**Guided Notes: Common Characteristics**

**Big Idea:** Organisms can be classified into groups based on their shared characteristics.

**Key Concepts:**

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are living things that can be unicellular or multicellular.

- Scientists use a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to organize organisms by observed similarities and differences.

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the scientific study focused on classifying organisms based on physical characteristics, genetics, and evolutionary relationships.

- Vascular plants have specialized \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that transport water, minerals, and nutrients.

- Nonvascular plants lack specialized \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_tissues.

- A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a diagram, chart, or representation used to visualize relationships or systems.

**Real World Examples:**

1. Animals like lions and house cats can be grouped together based on shared \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ like fur, four legs, etc.

2. Plants like trees and flowers belong to the vascular group due to having \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Guided Notes: Scientific Names**

**Big Idea:** An organism's scientific name is based on the shared characteristics at certain levels of the taxonomic classification system.

**Key Concepts:**

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are living things that can range from single-celled to highly complex multicellular organisms.

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ group organisms based on shared characteristics.

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the scientific study of classifying organisms.

- Organisms are first broadly grouped into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ based on having membrane-bound organelles or not.

- More specific groupings like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,etc. are based on increasing numbers of shared traits.

- A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ contains organisms that can interbreed and produce fertile offspring.

**Real World Examples:**

1. Dogs like retrievers, spaniels, and terriers belong to the same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. Plants like roses, daisies, and sunflowers belong to the same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ due to having flowers.

**Guided Notes: Physical Characteristics**

**Big Idea:** Organisms can be classified into groups based on their observable physical characteristics.

**Key Concepts:**

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are living things that share basic characteristics like obtaining energy, growing, and reproducing.

- Observable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ include color, shape, size, etc.

- Bacteria are single-celled and lack membrane-bound \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- Protists are mostly single-celled with membrane-bound \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- Fungi cannot produce their own food and have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ structures for reproduction.

- Plants have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that allow them to make their own food.

- Animals are multicellular with specialized \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and ability to move.

**Real World Examples:**

1. Mushrooms and molds can be distinguished by their different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ shapes.

2. Trees like pines and oaks belong to different groups based on having \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or not.

**Guided Notes: Classification Model**

**Big Idea:** Scientists use classification systems and models to group organisms based on their common characteristics and evolutionary relationships.

**Key Concepts:**

• \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the scientific classification of organisms.

• Organisms are grouped based on their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

• The main domains are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

• \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is further divided into kingdoms: Protista, Plantae, Fungi, and Animalia.

• After kingdoms, organisms are grouped into phylum, class, order, family, genus, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

• A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a separate type of organism within a genus.

• A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an organism that evolves into two or more organisms.

• A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a branching model that shows how organisms diverge during evolution.

• A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a system in which groups are ranked according to status.

**Real World Examples:**

1. Phone Apps: Just like organisms, phone apps are organized into different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the app store based on their purpose, content, etc. Such as games, productivity, entertainment.

2. Family Trees: A family tree diagram shows the branching relationships between relatives who descended from the same ancestors, similar to how a \_\_\_\_\_\_\_\_\_\_\_\_ shows evolutionary relationships.

**Guided Notes: Evidence for Common Characteristics**

**Big Idea:** All animals share common characteristics, which provide evidence for how they are classified into different groups based on taxonomy.

**Key Concepts:**

• All animals have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ such as having many cells, ability to move, and being consumers.

• \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the scientific classification of organisms based on their characteristics.

• Animals are grouped into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (have backbones) and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (do not have backbones).

• Common characteristics of vertebrates include having a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, ability to maintain body temperature, need for food/oxygen, ability to reproduce, muscles attached to skeletal system, lungs/gills, protective coverings.

• Common characteristics of invertebrates include having an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ support system instead of backbone.

• Some invertebrates have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which are hard outer coverings that provide support and protection.

• All animals have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which contains genetic instructions for making proteins that regulate cellular functions.

• Similar DNA sequences are used to group \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ animals together.

**Real World Examples:**

1. School Clubs: Just like animals are classified into different groups based on common characteristics, students can be part of different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (sports, music, academic) based on their shared interests and skills.

2. Family Resemblances: Members of the same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ often share many physical characteristics like facial features, hair color, etc. because they have similar \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ coding for those traits, just like related animals share DNA sequences.