King's College London Sustainable Labs

Induction for new members of staff & students — November 2014

Why sustainability matters in the lab

Lab work has a significant impact on our planet, ranging from energy and resource consumption to chemical and equipment use and disposal. Most researchers aren't aware where the bulk of energy is consumed or how to curb usage. Sharing how and where energy is consumed can empower you to optimise lab methods while reducing wastage and inefficiencies wherever possible – saving money for more science.

This document introduces how to have a safer, sustainable and more efficient lab.

First steps to a safer, more sustainable lab

1. **Close your fume hood sash** when not in use.
2. **Manage your chemicals**
   Order and use appropriate quantities, and check if there is already the same chemical available. Make sure chemicals are disposed of correctly.
3. **Manage your freezers**
   Ensure your freezers are running well, defrosted, and samples are managed. Don't leave the freezer door open longer than necessary, and consider running at -70C (25-30 per cent energy savings!).
4. **Purchase energy efficient equipment**
5. **Power down whenever possible,** particularly on weekends and at night.
6. **Be conscious of what you use and why**
   Plan experiments to avoid repeats, use appropriate amounts, and avoid unnecessary usage sterile plastics.
7. **Recycle** wherever possible. This can be through sharing, appropriate disposal, and even resale.

Key principles

Chemicals and materials Are they being stored safely and used efficiently?

Waste and recycling Is hazardous or special waste being minimised? Are materials and equipment being reused or recycled efficiently?

Management and training Does the lab have a responsibility structure for environmental improvement? Are users aware of the importance of energy and environmental issues?

Cold storage Is your freezer full of non-essential or unlabelled samples? Has your freezer been defrosted and is it running well?

Scientific equipment Is it being used efficiently? Are students being made aware of why equipment is energy intensive and the different ways it can cost a lab?

Lighting Is the lighting appropriate to use requirements and always turned off when not required?

Fume cupboards Are the fumehood sashes kept closed whenever possible? Are they turned off at the end of the day (whenever possible)? Often they're the *largest* consumers of energy!

Water Is it being used efficiently and recirculated wherever possible? Purified water should be used appropriately, while a running tap should be used sparingly for stainings and glassware is cleaned by soaking (which is most effective).

'Labs often use three to five times more energy than other academic buildings, and yet we rarely address how that energy is consumed' – Peter James, S-Labs

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