

## GET YOUR RED-HOT SOLAR PANELS!

### Teaching Guidelines

**Subject:** Mathematics

**Topics:** Real Numbers, Statistics, Linear Equations

**Grades:** 6 - 9

**Knowledge and Skills:**

- Can use positive and negative numbers to represent a situation in which an initial investment is recouped over a period of time.
- Can plan and execute a survey with responses to a set of questions from a set of individuals, and summarize the results using appropriate statistical measures and graphical representations.
- Can use linear equation to model a situation in which an initial investment is recouped at a constant rate.

**Subject:** Science

**Topics:** Physics (Energy and Power)

**Grades:** 6 - 9

**Concepts:**

- Understands the energy unit "kilowatt-hour"
- Understands the concept "power"
- Understands the concept "energy"

**Subject:** Arts

**Topics:** Visual Arts (Graphics)

**Grades:** 6 - 9

**Knowledge and Skills:**

- Can create an attractive "one-sheet" describing a service or product.

**Materials:** None

Procedure: This project should be done by students individually or in teams of two.

Distribute the handout and read it with students. Then review the key points of the assignment:

- Create a single sheet that explains the benefits of the panels.
- Calculate how long it will take for the panel to pay for itself.

(You may either tell students the cost of electricity in your area or provide them with a copy of an electric bill and have them figure it out.)

For an algebra class, you may require students to determine the linear function that represents the “total savings” from using a panel as a function of time (which would start at -\$2000.00 at time zero). However, this problem can also be solved without algebra.

- Design and execute a survey (which can be carried out with other students in the school or as a homework assignment).
- Research the environmental benefits of using solar panels.

Make sure these points are understood by all students, and give them a due date and schedule for working on the project.

School-to-Career Connection: Tour a facility which manufactures solar panels, or invite a representative of a company which installs such panels to visit your classroom.

# Get Your Red-Hot Panels!

The advertising firm you work for has just been awarded a contract to produce promotional literature for a national company that produces a new inexpensive type of solar electric panel.

Your team has been assigned the task of creating a “one-sheet” on the panels: a promotional piece consisting of one side of an 8 1/2” by 11” sheet of paper, which presents the key selling points of the product.

You are told that each panel costs \$2,000.00 to install and produces an average of 1,500 kilowatt-hours of electricity a year.

You will need to explain in your one-sheet how quickly the panels will repay their purchase price, based on local electricity costs that you must determine. You should find a way to illustrate this point.

Your one-sheet should also promote the environmental benefits of the panels.

Your supervisor has told you that prior to designing your one-sheet you should interview some prospective buyers of solar panels in your neighborhood. In the interviews you should find out what kind of information would be most important to them in making the decision to purchase a solar panel.

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