

A Guide to using a Precision Balance for Analytical Weighing in the Classroom



A Precision Balance is essential for accurate analytical weighing in the classroom, which is a key part of many higher education and university curriculums.

This handy guide will lay out some of Precisa's top tips for analytical weighing in the classroom, as well as directing teachers and professors towards the perfect precision balance to meet all their requirements.

The type of classroom scales needed will vary with the level of complexity of what is being taught. This article will focus on the use of analytical and precision balances, which measure masses much lighter than the average classroom scales. An analytical balance measures to the nearest 0.0001g, while a precision balance measures to the nearest 0.1-0.01g.

Why are Precision Balances essential in the classroom?

- **For the preparation of materials and samples for practical laboratory experiments**

It is often the job of a teacher, science technician or the student themselves to prepare the materials needed for experiments. In order to ensure that there are enough materials, samples need to be standardised and weighed accurately.

A precision scale will enable you to be confident and prepared for each lesson with the correct quantity of each sample, which will prevent problems occurring.

- **For the weighing of materials during experiments**

There are many educational demonstrations and experiments in physics, chemistry and biology which require precise analytical weighing from a tenth to a thousandth of a gram.

Precision weighing scales are therefore frequently used by teachers and students in higher education for the weighing of chemicals, powders and other tiny materials that are lighter than one gram.

- **For the use of advanced features such as density determination and purity analysis**

At the highest level of education, in universities and research laboratories, precision scales may be used for their advanced functions such as density determination and purity analysis.

These built in functions allow values to be calculated without the need for laborious testing and recording procedures.

Top Tips for Weighing in the Classroom

At Precisa we understand the importance of using and maintaining classroom scales correctly due to the fact that a precision balance is an investment for a school, college or university and because accurate results could cost a student their future if it means the difference between a pass and a fail.

Therefore, we have compiled this selection of five top tips which must be considered every time you use your precision balance in order to ensure that it will obtain the most accurate measurements while maintaining longevity and optimal performance for many years.

1. The precision balance must be set up correctly.

Your classroom scales should be set up on a stable and level surface such as an empty desk or laboratory worktop. If your precision balance is not set up on a stable surface you will not obtain accurate measurements because you are likely to see fluctuations in your readings due to shifts in the balance level.

2. The surrounding environment must be suitable.

If your precision balance is being used for an application that needs a temperature controlled environment, it must not be positioned in direct sunlight or in the direct line of ventilation/ a window.

This constant air flow may also cause fluctuations in readings as the air movement can cause changes to the substance. Vibrations from nearby machinery could also cause a similar problem. Furthermore, exposure to direct sunlight could cause potential damage to the precision balance.

3. The classroom scales must be tested and potentially calibrated before use.

It is a good idea to use a test weight before you begin your measurements, to ensure that your precision balance is calibrated correctly. This is essential for weighing in the classroom because discrepancies in results can affect the outcome of experiments.

If you feel the readings may be off, do not hesitate to [get in touch](#) with a member of our team as we offer [UKAS accredited calibration services](#) across the UK.

4. The precision balance must have sufficient power.

In order for most precision balances to function to the best of their ability, they must have had a constant power flow of 30 minutes to 1 hour. This is in order to ensure that the electrical components have reached the correct thermal equilibrium.



For balances with readabilities of 0.00001g-0.000001g, it is recommended that the power flow is never interrupted unless critical. If you have environmental concerns related to not switching off plug sockets, most balances should have the option to be left on standby.

5. The classroom scales must be cleaned and stored correctly.

It is important to always clean your precision balance to avoid contamination which can compromise accuracy and to preserve your balance for as long as possible.

When cleaning your balance, you must ensure that it is turned off so that there is no risk of electrocution or damage to the electric components. Clean gently without applying much pressure using either a damp cloth or a soft tissue with a mild cleaner. Avoid using anything which may leave residue, such as acetone.

When storing your balance, the weighing pan must be empty and it must be away from anything which could cause contamination such as dust or liquids. You must also avoid storing it in the direct path of sunlight, ventilation or windows.

Find the right Precision Balance for your Classroom

Now is the time to plan and prepare for the academic year ahead, so why not view [our selection of analytical and precision balances for educational use](#).

A Precisa Precision Balance has up to a 0.0001g readability with a capacity of up to 520g, either with or without internal calibration. Therefore we have a solution to meet all your analytical weighing requirements in the classroom.

If you are interested in our range of products for your classroom or have any questions about our top tips, please do not hesitate to [get in touch](#) with a member of our team as we look forward to being of assistance.

Alternatively, if you have enjoyed reading about using a Precision Balance for Analytical Weighing in the Classroom, why not sign up to our infrequent newsletter or join us on social media today.