



Infiltration

Enter the results of the infiltration experiment in the table below:

Ground cover	Result
dense pavement	
Pavement with larger joints	
no pavement, compacted soil	
no pavement, loose soil	



Teacher information: Infiltration

There are different approaches to carry out the infiltration measurements. A simple method is to use a bucket with a defined volume of water and pour it on the ground. The first measure for the infiltration is the time it takes for the water to disappear. The second is the size of the spot the water causes on the ground. High infiltration makes the water seep into the ground fast. Only few water will run off thus causing a smaller spot. On less permeable or even sealed surfaces, the fraction of water running off will be larger causing a larger spot. The interdependency of the two processes infiltration and runoff makes understanding this method more demanding than using an infiltrometer as described in the following.

A more standardized method is to use a simple infiltrometer. With an infiltrometer, a defined amount of water is supplied above a certain area of soil or ground. The measure for the infiltration is the time it takes for the water to infiltrate. It is usually measured in millimeters per second. A common method is the ring infiltrometer where a ring with a known diameter is driven into the soil, water is poured into that ring, and the time required for infiltration is measured. Since this method causes an overestimation of infiltration due to lateral movement of the water into soil outside the area of the ring, a second ring can be installed concentric with the first ring. The second ring will also be filled with water, which prevents the water from the inner ring from lateral movement. Only the time, the water of the inner ring takes to infiltrate is used as the measure. This apparatus is called the double-ring infiltrometer. The disadvantage of these methods is that they cannot be used on tarred area or pavement.

Additional materials on infiltration from the PULCHRA Collection of Educational Materials are the Water Challenge (P13), the Wet City Lab (P33), and an introductory section to the Cool City Lab in P31.