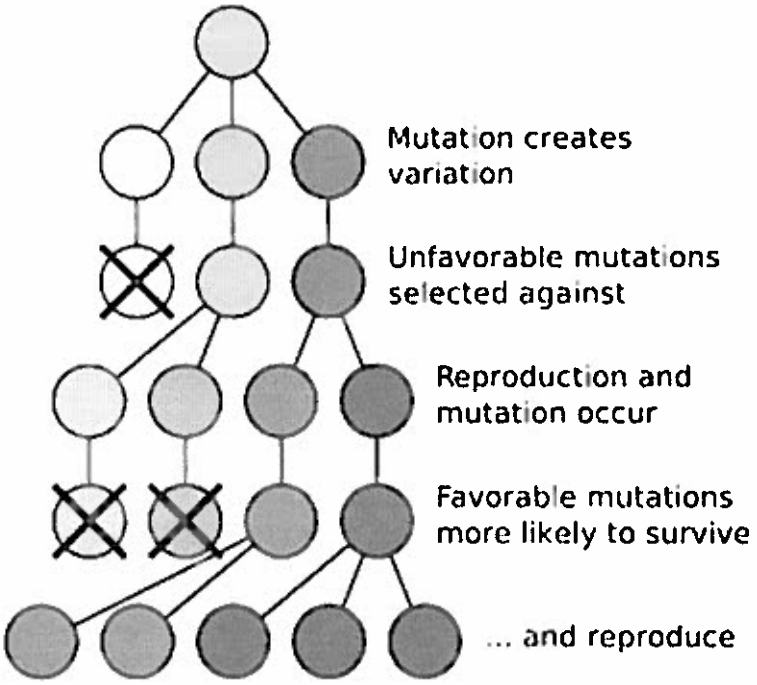
Name: _____ Class: __

Close VBCR*



1. What does the term "natural selection" mean?

_____

_____

_____

_____

2. How would you describe it to a middle school student?

_____

_____

_____

_____

*=Very Brief Constructive Response

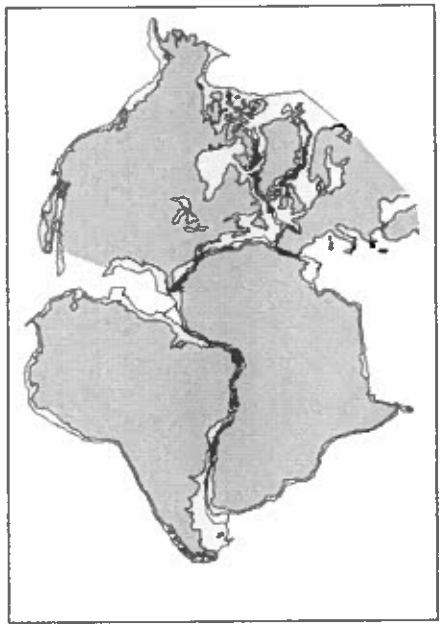
Earth's Early Conditions

Changes in Earth's History

Earth's Present Conditions

IMPORTANT DATES

EARLY EARTH HISTORY PAMPHLET



http://www-sst.unil.ch/Research/plate_tecto/index_files/Pangea.gif

EARLY EARTH HISTORY PAMPHLET NOTES

Earth's Early Conditions

- Earth was inhospitable (not suitable for life)
- Very hot
- Lots of volcanic eruptions (flowing lava)
- Lots of UV (ultraviolet) radiation
- No ozone (O_3) layer to protect from above
- No atmosphere
- No O_2 (atmospheric oxygen)
- No H_20 (water)
- No life
- Volcanic gasses released were:
  - H_2 → hydrogen
  - N_2 → nitrogen
  - NH_3 → ammonia
  - CH_4 → methane
  - CO → carbon monoxide
  - CO_2 → carbon dioxide

EARLY EARTH HISTORY PAMPHLET

Changes in Earth's History

- Earth's atmosphere formed from volcanic gasses
- H_20 vapor condensed into rain (torrential downpours)
- Earth's basins filled up with water (oceans, rivers, etc.)
- Weather and climate began
- Erosion and weathering changed rock into soil
- Earthquakes and volcanoes changed Earth's surface
- Mountain building
- Earth cooled down
- Ice Ages occurred

EARLY EARTH HISTORY PAMPHLET

Earth's Present Conditions

- Atmosphere of N_2 (78%), O_2 (20%)
- Only a few volcanoes but many earthquakes
- Weather / climactic conditions vary around the Earth
- Lots of life forms (biodiversity)
- Human civilization and technology dominant
- Heavy use of fossil fuels (coal, oil, gas, etc.)
- Global warming due to greenhouse gasses (CO_2, CH_4)
- Glaciers melting / sea levels rising
- Earth surface 70% water; 30% land

Name: _____ Class Period: _____

Evolution Bingo

Archaebacteria	Pasteur	Fossils	Spontaneous generation	Cenozoic
Biogenesis	Precambrian	Miller and Urey	Eukaryotes	Mesozoic
Volcanoes	Plate Tectonics	Ozone	Heterotrophs	Evolution
Meteorites	Mitochondria	Photosynthesizing	Divine Origin	Prokaryotes
Vital force	Primordial Soup	FrancescoRedi	Oxygen	anaerobic

Use the Glencoe Biology: The Dynamics of Life textbook (pp. 368-388) to answer the following questions with words found in the chart above. Mark off the words you use and find the column or row of terms that is not used.

1) The first era in the history of the Earth is known as the _____ Era.
2) The idea that the Earth's crust is made up of plates that move constantly is known as _____.
3) The religious theory of _____ teaches that life was created on Earth by a supreme being.
4) Some scientists believe that organic molecules responsible for life came from _____ that hit the Earth from outer space.
5) The early oceans were thought by some scientists to be full of organic molecules of proteins, lipids and carbohydrates. Scientists use the term _____ to describe this so called "nutrient broth."
6) The shortest Era, also the Era that we currently live in is known as _____.
7) The gases in the early Earth's atmosphere came from _____.
8) Two scientists named _____ set up an experiment to the Primordial Soup theory
9) The idea that living things come from other living things is known as _____.
10) The scientist who tried to disprove the spontaneous generation theory using a controlled experiment with meat was _____.
11) The idea that life comes from nonliving matter was known as _____ and was believed for many hundreds of years.
12) The scientist with the famous swan necked tubing that allowed air in but no bacteria into a flask of nutrient broth was _____. This helped to disprove the spontaneous generation theory.
13) The Era that is also known as the Age of the Dinosaurs was the _____.

14) The process of slow gradual change in the Earth and organisms on Earth over time is called _____.

15) The first cells on Earth were probably (prokaryotes, eukaryotes)

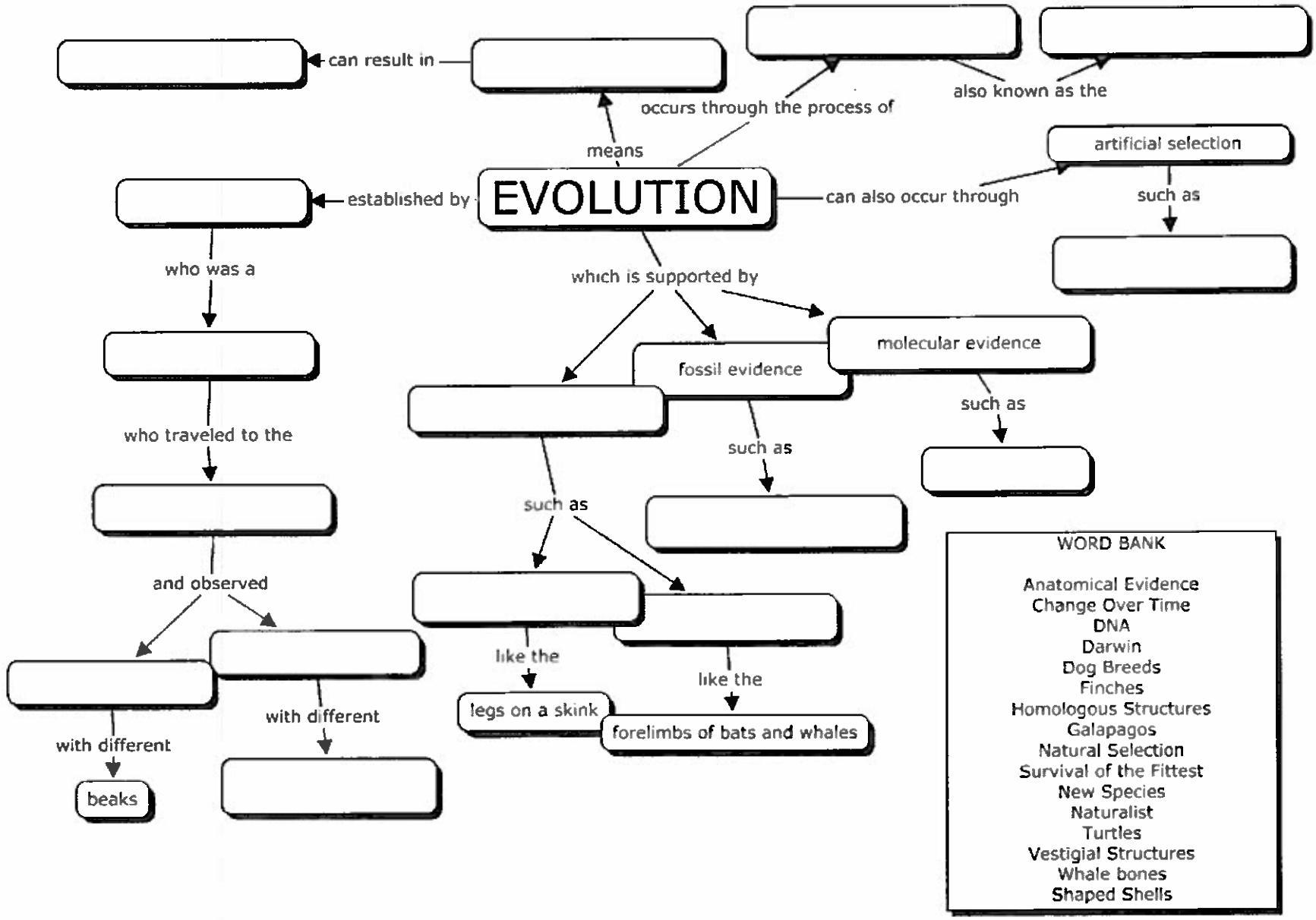
16) The first living cells on Earth probably did not use this gas since it was not present then. _____

17) The first organisms were probably (autotrophs, heterotrophs) that got their food from their environment.

18) Organisms that do not use oxygen for respiration are said to be (aerobic , anaerobic)

19) The first oxygen on Earth came from _____ prokaryotes.

20) Evidence of past life comes from _____ found in rocks.


can result in
occurs through the process of
also known as the
means
artificial selection
established by
EVOLUTION
can also occur through
such as
who was a
which is supported by
molecular evidence
fossil evidence
who traveled to the
such as
such as
such as
and observed
like the
like the
with different
with different
legs on a skink
forelimbs of bats and whales
beaks
WORD BANK
Anatomical Evidence
Change Over Time
DNA
Darwin
Dog Breeds
Finches
Homologous Structures
Galapagos
Natural Selection
Survival of the Fittest
New Species
Naturalist
Turtles
Vestigial Structures
Whale bones
Shaped Shells

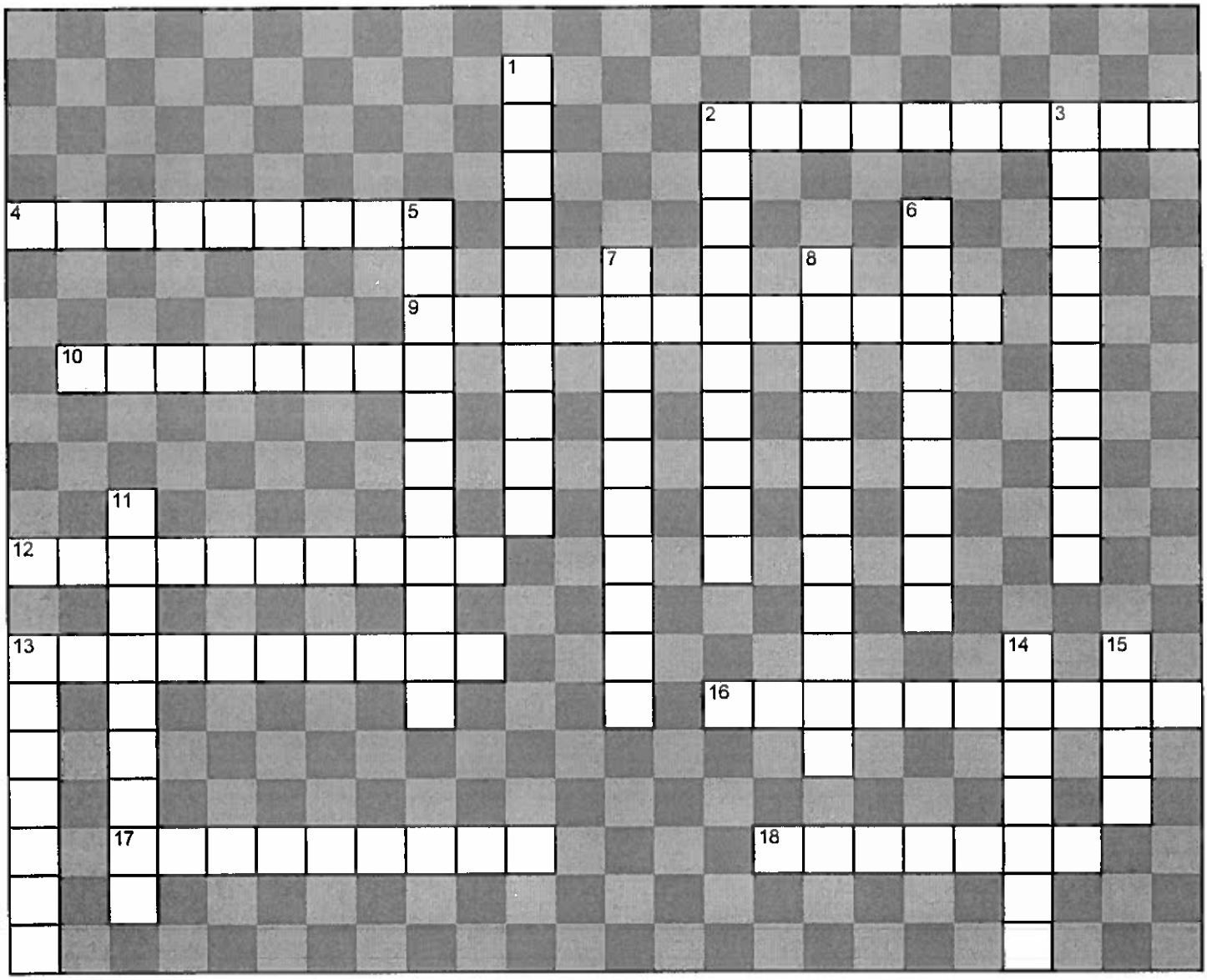
(For best results, print in landscape mode)

Biology: The Dynamics of Life

Name: _____ **Date:** 05/19/2015

Correct: 0 **Attempts:** 0 **Possible:** 20

Instructions: Complete the crossword puzzle. Use the clues to help you solve the puzzle.



Across

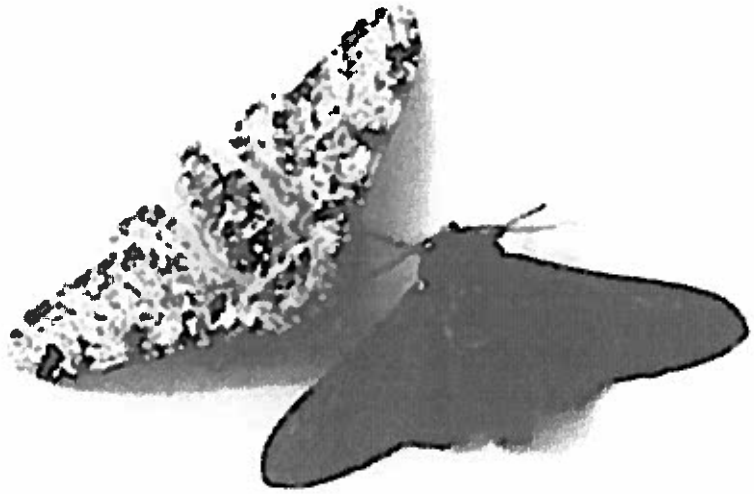
2. _____ isolation: occurs whenever a physical barrier divides a population, which results in individuals no longer being able to mate: can lead to the formation of a new species.
4. any species with multiple sets of the normal set of chromosomes; results from errors during mitosis or meiosis.

9. _____ isolation: occurs when formerly interbreeding organisms can no longer produce fertile offspring due to an incompatibility of their genetic material or by differences in mating behavior.
10. _____ radiation: divergent evolution in which ancestral species evolve into an array of species to fit a number of diverse habitats.
12. process of evolution of new species that occurs when members of similar populations no longer interbreed to produce fertile offspring within their natural environment.
13. _____ selection: process of breeding organisms with specific traits in order to produce offspring with identical traits.
16. _____ equilibrium: idea that periods of speciation occur relatively quickly with long periods of genetic equilibrium in between.
17. _____ structures: structures that do not have a common evolutionary origin but are similar in function.
18. structural adapation that enables one species to resemble another species; may provide protection from predators or other advantages.

Down

1. _____ selection: natural selection that favors individuals with either extreme of a trait; tends to eliminate intermediate phenotypes.
2. idea that species originate through a gradual change of adaptations.
3. _____ structures: structures with common evolutionary orgins; can be similar in arrangement, in function, or both.
5. _____ selection: natural selection that favors one of the extreme variations of a trait; can lead to rapid evolution in a population.
6. _____ evolution: evolution in which species that once were similar to an ancestral species diverge; occurs when populations change as they adapt to different environmental conditions.
7. _____ evolution: evolution in which distantly related organisms evolve similar traits; occurs when unrelated species occupy similar environments.
8. _____ selection: natural selection that favors average individuals in a population; results in a decline in population variation.
11. _____ structure: a structure in a present-day organism that no longer serves its natural prupose, but was probably useful to an ancestor; provides evidence of evolution.
13. _____ frequency: percentage of any specific allele in a population's gene pool.
14. _____ selection: mechanism for change in populations; occurs when organisms with favorable variations survive, reproduce, and pass their variations to the next generation.
15. _____ pool: all of the alleles in a population's genes.

Formative Assessment
HSA BCR Practice



Discuss the change in the peppered moth population before and after the Industrial Revolution and how it relates to natural selection.

ENVIRONMENTAL SCIENCE UNIT 4 EXAM STUDY GUIDE

Be able to understand and use the following vocabulary:

- Variation
- Natural Selection
- Artificial Selection
- Evolution
- Adaptation
- Camouflage
- Biogenesis
- Spontaneous Generation
- Primordial Soup
- Mimicry
- Vestigial Structures
- Analogous Structures
- Homologous Structures
- Species

Concepts:

- ✓ Be able to read a table of characteristic and identify which group an organism belongs to.
- ✓ Know what natural selection is and how it works.
- ✓ Know that natural selection cannot occur without genetic variation.
- ✓ Be able to determine the importance of reproduction in natural selection.
- ✓ Be able to determine the effects of the environment on variation within a species.
- ✓ Know the 3 types of natural selection (*stabilizing, disruptive, directional*) and what happens in each.
- ✓ Know that natural selection and evolution occurs very slowly (millions of years).
- ✓ Know that 2 animals must be able to produce fertile offspring in order to be considered the same species.
- ✓ Know the major characteristics of each of the 6 kingdoms (*eubacteria, archaebacteria, protista, fungi, plantae, animalia*).
- ✓ Know that populations evolve, individuals do not.
- ✓ Be able to describe what happened to the peppered moths and why they are an example of natural selection.

CLOSE

MINIQUIZ EXIT PASS

1. Name one of the evidences for Darwin's Theory of Evolution.
2. Why does it support his theory?