Botany – Ch3 Classification Notes Name _____

1. Why Classify?
- To study the diversity of life, biologists use a _____ system to name organisms and group them in a logical manner.

2. Common names can be confusing. An organism may have the same _____ in different languages. It can be misleading!
- Also _____ names often refer to more than one organism. What we call corn is wheat in Britain
- Scientist use _____ to exchange info and be certain that they are referring to the _____ organism

3. When _____ classify organisms, they organize them into groups that have biological significance.
- In the discipline of taxonomy, scientists classify organisms and assign each organism a _____ _____
- In a good system of classification, organisms placed into a particular group are _____ to each other than they are to organisms in other groups.

4. Assigning Scientific Names
- Common names of organisms vary from country to country (or even within countries), so scientists assign _____ scientific name for each species.
- Because 18th century scientists around the world understood _____ and Greek, they used those languages for scientific names.
- This practice is still followed in naming _____ species.

5. Assigning Scientific Names
- Early Efforts at Naming Organisms
- The first attempts at standard scientific names described the _____ characteristics of a species in great detail.
- The name of a wild violet might be: "small purple flower with four petals and heart shaped leaves that grows by the brook in the spring."
- These names were not _____ because different scientists described different characteristics.

6. Assigning Scientific Names
- Binomial Nomenclature
  - What is binomial nomenclature?
- Carolus Linneaus developed a naming system called_____.
- In binomial nomenclature, each species is assigned a _____scientific name.
- **The scientific name is_____, and only the _____ word in the name is. **For example: humans are *Homo sapiens*.

7. Assigning Scientific Names
- The first part of the name is the _____ to which the organism belongs. A genus is a group of closely related_____. The genus name is _____
- The second part of the name is unique to each _____ within the genus. This part of the name often describes an _____or where the organism lives. The species name is _____
- The grizzly bear's scientific name is *Ursus arctos*.

8. Scientists use the _____ language when choosing a name for a species. Two different _____ cannot be assigned the same scientific name. Organisms in different genuses cannot have the same genus but can share the second word or _____of their scientific names. The species name often describes the _____nor lifestyle of an organism. Sometimes scientific names are a tribute to the _____ of a species.

9. One example is:
- The green anole lizard and the chickadee share the name *carolinenis (_____)* because they both occur in North and South Carolina.

10. Linnaeus's System of Classification
- Linnaeus not only named species, he also grouped them into categories. Linnaeus named two kingdoms, _____
- What is Linneaus's system of classification?

11. Linnaeus's System of Classification
- Linnaeus's _____ levels of classification are—from largest to smallest—
  - kingdom
  - phylum
  - class
  - order
  - family
  - genus
  - species

12. Linnaeus's System of Classification
- Each level is called a_____, or taxonomic category.
- Species and genus are the two _____ categories.

13. Linnaeus's System of Classification
- Genuses that share many characteristics are grouped in a larger category, the_____.

14. Linnaeus's System of Classification
- An _____ is a broad category composed of similar families.

15. Linnaeus's System of Classification
- The next larger category, the_____, is composed of similar orders.

16. Linnaeus's System of Classification
- Several different classes make up a _____

17. Linnaeus's System of Classification
- The _____ is the largest and most inclusive of Linnaeus's taxonomic categories.

18. Linnaeus's System of Classification
- The science of classifying living things is called _____
- Taxonomists are the scientists who practice taxonomy.
- This system of classification was developed by_____. It classified living things into a hierarchy in which individuals are assigned to_____, groups are collected into larger groups and the larger groups are part of still larger groups.

19. The Tree of Life Evolves
  - Systems of classification adapt to _____ discoveries.
  - Linnaeus classified organisms into two kingdoms—animals and plants. The scientific view of life is much more _____ now.
  - The only known differences among living things were the fundamental traits that separated animals from plants. Animals were _____ and used food for energy, while plants are _____ and immobile and perform photosynthesis.

20. The Tree of Life Evolves
- Biologists soon realized that microorganisms such as the protist and the bacterium are significantly _____ from plants and animals. Scientists soon agreed that these microorganisms merited their own_____, which was named _____

- _____, yeasts and molds were separated from the plants and placed into their own kingdom, _____
- Finally, scientists realized that _____lack the nuclei, mitochondria, and chloroplasts found in other forms of life. They were placed into the kingdom _____

21. Five Kingdoms

- Scientists realized there were enough _____ among organisms to make ____ kingdoms:
  - Monera
  - Protista
  - Fungi
  - Plantae
  - Animalia

22. The Tree of Life Evolves

- Six Kingdoms
  - Recently, biologists recognized that Monera were composed of two distinct groups: _____ _____

23. The Tree of Life Evolves

- The _____-kingdom system of classification includes:
  - Eubacteria
  - Archaebacteria
  - Protista
  - Fungi
  - Plantae
  - Animalia

24. The Three-Domain System

- Molecular analyses have given rise to a _____ that is now recognized by many scientists.
- The _____ is a more inclusive category than any other—larger than a kingdom.
- The _____ domains are: Bacteria, Archaea, Eukarya

25. The Three-Domain System

- The three domains are:
  - _____, which corresponds to the kingdom Eubacteria. Ex: strep; E.coli – affect YOU
  - _____, which corresponds to the kingdom Archaebacteria. Ex: methanogens - rare
  - _____, which is composed of protists (amoeba), fungi (mushrooms), plants (trees), and animals (fish, mammals). – all have a nucleus

26. The Three-Domain System

- Modern classification is a rapidly _____ science.
- As new information is gained about organisms in the domains Bacteria and Archaea, they may be subdivided into _____ kingdoms.

27. Domain Bacteria

- Domain _____
- Members of the domain Bacteria are unicellular_____.
- Their cells have thick, rigid _____ that surround a cell membrane.
- Their cell walls _____ peptidoglycan.
- The domain Bacteria corresponds to the kingdom _____

28. Domain Archaea

- Domain Archaea
  - Members of the domain _____ are unicellular prokaryotes.
  - They live in _____ environments—volcanic hot springs, brine pools, and black organic mud totally devoid of oxygen. Many of these bacteria can survive only in the _____ of oxygen.

- Their cell walls _____ peptidoglycan, and their cell membranes contain unusual lipids not found in any other organism.

29. Domain Archaea
- The domain Archaea corresponds to the kingdom _____

30. Domain Eukarya
- Domain Eukarya
  - The domain Eukarya consists of organisms that have a _____
  - This domain is organized into _____ kingdoms:
    - Protista
    - Fungi
    - Plantae
    - Animalia

31. Domain Eukarya
- Protista
  - The kingdom _____ is composed of eukaryotic organisms that cannot be classified as animals, plants, or fungi.
  - Its members display the greatest _____
  - They can be unicellular or multicellular; photosynthetic or heterotrophic; and can share _____ with plants, fungi, or animals.

32. Domain Eukarya
- Fungi
  - Members of the kingdom _____ are heterotrophs.
  - Most fungi feed on dead or decaying _____ matter by secreting digestive enzymes into it and absorbing small food molecules into their bodies.
  - They can be either multicellular (_____) or unicellular (_____).

33. Domain Eukarya
- Plantae
  - Members of the kingdom _____ are multicellular, photosynthetic autotrophs.
  - Plants are_____ —they cannot move from place to place.
  - Plants have _____ that contain cellulose.
  - The plant kingdom includes cone-bearing and flowering plants as well as mosses and ferns.

34. Eukaryotes (HAVE A_____) belong to the kingdoms: protista, fungus, plants or animals
- Protists – microscopic organisms that _____ seem to fit into other categories (amoeba, paramecium, algae, seeweed)
- Fungi –_____ organisms that feed off decaying matter. They obtain food by absorbing nutrients from their environment. (mold, yeast, mushrooms)
- Plants – make its own food through _____ (grass, trees, flowers, moss)
- Animals –_____ others to obtain food (humans, fish, reptiles, birds, worms, insects)

35. Intro to Plants
- Plants _____ the landscape.
- Where plants are plentiful other organisms _____ such as animals, fungi, and microorganisms
- Plants provide the _____ for food chains, shade, shelter, and oxygen for animals of every size and kind.

36. Plants belong to the kingdom _____ and they are multicellular eukaryotes that have cell walls and they carry out _____ using green pigments called chlorophyll
- Plants include trees, _____, moss, _____, shrubs, and grasses.

- Plants are _____ meaning they make their own food.
- Plants are different from animals but are still _____ things – they are made of cells, grow, and reproduce!

37. Plants have a _____ like all living things.

- To _____ they need:
    a. Sunlight
    b. Water
    c. Minerals
    d. Gas exchange

38. Sunlight

- Plants use _____ from sunlight to do photosynthesis. They gather sunlight with _____ that are arranged on the stem as to maximize light absorption

39. Water & Minerals

- Cells require _____. Water is used in photosynthesis so it is used up quickly. As they absorb water they absorb minerals and nutrients in the _____ that are needed for plant growth

40. Gas Exchange

- Plants require _____ to support respiration and do photosynthesis

41. Movement of water & nutrients

- Plants take up water & minerals through their _____ and make food in their leaves.

42. The first plants looked much like _____. Algae is green; it does photosynthesis – making it a producer BUT algae is _____ a plant

- Plants eventually _____ into moss-like organisms that grew close to the ground
- And to _____ to their location plants took on many different forms. This is why some plants live and thrive well in some locations but not others.

43. The plant kingdom is divided into _____ groups which we will be studying based on 3 features: water conducting tissues, seeds, and flowers

- Today botanist can use _____ testing to classify plants
- The four groups are:
    - Mosses (15,600 species)
    - Ferns (11,000 species)
    - Cone-bearing (760 species)
    - Flowering (235,000 species)

Botany Ch3 - REVIEW QUESTIONS

1. What is the difference in a common name and a scientific name
2. What language is used for scientific names
3. What is binomial nomenclature
4. How many names are in a scientific name
5. What is the genus? What is the species
6. How is a scientific name written
7. How many organism can have the same scientific name
8. Who came up with the classification system
9. In order what are the levels of classification from largest to smallest
10. What is the largest most broadest level
11. What level is composed of orders (HINT: what is larger than an order)
12. The classification of living things is called what
13. What were the original 2 levels of classification
14. What level are yeast and mushrooms in
15. What level are all bacteria in?
16. What is a domain
17. The KINGDOM Eubacteria belong to what DOMAIN
18. All living things that have a nucleus belong to what DOMAIN
19. What is a protist
20. What is a fungus
21. How are plants classified
22. How are plants and animals different
23. What can be found where plants are plentiful
24. What things do plants provide
25. List examples of plants
26. What does autotroph mean
27. Are plants living?
28. What do plants need to survive
29. Why is sunlight important
30. Do cells require water?
31. What do plants get from the soil
32. What did the first plants look like
33. What are the 4 groups of plants