Classification - SC.912.L.15.6

**Species of Organisms**

There are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ known species of organisms. This is

only 5% of all \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that ever lived!!!!! \_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are still being found and identified.

**What is Classification?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the arrangement of organisms into orderly

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ based on their similarities. Classification is also known

as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are scientists that identify & name organisms.

**Benefits of Classifying**

Accurately & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ names organisms. Prevents

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ such as starfish & jellyfish that aren't

really fish. Uses same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Latin or some Greek) for all names.

**Early Taxonomists**

2000 years ago, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ was the first taxonomist.

Aristotle divided organisms into \_\_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

He subdivided them by their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ---land, sea, or air

dwellers. John Ray, a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, was the first to use Latin for

naming. His \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ were very \_\_\_\_\_\_\_\_\_\_\_\_ descriptions telling everything about the plant.

**Carolus Linnaeus**

18th century \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Classified organisms by their

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Developed \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ still used today. Called the “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of Taxonomy”. Developed the modern system of naming known as

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ nomenclature. \_\_\_\_\_\_-word name (Genus & species).

**Standardized Naming**

Binomial nomenclature used: *Genus species.* Latin or Greek,

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in print, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ genus,

but NOT species and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when writing.

**Rules for Naming Organisms**

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Code for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Nomenclature contains the rules for naming organisms. All names must be approved by International Naming Congresses (International Zoological

Congress). This prevents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ names.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (taxa-plural) is a category into which related organisms are

placed. There is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (order) of groups (taxa) from

broadest to most specific: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, Kingdom, Phylum, Class,

Order, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, Genus, species.

**Domains or Kingdoms based on these characteristics:**

1. Whether they are unicellular or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. Whether they are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or eukaryotic.

3. Whether they have a cell wall or cell membrane

4. Whether they have membrane bound organelles

5. Whether they are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

6. Whether they reproduce sexually or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

7. How they tolerate heat, salt, or other extreme conditions

**Domains**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, most inclusive taxon. \_\_\_\_\_ domains: Archaea and

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are unicellular prokaryotes (no nucleus or membrane-

\_\_\_\_\_\_\_\_\_\_\_\_ organelles), \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are more complex and

have a nucleus and membrane-bound \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**ARCHAEA**

Kingdom – ARCHAEBACTERIA. Probably the 1st cells to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Live in \_\_\_\_\_\_\_\_\_\_\_\_\_\_ environments. Found in: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Treatment Plants (Methanogens), \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or Volcanic Vents

(Thermophiles), Hot Springs or Geysers that are \_\_\_\_\_\_\_\_\_\_\_\_ and very salty

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Dead Sea; Great Salt Lake) – Halophiles.

**BACTERIA**

Kingdom – EUBACTERIA. Some may cause \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Found in

ALL \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ except harsh ones. Important decomposers

 for environment. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ important in making cottage

 cheese, yogurt, buttermilk, etc.

**Eukarya**

Domain Eukarya is Divided into Kingdoms: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(protozoans, algae…), \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (mushrooms, yeasts …),

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (multicellular plants), \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (multicellular animals).

**Protista**

Most are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Some are multicellular. Some are

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, while others are heterotrophic and aquatic.

**Fungi**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, except yeast. Absorptive

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (digest food outside their body & then absorb

it). Cell walls made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Plantae**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and autotrophic. Absorb\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

to make glucose – Photosynthesis. Cell walls made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Animalia**

Multicellular and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ heterotrophs (consume food &

digest it inside their bodies). Feed on plants or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Taxons**

Most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ contain a number of similar species.

The genus \_\_\_\_\_\_\_\_\_\_\_\_ is an exception (only contains modern humans).

Classification is based on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ relationships.

**Basis for Modern Taxonomy**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ structures (same structure, different

function). Similar \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ development.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Similarity in \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, or amino acid sequence of proteins.

**Cladogram**

Diagram showing how organisms are related based on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

derived \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ such as feathers, hair, or scales.