

Land & Water: Suggestions for Collecting Work Samples

We are fortunate that our science curriculum is very inquiry oriented. Often all that is necessary is remove some of the teacher direction and structure, but supply students with available materials. The list of suggestions below are just some of the more obvious. Because this kit is time consuming you may want to provide students with background by working through lessons 1,2,3,5,6 rather quickly and unchanged. Skip lesson 4 (except for record sheet 4-A), and instead teach lessons 7-8 combined and use it as a discussion point for all the variables that affect erosion, then let groups design investigations of some of those. Although these activities provide an opportunity for students to **demonstrate all four components** of inquiry, they can also be used to give students practice on individual components.

Lesson	Lesson Title	Description
7, 9 (8)	<ul style="list-style-type: none"> Where does the soil go? (1 small hole +marine sand + labels) When streams join: Modeling tributaries (3 small holes+marine sand + labels) Bird's-Eye View (aerial drawings + labels of stream parts) 	<p>These lessons provide a comparison of the effects of number of holes on erosion and deposition.</p> <ul style="list-style-type: none"> Lesson 7 is the same as lesson 4 with the addition of marine sand (to show the path of the stream) and labels that point out the speed of the water and whether the soil is being eroded or deposited. Lesson 9 looks at tributary formation using 3 small holes rather than 1. Lesson 8 introduces the technique of aerial drawings and a number of stream vocabulary words. Aerial drawings provide a good way to illustrate the results of these experiments. The drawings should be made the same size with the same color key and the same parts labeled for both lessons 7 & 9 to provide the best comparison. The aerial drawings show patterns of erosion. If the purpose of the experiment is to show amount of erosion, run-off will need to be collected and analyzed (record sheet 4-A) and it might be helpful to measure deposition at the base of the stream. Work through "Scientific Inquiry Report Form" to guide the experiment.
7, 10 (8)	<ul style="list-style-type: none"> Where does the soil go? (1 small hole +marine sand+ labels) Rushing rivers: Exploring flow (1 big hole stream+ marine sand+ labels) Bird's-Eye View: (aerial drawings + labels of stream parts) 	<p>These lessons provide a comparison of the effects of the size of holes on erosion and deposition.</p> <ul style="list-style-type: none"> Lesson 7 is the same as lesson 4 with the addition of marine sand (to show the path of the stream) and labels that point out the speed of the water and whether the soil is being eroded or deposited. Lesson 10 is the same experiment except the hole in the cup (flow) is larger. Lesson 8 See Above Work through "Scientific Inquiry Report Form" to guide the experiment.

OVER→

Lesson	Lesson Title	Description
10,13 (8)	<ul style="list-style-type: none"> • Rushing rivers: Exploring flow (1 big hole stream+ marine sand+ labels) • Exploring slope (1 big hole stream + marine sand + labels + differing slopes) • Bird's-Eye View (aerial drawings + labels of stream parts) 	<p>These lessons provide a comparison of the effects of slope on erosion.</p> <ul style="list-style-type: none"> • Lesson 13 has students test one slope-- 7 inches high. Other slopes could be tried (but be sure not to compare saturated slopes with dry slopes.) Lesson 10 is the same experiment without any slope. • Lesson 8 See Above • Work through “Scientific Inquiry Report Form” to guide the experiment.
13,14 (8)	<ul style="list-style-type: none"> • Exploring slope (1 big hole stream + marine sand + labels + differing slopes) • Plants: Protecting sloped land from erosion (1 big hole stream + marine sand + labels + differing slopes + vegetation) • Bird's-Eye View (aerial drawings + labels of stream parts) 	<p>These lessons provide a comparison of the effects vegetation on erosion of sloped landscapes.</p> <ul style="list-style-type: none"> • Lesson 13 has students test one slope-- 7 inches high. Lesson 14 is the same experiment but with a healthy growth of vegetation on the slope. (Hint: plant one stream table with vegetation one week before running the experiment. The mustard seed will germinate best if soaked overnight in water before planting.) • Lesson 8 See Above • Work through “Scientific Inquiry Report Form” to guide the experiment.