Biology Keystone (PA Core) Quiz

Theory of Evolution - (BIO.B.3.2.1) Theory Of Evolution, (BIO.B.3.3.1) Scientific Terms

Student Name: _____ Date: _____

Teacher Name: Jared George Score: _____

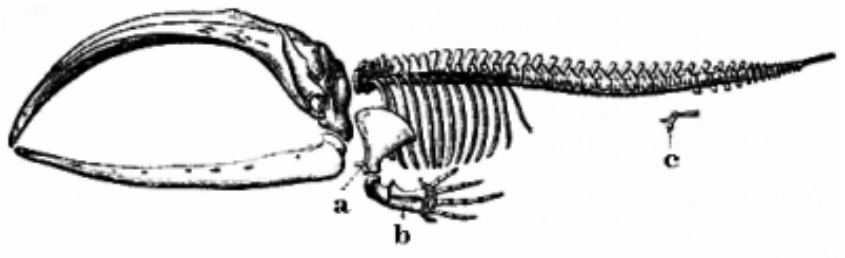
1) Evidence for evolution includes the presence of _____, which are similar structures shared by different species.

A) gradual structures
C) integrated structures
B) vestigial structures
D) homologous structures

2) The MOST accurate way to determine the evolutionary relationship between two animals is through the examination of

A) common behaviors.
C) DNA or protein sequences of shared genes.
B) similar physical features.
D) fossilized ancestors that they may have in common.

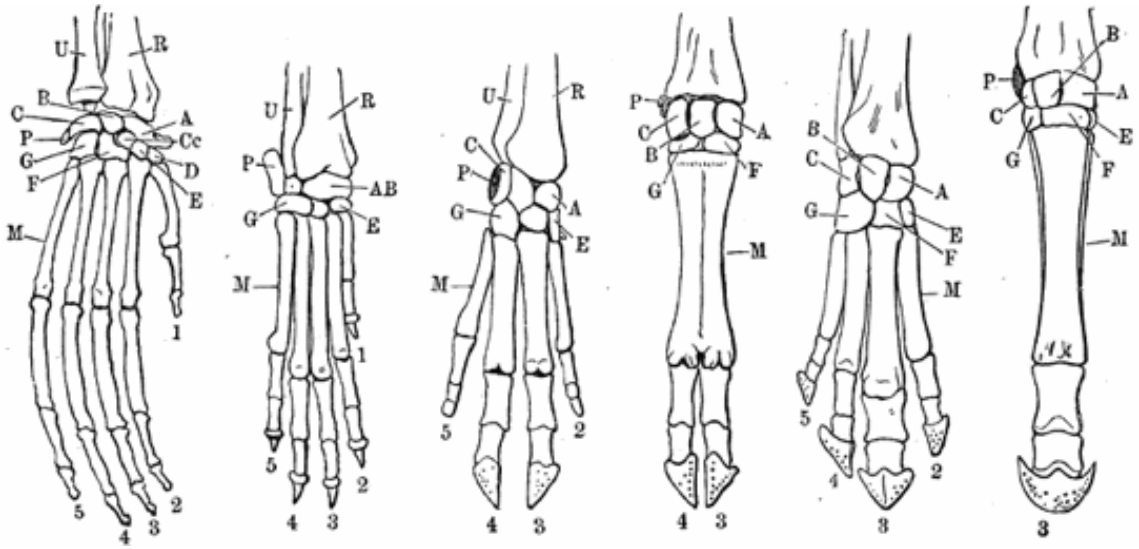
3)



Whales are thought to have evolved from land animals similar to large otters. As evidence of this, whales have useless leg bones (structure C) that float inside their bodies. These leg bones are _____ structures.

A) vestigial
C) analagous
B) homologous
D) evolutionary

4)



The diagram shows the leg bones of a (L -> R): Orangutan, dog, pig, cow, tapir, and horse. Most of the animals have the same bones, although some are shaped differently and placed in different positions.

What does this suggest about mammals?

A) That they shared a common ancestor.

B) That mammals are evolving to become more and more like one another.

C) That they developed their bone structure independently of one another.

D) That the shape of the bones has less to do with the environment pressures on the animal, and more to do with what their relatives are.

5) The genetic information in human and chimpanzee DNA shows a high degree of similarity, as humans share about 96% of their DNA code with chimpanzees. What is an explanation for this similarity?

A) They evolved from each other.

B) They evolved at the same time.

C) Their evolution is nearly complete.

D) They evolved from a common ancestor.

6) About 96% of the information in human DNA is found in gorilla DNA. This evidence supports which statement?

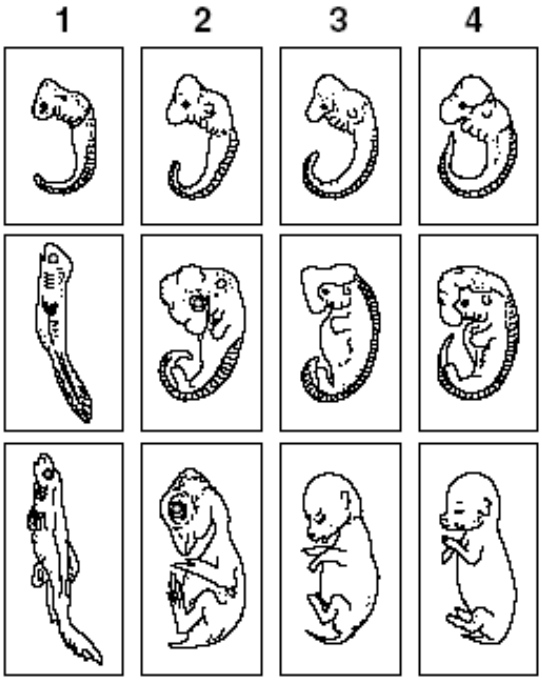
A) Humans evolved from gorillas.

B) Gorillas and humans diverged from a common ancestor.

C) As gorillas evolve, they will become more similar to humans.

D) Gorillas and humans are too different for meaningful genetic comparisons.

7)



The diagram shows the embryo development of four vertebrates and suggests all of the following EXCEPT

A) common ancestry of vertebrates.

B) there are significant differences in the embryos of all four groups.

C) there are very few differences in the development of any vertebrates.

D) common features (gills and segments) in the embryos of all vertebrates.

8) Green and brown algae share many common features. Both have pigments for trapping sunlight and use photosynthesis for energy. Both store their food as sugars. Both have cell walls and plant-like bodies. However, their DNA suggests that they are not even remotely related to one another. Green algae and brown algae show _____ evolution, since they look similar, but are not close relatives.

A) convergent

B) divergent

C) homologous

D) vestigial

9) The wing of a bird and the leg of a horse are very different looking structures. Although they look different, bird wings and horse legs are very similar in the arrangement of the bones that make up the limb. Which term is used by scientists to describe structures that look different on the outside but are actually similar in construction and develop from the same embryonic tissues?

A) common descent

B) ancillary anatomy

C) vestigial structures

D) homologous structures

10)

Species DNA Sequence

Species	Number of Differences from Human Sequence
Gorilla gorilla (gorilla)	1
Hylobates lar (gibbon)	3
Lemur catta (lemur)	30
Macaca mulatta (Rhesus monkey)	8
Saimiri sciureus (squirrel monkey)	11

The amino acids for beta hemoglobin found in five species were compared to the amino acids found in human (Homo sapiens) beta hemoglobin. The number of sequence differences was recorded.

Based on the molecular data, which species is most closely related to humans?

A) *Lemur catta* (lemur)
B) *Hylobates lar* (gibbon)
C) *Gorilla gorilla* (gorilla)
D) *Macaca mulatta* (Rhesus monkey)

11) Hypotheses may be generated from any of the following EXCEPT

A) research.
B) prior knowledge.
C) logical inferences.
D) researcher opinion.

12) If a student notices that frogs are all gathering at one end of the pond the student has done what?

A) observed
B) experimented
C) hypothesized
D) collected data

13) A _____ is a prediction of an outcome and the basis for experimentation.

A) conclusion
B) constant
C) hypothesis
D) variable

14) When writing a conclusion, to what should the writer always refer?

A) procedure
B) hypothesis
C) your textbook
D) the materials list

15) _____ are hypotheses that are supported by repeated experiments.

A) Theories
B) Postulates
C) Dependent variables
D) Independent variables

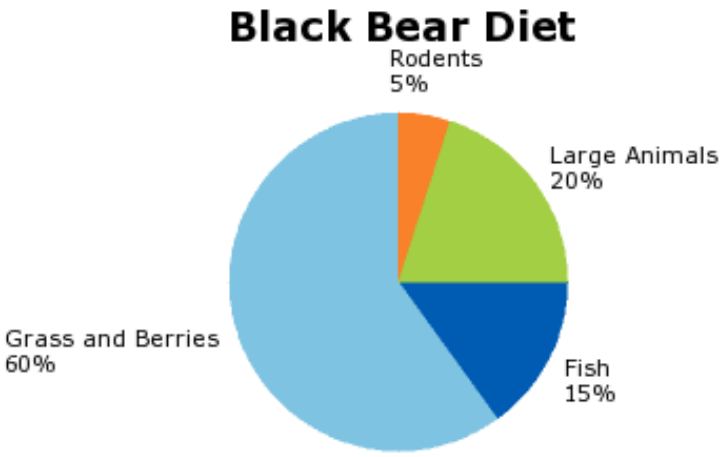
16) During chemistry class your teacher challenged you to dissolve four salts as quickly as possible in a specific volume of water. Each group had to pick a variable to test, a variable that would speed up the dissolving process. Each group had to design an experiment using the steps of the scientific method.

The teacher began the experiment with the research question: How can you speed up the dissolution of salt in water. Your group stated: *If the water temperature increases, the dissolving time of the four salts will decrease.*

Your statement can BEST be described as your group's

A) hypothesis.
C) theory.
B) law.
D) variable.

17)



Curious Carl conducted an experiment on the eating habits of black bears. While living in the woods, Carl was able to record the daily diet of five bears. After a year of observation, Carl summarized his findings in the graph. Which statement is an observation rather than an inference?

A) Land animals were more abundant than fish.
C) Given an choice, bears would rather eat plants.
B) The bears ate more large animals than fish.
D) Rodents were hard for the bears to find and catch.

18) Lucy, the girl sitting behind you in your biology class, always gossiping about something that is someone else's business, tells you that she believes that Mary Lou likes Jimmy Joe. Lucy's statement could be everything but

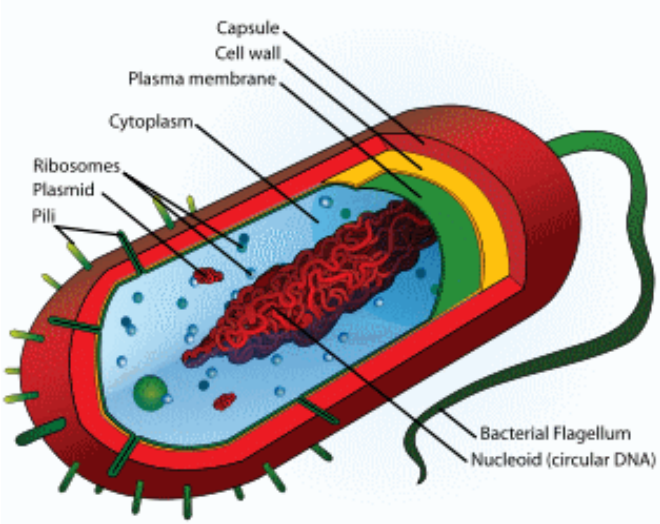
A) data.
C) an observation.
B) a hypothesis.
D) a scientific theory.

19)

The eastern gray squirrel, *Sciurus carolinensis*, is found in many forests throughout the eastern United States. A biologist studying squirrel populations is convinced that the number of squirrels living in a given area is related to the number of acorn producing oak trees. He plans to compare the number of squirrels and the number of acorn producing oak trees in several different forests to see if the data support his idea. Which scientific term BEST describes this biologist's assertion that squirrel populations and acorns are related?

A) data
B) experiment
C) hypothesis
D) model

20)



A scientist is studying a species of flagellated bacteria similar to the cell shown in the illustration. After examining many cells of this species using an electron microscope, she calculates that the average length of a cell is 2.2 micrometers. Which scientific term BEST describes this finding?

A) hypothesis
B) model
C) observation
D) theory