

Schoolyard Water Cycle: Measuring Rates of Precipitation and Interception in the Schoolyard

Baltimore Ecosystem Study
Cary Institute of Ecosystem Studies
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Precipitation and Interception

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Cary Institute of Ecosystem Studies and Towson University.

Questions Does the amount of precipitation that reaches the ground differ between open field areas and forested areas?

If so, what processes are involved that may influence the amount of rainfall, or throughfall, that reaches the ground?

Overview The amount of precipitation that makes it to the earth's surface can vary depending on the area of the world, the climate, and also within individual habitats depending on what species of trees and plants are present there. Precipitation that does not reach the ground but is "intercepted" by the leaves of trees and/or plants is known as *interception*. Much of this intercepted rainfall evaporates before it hits the ground and thus never makes it to the soil.

In this study, you will place rain gauges in areas with various canopy coverage in order to measure precipitation rates as well as interception rates.

Materials *Initial setup:*

- Rain gauge
- Metal spikes

After collection:

- Calculator

Procedure → **Decide what question you want to ask.**

1. Write down the question about precipitation and interception that you would like to address. Also, formulate a hypothesis based upon your question.
2. Survey your schoolyard, pick your sampling sites, and develop methods to collect your data.
3. Choose areas that differ in the amount of canopy coverage to allow you to make comparisons to the amount of rainfall.

→ **Locate your placement sites**

1. Place rain gauges in areas with increasing canopy coverage, using 0% open field as your reference.
2. Estimate canopy coverage visually by the amount of total sunlight that gets through the canopy, relative to the open field.
3. Secure the rain gauges to the ground using metal spikes or any other type of staking tool.

→ **Collection and Measurements**

1. Collect your rain gauges shortly after a storm event.
2. Bring your samples back to calculate interception rates. Simply subtract
the amount of water present in the gauges placed under trees from the amount of water present in the open field gauge. This will allow you to get estimates of interception and throughfall.