# Soil water holding capacity

## Authorship

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# Notes

* Measurments are usually done in triplicate.

# Equipment and Reagents

1. completely dried soil (50 g per measurement)
   * Measurements usually done in triplicate.
2. flasks
3. funnels
4. filter paper
5. DI water
6. gram scale

# Procedure concept

You are measuring soil that's total dry, then remeasuring it after saturating it with DI water. The difference between saturated soil weight and dry soil weight is the soil water holding capacity.

# Procedure

1. Designate 1 flask as the weighing flask or beaker.
   1. The 'weighing flask' is just used to hold the funnel on the scale.
   2. Place this weighing flask on the scale and tare (zero the scale).
2. Give the other funnels disctinct labels.
3. For each funnel: place the funnel in a flask (not the weighing flask), and place a filter in the funnel.
4. Pre-moisten the filter paper with DI water.
   1. Water can drip into the flask.
5. For each funnel + filter paper
   1. Add 50 g of dried soil to the funnel.
   2. Place it on the weighing flask and record the weight.
      1. Weight = weight of dry soil + filter paper + funnel
   3. Saturate the soil with DI water.
   4. Let the soil free drain into the flask until it stops dripping.
      1. The time needed for this depends on the soil, but usually no more than a few minutes.
   5. Move the funnel with soil to the weighing flask on the scale and record the weight.
   6. Water carrying capacity =
      1. Weight = **weight of water held** + weight of dry soil + filter paper + funnel
   7. Subtract the post-saturation weight value from the pre-saturation value to get the weight of the water held. This is the water holding capacity.
6. To increase accuracy, use the mean water holding capacity value for 3 replicates.