Connecting to the Next Generation Science Standards

**Standards**

**MS-ESS Earth and Human Activity**

**MS-LS2 Ecosystems: Interactions, Energy and Interactions**

**Performance Expectation(s)**

*The chart below makes one set of connections between the instruction outlined in this article and the NGSS. Other valid connections are likely; however, space restrictions prevent us from listing all possibilities. The activities outlined in this article are just one step toward reaching the performance expectations listed below.*

**MS-ESS3-5.** Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

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

**Science and Engineering Practices**

**Analyzing and Interpreting Data**

* Use graphical displays (e.g., maps, charts, graphs, and/or tables) of large data sets to identify temporal and spatial relationships.

**Classroom Connections**

Students plot location (maximum elevation) of 15 plant species, the upper vegetation limit, and the glacier limit using data collected in1802 and 2012 on Mt. Chimborazo, Ecuador.

**Disciplinary Core Ideas**

**LS2.C: Ecosystems Dynamics, Functioning, and Resilience**

* Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations.

**Classroom Connections**

Students notice most of the plant species’ maximum elevations have increased between Humboldt’s 1802 expedition and Moruea-Holme’s research findings in 2012. When provided historical average temperature data for both Ecuador and Earth (global temperature), students wonder if an increase in the Earth’s average yearly temperature is the cause.

**Crosscutting Concepts**

**Patterns**

* Graphs, charts, and images can be used to identify patterns in data.

**Classroom Connections**

Students plot location (maximum elevation) of 15 plant species, the upper vegetation limit, and the glacier limit using data collected in1802 and 2012 on Mt. Chimborazo, Ecuador. Students notice most of the plant species’ maximum elevation have increased over time.