

# Evolution Review Sheet

# 1. Explain Darwin's 2 ideas

- Descent with Modification – over generations populations change and all of life came from a common ancestor
- Modification by Natural Selection – populations change when organisms, having good traits for an environment, survive and pass on their genes

## 2. List 4 steps of his theory

- Populations overproduce offspring
- Variation exists among those offspring
- Having a particular trait makes individuals more or less likely to survive in an environment
- Over time, those traits become adaptations

### 3. Explain Lamarck's ideas

- Lamarck hypothesized that acquired traits could be passed to offspring
  - Acquired traits = traits obtained in your lifetime
- a. Was found to NOT be correct; behavior can't determine the traits that are passed to offspring

## 4. What other information contributed to Darwin's ideas

- Hutton = Earth is shaped by geologic forces that occurred over millions of years
- Malthus = human overpopulation
- Lyell explains that geologic processes observed today have always been occurring
- Wallace discusses the idea of evolution by natural selection

## 5. What is an adaptation?

- Inherited trait that is present in a population because the trait helps individuals survive and reproduce in an environment

## 6. What is natural selection?

- Process by which individuals that are better adapted to their environment survive and reproduce more successfully than less well adapted individuals

## 7. True or False: Individuals can evolve.

- False



# 8. What is a fossil?

- Fossil = remains of organisms that lived in the past
  - a. Can compare living things to fossils to see patterns about how organisms are related and how they have gradually changed over time
  - b. Whales were thought to be land animals because a hip bone and hind leg bones found in some species of whales and comparing fossil evidence
    - a. This indicates they might have once been land dwelling

# 9. What is biogeography?

- Biogeography = study of the locations of organisms around the world
  - a. Found organisms with similar traits in similar habitats or biomes

# 10. What is embryology?

- Embryology = study of the development of organisms
- a. Can compare the development of species to look for similarities and to determine relationships between species

# 11. What are homologous structures?

- Homologous structures – characteristics which are shared by related species because they have been inherited in some way from a common ancestor
  - a. Vestigial organs/structures – organs that had a function in the past but serves no function in the current organism
  - b. Internal similarities between organisms suggests they may share a common ancestor

# 12. 2 Molecules scientists study?

- Molecules = DNA and amino acid sequences
  - a. Closely related
  - b. Not closely related

# 13. Strengths and Weakness?

- Strengths
  - Many types of evidence
  - Logical and testable mechanism for how evolution occurs: natural selection
  - Variation in individuals is important
- Weaknesses
  - Darwin didn't know very much about genetics