



Light

Lux meters or Light meter apps on smart devices can measure light intensity in lux or lumens. Hold the device so that neither your hands nor body cast a shadow over the sensor. Wait for the reading to stabilise and take at least three readings to create a standardised measure.



Temperature

Air: Thermometers or digital probes should be held 1.5 to 2m above the ground and there should be unobstructed air flow around the thermometer. Wait for the temperature reading to stabilise and record the result.

Water: Probes need to be submerged at least 10cm into the body of water, ensuring the probe end does not touch anything such as bank, beds or vegetation. Do not measure a water sample that has been removed from the original source as this is not a representation of the environmental conditions.

Soil: Push aside any leaf litter or mulch and dip the probe 5 to 10cm into the soil. If the soil is very stoney or hard, use a screw driver to create a pilot hole - this avoids damaging the thin and often delicate probe tip. Wait for the readings to stabilise before recording them.



pH

Water: Take a 100ml water sample and dip a pH strip into it. A change of colour and what it means can be read off the guidelines that accompany the strips. Alternatively, a digital pH meter can be submerged into the water directly and once the readings have stabilised they can be recorded.

Soil: Take two 1cm³ samples using an auger, placing each in a test tube or beaker. To one sample add vinegar. Fizzing will indicate alkaline soil. To the other sample add a small amount of water (enough to make mud) and then add half a teaspoon of bicarbonate of soda. Fizzing will indicate acidic soil. If neither samples fizz the soil has a neutral pH. A more accurate reading can be gained by the use of a pH probe placed directly into moist soil.



Salinity

Collect a sample of water and place in a beaker wide enough to accommodate a hydrometer. Record the water temperature using a probe and then float the hydrometer in the sample to find its relative density. Use an online conversion table, chart or calculator to find the salinity in parts per thousand (‰).



Nutrients and pollutants

Soil: Take a soil sample using an auger and dilute the sample in a 1:1 ratio using distilled water. Wait for the water to settle and dip a NPK testing strip (nitrogen, phosphorus or potassium) into the water. A change in colour will indicate a presence of the nutrient and the degree of presence can be measured by reading off the guidelines and colour chart that accompany the test strips.

Water: Collect a sample of water and place a NPK test strip in a sample for two seconds. A change in colour will indicate the presence of the pollutant and the degree of presence can be measured by reading off the guidelines and colour chart that accompany the test strips.



Oxygen

A digital probe is submerged directly in the water to a depth of 10cm. Ensure that the probe tip has water freely able to move around it. Wait for the readings to stabilise before recording them.

Humidity

A digital hygrometer should be held or placed 1.5 to 2m above the ground. Wait for the humidity reading to stabilise before recording the result.

A whirling hygrometer can also be used. Saturate the wick of the wet bulb before holding the handle and spinning the hygrometer in the air for 30 seconds. Quickly read the wet bulb followed by the dry bulb, recording the temperatures straight away. Subtract the wet bulb reading from the dry bulb reading (the 'wet bulb depression') and use a conversion table or online calculator to find the relative humidity.

