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CI 513

October 15, 2012

Mountain Building Unit Rationale

What shapes the Earth? Using the story of Mt. Hood’s formation, this mini-unit on mountain building helps students to answer this essential question by studying key geology concepts like uplift, erosion, and weathering. It is situated within a larger unit on Earth science in which students explore the constructive and destructive processes responsible for shaping the landscape around us. Students will have already studied the compositional layers of the Earth and they will understand that convection in the upper mantle drives plate tectonics. In this unit, students will learn how movement along plate boundaries causes uplift (mountain building) and volcanism, as evidenced by Mt. Hood and the Cascade mountain range. Students will also learn how weathering processes such as rain, snow, glaciers, and wind erode mountains, much like the glaciers of Mt. Hood have carved its jagged peak.

This unit supports both the Washington and Oregon Earth science content standards. More specifically, it describes crustal plate movement and how it results in volcanoes and mountains (6-8 ES2F, OSPI). The unit discusses how landforms are created through processes that build up structures (e.g. uplift) and processes that break down and carry away material through erosion and weathering (6-8 ES2G, OSPI). Further, students will learn that not only is Earth shaped by these very slow processes, but it is also shaped by natural catastrophes such as volcanic eruptions (6-8 ES3D). Students will learn to interpret landforms as evidence of geologic events of the past and they will be able to explain how landforms change over time at various rates in terms of constructive and destructive forces (7.2E.4, ODE).

So what does this all mean for students in the greater scope of their academic and personal lives? Not only do they learn the story of their school’s namesake (Wy’East Middle School comes from the Multnomah tribe name for Mt. Hood), but they begin to understand why their home of the Pacific Northwest looks the way it does and how it got to be that way. They begin to understand the immense forces at play that have created massive and amazing structures like the Himalaya and the Rockies, Mt. Hood and Mt. St. Helens, the Grand Canyon, and our own Columbia River Gorge. In studying geology, students develop inferential reasoning skills and refine their spatial thinking. They develop the awareness that the natural landscape is not a static backdrop, but rather it is an ever-changing environment in which we must survive and understanding Earth’s history helps us make practical predictions and plan for the future.

References:

Office of Superintendent of Public Instruction, Washington State K-12 Science Standards. June 2010. <http://www.k12.wa.us/Science/Standards.aspx>

Oregon Department of Education, Oregon State k-12 Science Standards. February 2009. <http://www.ode.state.or.us/search/page/?id=1577>