Classification

5th Grade

Georgia Standards of Excellence

S5L1. Obtain, evaluate, and communicate information to group organisms using scientific classification procedures. a. Develop a model that illustrates how animals are sorted into groups (vertebrate and invertebrate) and how vertebrates are sorted into groups (fish, amphibian, reptile, bird, and mammal) using data from multiple sources. b. Develop a model that illustrates how plants are sorted into groups (seed producers, non-seed producers) using data from multiple sources.

What is Classification ?

1. What is classification?

- process of grouping similar things together.

2. Why do scientists use classification?

- it is easier to group different living things together; it makes sense; helps them to understand how animals are the same and different.

Grouping of Living Things

3. What are kingdoms?

-large group that scientists classify living things into.

4. Identify the Five Kingdoms.

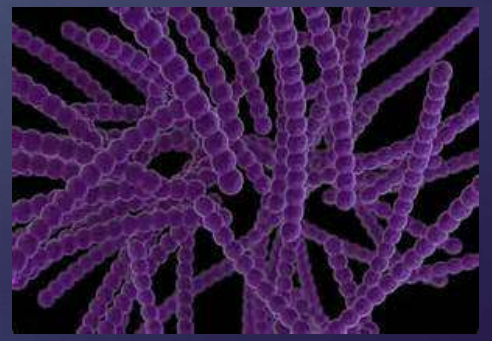
A. Animal- are multicellular; *heterotrophs*, meaning "eater of others,“; are able to move from place to place

B. **Plants**- single/ multicellular organisms; autotrophs (self-feeders); algae that are not multicellular; use chlorophyll in specialized cellular structures called chloroplasts to capture sunlight energy and convert it into food.

C. **Protists**- single celled organisms; some make their own food as plants do; others take in food as animals and fungi do.

D. **Fungi** - share some similarities with plants yet maintain other characteristics that make them more animal-like; reproduce by spores like plants do; they also resemble plants in appearance; mushrooms, yeasts s.

E. **Bacteria** - contains bacteria; all these organisms are single celled and do not contain a nucleus;



Levels of Classification

5. Illustrate the levels of classification.

Kingdom	Animal
Phylum	Chordates (This means the wolf has a backbone.)
Class	Mammals (This means the wolf has hair, has live young, and nurses them.)
Order	Carnivores (This means the wolf is a meat eater.)
Family	*Canids* (This means the wolf has nonretractable claws, a long muzzle, and separate toes.)
Genus	*Canis* (This means the wolf is a member of the dog family.)
Species	*lupus* (This refers to a particular type of wolf known as the European wolf.)

6. How do you remember the classification scheme?

Kings **P**lay **C**ards **O**n **F**riday, **G**enerally **S**peaking

7. What is a phylum?

- a major group within a kingdom; largest grouping of organisms

8. Explain order.

- divides into families

9. What is family?

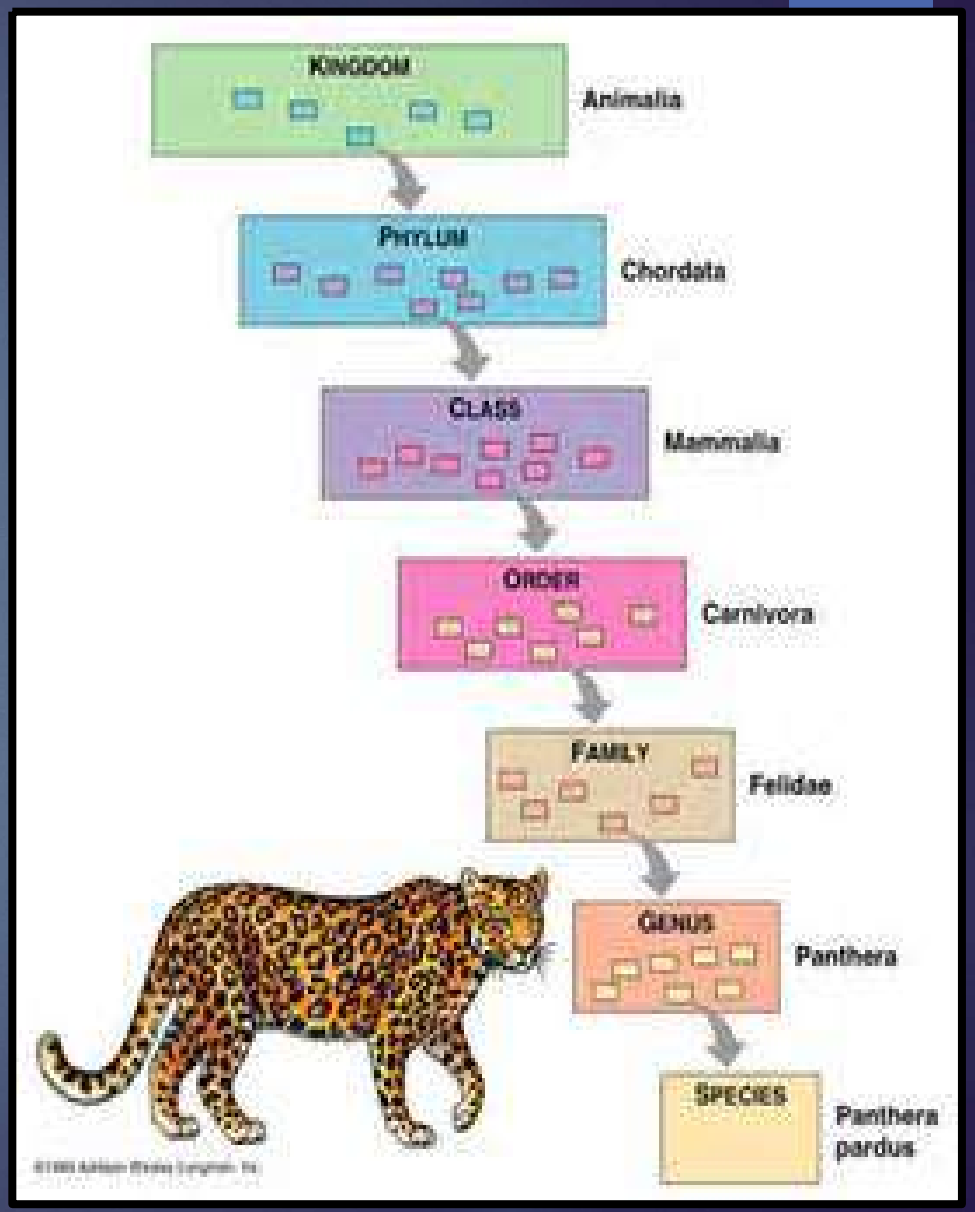
- share many characteristics

9. What is genus?

- a subdivision of a family

10. What are species?

- a unique kind of organism; smallest grouping of organisms

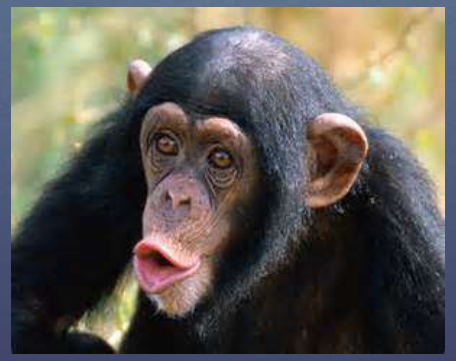


Vertebrates

11. Explain the term vertebrate.

- animals with backbones; they are divided into five groups

A. **mammal** – warm blooded, has hair or fur, produce milk, give live birth, breathe with lungs



B. **Birds** – warm blooded, lays eggs, has feathers and wings, two legs, breath with lungs, has bills or beaks

C. **Amphibians**- cold blooded; breathes with lungs and gills; smooth moist skin; lays eggs; live in water when they are young;

must lay eggs in water

D. **Reptiles** – dry scaly skin, lays eggs, cold blooded, breath with lungs

E. **Fish** – cold blooded, breathe with gills, lays eggs, lives in water, has fins

Invertebrates

12. Explain the term invertebrate.

- an animal without a backbone; largest group of animals on earth (97%)

A. **Protozoa**- single-celled animals; they are the smallest of all animals; most protozoa are microscopic; usually food for fish

B. **Echinoderms**- marine animals that live in the ocean; common echinoderms include the sea star, sea urchin; sand dollar and sea cucumber; the central body contains their organs, and their mouth for feeding.

C. **Annelids**- they can be found almost anywhere in the world; bodies that are divided into segments commonly known worms include leaches earthworms, roundworms and flatworms

D. **Mollusks**- have a soft, skin-like organ covered with a hard outside shell; some mollusks live on land, such as the snail and slug; Other mollusks live in water, such as the oyster, mussel, clam, squid and octopus.

E. **Arthropods**- Arthropods have limbs with joints that allow them to move. They also have an exoskeleton, which is a hard, external skeleton; Arthropods include animals such as insects, crustaceans and arachnids.

F. **Crustaceans** - crustaceans are a type of arthropod; crustaceans have a hard, external shell which protects their body; crustaceans have a head with antennae; most commonly known crustaceans are the crab, lobster and barnacle.

G. **Arachnids**- Arachnids are a type of arthropod; you know many of them as spiders; common arachnids are spiders, scorpions, ticks and mites; have a hard exoskeleton and jointed appendages for walking; most arachnids have 8 legs.

H. **Insects** - common insects include the fly, beetle, butterfly, moth, dragonfly, bee, wasp and praying mantis; insects have an exoskeleton that covers their entire body; an insect's body consists of 3 parts: the head, thorax and abdomen; the insect's head has a pair of antennae.

Structure & Function

13. What two criteria do scientists use to classify living things?

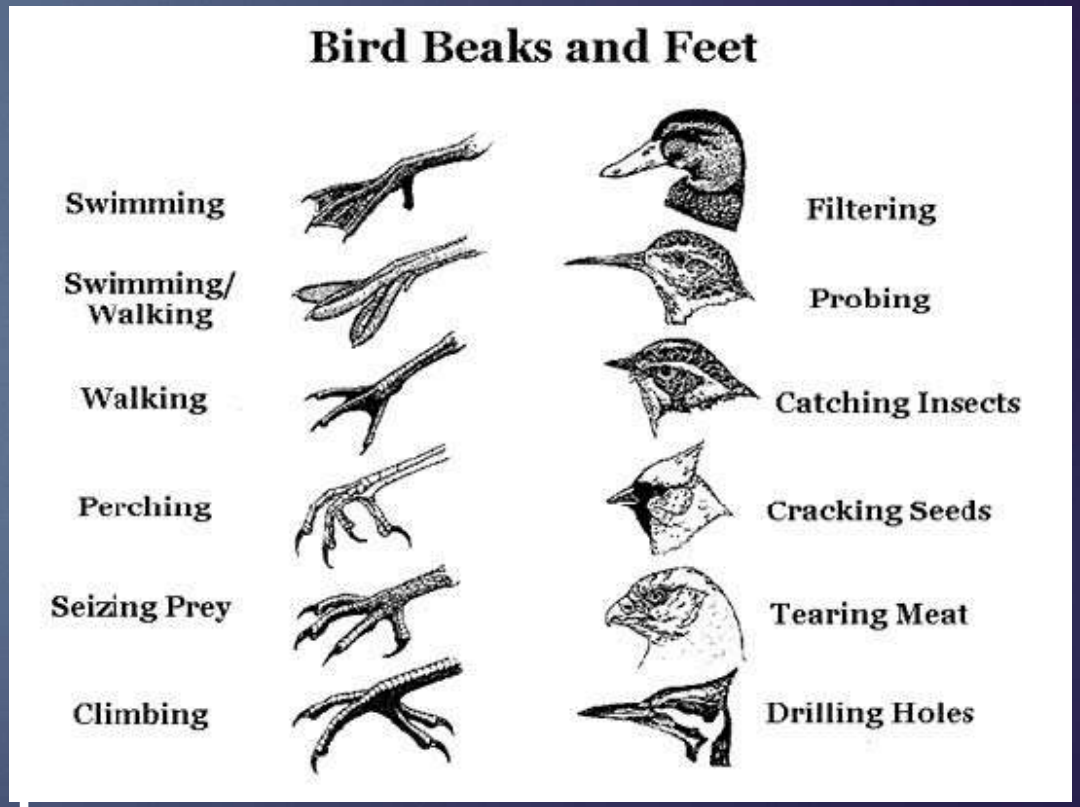
- structure of a body part

14. What is structure?

- to form of a body part

15. What is function?

- the job that the structure does



Nonvascular

16. Explain the term nonvascular.

- don’t have true roots but they are anchored to the ground; much smaller than vascular plants; much of the plant has to be touching the ground

Vascular Plants

17. Explain the term vascular.

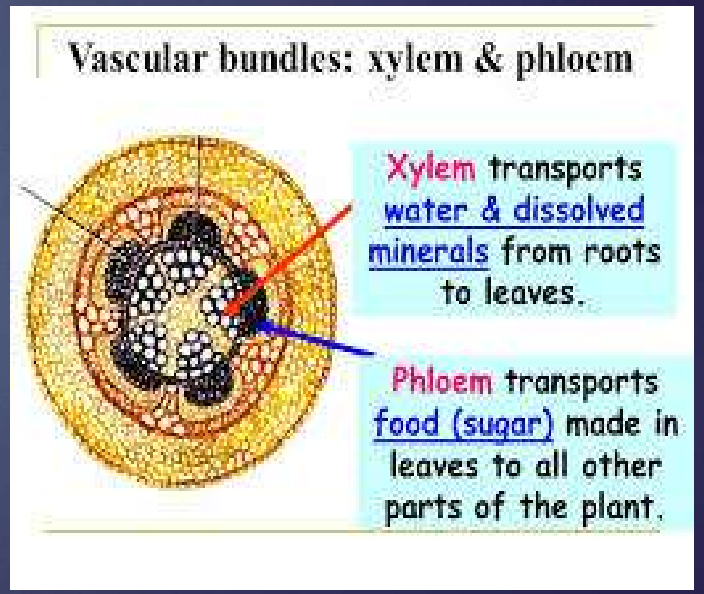
- has true roots; has tissues that supports the plants and carries water and food; roots, stems, and leaves all contain vascular t

Xylem & Phloem

18. Describe the two types of vascular tissue.

A. xylem – carries water and nutrients from roots to other parts of a plant.

B. phloem – carries food from leaf to the rest of the plant



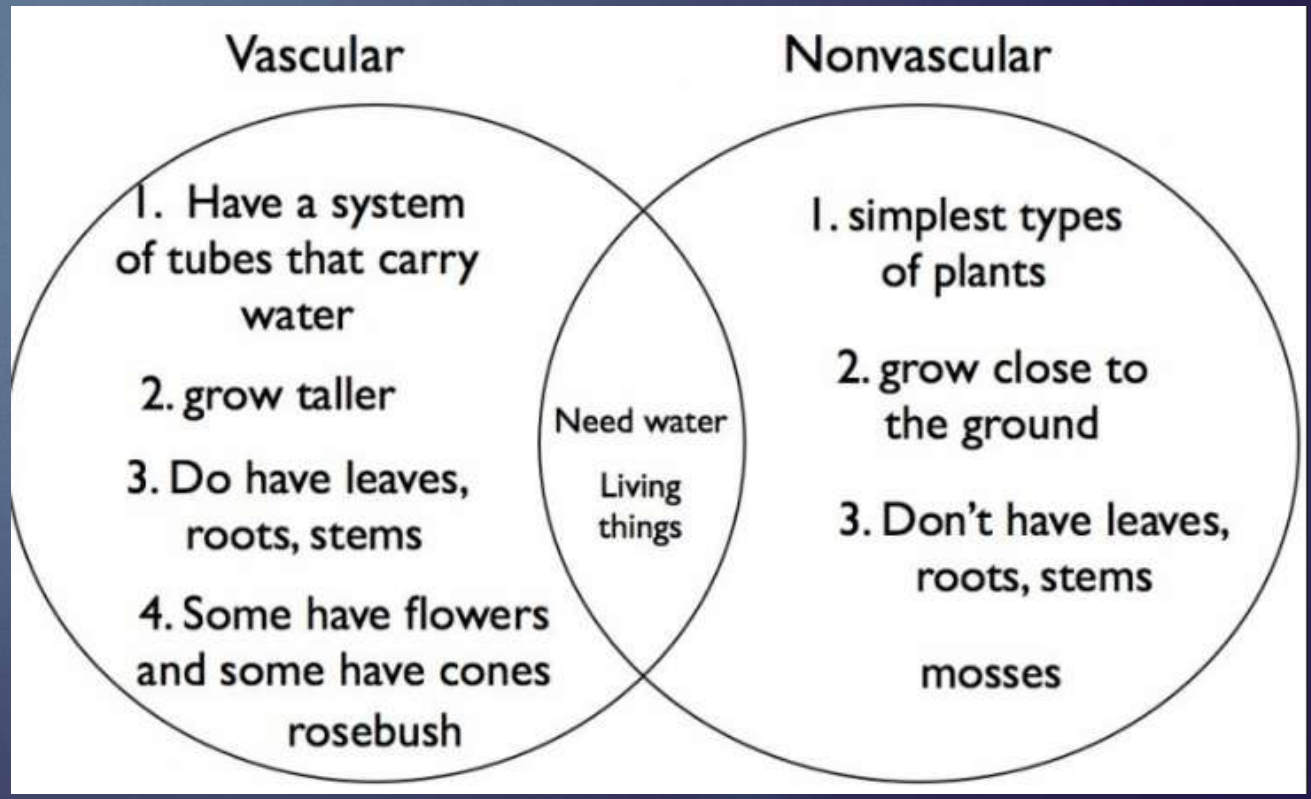
Gymnosperm

19. What is a gymnosperm?

- a plant that produces seeds; also known as a "naked" seed; an example of this is a pine cone which releases pollen (which contains male sperm); purpose is to reach the ovules (female eggs in the female trees which is higher up.

20. How do vascular plants differ from nonvascular plants?

- Vascular plants have true roots, stems, and leaves; they also have tissues that are responsible for
- transporting water
- and nutrients to all
- parts of the plant.



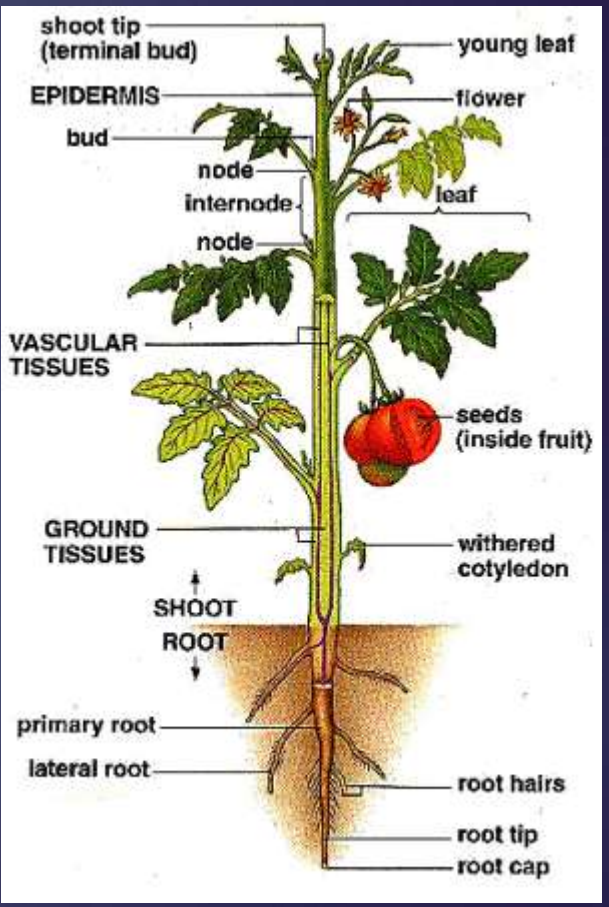
22. How does pollen get from one place to another?

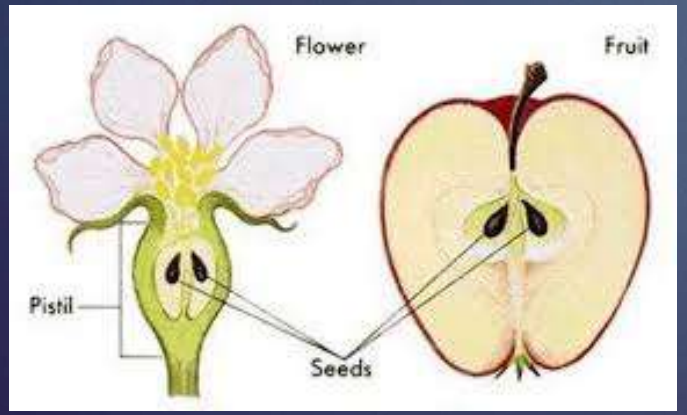
- wind, rain, animals, and humans

Angiosperm

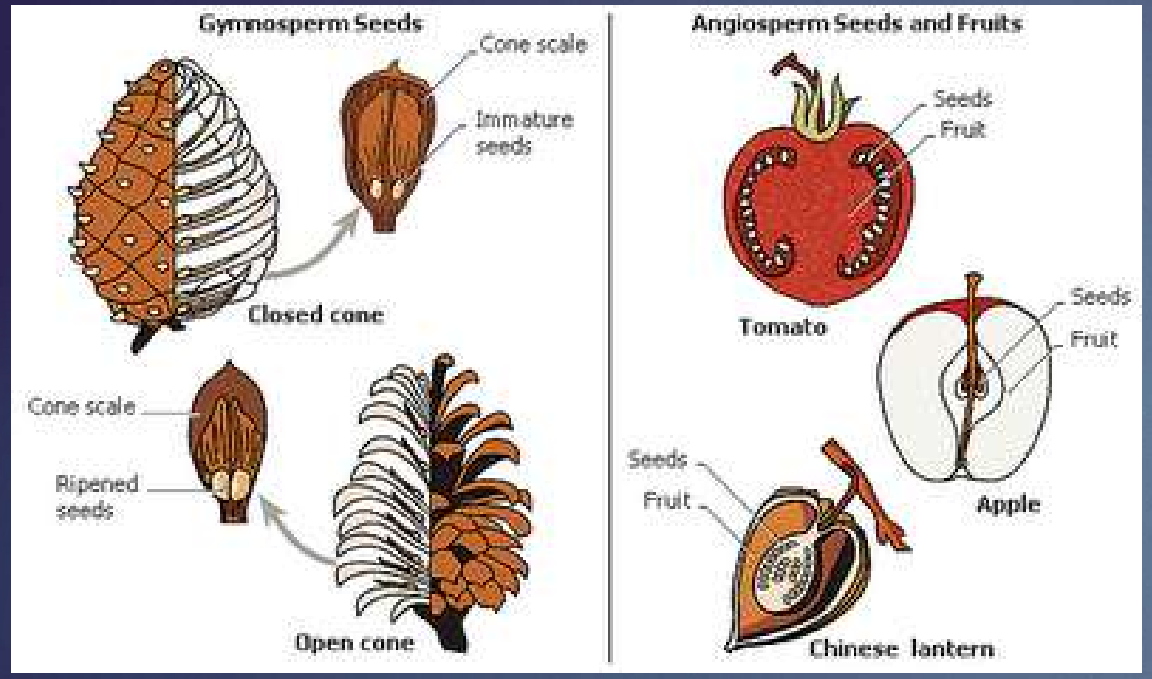
21. What is an angiosperm?

- a flowering plant that has
- seeds protected by a fruit;





Gymnosperms vs. Angiosperms

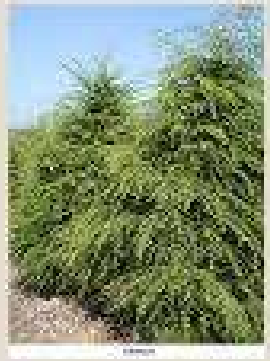


Angiosperms vs. Gymnosperms

- Angiosperm – A flowering plant.
- Gymnosperm – young seeds naked at the time of pollination, the mature seeds never borne in an ovary or fruit.
- Angiosperms are also considered flowering plants. These trees lose their leaves in the winter with the exception of evergreen angiosperms.
- The major group of gymnosperms in Michigan are conifers and the major group of angiosperms are the broad leafed trees.

Seed Plants

Angiosperms and Gymnosperms



EXAMPLES OF ANGIOSPERM

- Apple trees
- Dogwood tree
- Oak tree
- Maple trees