NAME Key DATE _____ PERIOD _____

CLASSIFICATION

MULTIPLE CHOICE: Circle ALL that are true.
There may be MORE THAN one correct answer.

The science that specializes in naming and classifying organisms is _____.

A. anatomy
B. Biology
C. botany
D. taxonomy

Solely from its name you can tell *Rhizopus nigricans* must be _____.

A. in the genus *Rhizopus*
B. in the genus *nigricans*
C. in the species *nigricans*
D. in the species *Rizopus*
E. an animal

A useful classification system _____.

A. gives each organism a unique name
B. shows evolutionary relationships
C. uses different scientific names for the same organism
D. changes the taxon of an organism based on new data

In classifying organisms, ORDERS are grouped together into _____.

A. genera
B. phyla
C. families
D. classes

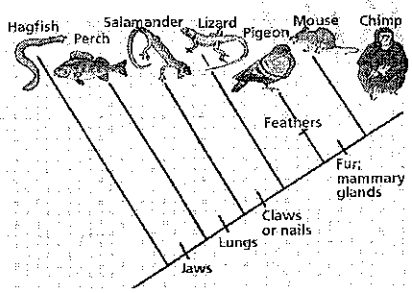
The largest and most inclusive of Linnaeus's taxonomic categories is the _____.

A. order
B. kingdom
C. phylum
D. species

The study of the evolutionary relationships among organisms is called _____.

A. taxonomy
B. domainology
C. phylogeny
D. binomial nomenclature

This diagram which shows the evolutionary relationships among a group of organisms is called a _____.



A. taxon
B. cladogram
C. binomial nomenclature
D. domain

A unique trait that is used to construct a cladogram showing evolutionary relationships between organisms is called a _____

A. taxa
B. molecular clocks
C. derived character
D. domains

Which of the following tells how to write a scientific name?

A. The genus name is always capitalized.
B. The species name is always capitalized.
C. The genus name is NOT capitalized.
D. The species name is NOT capitalized.
E. Both names are written in italics or underlined.

Use the rules above to correctly write the scientific name for humans Homo sapiens

Which two languages are used today when determining scientific names for newly discovered species?

Latin Greek

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TRUE - FALSE

Write + for true and 0 for false. *Change* the underlined word or phrase to make the statement correct.

0 The least inclusive group to which an organism can belong is the ~~kingdom~~ species.

0 Bird wings and insect wings are ~~homologous~~ analogous structures.

+ Organisms that have similar traits but evolved independently are the result of convergent evolution.

0 Most organisms in the kingdoms Animalia and Plantae are multicellular.

+ All organisms in the kingdom Animalia are multicellular, hetertrophs whose cells lack cell walls.

0 A species is a ~~larger~~ smaller taxonomic unit than a genus.

Tell a "silly phrase" to help you remember Linnaeus's hierarchy in order:

NAME THE 7 TAXONOMIC LEVELS IN LINNAEUS'S CLASSIFICATION SYSTEM IN ORDER FROM LARGEST TO SMALLEST:

Kingdom
Phylum
Class
Order
Family
Genus
Species

Explain how genes are used to help scientists classify organisms.

molecular evidence DNA

A scientist analyzes the insulin molecules, which are protein molecules found in three different species: A, B, and C. The insulin from A is different from B in six different ways and from C in three ways. Insulin B is different from C in 2 ways. Which two species appear to be most closely related? Explain.

B & C only different in 2 ways; closer in similarity

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CLASSIFICATION STARTS WITH ?

The science of classifying organisms and assigning each organism a unique universally accepted scientific name is called Taxonomy

A group or level of organization into which organisms are classified is called a Taxon

Large taxonomic group made up of closely related phyla that is the top level in Linnaeus's classification hierarchy = Kingdom

Greek philosopher who first classified organisms as plants or animals
= A r i s to t l e

A characteristic that appears in recent parts of a lineage, but not in its older members
= D e r i v e d c H a r a c t e r

A P H Y L U M is a group of closely related classes.

B I N O M I A L N O M E N C L A T _ _ _ is the classification system in which each species is assigned a two-part scientific name

A C L A _ _ _ _ _ _ is a diagram that shows the evolutionary relationships among a group of organisms

An organism that CAN'T make its own food and gets is energy from consuming other organisms
= H E T _ _ _ _ _ _ _ _ _

Domain of all organisms whose cells have nuclei, including protists, plants, fungi, and animals
= E U K A R Y A

Polysaccharide found in the cell walls of fungi = C H I T I N

Organisms that "like" hot environments
= T H E R M O P H I L E S

Organism that can make its own food using photosynthesis or chemosynthesis
= A U T O T R O P H

Organism whose cells contain nuclei = E U K A R Y O T E

An organism that "likes" high salt environments = H A L O P H I L E

Kingdom of multicellular eukaryotic heterotrophs whose cells DO NOT have cell walls or chloroplasts = A N I M A L I A

Kingdom of "ancient" unicellular prokaryotes whose cell walls do not contain peptidoglycan and are often found in harsh environments such as volcano hot springs, brine pools, and other anaerobic conditions = A R C H A E B A C T E R I A

Kingdom of unicellular prokaryotes whose cell walls are made of peptidoglycan
= E U B A C T E R I A

Kingdom composed of eukaryotes that are not classified as plants, animals, or fungi
= P R O T I S T S

Kingdom composed of heterotrophs including mushrooms, toadstools, and yeast that obtain energy and nutrients from dead organic matter = _F_ U N G I

Kingdom multicellular photosynthetic autotrophs that have cells walls containing cellulose and chloroplasts = _P_ L A N T A E

The most inclusive taxonomic category based on ribosomal RNA which is larger than a kingdom = _D_ O M A I N

Part of a scientific name that is always capitalized = _G_ E N U S

Group of similar orders = _C_ L A S S

Group of similar families = _O_ R D E R

A _D_ I C H O T E M O U S _K_ E Y is a series of paired statements that describe characteristics of different organisms that can be used to classify and identify living things.

Substance made of sugars and peptides that is found in the cell walls of Eubacteria = _P_ E P T O D I G L Y C A N

Polysaccharide made by joining glucose subunits which makes plants and some protists sturdy = _C_ E L L U L O S E

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CLASSIFICATION

MULTIPLE CHOICE: Circle ALL that are TRUE.
There may be MORE THAN ONE correct answer.

Organisms that can make their own food using chemosynthesis or photosynthesis are called _____.

A. heterotrophic
B. autotrophic

Organisms whose cells have a nucleus and organelles surrounded by membranes are called _____.

A. eukaryotes
B. prokaryotes

Which category is LARGER and more inclusive than a KINGDOM?

A. genus
B. class
C. phyla
D. domain

The Three-Domain system divides organisms into groups based on similarities in their _____.

A. taxons
B. DNA
C. ribosomal RNA
D. derived characters

Which of the original 5 kingdoms was divided in two to make the Eubacteria and Archaebacteria groups used today?

A. Protista
B. Monera
C. Eukarya
D. Fungi
E. Plantae

Thermophiles are organisms that can live in _____ environments.

A. high salt
B. high temperature
C. high oxygen

Which domain includes organisms from more than one kingdom?

A. Prokarya
B. Archaea
C. Eukarya

All scientific names of organisms must be

A. unique and have two Latin words.
B. general and use the species name.
C. different and repeat the phylum name.
D. similar and include the common name.

Which of the following scientists developed the system of classifying organisms by assigning them a genus and species name?

A. Leakey
B. Aristotle
C. Darwin
D. Linnaeus

Poison ivy is also known as *Rhus toxicodendron*. Its species identifier is

A. Poison
B. Rhus
C. ivy
D. toxicodendron

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NAME THE THREE DOMAINS in the THREE-DOMAIN SYSTEM:

Bacteria Archaea Eukarya

Name the SIX KINGDOMS used to classify organisms:

Protista
Fungi
Plantae
Animalia

* * * * * * * * * * * * * * *

MATCH EACH KINGDOM BELOW WITH ITS DOMAIN:

BACTERIA	ARCHAEA	EUKARYA

E PROTISTA

A ARCHAEBACTERIA

B EUBACTERIA

E PLANTAE

E FUNGI

E ANIMALIA

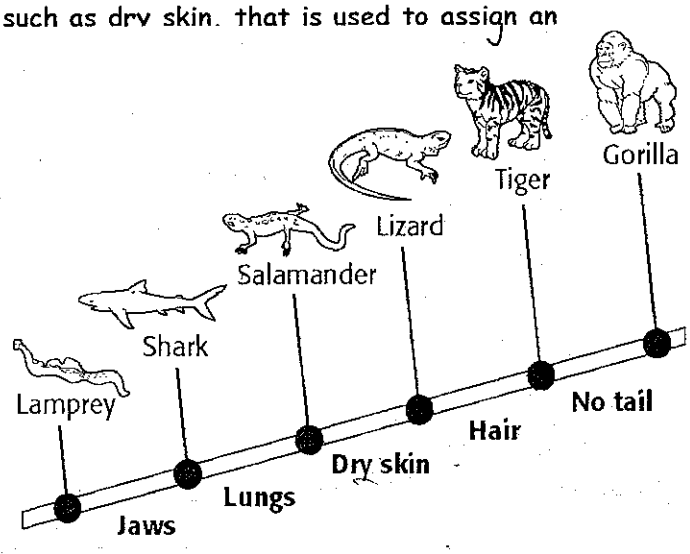
* * * * * * * * * * * * * * *

Refer to the illustration below, the branching diagram like the one shown is called a

A. Phentic tree
B. Cladogram
C. Family Tree
D. Homology

Refer to the illustration above. Each particular feature, such as dry skin. that is used to assign an organism to a group is called a(n)

A. special character.
B. analogous character.
C. derived character.
D. homologous character.



Define the following terms:

analogous structures - different structure same function

homologous structures - same structure different function

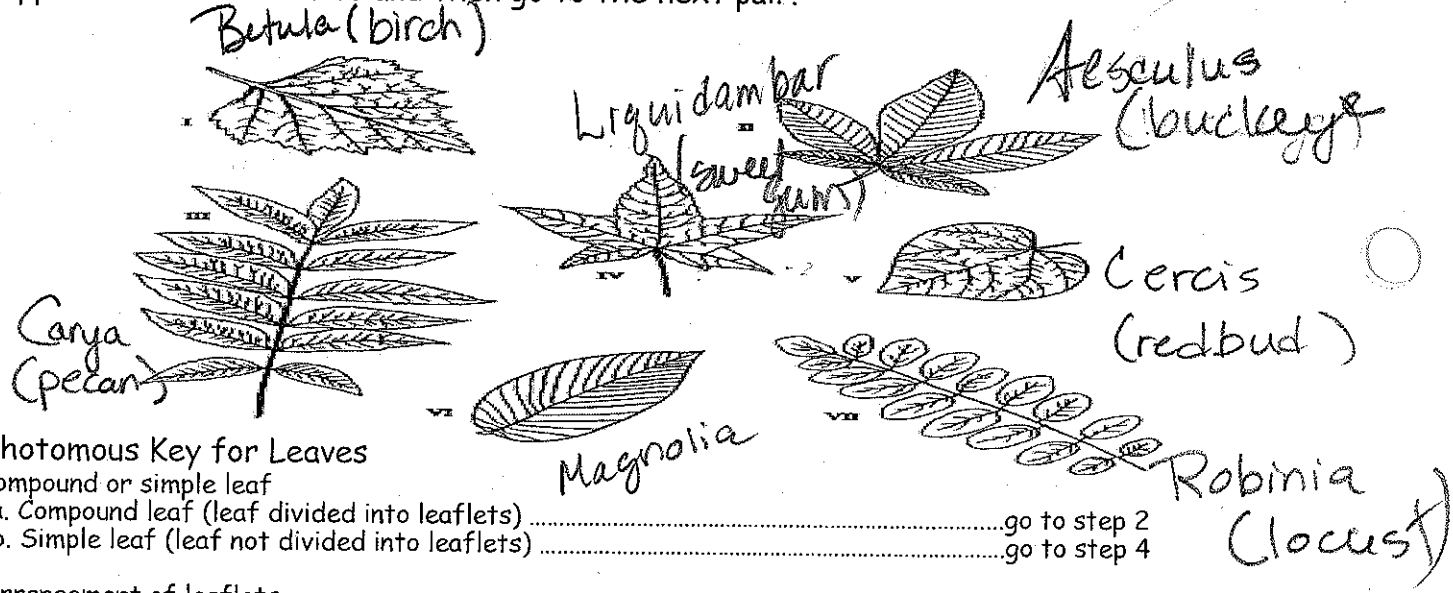
Give an example of:

analogous structures - bird wing / fly wing — both fly

homologous structures- bat wing + hand

Which structures show that organisms are more closely related --- analogous structures or homologous structures?

Use the dichotomous key below to identify each leaf. Remember to start with the first pair of opposite characteristics and then go to the next pair.



Dichotomous Key for Leaves

1. Compound or simple leaf
   a. Compound leaf (leaf divided into leaflets) ..... go to step 2
   b. Simple leaf (leaf not divided into leaflets) ..... go to step 4

2. Arrangement of leaflets
   a. Palmate arrangement of leaflets (leaflets all attached at one central point) ..... Aesculus (buckeye)
   b. Pinnate arrangement of leaflets (leaflets attached at several points) ..... go to step 3

3. Leaflet shape
   a. Leaflets taper to pointed tips ..... Carya (pecan)
   b. Oval leaflets with rounded tips ..... Robinia (locust)

4. Arrangement of leaf veins
   a. Veins branch out from one central point ..... go to step 5
   b. Veins branch off main vein in the middle of the leaf ..... go to step 6

5. Overall shape of leaf
   a. Leaf is heart-shaped... ..... Cercis (redbud)
   b. Leaf is star-shaped ..... Liquidambar (sweet gum)

6. Appearance of leaf edge
   a. Leaf has toothed (jagged) edge ..... Betula (birch)
   b. Leaf has untoothed (smooth) edge ..... Magnolia (magnolia)

Modified from: http://brookings.k12.sd.us