



Family Activity - Exploring Runoff

Summary <i>Learn about erosion and urban runoff by observing how water moves across different surfaces.</i>	Time 20 minutes
Materials: <ul style="list-style-type: none">• 3 sloping outdoor sites: one with vegetation, one with bare dirt, one paved• Several gallons of water and a watering can• Stop watch	

Note: Conserve water!

Activity Directions

- 1. Discuss.** *What happens when rain hits pavement? What happens when rain hits bare dirt? What happens when rain hits plants?*
- 2. Locate surfaces for the experiment.** Find two outdoor areas to use for comparative runoff demonstrations: one sloping, vegetated area (lawn is great), and one sloping area with bare, soft, loose soil.
- 3. Test runoff on each surface.** Using a watering can, pour equal amounts of water over the two areas at the same rate. Use the stopwatch to time these experiments. Observe what happens as the water runs over each surface.
- 4. Test runoff on a paved surface.** Pour water over a *paved* surface and time it. Observe what happens to the water.
- 5. Discuss.**
 - *Which had the most runoff? Why?*
 - *Which of the three test areas (vegetated, soil or paved) had the fastest rate of runoff? (Water runs off pavement roughly 10 times faster than over unpaved areas.)*
 - *How might runoff rates differ between a city landscape and a natural area? (Plants and soil absorb most of the rain in a natural area, but rain cannot penetrate the sidewalks and streets of the city. Instead, it flows quickly down streets towards creeks and storm drains, which usually drain to the Bay.)*



Background When rain falls onto land, it goes somewhere. If it doesn't immediately evaporate, rainwater moves downward, infiltrating into groundwater, or flowing over the surface as runoff. Either way, the water eventually moves through the watershed into creeks, streams or the Bay.

Sediment is small bits of rocks, soil and other natural materials. The movement of sediment by water is called erosion. Runoff carries sediment that is eroded from land and deposits it in creeks and the Bay. Some erosion and sedimentation is natural, especially during periods of high rainfall. Too much sediment in a creek reduces water clarity, raises water temperature, lowers dissolved oxygen, and harms aquatic life.

Runoff over bare land increases erosion and sedimentation of creeks. Trees and other riparian vegetation increase infiltration and reduce erosion. Roots slow erosion by holding soil particles together and absorbing water. Infiltrating water fills in spaces between soil particles around plant roots. Removing or altering vegetation in the riparian corridor by construction, logging, agriculture, or other practices has a negative effect on the health of the creek.