



HOW MUCH WATER DO PLANTS USE?

MATERIALS AND EQUIPMENT:

- Plants in pots – 2 each of three different varieties of leafy vegetables such as lettuce, pak choy or rainbow chard. The plants should all be in exact same size and type of pot and with the same type of potting mix.
- Paper Kitchen Towel
- Kitchen Scales
- Chart for recording data
- Pencils and paper

PROCEDURE

1. Put all of plants outside in the shade and give them a really good watering with tap water until the soil is soaked and water is running freely from the holes in the base of the pot. Alternatively, the plants can be left to stand in a bucket of water for an hour. Ensure that the water level is not higher than the rim of the pots.
2. Drain the pots on an area of concrete outside in the shade until no water drains from the pots.
3. Dry the outside of the pots with the paper towel.
4. Weigh each of the pots individually and record the information in the table given below.
5. Put one of each type of plant in a full sun position outside (three in total).
6. Put one of each type of plant in a full shade position outside (three in total).
7. Record the time that you put the plants outdoors.
8. After 60 minutes, weigh each of the plants and record it on the table.
9. Repeat the weighing of each plant another three times (more if preferred).
10. On completion of the experiment, calculate how much lighter each plant pot was at the end of the experiment.

CONCLUSION

Review the results and consider the following questions:

- Which plant used the most water and which plant used the least? Was this the same whether they were in the shade or the sun? Why?
- Where do you think the water went? What impact did the shade have on the amount of water lost?
- Did the plants in the sun always use more water than the plants in the shade?
- How often do you think the plants in the sun would need to be watered so that they didn't dry out if they were left there for a week?
- How often do you think the plants in the shade would need to be watered so that they didn't dry out if they were left there for a week?



EXTENSION ACTIVITIES

Students could undertake this same experiment with different types of plants – trees, shrubs, flowering annuals, succulents. This will help them to compare the amount of water that each type of plant uses.

Students should graph these results using a line graph –one line for shade and one for sun.

Further investigate the process of photosynthesis, transpiration and evaporation. Ask students to investigate how transpiration has an effect on ground water and the water table.

Use a microscope to look at the stomata on leaves and describe and draw how they appear.