



**Restoring Connections: Shrub Encroachment, Ecosystem Services, and Restoration  
6<sup>th</sup> and 7<sup>th</sup> Grade Schoolyard Program**

**Overview**

Students examine photos to discover that parts of Chihuahuan Desert have changed from a grassland to a shrubland ecosystem. After participating in an interactive game, students will explain that drought and grazing by livestock are two of the causes of shrub encroachment. Students use models to show how shrub encroachment causes increased erosion which exposes the hardened caliche layer. They will use aerial photos to estimate percent shrub cover and determine that a shrubland habitat is unsuitable for a keystone species – the banner-tailed kangaroo rat. After learning about the effects of shrub encroachment, students construct an argument to explain how a part of the ecosystem is impacted by this change.

**Phenomenon**

In the Chihuahuan Desert, grasslands have turned into shrublands over time, affecting both biotic and abiotic aspects of the ecosystem.

**Next Generation Science Standards**

MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

Asombro lessons are aligned with the three-dimensional learning model of the Next Generation Science Standards.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Developing and Using Models  Engaging in Argument from Evidence  Constructing Explanations and Designing Solutions	LS2.C Ecosystem Dynamics, Functioning, and Resilience	Stability and Change

**Common Core State Standards**

**Math**

6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.

**English Language Arts**

ELA-LITERACY.RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

ELA-LITERACY.RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

Date: \_\_\_\_\_

Asombro staff: \_\_\_\_\_