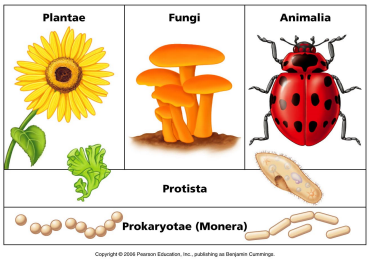
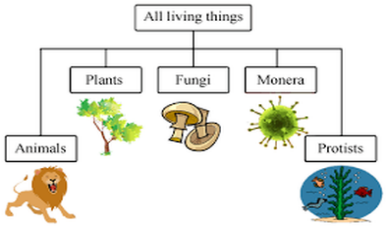
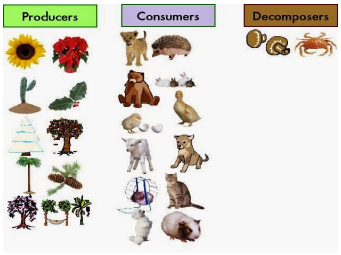
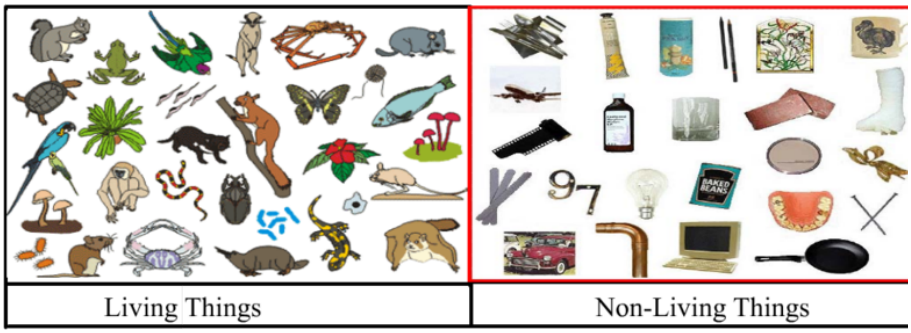


Unit 3:

Variety of Life







Curriculum Outcomes

STSE	Skills	Knowledge
Students will be expected to	Students will be expected to	Students will be expected to
Nature of Science and Technology	**Initiating and Planning**	**300-15** describe the role of a common classification system for living things
104-5 describe how results of similar and repeated investigations may vary and suggest possible explanations for variations	**204-1** propose questions to investigate and practical problems to solve	**300-16** distinguish between vertebrates and invertebrates
104-8 demonstrate the importance of using the languages of science and technology to compare and communicate ideas, processes, and results	**204-6** identify various methods for finding answers to given questions and solutions to given problems, and select one that is appropriate	**300-17** compare the characteristics of mammals, birds, reptiles, amphibians, and fish
105-1 describe examples of scientific questions and technological problems that are currently being studied	**204-8** identify appropriate tools, instruments, and materials to complete their investigations	**300-18** compare the characteristics of common arthropods
105-5 identify examples of scientific knowledge that have developed as a result of the gradual accumulation of evidence	**Performing and Recording**	**300-19** examine and describe some living things that cannot be seen with the naked eye
Relationships Between Science and Technology	**205-7** record observations using a single work, notes in point form, sentences and simple diagrams and charts	**302-12** describe how microorganisms meet their basic needs, including obtaining food, water, and air, and moving around
106-3 describe examples of improvements to the tools and techniques of scientific investigation that have led to new discoveries	**205-8** identify and use a variety of sources and technologies to gather pertinent information	**301-15** compare the adaptations of closely related animals living in different parts of the world and discuss reasons for any differences
Social and Environmental Contexts of Science and Technology	**Analysing and Interpreting**	**301-16** identify changes in animals over time, using fossils
107-1 describe examples, in the home and at school, of tools, techniques, and materials that can be used to respond to their needs	**206-1** classify according to several attributes and create a chart or diagram that shows the method of classifying	
107-6 provide examples of how science and technology have been used to solve problems around the world	**206-9** identify new questions or problems that arise from what was learned	
107-11 identify examples of careers	**Communication and Teamwork**	
	207-2 communicate procedures and results, using lists, notes in point form, sentences, charts, graphs, drawing, and oral language	

Think about the layout of a grocery store, what do you notice?

Produce, Bakery, Meat, Dairy, frozen food are all along the outside. Then rows of food that are labeled. Ex) Baking Needs, Cleaning, condiments, and so on.

Why do we classify things?

- Supermarket aisles
- Libraries
- Classes
- Teams/sports
- Members of a family
- Roads
- Cities
- Money

How would you group these items and why?

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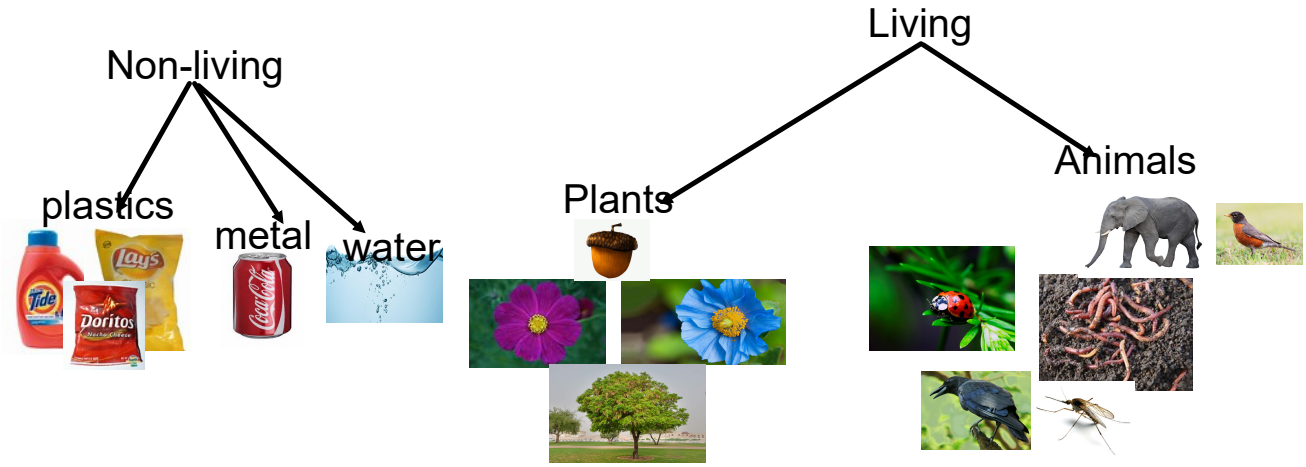


Taxonomy - is the science of grouping or organizing things into groups based on common characteristics.

Classifying Living or Non-living

Science biologist study life, they need to be able to tell the difference between living things and non-living things.They ask themselves a set of questions:

Can it grow and develop?

Can it reproduce to make more of its own kind?

Can it make or get food?

Can it use food?

Can it sense and react to living and non-living things in its surroundings, and react to them?

Is it made up of cells?

If the all are yes then classify as living.

Ecology is the study of how living things interact with each other

Factors of our Environment

Biotic are living factors include:

- Plants
- Animals

organisms

- Dead organisms & Waste Products (came from living at one time)

Abiotic are nonliving factors that affect other living things:

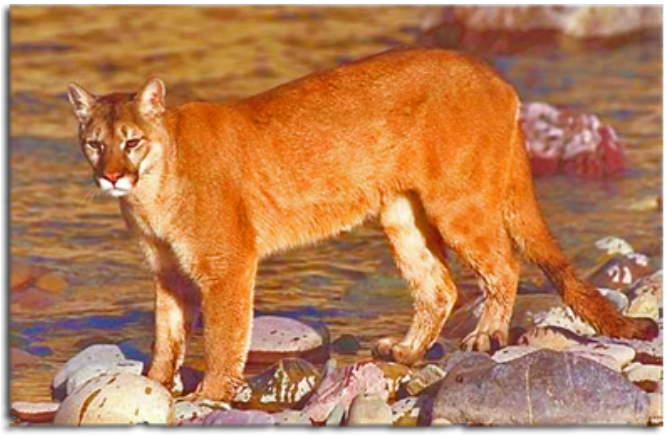
- Air
- Water
- Soil
- Rocks
- Light
- Temperature
- Climate

Don't copy

Scientists classify organisms and assign each one a universally accepted name.

- Scientists classify because it is an **organized way to communicate** about the same organism all over the world. A classification system was developed because:
- Scientists once communicated about organisms by using common names.
- Common names can vary among languages and geographical regions.

Ex: Mountain lion, puma, cougar, and panther are all **common names for the same organism.** It would be confusing for scientists to communicate across the world about an organism only using common names.

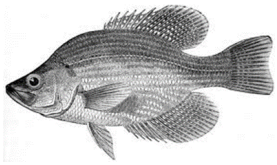


There are many *tree* frogs but **only one** with the scientific name ***Agalychnis callidryas***.

Scientist over time has developed a naming system that they all under stand using binomial nomenclature

Early classification systems

- Aristotle grouped everything into simple groups such as animal or plant
- Then later grouped animals according to how they moved, if they had live young or laid eggs, and so on...



The modern classification system :

Developed by Carolus Linnaeus

Consists of 7 levels:

1) Kingdom
2) Phylum
3) Class
4) Order
5) Family
6) Genus
7) Species