



Watts On Your Mind?

Solar energy educational activities for schools

Activity Overview

Grade Level: 6-8

Activity: M-2

General Description

Students will play a game by answering questions about home energy habits using play money that will be distributed based on their responses. Teachers are encouraged to discuss the significance of each question and reasons why their responses resulted in giving or receiving money.

Learning Outcome

Students will understand how their energy habits at home have a dollar cost. They will use play money to understand these costs.

Subjects

Science, Math, Social Studies, Home Economics

Process Skills

Decision making, listening, reading, grouping facts

Duration

One class period

Key Vocabulary

Utility, electric bill, loads

Curriculum Standards

Texas (TEKS):

112.22.b.6,9, 112.23.b.7,14

Louisiana (LSCS):

PS-M-C8, SE-M-A6

Arkansas (ASCF):

3.1.20, 3.1.25

National (AAAS Project 2016):

The Designed World – 8th

Let's Get Energized – The Pay Me Game

Materials

- 2 envelopes, 1 marked "me" and 1 marked "utility"
- Play energy money (provided in activity) \$100 per student
- One copy of Pay Me Game Questions (provided in activity)

Method

1. Cut out the money sheets. Each student should have \$100 made up of 20, \$1, 10 - \$5, and 3 - \$10's. A student can put the money into piles prior to starting the activity.
2. Give each student one: "me" envelope and one "utility" envelope.
3. Tell students that they have just gotten paid \$100, and whatever they and their family don't spend on energy at home, they can use to buy the things they *want*. Read each question to the group. Depending on their answer, the students will put the required amount of money in either their "me" envelope or in their "utility" envelope. If a student runs out of money before the end of the game he may borrow from his "me" envelope to pay the "utility bill."
4. At the end of the game, count the money in each envelope to show the students how much their energy habits are costing them. Discuss how students could get more in their "me" envelopes.

Discussion

Add up the money in each envelope, don't count any money that is in your hand. Ask: Who has the most money in their "ME" envelope? Who has the most money in their "UTILITY" envelope?



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Assessment

Organize a discussion with students about how they could get more in their "ME" envelope. (Use the information provided with the questions.) If this was real money, and students could get any money that they could save, what would they do?

Source: Alliance to Save Energy (Credit: "Let's Get Energized" (1996) California Energy Commission.)



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THE PAY ME GAME QUESTIONS

Question	Yes	No	Comments
DO YOU HAVE AN ELECTRIC BLANKET?	pay UTILITY envelope \$2	pay your ME envelope \$2	(Electric blankets cost about 8 cents a night or \$2.40 a month per person. Using warm pajamas and blankets save the most energy. But if your room is still too cold at night it costs less to use an electric blanket than to heat up the whole room.)
HAVE YOUR PARENTS EVER HEATED THE KITCHEN WITH THE STOVE OR OVEN?	pay UTILITY envelope \$10	pay ME envelope \$10	(If you ever see someone doing this you should tell them that it is dangerous, expensive and doesn't work very well.)
DO YOU HAVE AIR CONDITIONING FOR YOUR ENTIRE HOUSE?	pay UTILITY \$45	pay ME \$20	(A mid-size air conditioner costs about 16 cents an hour to operate. You can save money on air conditioning if you keep windows and doors closed during the heat of the day. At night you can turn off the air conditioner, open the doors and windows and turn on fans to get cool outdoor air into the house. Be sure to close the house back up before it gets warm the following day.)
DO YOU HAVE A WINDOW AIR CONDITIONER FOR ONE ROOM?	pay UTILITY \$20	pay ME \$20	(Cooling only one room or area of your house costs much less than cooling the entire house. Keep the doors closed to un-used rooms.)
DO YOU TAKE BATHS IN THE BATH TUB?	pay UTILITY \$6		(A bath takes at least 15 gallons of hot water; that's at least 10 cents a bath. In a month that's \$3 per person.)
DO YOU TAKE SHOWERS THAT ARE LESS THAN 5 MINUTES LONG?	pay ME \$5		(A shower that is less than 5 minutes will use less than 6 cents of hot water.)



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Question	Yes	No	Comments
HOW MANY MEMBERS OF YOUR FAMILY TAKE SHOWERS THAT ARE MORE THAN 5 MINTUTES LONG?			pay UTILITY \$5 for each person in your family who does this
QUESTION: DO YOU ALWAYS TURN OFF THE LIGHTS EVERY TIME YOU LEAVE A ROOM?	pay ME \$5	pay UTILITY \$5	(An average electric bill for lights alone is \$9 a month.)
ARE YOUR CLOTHES DRIED IN A CLOTHES DRYER?	pay UTILITY \$13	pay ME \$13	(It costs about 80 cents an hour to operate. This can get very expensive after a few loads of clothes. Cleaning the filters after each load is dried and drying one load after another so the drum doesn't have to be re-heated for each load will save money.)
DO YOU SLEEP IN A WATERBED?	pay UTILITY \$20		(Keep the waterbed below 85 and keep the mattress covered at all times to save money. There are special electric blankets that you can put on top of your waterbed, which keeps you warm without having to heat up all the water. These electric blankets can save a lot of money.)
IN THE SUMMER ARE THE DRAPES IN YOUR HOME CLOSED TO KEEP OUT THE HEAT?	pay ME \$10	pay UTILITY \$5	(Closing drapes and putting up shades keeps the sun and warm air from getting into your house, which keeps your house much cooler. Students will probably be familiar with how light coming through a window can heat up a car on a hot day. A house with direct sunlight coming in heats up the same way.)
IF YOU USE A DISHWASHER TO WASH YOUR DISHES, DO YOU OPEN THE DOOR TO DRY THE DISHES?	pay ME \$3	pay UTILITY \$5	(If you turn the drying cycle off and open the door to let the dishes dry you can pay yourself \$2.)



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Question	Yes	No	Comments
DO YOU HAVE MORE THAN ONE REFRIGERATOR OR FREEZER AT YOUR HOUSE?	pay UTILITY \$12 for a second refrigerator or freezer		(Each extra refrigerator costs about \$12 a month, that's \$144 a year!)
IS YOUR REFRIGERATOR OPENED MORE THAN 6 TIMES A DAY?	pay UTILITY \$2 for each person who opens the door	pay ME \$5	(It costs about 3 cents every time the door is opened.)
DO YOU USE A HAIRDRYER?	pay UTILITY \$3	pay ME \$3	(It costs about 8 cents every time you use a hair dryer.)
DO YOU LISTEN TO THE RADIO OR WATCH A VCR?	pay UTILITY \$2	pay ME \$1	(It costs the average household about \$2.30 a month to use these.)
DO YOU PLAY VIDEO GAMES?	pay UTILITY \$4	pay ME \$2	(Even though most video games are electronic and use a small amount of electricity usually they are played for many hours and the electricity adds up.)
DO YOU HAVE AN ELECTRIC TOOTHBRUSH?	pay UTILITY \$1		
DO YOU HAVE A SWIMMING POOL?	pay UTILITY \$20		(Pools are expensive to operate, especially if you heat them. The pool filter alone costs about 10 cents an hour to operate.)
DO YOU HAVE AN ELECTRIC CLOCK?	pay UTILITY \$1	pay ME \$1	(A wind-up clock doesn't use electricity.)
DO YOU USE AN ELECTRIC CAN OPENER?	pay UTILITY \$1	pay ME \$1	(A good hand-operated opener works well for most people.)
DO YOU USE A PORTABLE ELECTRIC HEATER IN WINTER?	pay UTILITY \$30	pay ME \$10	(In general, portable heaters are one of the least efficient heating sources. If you're the only one who's cold consider putting on an extra sweater or socks instead of using the heater to warm up your room.)



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Question	Yes	No	Comments
DOES YOUR FREEZER HAVE AN ICEMAKER?	pay UTILITY \$3		(It is cheaper to make ice cubes with ice cube trays in your freezer.)