Unit #: 7 **Subject(s):** Biology **Grade(s):** 10 **Designer(s):** Margaret Gribble

STAGE 1 – DESIRED RESULTS

Unit Title: Evolution and Diversity

Transfer Goal(s):

- The diversity of the living world around us is the result of organisms changing over time.

Enduring Understandings:
Students will understand that…

- The mechanism of natural selection influences changes in species over time.
- Various disease agents can influence natural selection.
- Classification systems are constantly changing.

Essential Questions:

- How has evolution influenced the world that we know today?
- Why does it matter that humans impact natural selection?
- How does the study of classification systems help us understand the biodiversity of life on earth?

Students will know:

- Vocabulary: Fossil, Biogenesis, Spontaneous generation, Analogous structure, Homologous structure, Natural Selection, Vestigial Organ, Adaptive radiation, Convergent radiation, Directional selection, Disruptive Selection, Genetic drift, Genetic equilibrium, Geographic isolation, Punctuated equilibrium, Reproductive Isolation, Speciation
- Evidence that supports evolution: fossil, biochemical and anatomical structures (homologies)
- The evolution of cells.
- Genetic variation, struggle for survival, reproductive isolation, geographic isolation lead to variation and/or speciation
- Bacteria develop resistance to antibiotics due to natural selection.
- Pests/Insects develop resistance to pesticides due to natural selection.
- Through random mutations viruses have evolved due to natural selection.
- The historical development and changing nature of classification systems.
- The current classification system taxa, including Domains.

Students will be able to:

- Explain how fossil, biochemical, and anatomical evidence support the theory of evolution.
- Create a concept map/flow chart/graphic organizer that depicts the development of cells (anaerobic, prokaryotic, photosynthetic, eukaryotic, multicellular)
- Describe the conditions necessary for natural selection (genetic variation, struggle for survival, fittest survive, reproduction which can lead to change in population frequency).
- Explain how various disease agents (bacteria, viruses, chemicals) can influence natural selection.
- Construct and use a dichotomous key to classify organisms.
- Construct and use a phylogenetic tree to show the relationships between organisms.
- Construct a graphic organizer summarizing the kingdom characteristics (prokaryote/eukaryote, unicellular/multicellular, autotroph/heterotroph)

• Identify and list the characteristics of the six kingdoms. • Organisms are classified based on phylogeny.	

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STAGE 1– STANDARDS			
Essential Standards		**Clarifying Objectives**	
Bio.3.4	Explain the theory of evolution by natural selection as a mechanism for how species change over time.	Bio.3.4.1	Explain how fossil, biochemical, and anatomical evidence support the theory of evolution.
		Bio.3.4.2	Explain how natural selection influences the changes in species over time.
		Bio.3.4.3	Explain how various disease agents (bacteria, viruses, chemicals) can influence natural selection.
Bio.3.5	Analyze how classification systems are developed based upon speciation.	Bio.3.5.1	Explain the historical development and changing nature of classification systems.
		Bio.3.5.2	Analyze the classification of organisms according to their evolutionary relationships (including dichotomous keys and phylogenetic trees).

STAGE 2 – ASSESSMENT EVIDENCE	
Performance Tasks: • Creating a Dichotomous Key Click here for the performance tasks listed above.	**Other Evidence:** There may not be an assessment of each type listed below for each unit. Examples of other types of assessment may include: *Academic Prompts* *Quiz and Test Items* *Informal Checks for Understanding* • Constructed Response Question Bank • Assessment Prompts • End-of-Course Released Forms Click here to access the resources listed above.

STAGE 3 – RESOURCES FOR THE LEARNING PLAN

District Resources:
When designing the learning plan, these resources are intended to be a primary resource used by all teachers.

- NCDPI Biology Resources
- Discovery Education Resources
- Unpacking for Unit 7

Additional resources can be found using these digital tools:

- Discovery Education (main site)

Click here to access the resources listed above.

Supplemental Resources:
These are considered additional resources that are recommended by the Curriculum Writing Teams. Those resources with an asterisk (*) may be purchased by each individual school.

- Biology EOC Vocabulary List
- Biology EOC Vocabulary List 2
- Antibiotic Resistance Reading
- Birds and Beaks Lab
- Candy Key Activity
- Classification Key – Protists
- Comparing Kingdoms Lab
- Comparison of AA Sequences Worksheet
- Teacher Key
- Constructing a Phylogenetic Tree
- Dichotomous Key – Insects
- Dichotomous Key – Weird Organisms
- Evidence of Evolutions - Stations
- Evolution Crossword Puzzle
- Evolution PBS series
- Evolution Worksheet
- Fishy Frequency Lab (directions & answer sheet)
- Guess the Embryo
- Learn Genetics – Reproductive Advantage
- Learn Genetics – Unity of Life – Shared Functions, Shared Genes
- Learn Genetics – Evidence of Common Ancestry
- Homology & Analogy Webquest
- Natural Selection Simulation
- SAS Charles Darwin Evolution by Natural Selection
- SAS Microevolution Virtual Lab
- Organizing Life
- Patterns of Evolution Worksheet
- Peppered Moths Reading and Simulation
- Kingdoms of Life Infographic
- Kingdom Graphic Organizer
- Biology Junction: Online Dichotomous Key Lesson

	• Gizmos* Click here to access the resources listed above.

Considerations for Differentiating Instruction (AIG, EL, EC, etc.):
These resources are intended to be used when differentiating instruction to meet the varied needs of students in your classroom.

- Creating a Cladogram (Honors)
- Candy Key – Basic
- History of Life Foldable – Enrichment
- Microbe Dichotomous Key (Honors)

Click here to access the resources listed above.