biology

module: Evolution
unit: Evolution of Populations

discover more biology modules at
wardsci.com/TEKS

TEKS

7C Analyze and evaluate how natural selection produces change in populations, not individuals

7D Analyze and evaluate how the elements of natural selection, including inherited variation, the potential of a population to produce more offspring than can survive, and a finite supply of environmental resources result in differential reproductive success

7E Analyze and evaluate the relationship of natural selection to adaptation and to the development of diversity in and among species

7F Analyze and evaluate the effects of other evolutionary mechanisms, including genetic drift, gene flow, mutation, and recombination

12B Compare variations and adaptations of organisms in different ecosystems

instructional content:

- Sources of Genetic Variation
  - Mutations
  - Genetic recombination
  - Single gene traits
  - Polygenic traits
- Natural Selection in Populations
  - Directional selection
  - Stabilizing selection
  - Disruptive selection
- Evolutionary Mechanisms
  - Genetic drift
  - Bottleneck effect
  - Founder effect
  - Mutations
  - Sexual selection
- Speciation
  - Reproductive isolation
  - Behavioral barriers
  - Geographic isolation
  - Temporal isolation
- Patterns of Evolution
  - Adaptive radiation
  - Coevolution
  - Convergent evolution
  - Divergent evolution

learning outcomes students will:

- Use all content and scientific process skills learned earlier in the course
- Explain why variation within a population is necessary for natural selection to occur
- Identify processes that can lead to inherited variation in populations
- Distinguish between adaptive features and acclimatization
- Explain the term allele frequency
- Discuss the differences between directional selection, stabilizing selection, and disruptive selection
- Explain how gene flow affects neighboring populations
- Define genetic drift
- Describe why the bottleneck effect and the founder effect are more likely to occur in smaller populations
- Define species
- Discuss how various types of isolation leads to speciation
- Differentiate between gradualism and punctuated equilibrium

Incorporate scientific process skills during the instruction of all Biology concepts.
Look for this icon at wardsci.com/TEKS for more information on scientific process skills.

Recommended Ward's Science products with item numbers for easy online searching:

instructional resources:

Ward's Population Genetics and Evolution Lab Activity **361511**
The Darwin Series: Coevolution of the Galapagos Tortoise and the Galapagos Tomato Kit **177046**
Natural Selection Experiment **361052**
Natural Selection: A Game of Chance **6504302**
Natural Selection and Antibiotic-Resistant Bacteria Lab Activity **366783**
Ward's Birds and Worms: Modeling Natural Selection Lab Activity **366201**
Ward's Investigating Bird Beak Adaptations Lab Activity **366204**
Science Take-Out Experiments: Beadle Plasticus Evolution **367285**
Population Genetics and Evolution Lab Activity **367106**

The Plus is Us. Your Texas Personal Account Managers: **mary.ingle@vwr.com** **holly.ahern@vwr.com** **jill.lewis@vwr.com**

ward's science