Mountains and Valleys: The Geology of the Pioneer Valley

Grade Levels: 4, 6–8

Program Description:

Discover the stories in the stones around us! The Holyoke Range can tell us much about how the Earth's crust is shaped. It is a geologically unique area, where we can find evidence of shifting tectonic plates, earthquakes, volcanoes, glaciers, and erosion, all in one day's field trip! Students will learn how fascinating geology can be and how the everyday landscape provides intriguing clues to the past. This trip is based at Skinner State Park and involves some light hiking.

Massachusetts Curriculum Standards:

Grade 4: Earth and Space Sciences

ESS1. Earth's Place in the Universe

4-ESS1-1. Use evidence from a given landscape that includes simple landforms and rock layers to support a claim about the role of erosion or deposition in the formation of the landscape over long periods of time.

ESS2. Earth's Systems

4-ESS2-1. Make observations and collect data to provide evidence that rocks, soils, and sediments are broken into smaller pieces through mechanical weathering and moved around through erosion.

Grade 6: Earth and Space Sciences

ESS1. Earth's Place in the Universe

6.MS-ESS1-4. Analyze and interpret rock layers and index fossils to determine the relative ages of rock formations that result from processes occurring over long periods of time.

ESS2. Earth's Systems

6.MS-ESS2-3. Analyze and interpret maps showing the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence that Earth's plates have moved great distances, collided, and spread apart.

Grade 7: Earth and Space Sciences

ESS2. Earth's Systems

7.MS-ESS2-2. Construct an explanation based on evidence for how Earth's surface has changed over scales that range from local to global in size.

Grade 8: Earth and Space Sciences

ESS2. Earth's Systems

8.MS-ESS2-1. Use a model to illustrate that energy from Earth's interior drives convection that cycles Earth's crust, leading to melting, crystallization, weathering, and deformation of large rock formations, including generation of ocean sea floor at ridges, submergence of ocean sea floor at trenches, mountain building, and active volcanic chains.