



Models of Efficiency

Overview:

This activity is designed to give students the opportunity to apply and combine their knowledge of energy saving devices and strategies with their creativity. Students will design and build a model of an energy saving home. This activity will require the student to compare energy use and to put into action those strategies and devices that would make their home the most energy efficient.

Objectives:

The student will demonstrate their understanding of energy saving strategies and devices by designing and constructing a model home.

Arizona State Standards

S04- S1C4 PO2 Choose an appropriate graphic representation for collected data:

- bar graph
- line graph
- Venn diagram
- Model
- Illustrations/pictures

S04-S3C2 PO3 *Design and construct a technological solution to a common problem or need using common materials.*

S04-S4C3 PO4 Describe ways in which resources can be conserved (e.g., by reducing, reusing, recycling, finding substitutes).

Time: 4-6 one-hour class periods

Materials:

Recycled Items

Pizza boxes

Paper

Plastic scraps

Paper towel rolls

Fabric

Bottle tops

Anything the students think to use that they can find in their homes

Paint

Scissors

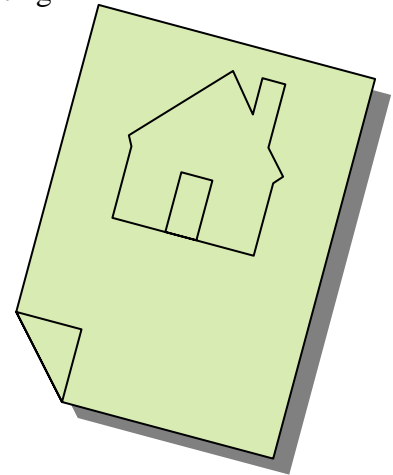
Glue





Procedure/Activities:

1. Lead a discussion with students about what the characteristics of an energy efficient home might be and a non-efficient home would look like. Record their responses on board.
2. Instruct the students the will work in pairs to design and create their models.
3. Provide the students with the rubric you will be using to grade their models.
4. Let the students know what materials you have available for them and tell them they can be creative and bring more from home.
5. As the students design their home make sure that they keep in mind some of the things they learned about window coverings, landscaping, size and usage of hot water, number of windows, etc.
6. Have the students' share their models with other each other explain what energy saving features their home has.
7. Make presentation about models for PTA or at a staff meeting





Rubric

Making A Model : Building an Energy Efficient Home

Student Name: _____

CATEGORY	4	3	2	1
Visual Appeal	Several of the visuals used on the model reflect an exceptional degree of student creativity in their creation and/or display.	One or two of the visual items used on the model reflect student creativity in their creation and/or display.	The visual items are made by the student, but are based on the designs or ideas of others.	No visual items made by the student are included.
Relevance	All visual items are related to the topic and make it easier to understand. All borrowed visual items have a source citation.	All visual items are related to the topic and most make it easier to understand. All borrowed visual items have a source citation.	All visual items relate to the topic. Most borrowed visual items have a source citation.	Visual items do not relate to the topic OR several borrowed visual items do not have a source citation.
Labels	All items of importance on the model are clearly labeled with labels that can be read from at least 3 ft. away.	Almost all items of importance on the model are clearly labeled with labels that can be read from at least 3 ft. away.	Several items of importance on the model are clearly labeled with labels that can be read from at least 3 ft. away.	Labels are too small to view OR no important items were labeled.
Content - Accuracy	At least 7 accurate facts are displayed on the model.	5-6 accurate facts are displayed on the model.	3-4 accurate facts are displayed on the model.	Less than 3 accurate facts are displayed on the model.
Knowledge Gained	Student can accurately answer all questions related to facts in the model and processes used to create the model	Student can accurately answer most questions related to facts in the model and processes used to create the model .	Student can accurately answer about 75% of questions related to facts in the model and processes used to create the model.	Student appears to have insufficient knowledge about the facts or processes used in the model.
Attractiveness	The model is exceptionally attractive in terms of design, layout, and neatness.	The model is attractive in terms of design, layout and neatness.	The model is acceptably attractive though it may be a bit messy.	The model is distractingly messy or very poorly designed. It is not attractive.