

**Grade Level:** 3 – 6, High School

**Lesson Overview:** Students will use play money to understand the dollar cost of their energy habits.

**TEKS:**

**Math:** 3.1(C), 3.15(A,D), 4.3(A), 4.14(A,B), 5.3(A), 5.14 (A), 6.11(A)

**Science:** 3.3(C), 4.3(C), 5.3(C), 6.3(C)

**Social Studies:** 3.6(A,B), 3.8(B), 5.13(A,B)

**Environmental Systems:** 3(B,C)

**US History:** 22(A,B,C)

**World Geography:** 19 (A,B), 20 (A,B)

**Math Models:** 1,2

**Management:** 6(D)

**Housing:** 7(B)

**Interior Design:** 1(F), 6(A,B,C,D)

**Engineering Principles:** 11(B)

**Energy, Power and Transportation Systems:** 11(B), 12(A,B,C,D)

**Time:** 20-30 minutes

**Materials:** 2 envelopes, 1 marked "me" and 1 marked "utility" for each student, play energy money (see master sheet) \$100 per student, copy of "The Pay Me Game" Questions or the PowerPoint presentation from the Watt Watchers of Texas website

**Additional Materials Needed for HS Extensions:** Internet access

**Vocabulary:** utility, save, spend

# The Pay Me Game

## Background Information:

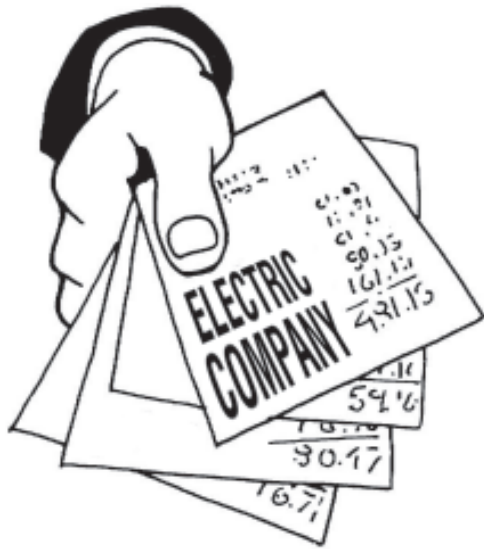
Students have a hard time understanding how much energy they are using if it is not tied to dollar amounts. They know how much a candy bar, a pair of shoes, or a movie ticket costs. In this lesson they will use play energy money to learn some of the dollar amounts attached to a shower, the refrigerator, or their pool. The dollar amounts for this game are based on amount of energy used multiplied by the state average for electricity costs.

## Activity 1: The Pay Me Game

1. Photocopy and cut out the money sheets. Copy enough for each student to have \$100, made up of 20 \$1's, 10 \$5's, and 3 \$10's. Copying on green paper and laminating is a good idea if you are working with more than one class of students.
2. Give each student one: "me" envelope and one "utility" envelope.



- 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 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."



- At the end of the game, students place any money that is still in their hand in the "me" envelope. Count the money in each envelope to show the students how much their energy habits are costing them.

Note: You may want to delete questions or change them depending on students in your area. If you know no one has a pool at home you may want to omit that question; however if you do ask it, the students will see how much they are saving by not having a pool.

### High School Extension:

The Pay Me Game can be played in your classroom by reading the questions or by showing the Power Point version. But in today's gadget filled world, there are several things missing from the list that are staples in a student's life. Play the original version and then have the students come up with a list of items they use on a daily basis that are not included. These items might include chargers for cell phones and laptops, or even lava lamps.

Have the students research these items to find out how much electricity each uses and how many hours a day they use the item. You can use the chart from How Much Energy Do You Use as a basis for doing cost analysis. Figure out how much extra money per month is needed to run these "necessary" items.

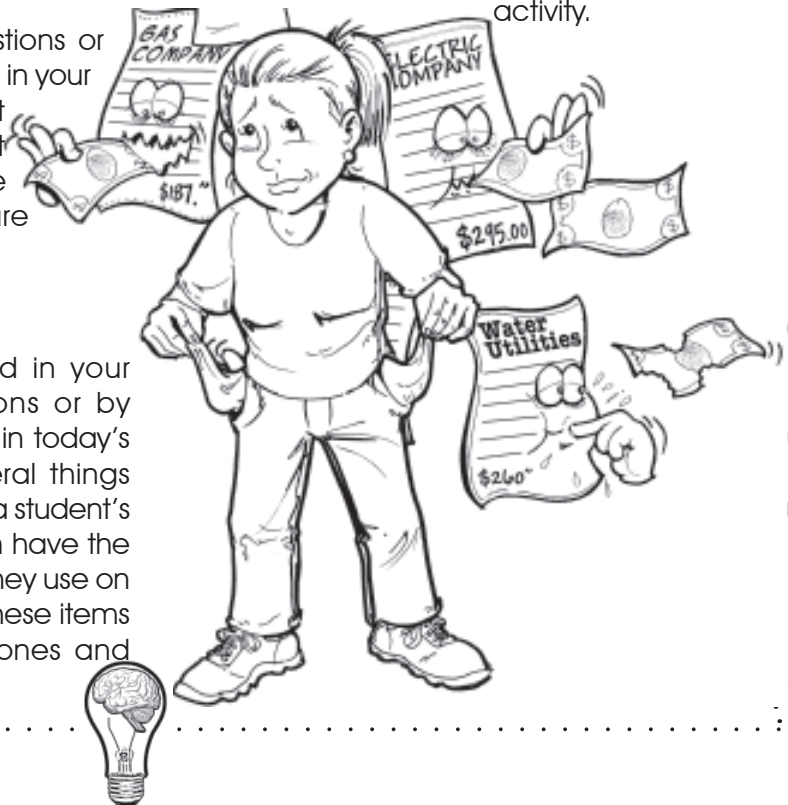
Email us with the new items and the numbers you came up with. We will be updating the Pay Me Game throughout the year and would like to include as many items as we can find that would pertain to students. We will credit your class in the final edition.

### Discussion:

How much the student learns from this depends on you. If you quickly discuss the "why's" of the questions with the students they will have a better understanding of how to change their energy practices. Stress to the students that this is a game for them to see how much extra energy they really use. So it is best if they answer the questions honestly. If this was real money, and students could use any money that they could save, what would they do?

### Going Further:

Utility companies produce good pamphlets with energy saving tips. You could get copies for your students to take home as a follow-up to this activity.



# THE PAY ME GAME

**Question:** Have your parents ever heated the kitchen with the stove or oven?

**Yes:** Pay UTILITY \$10

**No:** Pay ME \$10

*(If you ever see someone doing this you should tell him or her that it is dangerous, expensive and doesn't work very well.)*

**Question:** Do you use a portable electric heater in the winter?

**Yes:** Pay UTILITY \$30

**No:** Pay ME \$10

*(In general, portable heaters are one of the least efficient heating sources. If you're the only one that is cold, consider putting on an extra sweater or socks instead of using the heater to warm up your room.)*

**Question:** Do you have air conditioning for your entire house?

**Yes:** Pay UTILITY \$45

*(A midsize 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 while the air conditioner is on. 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 and turn the air conditioner on before it gets warm the following day.)*

*[SAFETY NOTE: When the temperature starts to climb, the air conditioner should be on when the doors and windows are closed. There have been news reports that people have suffered heat stroke and died each summer because they stayed inside a closed up house without an air conditioner running. Fans don't prevent heat stroke if the house is closed up.]*

**Question:** Do you have a window air conditioner for one room?

**Yes:** Pay UTILITY \$20

**No:** 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 unused rooms.)*

**Question:** In the summer are the drapes or blinds in your home closed to keep out the heat?

**Yes:** Pay ME \$10

**No:** 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.)*

**Question:** Do you take baths in the bathtub?

**Yes:** Pay UTILITY \$6

*(A bath takes at least 15 gallons of hot water, that's at least 10 cents per bath. In a month that's \$3 per person.)*

**Question:** Do you take showers that are less than 5 minutes long?

**Yes:** Pay ME \$5

*(A shower that is less than 5 minutes will use less than 6 cents of hot water.)*

**Question:** How many members of your family take showers that are more than 5 minutes long?

**Yes:** Pay UTILITY \$5 for each person in your family who does this.

**Question:** Do you use a hair dryer?

**Yes:** Pay UTILITY \$3

**No:** Pay ME \$3

*(It costs about 8 cents every time you use a hair dryer.)*



**Question:** Do you always turn off the lights every time you leave a room?

**Yes:** Pay ME \$5

**No:** Pay UTILITY \$5

*(An average electric bill for lights alone is \$9 a month.)*

**Question:** Are your clothes dried in a clothes dryer?

**Yes:** Pay UTILITY \$13

**No:** 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 reheated for each load will save money.)*

**Question:** Do you have an electric blanket?

**Yes:** Pay UTILITY \$2

**No:** Pay ME \$2

*(Electric blankets cost about 8 cents a night or \$2.40 a month per person. Using warm pajamas and blankets saves the most energy. But if your room is still too cold at night it costs less to use an electric blanket than it does to heat up the whole room.)*

**Question:** Do you sleep in a waterbed?

**Yes:** Pay UTILITY \$20

*(Keep the waterbed below 85 degrees 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.)*

**Question:** Do you have an electric clock?

**Yes:** Pay UTILITY \$1

**No:** Pay ME \$1

*(A wind-up clock doesn't use electricity.)*

**Question:** Do you listen to the radio or watch a VCR?

**Yes:** Pay UTILITY \$2

**No:** Pay ME \$1

*(It costs the average household about \$2.30 a month to use these.)*

**Question:** Do you play video games?

**Yes:** Pay UTILITY \$4

**No:** 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.)*

**Question:** Does your freezer have an ice maker?

**Yes:** Pay UTILITY \$3

*(It is cheaper to make ice cubes with ice trays in your freezer.)*

**Question:** Do you wash and dry your dishes in the dishwasher?

**Yes:** Pay UTILITY \$5

**No:** Pay ME \$5

**Question:** Do you open the door to the dishwasher to let your dishes air dry instead of using the heat cycle?

**Yes:** Pay ME \$2

**No:** Pay UTILITY \$2

*[NOTE: Turning the dishwasher off after the final rinse and allowing the dishes to air dry instead of using the automatic drying cycle saves energy and money because the automatic drying cycle uses a timer and a heating element to dry the dishes.]*

**Question:** Do you use an electric can opener?

**Yes:** Pay UTILITY \$1

**No:** Pay ME \$1

*(A good hand-operated opener works well for most people.)*

**Question:** Do you have more than one refrigerator or freezer at your house?

**Yes:** Pay UTILITY \$12 for every extra refrigerator or freezer

*(Each extra refrigerator costs about \$12 a month; that's \$144 a year.)*

**Question:** Do you make food decisions with the refrigerator door open?

**Yes:** Pay UTILITY \$4 for each person who does this

**No:** Pay ME \$5

*(It costs about 3 cents every time the door is opened.)*

**Question:** Do you have a swimming pool?

**Yes:** 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.)*







