

## pH probe calibration

In most cases it is not necessary to calibrate sensors; however, for optimum accuracy you may choose to calibrate them manually.

To perform any calibration, you will need one or more external references for your sensor. For example, to do a two-point calibration for a pH sensor you will need two pH buffer solutions. Your calibration is only as good as your knowledge of the reference values. Note: For best results, the two calibration points should be widely separated and be on either side of the readings you anticipate in your experiment.

A two-point calibration is always better than a one-point calibration, but sometimes it is more convenient to adjust the sensor reading to a single reference. A one-point calibration assumes that the slope for the calibration is good and that only the intercept needs to be adjusted (for linear calibrations:  $y = mx + b$ ). Some sensors will default to single-point calibration. Others will have single-point calibration available as an option in the calibration dialog.

### Performing a Two-Point Calibration

1. Connect the sensor to LabQuest. The sensor reading will be displayed.
2. Choose Calibrate from the Sensors menu and tap Calibrate Now.
3. Prepare the sensor for the first point. For example, if you are calibrating a pH Sensor, remove the storage bottle from the electrode (if applicable), rinse the tip of the sensor with distilled water, and place the sensor in the first standard solution so the tip is immersed. If you are calibrating a Force Sensor, remove all force from the hook and orient the sensor as it will be used in the experiment.
4. Enter the known value for the Reading 1 (e.g., if you are using a pH Sensor, enter the known value of the standard solution).
5. When the voltage reading stabilizes, tap Keep.
6. Prepare the sensor for the second calibration point. In the case of the pH Sensor example, you should rinse the sensor with distilled water and place it in the second standard solution.
7. Enter the known value for Reading 2. When the voltage reading stabilizes, tap Keep.
8. (Optional) If you wish to store the calibration on the sensor itself, tap the Storage tab at the top of the screen. If you wish to use the calibration only for the current experiment, skip to Step 9. On the Storage page, tap Save Calibration to Sensor. A message will appear: "Saving this calibration to the sensor will result in it being the new Custom Calibration 1." Tap OK to proceed.
9. Tap OK to complete the calibration process.

You can reset the sensor to its factory calibration by following these steps:

1. Choose Calibrate from the Sensors menu.
2. Tap the Storage tab.
3. Tap Restore Sensor Factory Defaults.