**Activity 1: Investigating calibration**

**Introduction**

* The pharmaceutical lab you work for has just been given some pipettes from another department. They want to use them to measure out some liquid to prepare some solutions of a drug to be delivered to patients.
* You need to determine which pipettes, if any, are working correctly.

**Task**

* As a group, briefly discuss why it is important to find out whether these pipettes are fit for use. Then investigate the equipment you have been given and suggest a brief, basic method for determining which are working correctly.
* Be prepared to share your suggestions with the class, discuss the possible consequences of a pharmaceutical company using pipettes that don’t work correctly and explain why calibration is important.

**Equipment provided**

* 4 x mechanical (variable-volume) pipettes
* 2 x 50 cm3 beakers
* Mass balance to 4 d.p.
* Distilled water
* Thermometer

**Safety**

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

**Analysis**

Share your findings as a class and discuss any discrepancies and possible consequences.

Additional task

Determine the uncertainty and therefore calculate the percentage error associated with measuring a mass of 0.05 g on your balance.