**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period:\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Classification Guided Practice**

**Identify the kingdoms that have the following characteristics (may be more than one kingdom).**

* *Animalia*
* *Archaebacteria*
* *Eubacteria*
* *Fungi*
* *Plantae*
* *Protista*
1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ All the organisms in this kingdom are autotrophs and have cell walls made up of cellulose.
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ All the organisms in this kingdom are heterotrophs and have cell walls made up of chitin.
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ All organisms in this kingdom are multicellular heterotrophs without cell walls.
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Organisms in this kingdom live primarily in harsh environments and are believed to be very similar to the first life forms on earth.
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Organisms in this kingdom are unicellular, do not have a nucleus & have a cell wall made of peptidoglygan. They are also known as “true bacteria”
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Organisms in this kingdom are living.
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Viruses are classified in this kingdom.
8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**9.**

**8.**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**12.**

**10.**

**11.**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Linnaeus’s** original classification system was made up of 7 levels called **taxa – What are they????** Label on the lines to the right of the diagram.



Polar Bear

* What is the scientific name for the polar bear? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Which is more closely related to the polar bear, the Giant Panda (*Ailuropoda melanoleuca*) or the black bear (*Ursus americanus*)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Explain your answer. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* If two organisms are in the same family, what other taxonomic groups must they also have in common: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* If two animals are both in the same class, does that mean they must belong to the same genus? \_\_\_\_\_\_\_\_

**Examine the table below showing the classification of four organisms. Then answer the questions below:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Taxon** | **Green Frog** | **Mountain Lion** | **Domestic Dog** | **Human** |
| **Kingdom** | Animalia | Animalia | Animalia | Animalia |
| **Phylum** | Chordata | Chordata | Chordata | Chordata |
| **Class** | Amphibia | Mammalia | Mammalia | Mammalia |
| **Order** | Anura | Carnivora | Carnivora | Primates |
| **Family** | Ranidae | Felidae | Canidae | Hominidae |
| **Genus** | *Rana* | *Felis* | *Canis* | *Homo* |
| **Species** | *Rana clamitans* | *Felis concolor* | *Canis familiaris* | *Homo sapiens* |

1. Which taxon above includes the most specific characteristics? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Which taxon above includes the broadest characteristics? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Which taxon above includes more species, an order or a family? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Which taxon above includes only organisms that can successfully interbreed? \_\_\_\_\_\_\_\_\_\_\_\_
5. Which two organisms in the chart are the most closely related? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Using a Dichotomous Key

*Examine the drawings of the four leaves below. Use the key that follows to identify the leaves. Write the name of each leaf in the box below its picture.*

.

|  |  |  |  |
| --- | --- | --- | --- |
| Leaf A | Leaf B | Leaf C | Leaf D |
| white oak6 cm long | english oak leaf14 cm long | saucer_magnolia_leaf12 cm long | sweet gum16 cm long |
|  |  |  |  |

|  |  |
| --- | --- |
| 1a. oval leaf . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .  | go to 2 |
| 1b. leaf deeply notched or lobed . . . . . . . . . . . . . . . . . . . . | go to 5 |
|  |  |
| 2a. leaves with smooth edge . . . . . . . . . . . . . . . . . . . . . . . . | go to 3 |
| 2b. leaves with serrate or “sawtooth” edge . . . . . . . . . . . .  | go to 4 |
|  |  |
| 3a. leaves 10 – 15 cm long . . . . . . . . . . . . . . . . . . . . . . . . . | magnolia |
| 3b. leaves 4 – 7 cm long . . . . . . . . . . . . . . . . . . . . . . . . . . . | common pear |
|  |  |
| 4a. leaves 10 – 15 cm long . . . . . . . . . . . . . . . . . . . . . . . . . | Spanish chestnut |
| 4b. leaves 4 – 7 cm long . . . . . . . . . . . . . . . . . . . . . . . . . . . | white elm |
|  |  |
| 5a. four or five lobes total . . . . . . . . . . . . . . . . . . . . . . . . . . | go to 6 |
| 5b. many lobes . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | go to 7 |
|  |  |
| 6a. four pointy lobes . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | tulip tree |
| 6b. five pointy lobes . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | go to 8 |
|  |  |
| 7a. lobes pointy . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | red oak |
| 7b. lobes rounded . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | English oak |
|  |  |
| 8a. star-shaped leaf . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | sweet gum tree |
| 8b. leaf not star-shaped . . . . . . . . . . . . . . . . . . . . . . . . . . . . | go to 9 |
|  |  |
| 9a. long, narrow lobes . . . . . . . . . . . . . . . . . . . . . . . . . . . .  | Japanese maple |
| 9b. each lobe having several points . . . . . . . . . . . . . . . . . . | go to 10 |
|  |  |
| 10a. leaf longer than it is wide . . . . . . . . . . . . . . . . . . . . . . | pin oak |
| 10b. leaf wider than it is long . . . . . . . . . . . . . . . . . . . . . . . | sugar maple |

**Using the above dichotomous key – what can you tell me about the sugar maple?**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Cladogram CFA**

****

**Animal-like Protist**

**Animal-like protist**

This cladogram represents the evolutionary relationships among major groups of animals

1. Which single celled organism most likely gave rise to the first animals?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Which evolved earlier coelom or bilateral symmetry?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Which pair of animals is more closely related; annelids and arthropods or echinoderms and arthropods?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Where are the most primitive animals found on a cladogram?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. What characteristics are shared by the roundworms and cnidarians?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_