Bont. jav. 84. t. 84.
Genus Trogloditæ seu Ourang Outang ab Homine vero diffi-
cile, adhibita quamvis omni attentione, obtinere non potui, nisi as-
merem notam lubricam, in aliis generibus non constantem. Nec Den-
tes laniarii minime a reliquis remoti; nec Nymphae callæ, quibus
carent Simiæ, hunc ad Simias reducere admittebant. Inquirant as-
toptæ in vivo, qua ratione, modo notæ aliquæ existant, ab Homine



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

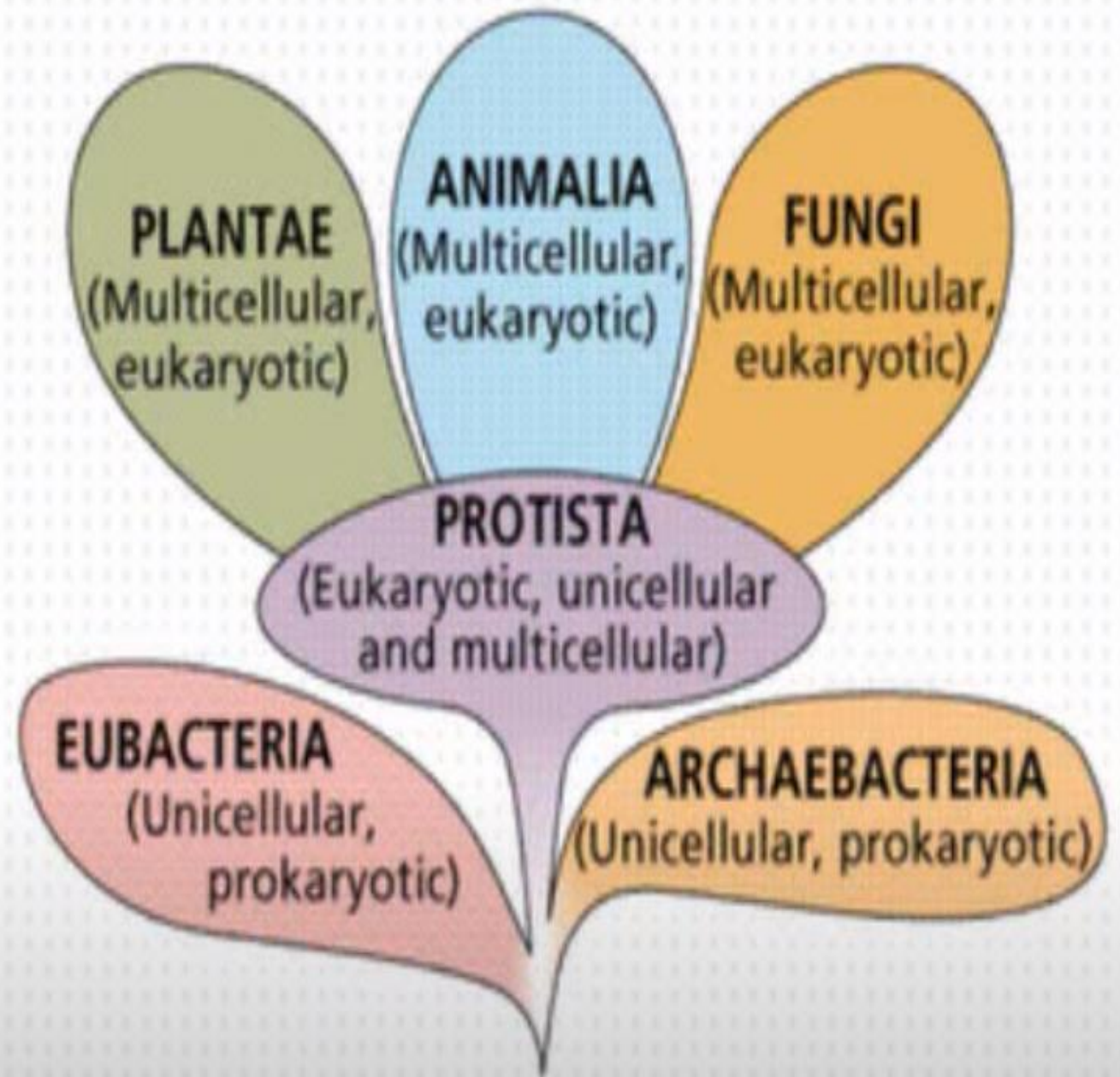
See more at: <http://www.nhm.ac.uk/our-science/departments-and-staff/library-and-archives/collections/linnaean-collection.html#sthash.JxktQnK9.dpuf>

Linnaeus's System of Classification

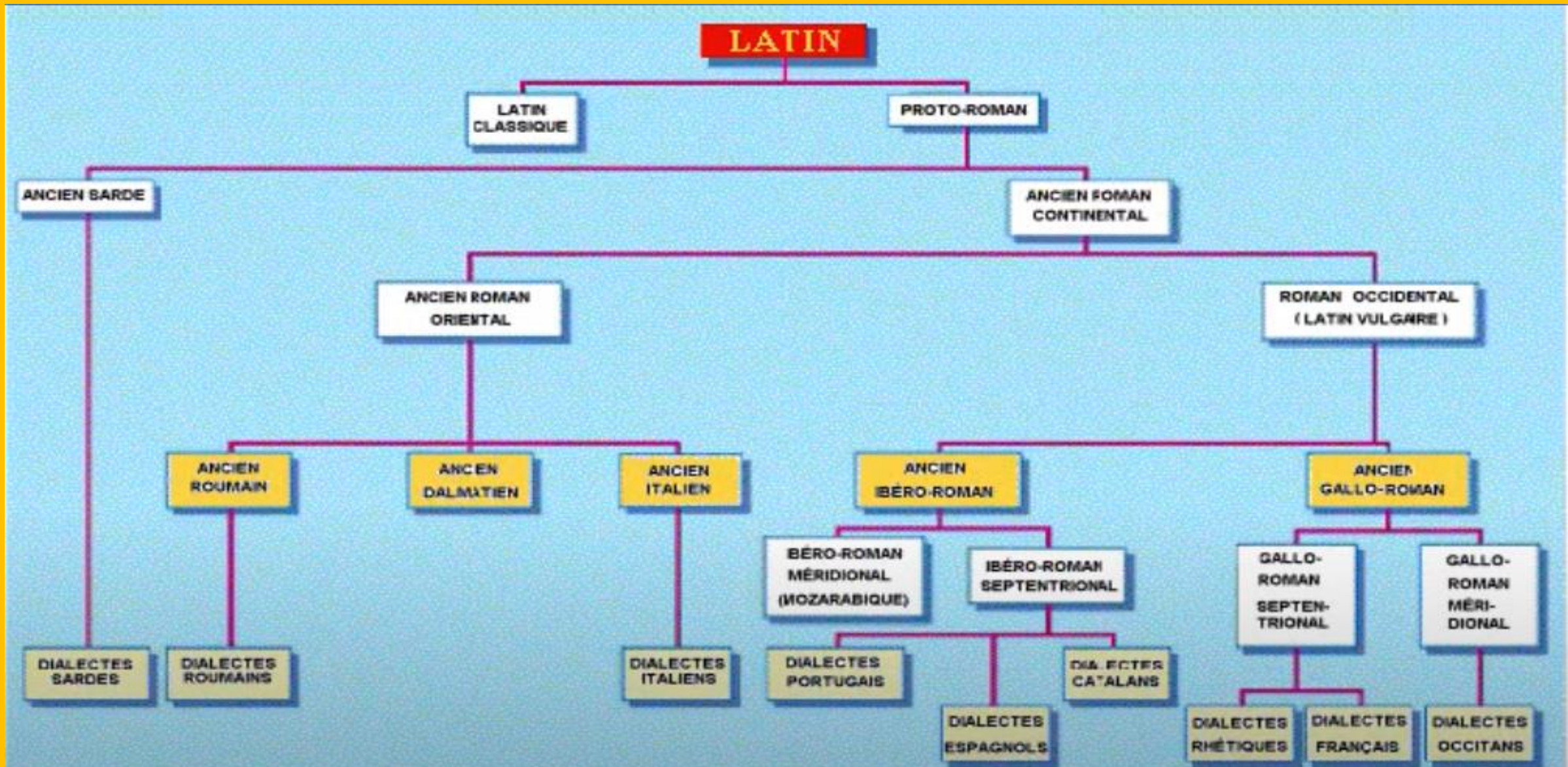


Main kingdoms for classification

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: esquírol

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

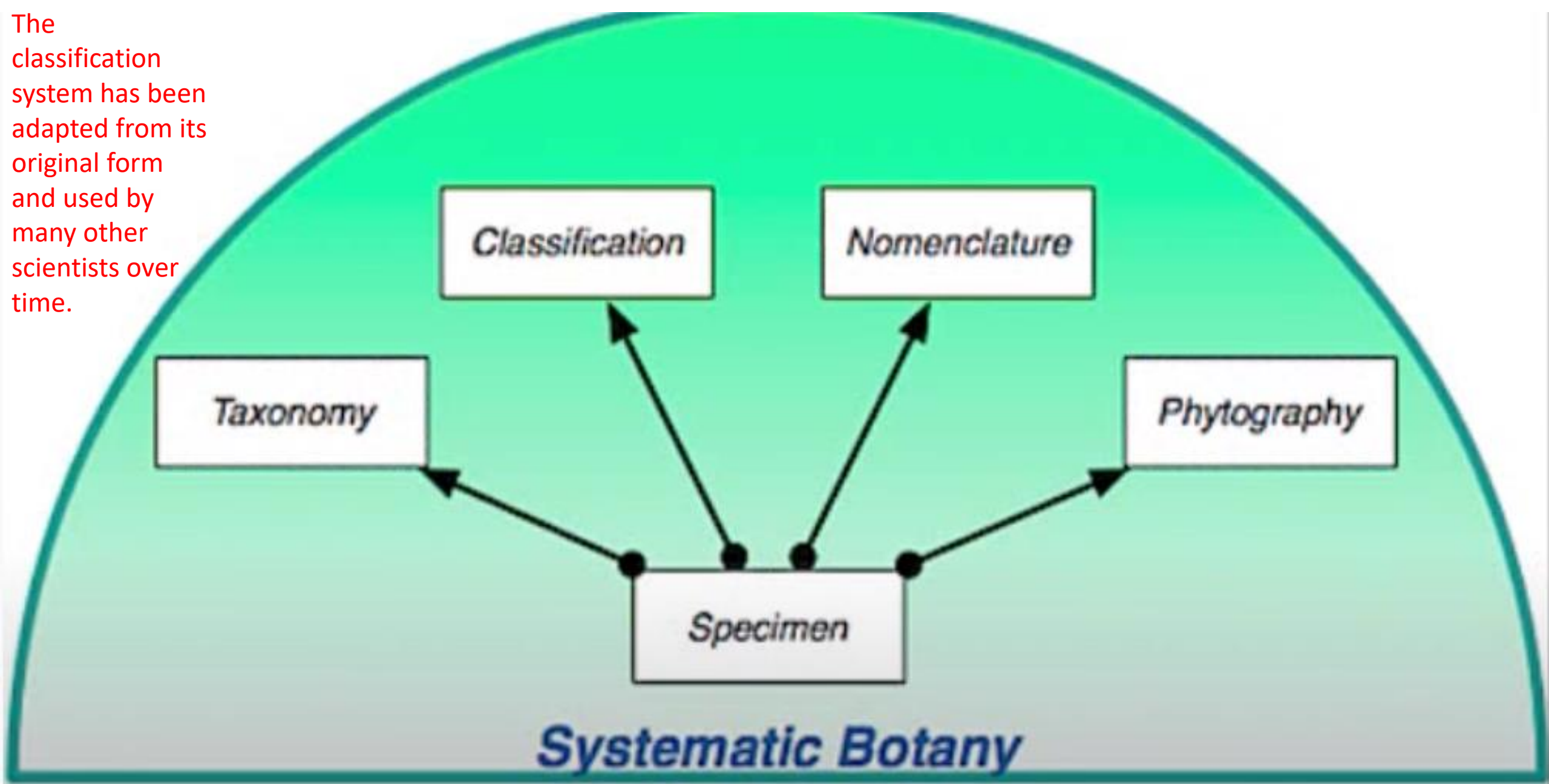
A species is usually defined as individuals that can reproduce (have children).

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.





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



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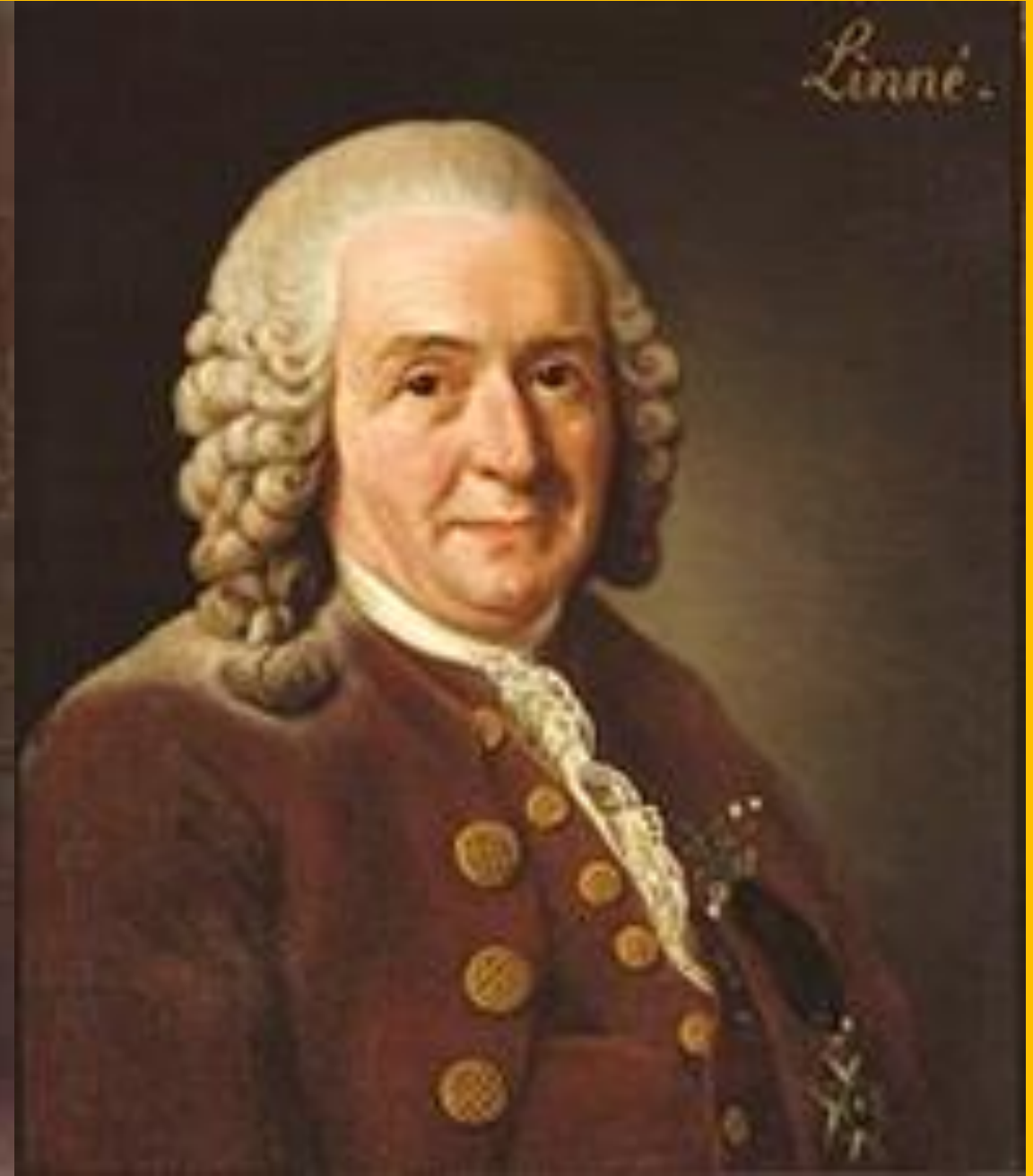


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Carl Linnaeus (Carl von Linné) Who was he? Why was his work in science important?



Animals	Plants	Minerals

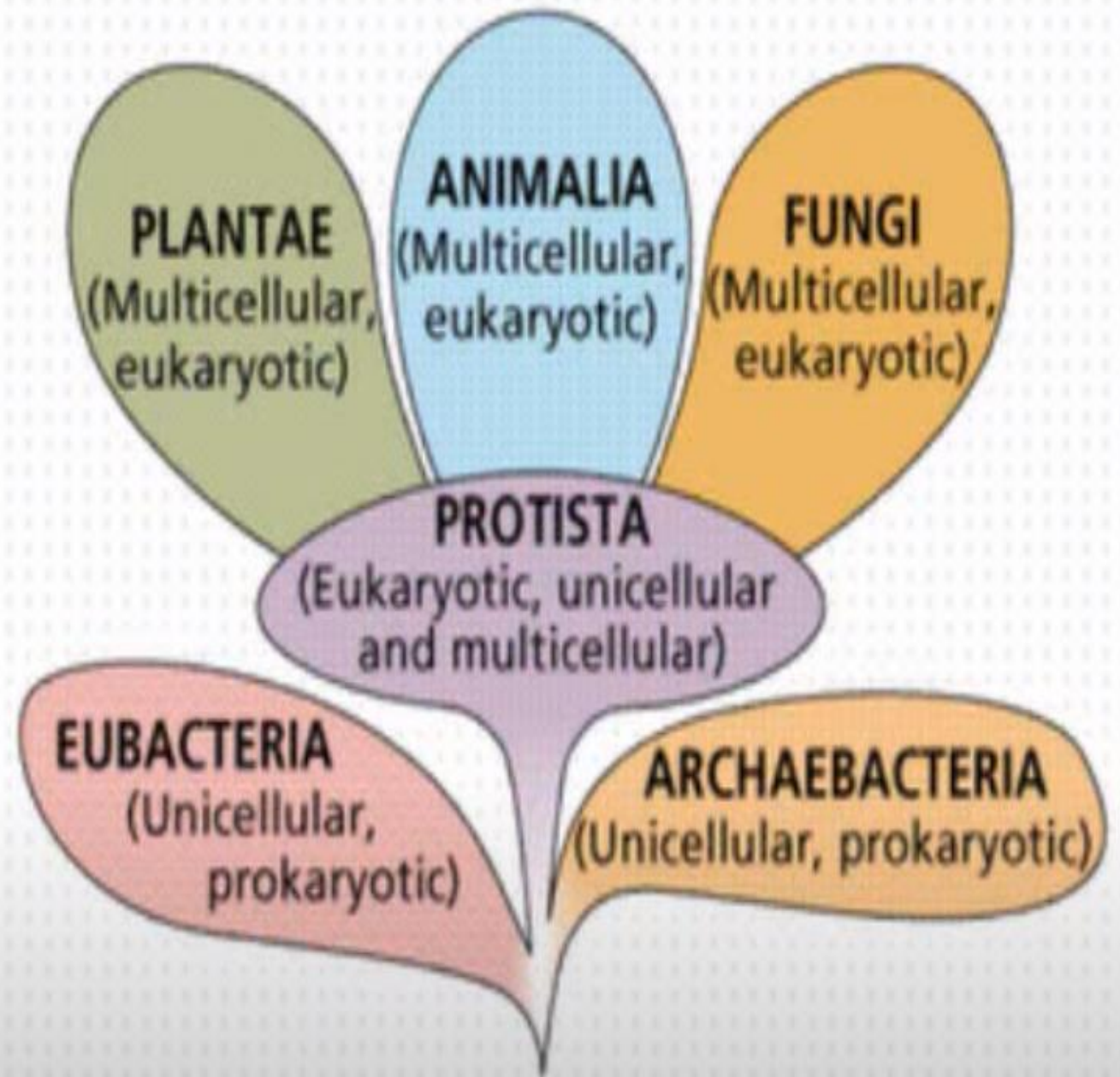
BINOMIAL NOMENCLATURE OF SOME COMMON PLANTS AND ANIMALS

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 archaebacteria, 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.

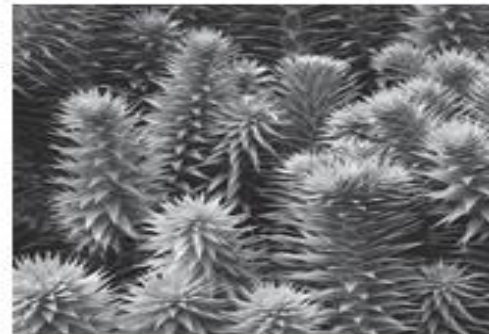
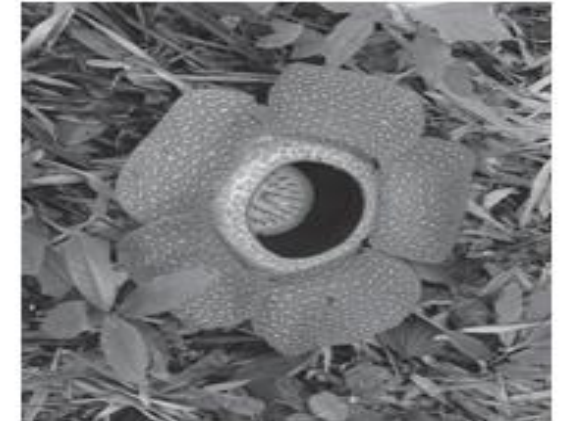
What could these items be classified as and why?

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**

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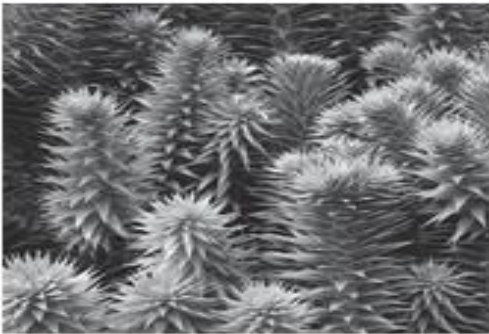
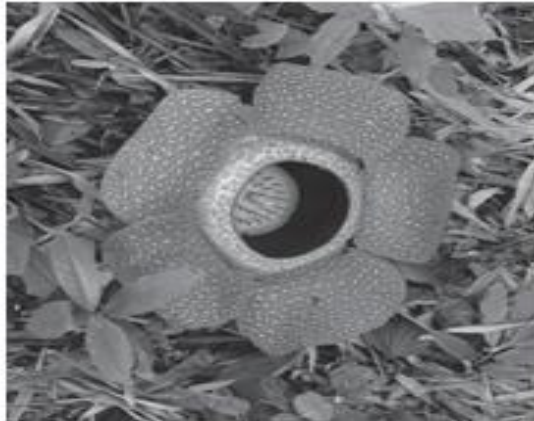
Animal	Vegetable	Mineral
Dugong	Venus Flytrap (Dionaea muscipula)	stalactites
Fish		



Animal, vegetable or mineral?



Dugong | Mammals in Sri Lanka |...



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 reason 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)