

Science 7.3: Energy audit project

Buildings account for about 40% of energy-related emissions in North America, and are responsible for 3/4 of electricity consumption in the United States and half of natural gas consumption. Much of this energy is wasted, even though problems can often be fixed with low-tech solutions – for example, almost half of heat in homes is lost through window and door seams.

As part of our unit on heat and temperature, you'll be looking at your own houses to find out where (and why) you can improve energy efficiency at home. You should pay particular attention to the roles played by convection, conduction, and radiation in heating your home this winter, and also the role each of these plays in the loss of heat to the environment. What materials are used for controlling the flow of heat in your home, and why? What technologies are important? How can you improve the energy efficiency of your home, and what is the science behind these improvements?

What you'll be doing

Energy analysts visit homes and businesses, make measurements to determine how the building could be heated more efficiently, and make recommendations for improvements. Over the next three weeks, you'll become energy analysts. We'll begin with background research before talking to an energy analyst, who will be coming to visit us at Calgary Science School. Because there's so much to learn, you'll do your research in "expert groups", and share what you find with the rest of the class.

Over the course of the project, you'll be preparing:

- A collaborative document that summarizes the research of your expert group;
- A proposal for an energy audit on your home, using the attached sheet;
- An energy audit for your own home, including specific recommendations; and
- A comparison of heating in your home with those of your peers.

Important dates

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| November 9-13: | Background research |
| Thursday, November 12: | Auditor visit |
| Monday, November 16: | Audit proposal work time (7.2) |
| Thursday, November 19: | Audit proposal work time (7.3) |
| Monday, November 23: | Audit proposals due |
| Friday, November 27: | Peer review and comparison work time |
| Monday, November 30: | Audits and comparisons due |

_____ Name

Energy audit proposal

Proposed audit date: _____

Questions I will be answering:

Measurements I will be taking:

Parent's signature