



## Matter and Energy Cycling in the Chihuahuan Desert 9<sup>th</sup> & 10<sup>th</sup> grade

### **Overview**

Using scientific data, students examine the transfer of matter and energy in the Chihuahuan Desert trophic pyramid. Students explore energy and matter transfers in trophic pyramid processes, such as photosynthesis and respiration, using models. Throughout the activity, students also calculate the energetics of the pyramid in a quantitative model.

### **Phenomenon**

Why is there less matter and energy in higher levels of the Chihuahuan Desert trophic pyramid than lower levels?

### **Next Generation Science Standards Addressed**

HS-LS2-4 Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.

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

Science & Engineering Practices	Disciplinary Core Ideas	Cross Cutting Concepts
Using mathematical and computational thinking	<b>LS2.B</b> Cycles of matter & energy transfer in ecosystems	Matter and energy
Developing and using models		System and system models

### **Common Core State Standards Addressed**

MP.4: Model with mathematics.

HSN-Q.A.1: Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

HSN-Q.A.2: Define appropriate quantities for the purpose of descriptive modeling.

HSN-Q.A.3: Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.