

Name: _____

Date: _____

Lab: Water from Trees

Background: Trees play many important roles in the environment: They keep the soil from washing away, remove carbon dioxide from the air, and produce oxygen. Trees are also a vital part of the water cycle. In this lab you will discover how trees help to keep water moving through the cycle.



Problem: How much water do the leaves on a tree give off in a 24-hour period?

Focus: observing, calculating, inferring

Materials: 3 plastic sandwich bags balance
 3 small pebbles 3 twist ties

 Data Table

Procedure: 1.) Place the sandwich bags, twist ties and small pebbles on a balance. Determine their mass to the nearest tenth of a gram.

2.) Select a tree in the school forest with leaves that are within your reach.

3.) Put one pebble into a sandwich bag and place the bag over one of the leaves on the tree you have chosen. Fasten the twist tie around the bag, forming a tight seal around the stem of the leaf.

4.) Repeat Step 3 with the other plastic bags on two more leaves. Leave the bags in place for 24 hours. (until the next class period)

5.) The following day, examine the bags and record your observation in the data table.

6.) Carefully remove the bags from the leaves and refasten each twist tie around its bag so that the bag is closed tightly.

7.) Place the three bags, including pebbles and twist ties, on the balance. Determine their total mass to the nearest tenth of a gram.

8.) Subtract the original mass of the bags, ties and pebbles that you found in Step 1 from the mass you found in step 7.

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<u>Data Table</u>	
Starting mass of bags, ties, and pebbles	_____
Mass of bags, ties and pebbles after 24 hours	_____
Difference in Mass	_____

<u>Observations</u>	

Analyze and Conclude

- 1.) Based on your observations. How can you account for the differences in mass?

- 2.) What is the name of the process that caused the results you observed? Explain the role of that process in the water cycle.

- 3.) A single birch tree may transpire as much as 260 liters of water in a day. How much water would 100 birch trees in the school forest trees return to the atmosphere in a year?

- 4.) Based on what you learned from this investigation, what is one reason that people may be concerned about the destruction of the forests around the world?

One step Further: Find another type of tree in the school forest and repeat this experiment. What might account for any differences in the amount of water the two trees transpire?

