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Cost of heating a house with natural gas in Eastern North Carolina

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Abstract

Abstract: Students explore an easy way of conserving energy while they do some comparison between two types of light bulbs. Students calculate the cost advantage of replacing an incandescent bulb with a compact florescent bulb.

A Bright Idea

Nikbakht, Sharareh. (2016). A bright idea.

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Introduction:

Natural gas is a fossil fuel that occurs deep beneath the earth's surface. It consists of methane and small amounts of hydrocarbon liquids and non hydrocarbon gases. Natural gas is invisible and odorless which can be used as a source of energy. Natural gas is used extensively in residential, commercial and industrial applications. The use of natural gas is rapidly increasing in electric power generation and. Natural gas is the cleanest burning fossil fuel, producing primarily carbon dioxide, water vapor and small amounts of nitrogen oxides. In this activity, you calculate cost of heating a typical house in the Eastern part of North Carolina.

Activity:

Assume you live in a 2,500 square foot house in Outer Banks, North Carolina. In a typical winter you may use around 50,000 BTUs of heat per square foot to warm up your living space. Natural gas is available at a cost of \$5.00 per thousand cubic feet. Assuming, one cubic foot of natural gas supplies 1,000 BTUs of heat energy, answer the following questions. Make sure you write down all the steps of your calculations, including units.

- 1) The number of cubic feet of natural gas required to heat the house for the winter , assuming the furnace in the house is only 80% efficient.

- 2) What is the cost of heating this house?

- 3) Discuss two environmental impacts of natural gas use, one positive and one negative.

- 4) Identify and describe three actions the residents of the house could take to conserve heat energy and lower the cost of heating the house.

- 5) The residents decide to supplement the heating of the house by using a wood- burning stove. Discuss two environmental impacts, one positive and one negative, of using a wood-burning stove.