

# Gravimetric Soil Moisture Protocol

## Lab Guide

### Task

Weigh soil moisture samples, dry them completely, and weigh them again.

### What You Need

- |                                                                                                                  |                                                                                           |
|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Soil drying oven<br>(conventional or microwave)                                         | <input type="checkbox"/> Hot pads or oven mitts                                           |
| <input type="checkbox"/> Thermometer capable of measuring to 110° C (if using a conventional drying oven)        | <input type="checkbox"/> <i>Soil Moisture Data Sheet</i> with field information filled in |
| <input type="checkbox"/> Soil samples in containers suitable for your drying oven                                | <input type="checkbox"/> Science Log                                                      |
| <input type="checkbox"/> Balance or scale with 0.1 g sensitivity and at least 400 g capacity (600 g recommended) | <input type="checkbox"/> Pen or pencil                                                    |

### In the Lab

1. Calibrate the balance according to the manufacturer's directions. In your science log, record the standard mass used to calibrate the balance. If using an electronic balance, check that the balance is measuring in grams and is zeroed properly.
2. Remove the lids from each soil sample.
3. Weigh the soil sample without the lid. Record the mass to the nearest 0.1 g as the *Wet Mass* next to the appropriate sample container number on the *Soil Moisture Data Sheet*. (Be sure to select the data sheet that corresponds to your collection method – Star Pattern, Transect Pattern, or Depth Profile.)
4. Repeat step 3 for the remaining soil samples.
5. Dry your samples in your soil-drying oven.
6. When your samples are dry, fill in drying time and drying method on the *Data Sheet*.
7. Carefully remove the samples from the oven using the hot mitts.
8. Weigh one of the dry soil samples. Record the *Dry Mass* next to the appropriate container number on the *Soil Moisture Data Sheet*.
9. Repeat step 8 for each soil sample.
10. Empty the soil from the containers. Clean and dry each container. (You may save the soil samples in other sealed bags or containers for further tests or return the soil to your site)

**Note:** Dried soil should be returned to the site to fill in holes so site may be used in future years.