How to heat my house?

Developer: Teachers at Vikingaskolan (Contact through Johan Krantz and Per-Magnus Persson)
Institute: Vikingaskolan
Country: Sweden

Subject: Science, Biology, Chemistry, Domestic Science, Physics.

Grade level: 9 – 12

Objectives/competencies: Students are expected to be able to**:**

- Seek and select appropriate information related to the cost and long-term environmental effects. of different methods of heating and the costs and efficiency (with respect to indoor climate) from books, computers networks and web pages.
- Explain the advantages and disadvantages of different methods of heating, relating the explanation to the impact these methods have on climate, quality of air in the vicinity and the household economy.
- Propose a way of calculating the cost of different building and isolating materials and heating methods, connecting this to the design of the house.
- To cooperate with partners in the group in planning and performing the calculation of the cost of different building and isolating materials and heating methods, connecting this to the design of the house.
- Decide, with reasons, what is a good choice of the right building and isolating materials and the right methods of heating, with respect to the design of the house.

Curriculum content: Characteristics of different building and isolating materials, heating methods and calculation of heat consumption, heat loss and material costs (connecting it to the volume and area of a building).

Kind of activity: Library search, group discussion group discussion to find a method of calculation, and a cio-scientific decision

Anticipated time: 4 – 5 lessons.

Student Guide

Scenario

Ms. Jones lives in an old farmhouse, which she decides to rebuild from scratch. She is concerned about both the global climate and her own comfort. She also is concern what all this is going to cost. She is a nurse by profession, but her friend happens to be a science teacher, so she wonders if her friend's students could investigate the right methods to build the house and to heat it. Can you help her?

Student Tasks

1. Seek from different sources (as books, computers networks, web pages, etc.) information about the costs of different methods to heat houses, to isolate them and different building materials, as well as the impact on global climate of different methods of heating as well as their efficiency.
2. Analyse the information obtained so as to become familiar with the data on the costs of different methods of heating and their impact on global climate as well as their efficiency.
3. Analyse the information obtained so as to become familiar with the data on the efficiency of the different isolating materials and building materials.
4. Plan the way of calculating about the costs of different methods to heat houses, to isolate them and different building materials. Perform the calculation with your group.
5. Discuss with your group and in classroom

- the long-term environmental effect of using different isolating materials and building materials;
- the long-term environmental effect of using different heating methods,
- the choice of isolating and building materials and heating methods most suitable with respect to a household's economy and their long-term environmental effect.

6. Determine how best to communicate the results to Ms. Jones.