**Consolidation**

Picking one of the four scenarios below, take the role of a calibration expert working in this industry. Research and write a presentation to explain why calibration is necessary in the given context. Include any financial, health and safety, legal or other implications that may arise if regular and correct calibration does not take place.

The presentation should be written for colleagues in the same industry who are not experts in calibration.

1. A biotech company produces therapeutic proteins for use in protein replacement therapy. These proteins need to be stored in pH-specific buffer solutions. Their pH meter has not been calibrated in over a year.
2. A research laboratory has been commissioned to determine the correct quantities of substances to use when synthesising a new drug for asthma inhalers. The pipettes they used when creating the two reactant solutions in step 4 of the process were incorrectly calibrated, so too much liquid was taken into the pipette tip when measuring out volumes of liquid.
3. An environmental agency is using conductivity meters to measure the concentration of dissolved salts in alkaline water samples from around a river source to determine contamination levels from local agricultural processes. The conductivity meter is calibrated weekly and correctly, with an appropriately selected standard buffer solution, but today the technician has decided to turn the heating up to 30°C in the laboratory where the testing is taking place so that they can keep warm.
4. A pharmaceutical company is pre-loading capsules for individualised chemotherapy treatment programmes for patients with rare cancers. The balance they are using to measure out extremely precise masses of the various anticancer drugs has been calibrated near an open window.