EVOLUTION

Enduring Understandings

- Mutation is random while natural selection is not.
- Populations change over time as environmental pressures determine reproductive fitness.
- Speciation is the result of isolation mechanisms.
- Theory of evolution is held in scientific esteem comparable to that of Modern Atomic Theory, Kinetic Molecular Theory, etc.

Essential Questions

- How do species change through time?
- How do multiple lines of evidence support the theory of evolution?

Targets

VOCABULARY—Genetic variability, natural selection, fitness (reproductive fitness), artificial selection, vestigial structures, homologies (homologous structures), analogous structures, divergent, convergent, theory, hypothesis, law, mutation, immigration, gene flow, emigration, crossing over, independent assortment, genetic drift, founder effect, genetic bottleneck, speciation, isolation, stabilizing selection, disruptive selection, diretional selection.

1. Discuss what is meant by a scientific hypothesis, theory and law-- use examples to correct the misconception that theories can become laws with enough testing.

2. Identify and explain multiple lines of evidence that support the theory of descent with modification (evolution). Include the following evidences in your discussion: direct observation, homologous structures, analogous structures, vestigial structures, fossil record

3. Identify and explain what is meant by genetic variation as well as the sources of genetic variation in populations. Include the following sources in your discussion: mutation, immigration, crossing over, sexual reproduction, independent assortment.

4. Identify and explain the mechanisms that result in a change in allelic frequencies from generation to generation. Include the following mechanisms in your discussion: gene flow, genetic drift, natural selection, artificial selection, founder effect, genetic bottleneck.

5. Identify and explain the role of isolation on speciation, and the differences between stabilizing, directional and disruptive selection.

SCHEDULE
BIOLOGY: EVOLUTION UNIT

2/27 Performance Assessment (Previous Unit)
[B] **HW: Reading Guide Questions 1 – 9**

2/28 Performance Assessment (Previous Unit)/Scientific Laws/Hypotheses/Theories/Darwin
[A] **HW: Reading Guide Questions 10 – 16**

3/1 Evidences/Tenents
[B] **HW: Reading Guide Questions 17 – 20**

3/2 Animations
[A]

3/5 Genetic Variability
[B]

3/6 Mutagen Valley Lab
[A] **HW: Finch & Elephant Worksheets**

3/7 Mutagen Valley Lab
[B]

3/8 Mutagen Valley Graphs/Allelic Frequencies
[A] **HW: Mutagen Valley Analysis Questions**

3/9 Modes of Selection
[B] **QUIZ**

3/12 Speciation/Wrap-up Mutagen Valley
[A] **HW: Finish Mutagen Valley Lab**

3/13 **Mutagen Valley Lab Due/**Summary Discussion
[B]

3/14 Review
[A]

3/15 **Exam**
[B]