

Why sustainability matters in the lab

Lab work has a significant impact on the environment, ranging from energy and resource consumption to chemical and equipment use and disposal.

Understanding where your greatest sustainability impacts are coming from can empower lab users to optimise methods while reducing wastage and inefficiencies wherever possible - saving more money for science! This document is intended to be an introduction to reducing environmental impacts in ways that can improve science.

First steps to a safer, more sustainable lab

1. Manage your fume cupboard

Close the sash when away, and switch off the extract fan when not in use. Do not use the fume cupboard as a ventilated chemical store – use a bespoke ventilated chemical storage cabinet instead, saving 99% of the energy!



2. Reduce, reuse and substitute lab plastics

Much lab plastic waste is avoidable, e.g. through decontamination and reuse, or substitution with non-plastic items. edin.ac/lab-plastic



3. Manage your freezers

Create a sample management database/freezer map to ensure you don't need to keep the freezer door open for a long time when locating a sample. Consider increasing the temperature of ULT freezers from -80 to -70 to achieve a 25-30% energy saving (see our database for sample safety info).



4. Purchase energy and water efficient equipment

Apply to the Sustainable Campus Fund for funding.



5. Power down wherever possible, particularly on weekends and at night.

Plug-in timers can help.



6. Be conscious of what you use and why

Plan experiments to avoid repeats, use appropriate amounts, and avoid unnecessary usage of disposable items.



7. Avoid scrapping operational but unwanted equipment

This can be through sharing, donation, or even resale. edin.ac/reallocate-sell-FAQ



8. Manage your chemicals

Use/order appropriate quantities, and check

- availability of the chemical in neighbouring labs
- chemical waste is disposed of correctly



Find out more at www.edin.ac/labs

Key Principles



Chemicals and materials: Follow the 12 Principles of Green Chemistry, including reducing hazard levels by substitution of solvents, acids and bases.



Waste and recycling: ensure all lab users are aware that uncontaminated lab items (e.g. cleaned chemical tubs, cardboard packaging) can be placed in standard recycling bins outside the lab. See our guidance on lab plastic waste.



Management and training: encourage all lab users to attend lab sustainability training from Social Responsibility and Sustainability. These are held online regularly and recordings can be found on our website.



Cold storage: check there are no unnecessary or expired samples taking up space. Vacuum the air filter and heat exchanger fins. Defrost or remove ice and frost build-up.



Scientific equipment: buy efficient equipment with funding from the Sustainable Campus Fund. Use equipment efficiently, for example fitting timer plugs.



Lighting: bench-mounted task lighting can be more useful than overhead lighting, especially if the lab is only occupied by one or two people.



Water: avoid process cooling with tap water – use a recirculating chiller instead (for better temperature control and less flood risk); avoid distilled water (very energy intensive to produce) and use DI or RO instead.

