**Activity 3: Calibration practical: Teacher and technician notes**

**Station 1 – Calibrating a balance**

**Equipment needed per student**

* A mass balance, minimum of 2 d.p but 4 d.p is preferred
* A set of masses that can be used as calibration masses

You may have to add into the worksheet (or demonstrate to students) how to calibrate the pieces of equipment used.

**Safety**

Ensure risk assessments have been conducted and checked by an appropriate practitioner.

**Station 2 – Calibrating a pH meter**

**Equipment**

* pH meter
* pH meter calibration buffer solutions (pH 4.0, pH 7.0, pH 10.0) in small beakers
* Distilled or deionised water
* Lint-free tissue
* Beakers for rinsing

**Safety**

If using tablets or commercial solutions, refer to any hazard warning labels on the containers.

If using prepared buffers (from CLEAPSS recipes below) they are currently not classified as hazardous.

* It is recommended (by CLEAPSS) to use a standard buffer solution prepared from tablets or commercial solutions to calibrate pH meters.
* If buffer solutions need to be prepared, then instructions can be found at: [science.cleapss.org.uk/Resource/RB018-Buffer-solutions.pdf](https://science.cleapss.org.uk/Resource/RB018-Buffer-solutions.pdf)

**Station 3 – Calibrating a pipette**

**Equipment per student**

* Mechanical (variable volume) pipette
* Calibrated high-sensitivity balance (or at least 0.0001 g)
* Weighing boats or small containers
* Distilled or deionised water in clean flasks/beakers
* Thermometer

**Safety**

Ensure risk assessments have been conducted and checked by an appropriate practitioner.

**Station 4 – Calibrating a conductivity meter**

**Equipment per student**

* Conductivity meter
* Standard conductivity calibration solution(s) (150 µS/cm conductivity standard, 1413 µS/cm conductivity standard and 2880 µS/cm conductivity standard)
* Distilled or deionised water
* Clean beaker(s) for the standard solution(s)
* Lint-free tissue

**Safety**

Refer to solution manufacturer’s safety instructions. Ensure risk assessments have been conducted and checked by an appropriate practitioner.

A video for how to prepare some calibration solutions can be found below: [www.youtube.com/watch?v=efEdmZfRRrs](http://www.youtube.com/watch?v=efEdmZfRRrs)