Module 1: Soil Water Retention  
Grade 2

In this module, students investigate the question “What variables affect how much liquid a soil can absorb?” in order to learn how soil absorption relates to landslides, showing that water can affect the shape of the land. For their initial observation, students are shown an experiment in which the same amount of water is poured over two soil samples of the same size, one of the sample being loose dirt and one being compact dirt. Students learn that soil compactness does not affect the amount of liquid that a soil absorbs into the soil but does affect the speed at which the liquid is absorbed. Students further learn about how much liquid a soil can absorb by planning and carrying out experiments in groups of ~5 students. The variables that students can explore are soil amount, soil type, liquid amount, or liquid thickness. To assist the students in precise measurements of liquid, they are taught how to read a graduated cylinder as well as pour liquids into a graduated cylinder to the correct amount. At the end of the investigation groups give a poster presentation to the rest of the class, which allows the group to teach the class about the variable they investigated. In addition, on the final day of the module students learn about how what they learned ties to landslides and the strategies that engineers have come up with to prevent landslides. The scientific practice this module focuses on is observations, including whether a statement about an object is an observation, inference, opinion, or incorrect observation. In this module the Next Generation Science Standard 2-ESS2-1 is addressed along with Common Core Mathematics Standard 2.MD-10.