

Name _____

Date: _____

Catalyst/Bellringer: Use the passage below to answer the following questions. Be sure to use your reading strategies to receive full credit for your work.

The Plasma Membrane Review!

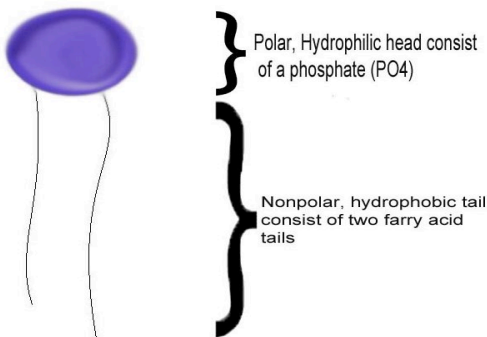
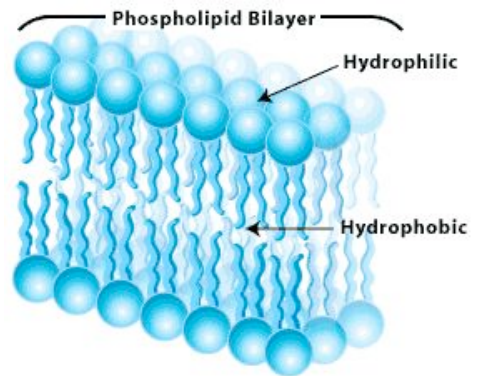
Maintaining a Balance

The **plasma membrane** is the flexible boundary of a cell that separates a cell from its surroundings. It allows nutrients to enter the cell and waste to be removed. Keeping this healthy balance within a cell is called homeostasis.

To maintain homeostasis, the plasma membrane allows some molecules into the cell and keeps others out. This is called **selective permeability**. Some molecules are allowed in at any time. Other molecules are only admitted at certain times and in limited amounts. Others are not allowed in at all.

Structure of the Plasma Membrane

Earlier you learned that lipids are large molecules made up of fatty acids. A **phospholipid** is made up of glycerol, two fatty acids, and a phosphate group. The plasma membrane is made up of two layers of phospholipids arranged back to back in what is called a phospholipids bilayer.

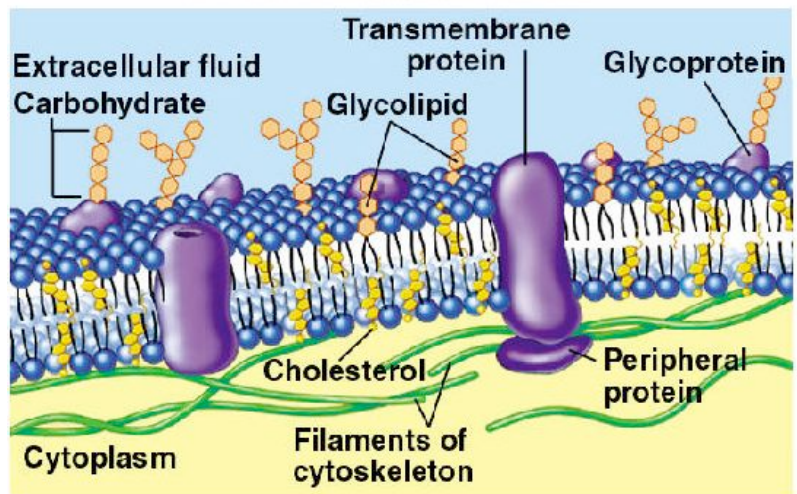


The phosphate group is an important part of the plasma membrane. The group is found in the head of the phospholipids molecule. The head is polar. The tails of fatty acid chains hang from the head. The tails are nonpolar. The two phospholipid layers are arranged so the polar heads are facing out, and the nonpolar tails are facing in.

What is the fluid mosaic model?

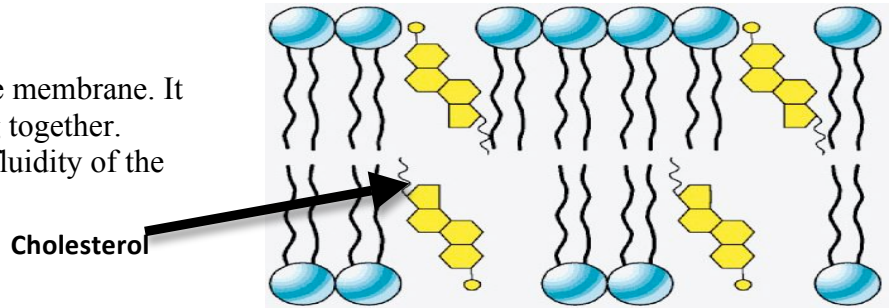
Water, which all living things need, is also polar. The polar phosphate heads on the surface of the membrane allow the polar water to interact with the membrane. Because they are nonpolar, fatty acid tails avoid water. This makes a barrier that is water-soluble on the outside of the membrane, but water-insoluble inside the membrane. This prevents water-soluble molecules from easily moving through the plasma membrane.

Fluid Mosaic Model



This organization of the plasma membrane is called the **fluid mosaic model**. It is fluid because the phospholipids are not fixed in one place, but float in the membrane. Protein molecules also float with the phospholipids. The model is called a mosaic because of the patterns the proteins create on the membrane's surface. Specific portions called **transport proteins** work to regulate which molecules can enter and which are allowed to leave the cell. Other proteins help cells identify chemical signals. Proteins on the inner surface of the membrane help support the cell structure.

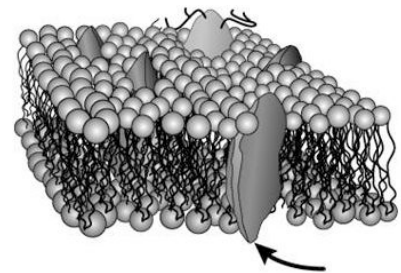
Cholesterol also floats on the surface of the membrane. It helps keep the fatty acid tails from sticking together. Cholesterol plays an important role in the fluidity of the plasma membrane.



1. **The function of the cell membrane is to –**
 - a. keep all materials inside the cell
 - b. provide a waterproof barrier for the cell
 - c. serve as a selective barrier between inside the cell and the outside environment
 - d. keep all external material outside the cell

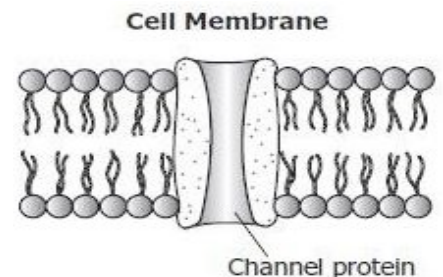
2. **What is composed of two layers of phospholipids associated with proteins?**
 - a. cell membrane
 - b. cell wall
 - c. ribosomes
 - d. cytoplasm

3. **The figure on the right shows the fluid-mosaic model of a cell's plasma membrane. Which of the following *best* describes the structure by the arrow in the figure?**
 - a. a transport lipid floating in proteins
 - b. a transport protein floating in lipids
 - c. a peripheral protein floating in lipids
 - d. a peripheral lipid floating in proteins



4. **The diagram shows a section of a cell membrane that includes a channel protein. The function of this protein is to –**
 - a. strengthen the outer boundary of the cell
 - b. connect reproductive cells during fertilization
 - c. allow certain substances to enter or leave the cell
 - d. exchange organelles or chromosomes between specialized cells

5. **Which is an important function of the fluid mosaic model?**
 - a. packaging cell products for export
 - b. transferring hereditary material to offspring
 - c. preventing a cell from bursting due to osmosis
 - d. controlling passage of materials



Objective: I can classify organisms into their correct kingdom of life.

Homework: Complete HW69. *Study for your Biology SOL. It is on May 14th!!!!*

Activity 1: Cornell Notes

Biology Objective / Essential Question:

Main Ideas / Questions:

1.

Notes:

- All living things can be classified into _____ (groups) based on how closely related they are.
- There are 7 taxons that all life are placed in.
- The more _____ organisms are the more taxons they have in _____.

Pneumonic Device

Kingom ←

Phylym

Class

Order

Family

Genus

Species ←

STOP-AND-JOT:

1. If two organisms are in the same family, what other taxons must they have in common?
2. What taxon is the most inclusive?
3. What taxon is the least inclusive?

2.

Unique Characteristics of Archaeobacteria:

_____ (found in extreme environments)

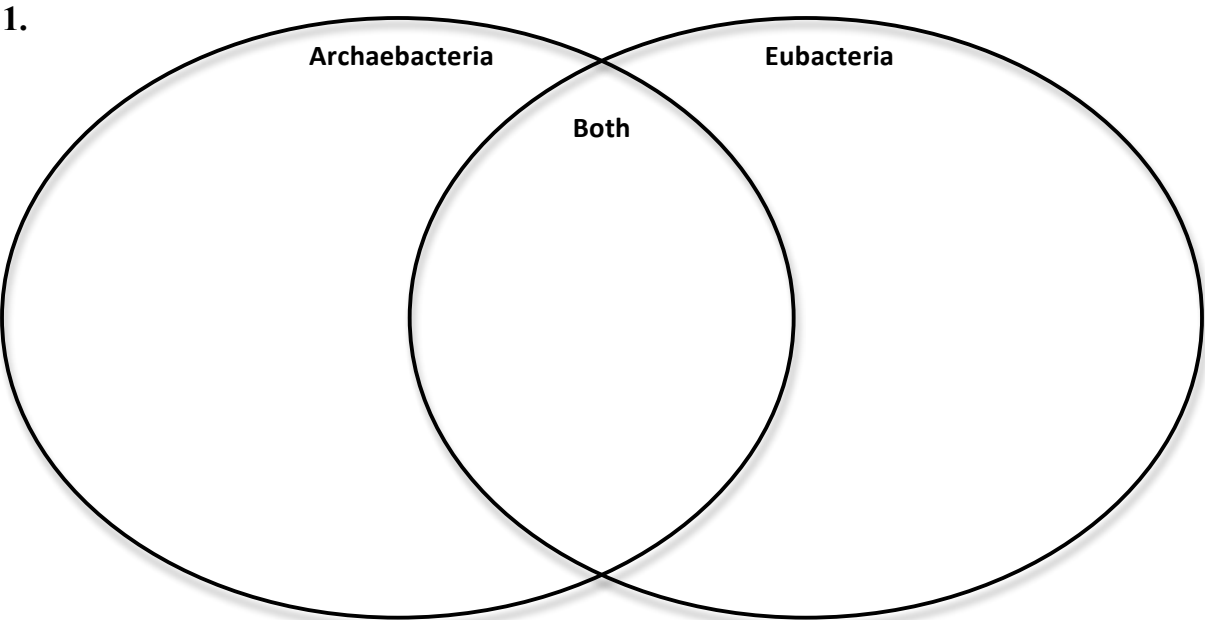
Examples of Archaeobacteria:

3.	<p>Unique Characteristics of Eubacteria:</p> <p>_____ (no nucleus)</p> <p>_____</p> <p>The _____ life forms on Earth</p> <p>_____</p> <p>Examples of Eubacteria:</p>
4.	<p>Unique Characteristics of Protists (Protista):</p> <p>_____ (have a nucleus)</p> <p>_____</p> <p>They can be _____ or _____</p> <p>Examples of Protists:</p>
5.	<p>Unique Characteristics of Fungi:</p> <p>_____ (have a nucleus)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Examples of Fungi:</p>
6.	<p>Unique Characteristics of Plants (Plantae):</p> <p>_____ (have a nucleus)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Examples of Plants:</p>

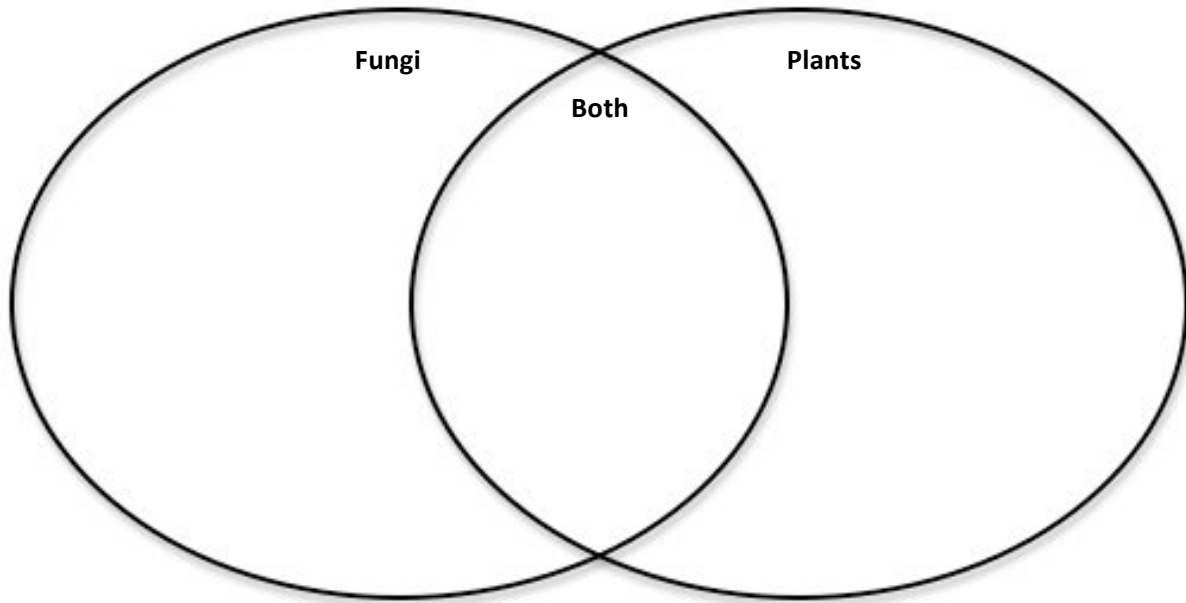
7.	<p>Unique Characteristics of Animals (Animalia):</p> <p>_____ (have a nucleus)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Examples of Animals:</p> <p>STOP-AND-JOT:</p> <ol style="list-style-type: none"> 1. What kingdom of life contains organisms that cannot move, but have a nucleus, are heterotrophic and multicellular? 2. An organism that is autotrophic, contains a nucleus, but only is only unicellular is a member of what kingdom of life? 3. What kingdom of life contains organisms that are found in extreme environments and are prokaryotic? 4. A new organism has been discovered in the mountains of Virginia. It has a nucleus, can make its own food, and is multicellular. To what kingdoms of life does this organism belong?
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Activity 2: Compare and Contrast the Kingdoms of Life

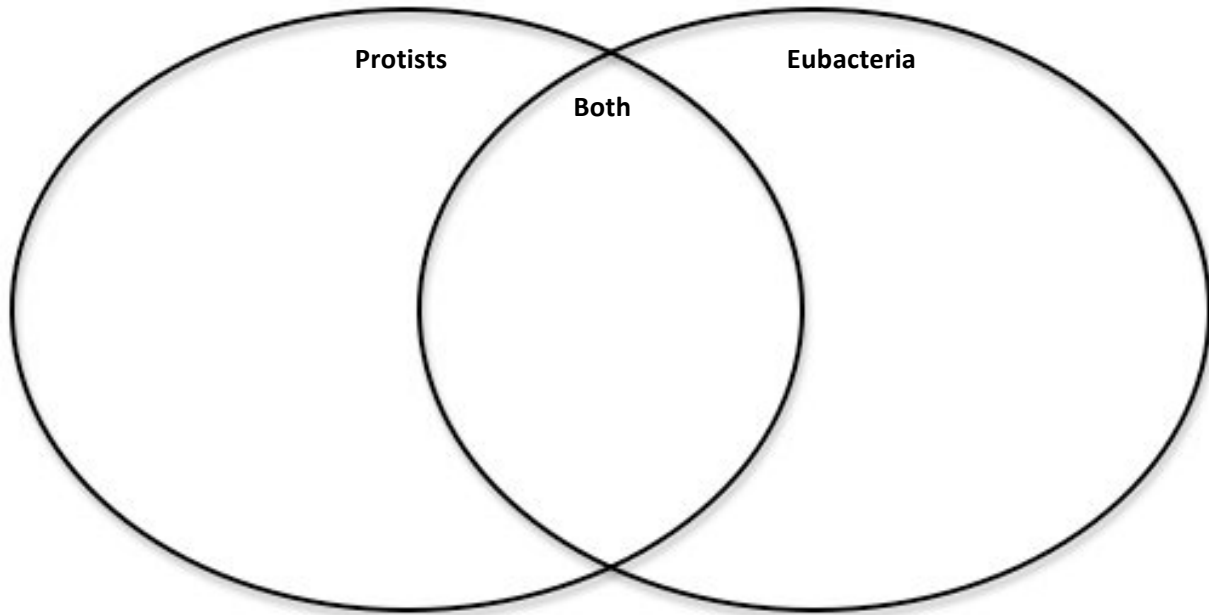
Directions: Use your Cornell Notes to help you complete the Venn Diagrams below.



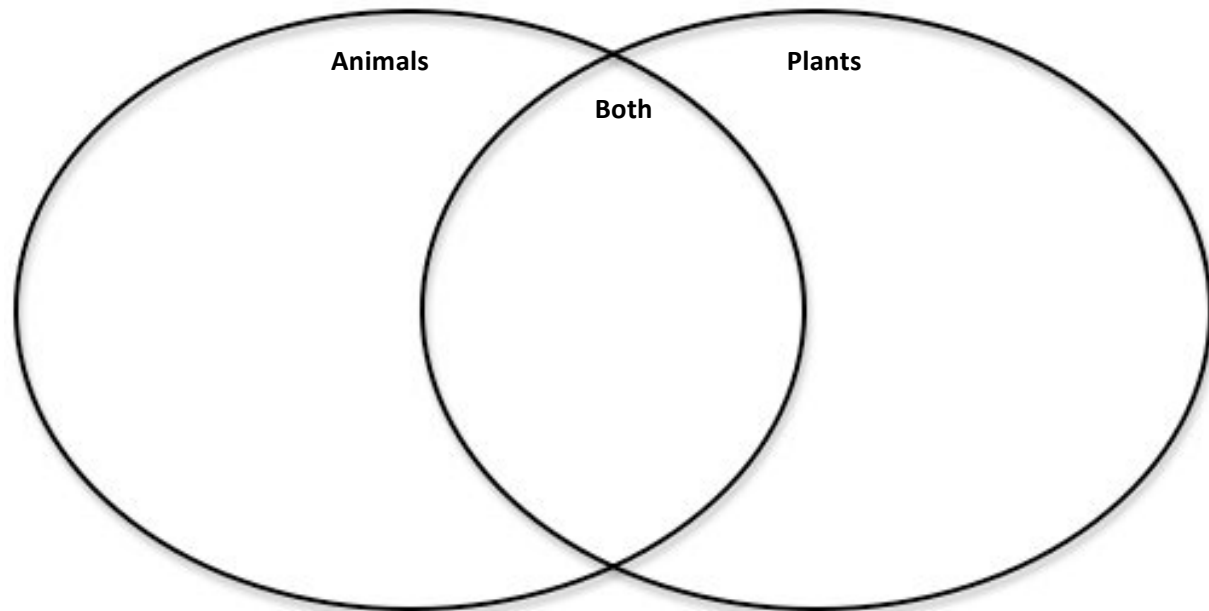
2.



3.

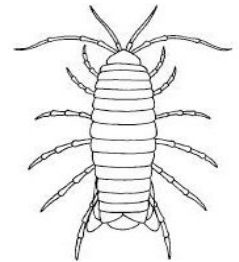


4.



Activity 3: SOL Break

1. Biological classifications are based on how organisms are –
a. related b. grouped c. organized d. outlined
2. How are organisms classified into groups and subgroups based on similarities that reflect their relationships over a period of time?
a. Organisms are classified through unit.
b. Organisms are classified through family.
c. Organisms are classified through variety.
d. Organisms are classified through hierarchy.
3. The Baltimore Oriole has the scientific name *Icterus galbula*. Which is *most* closely related to the oriole?
a. *Oriolus galbula* b. *Icterus spurious* c. *Oriolus oriulus* d. *Sphecotheres spurious*
4. A mushroom and humpback whatles are alike because both are –
a. Motile b. prokaryotic c. heterotrophic d. unicellular
5. The picture shows an organism that lives in the lakes of two caves in Augusta Coiunity, Virginia. Its primary food sources appears to be fine bits of organic matter that drift into the cave lakes. This cave-dwelling species belongs to the kingdom –
a. Fungi b. Protista c. Bacteria d. Animalia



Experimental Observations

1. Nucleus is present.
2. Cell wall is present.
3. Chloroplasts and mitochondria are both present.

6. The eukaryotic organism described above should be classified as –
a. a fungus b. a plant c. a bacterium d. an animal

Activity 4: Classify that Organism

Directions: Go to biomonsters.com to complete this activity. Click on “What We Did in Class Today” and watch the video posted under today’s daysheet. Listen to the descriptions and study the pictures of the organisms in the movie. Use your Cornell Notes to determine if the organism is a member of *Archaeobacteria*, *Eubacteria*, *Protista*, *Fungi*, *Plantae* or *Animalia*.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Skills Worksheet

Active Reading**Section: Categories of Biological Classification**

Read the passage below. Then answer the questions that follow.

Linnaeus worked out a broad system of classification for plants and animals in which an organism's form and structure are the basis for arranging specimens in a collection. He later organized the genera and species that he described into a ranked system of groups that increase in inclusiveness. The different groups into which organisms are classified have expanded since Linnaeus's time and now consist of eight levels.

Similar genera are grouped into a family. Similar families are combined into an order. Orders with common properties are united in a class. Classes with similar characteristics are assigned to a phylum. Similar phyla are collected into a kingdom. Similar kingdoms are grouped into domains. All living things are grouped into one of three domains. Two domains, Archaea and Bacteria, are each composed of a single kingdom of prokaryotes. The third domain, Eukarya, contains all four kingdoms of eukaryotes.

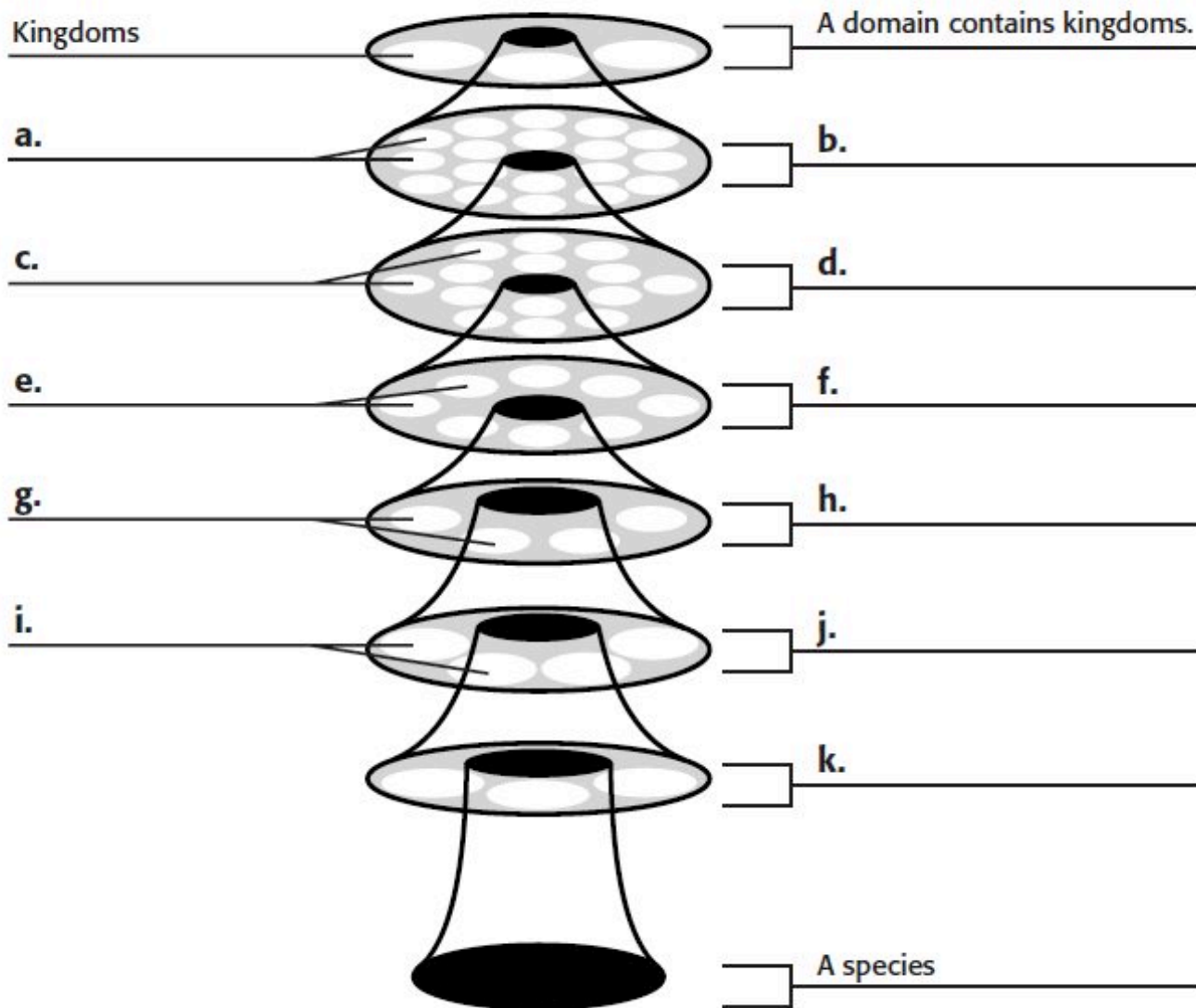
1. What did Linnaeus use as the basis for classifying organisms in a collection?

2. The second sentence of this passage states that Linnaeus described a "ranked system of groups that increase in inclusiveness." What does this mean?

3. How many kingdoms exist in the modern system of classification?
What are they?

SKILL: INTERPRETING GRAPHICS

4. The figure below shows the eight levels of the classification system. Using the information contained in the passage, insert the correct label in the space provided on the left side of the figure. On the right side of the figure, compose a sentence that describes the level. Use a separate sheet of paper if necessary. The first one has been done for you.



An analogy is a comparison. In the space provided, write the letter of the term or phrase that best completes the analogy.

- _____ 5. Class is to order as order is to
- a. kingdom.
 - b. species.
 - c. phylum.
 - d. families.