**Classification Study Guide**

**Answer the following questions on a separate piece of paper.**

1. List the seven taxons in order from largest (most inclusive) to smallest (most exclusive).

kingdom, phylum, class, order, family, genus, species

2. Why do scientists classify organisms?

To help them identify, study, group, and name organisms.

3. Which were the first two kingdoms known to man before the invention of the microscope?

plants and animals – others were either too small to be seen or were thought to be part of the plant or animal kingdom

4. List three things that make animals different from the other kingdoms.

they are all multicellular, they do not make their own food, their cells do not have a cell wall

5. What are the two major groups of animals? What is the major difference between them?

Vertebrates & invertebrates

The distinguishing factors is that vertebrates have a backbone and invertebrates do not.

6. Who was Carl Linneaus and why was his work important?

Linneaus was the first person to scientifically categorize living things based on their characteristics. His work was the basis of our current system of classification.

7. What cell feature makes plants and fungi different from organisms in other kingdoms?

They have a cell wall.

8. Describe the differences between vascular and nonvascular plants.

Vascular – contains tubes or vessels that run up and down the plant carrying wataer and nutrients. This allows them to be taller.

Nonvascular – remain close to the ground to absorb food and water from it because they do not have tubes

9. List the 5 major kingdoms we discussed. For each one, state its cell structure (unicellular or multicellular), how it reproduces, and how it gets nutrients.

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| --- | --- | --- | --- |
| Kingdom | Cell structure | Reproduction | Nutrition |
| Monerans | Single Cell | divides | Takes nutrients from others |
| Protist | Single cell | divides | Consumes other organisms |
| Fungi | Multi Cellular | spores | Break down dead/decaying organisms |
| Plants | Multi cellular | By seeds | Make own food  (photosynthesis) |
| Animals | Multi Cellular | By eggs | Consumes other organisms |

10. List the three types of symmetry and describe each one.

asymmetrical – no symmetry at all, cannot be divided into mirror images

bilateral symmetry – can be divided in ½ just one way to create a mirror image (thing of a human)

radial symmetry – can be divided multiple ways around a central point and all will create a mirror image

11. List and describe the three ways mammals reproduce.

monotreme – lays eggs that hatch outside of the mother

marsupial – gives birth to a partially developed offspring which continues to develop in the mother’s pouch

placental – gives birth to a fully developed offspring

12. What are the simplest animals? Describe them.

The simplest animals are sponges. Sponges have asymmetrical body shape, no real tissues or organs, and pores which allow food in and out.

13. List the 5 major groups within the animal kingdom and give a distinguishing characteristic of each.

Mammals – have hair, produce milk for their young, warm blooded

Reptiles – have scales, lay eggs, cold blooded - land

Fish – have scales, lay eggs, cold blooded - water

Amphibians – transition from water to land as they develop, lay eggs in water, cold blooded

Birds – feathers, hollow bones, warm blooded, lay eggs,

14. What is the difference between an endoskeleton and an exoskeleton? Be specific and give an example of an organism for each.

The difference is the location of the skeleton. Exoskeletons are OUTSIDE of the body. An example is a cockroach. An Endoskeleton is INSIDE the body. An example is a dog.

15. What three characteristics do all vertebrates have in common?

All vertebrates have bilateral symmetry, endoskeletons, and cannot make their own food.

16. List and describe the three categories of fish. How are they placed into each category?

Fish are placed into categories based upon the development of their spinal column.

Jawless fish have just a flexible nerve cord.

Cartilaginous fish have the nerve cord surrounded by cartilage.

Bony fish have the nerve cord surrounded by bone.

17. Describe the difference between a warm blooded animal and a cold blooded animal.

Warm-blooded animals can maintain their own body temperature.

Cold-blooded animals take their heat from the environment.

18. List the simple invertebrates.

sponges, cnidarians, worms

19. List the complex invertebrates.

mollusks, echinoderms, anthropods

20. Where do all simple invertebrates live?

in the water

21. Vocabulary – Define each term.

classification – the science of organizing categories for living things

kingdom- the largest group into which an organism can be classified

species – a group of similar organisms in a genus that can reproduce more of their own kind