**Biology Textbook:** Chapters 16, 17, 18, &19

**Standard:** BIO.B.3.1 Explain the mechanisms of evolution

 BIO.B.3.2 Analyze the sources of evidence for biological evolution

BIO.B.3.3 Apply scientific thinking, processes, tools, and technologies in the study of the theory of evolution

 **Key Concepts:**

Charles Darwin Evolution Speciation Classification Fossil Record

Can you show what you know?

Fold along the line and glue this side down in your Interactive Science Notebook.

**Essential Questions**

1. What patterns of biodiversity did Darwin observe while traveling abroad the

 Beagle?

1. How did other scientists’ work help Darwin develop his theory of natural selection?
2. What is Darwin’s Theory of evolution by natural selection?
3. What are the main lines of scientific evidence that support Darwin’s theory of evolution by natural selection?
4. How do genes make evolution possible?
5. What causes a population’s gene pool to change
6. How do new species form?
7. How do evolutionary relationships affect the way scientists classify organisms?
8. What are the major groups within which all organisms are currently classified?
9. How do fossils help biologists understand the history of life on Earth?

**Vocabulary:** (+)= Can explain it; (-)= Only heard it 0=No Idea

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| Page | Term | Pre | Post | Memory Clue |
|  | 1. Evolution
 |  |  |  |
|  | 1. Fossil
 |  |  |  |
|  | 1. Artificial Selection
 |  |  |  |
|  | 1. Adaptation
 |  |  |  |
|  | 1. Fitness
 |  |  |  |
|  | 1. Natural Selection
 |  |  |  |
|  | 1. Biogeography
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**What I need to know/ Be able to do**

* **State**  Charles Darwin’s contribution to science
* **Describe** the three patterns of biodiversity noted by Darwin
* **Identify** the conclusions draw by Hutton and Lyell about Earth’s history
* **Describe** Lamarck’s hypothesis of evolution
* **Describe** Malthus’s view of population growth
* **Explain** the role of inherited variation in artificial selection
* **Describe** the conditions under which natural selection occurs
* **Explain** the principle of common descent
* **Explain** how geologic distribution of species relates to their evolutionary history
* **Identify** the main sources of genetic variation in a population
* **Explain** how natural selection affect single gene and polygenic traits
* **Explain** how different factors affect genetic equilibrium
* **Identify**  the types of isolation that can lead to the formation of new species
* **Describe** the goals of binomial nomenclature and systematics
* **Identify** the taxa in the classification system

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| Page | Term | Pre | Post | Memory Clue |
|  | 1. Homologous Structures
 |  |  |  |
|  | 1. Analogous Structures
 |  |  |  |
|  | 1. Vestigial Structure
 |  |  |  |
|  | 11. Gene Pool |  |  |  |
|  | 12. Allele Frequency |  |  |  |
|  | 13. Single-gene Trait |  |  |  |
|  | 14. Polygenic Trait |  |  |  |
|  | 15. Genetic Drift |  |  |  |
|  | 16. Bottleneck Effect |  |  |  |
|  | 17. Founder Effect |  |  |  |
|  | 18. Hardy-Weinberg Principle |  |  |  |
|  | 19. Directional Selection |  |  |  |
|  | 20. Species |  |  |  |
|  | 21. Reproductive Isolation |  |  |  |
|  | 22. Behavior Isolation |  |  |  |
|  | 23. Binomial Nomenclature |  |  |  |
|  | 24. Genus |  |  |  |
|  | 25. Taxon |  |  |  |
|  | 26. Phylum |  |  |  |
|  | 27. Kingdom |  |  |  |
|  | 28. Cladogram |  |  |  |