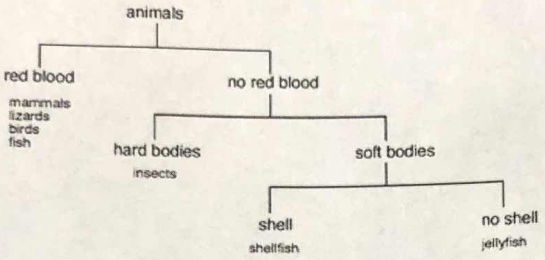
Classification Review Questions

1. **What is classification?**
   Putting things into groups based on their similarities

2. **Who was the first person to classify organisms? How did this person classify organisms?**
   Aristotle - everything was a plant or an animal and organisms could change classification group as they grew

3. **What is a dichotomous key? Give an example**
   A diagram or set of paired statements that can be use to identify an organism based on their characteristics_



4. **How do you write a scientific name? Give an example**
   Genus name is capitalized, species is not. In Italics or underlined *Homo sapiens* or Homo sapiens

5. **What language are scientific names written in? Why?**
   Latin - it is a dead language that does not change

6. **What are the categories of Linnaeus's classification system from largest to smallest?**
   Domain, Kingdom, Phylum, Class, Order, Family Genus, Species

7. **Which taxonomic level contains the most diversity? Explain**
   Domain - it includes organisms of many different types and can include more than one kingdom.

8. **Which taxonomic level contains the least diversity? Explain**
   Species - it includes only 1 type of organism that can interbreed.

9. **What are the three domains? What makes them diverse?**
   Archae, Bacteria, Eukarya - they contain organisms that have different types of cells (prokaryote, eukaryote), and a large variety of orgainsms

10. **What are the 6 Kingdoms?**
    Archaebacteria, Eubacteria, Protista, Fungi, Plantae, Animalia

11. **Give an example of each kingdom; provide the following things: cell type, cell structure (anything unique in the cell wall, chloroplast?), nutrition, number of cells.**

Archaebacteria - unicellular, prokaryote, cell wall with no peptidoglycan, live in extreme environments, autotroph or heterotroph

Eubacteria - unicellular, prokaryote, cell wall with peptidoglycan, live all over, autotroph or heterotroph

Protista - unicellular (most) or multicellular, eukaryote, don't fit in the animal, fungus or plant kingdom, autotroph or heterotroph

Fungi - unicellular or multicellular (most), eukaryote, cell wall with chitin, heterotrophs that are decomposers

Plantae - multicellular, eukaryote, cell wall with cellulose, mostly on land, autotrophs only

Animalia - multicellular, prokaryote, no cell walls, heterotrophs that eat their food, live all over

12. **What is binomial nomenclature? Give an example**

A naming system that names each species with 2 names - genus and species ex. *Quercus alba* is the scientific name of the white oak.

13. **Which level of classification is defined as a group of organisms that can breed and produce fertile offspring?**

Species

14. **Explain why a mule is not its own species.**

Mules are the result of a horse and a donkey breeding and they are all sterile and cannot make their own babies

15. **Describe the characteristics of a virus?**

They are made of a a protein coat that surrounds some nucleic acid (DNA or RNA). nonliving particles that rely on a host to reproduce.

16. **What is a capsid?**

the protein coat that surrounds the nucleic acid of a virus

17. **Name the only life function viruses can carry out.**

they evolve as their nucleic acid mutates, they reproduce but only with a host

18. **Give reasons as to why viruses are not organisms.**

They do not use energy, they do not have cells, do not grow, do not make proteins by themselves, can sometimes have ONLY RNA

19. **Compare and contrast the lytic and lysogenic viral replication cycles**

Lytic

virus invades the cell and takes over immediately

takes over the cell processes to force the cell to make new virus parts (protein coats and nucleic acids)

new viruses are put together

cell explodes and the virus spreads to other cells

Lysogenic

virus invades and the DNA becomes a part of the host cell DNA

host cell copies the virus DNA along with their own DNA when they do mitosis

The virus DNA can stay hidden for a long time

Something triggers the virus to become active and it starts taking over the cells and destroying them - just like in the lytic cycle

20. What is a cladogram?

a diagram that shows the relationships between species based on similarities and certain key characteristics.

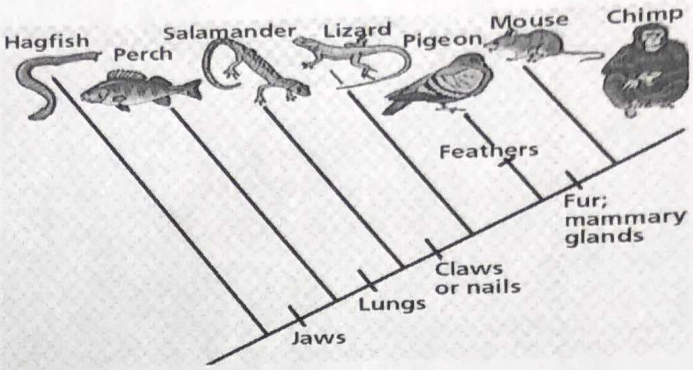
21. Use the following diagram to answer the next few questions and explain how you know.

a. Does a Salamander have claws or nails? Yes or **no**

b. Does a Mouse have fur and mammary glands? **Yes** or no

c. Does a Hag fish have jaws? Yes or **no**

d. Does a Perch have jaws? **Yes** or no



22. Use the dichotomous key below to classify the following organisms.

Fish key

Step 1
- A If fish shape is long and skinny... *then go to Step 2*
- B If fish shape is not long and skinny... *then go to step 3*

Step 2
- A If the fish has pointed fins, it is a trumpet fish
- B If the fish has smooth fins, it is a spotted moray eel

Step 3
- A If fish has both eyes on top of the head... *then go to step 4*
- B If fish has one eye on each side of the head... *then go to step 5*

Step 4
- A If the fish has long whip-like tail, it is a spotted eagle ray
- B If the fish has short, blunt tail, it is a peacock flounder

Step 5
- A If fish has spots... *then go to step 6*
- B If fish does not have spots... *then go to step 7*

Step 6
- A If fish has chin "whiskers," it is a spotted goat fish
- B If fish does not have chin "whiskers," it is a band-tail puffer

Step 7
- A If fish has stripes... *then go to step 8*
- B If fish does not have stripes, it is a glassy sweeper

Step 8
- A If fish has a v-shaped tail, it is a squirrel fish
- B If fish has a blunt tail, it is a glass-eye snapper

1- peacock flounder
2- spotted goat fish
3- glassy sweeper
4 - squirrel fish
5 - spotted eagle ray
6 - band-tail puffer
7 - spotted moray eel
8 - glass-eye snapper
9 - trumpet fish