

Classroom Energy Audit

OBJECTIVE

- Examine the classroom to understand how energy is used
- Produce and analyze data in order to identify opportunities to save energy
- Create materials to communicate the importance of saving energy

CLASS TIME

60 minutes

MATERIALS

- Pens, pencils, colored pencils, crayons or markers
- Tape
- Classroom Energy Audit Worksheet (*included*)

Procedure

1. Before introducing the activity, ask building administrators or janitorial staff about the electricity use of the school. If able, come up with an estimate of how much it costs to power one classroom. Feel free to use your knowledge of your community to arrive at an appropriate approximation.
2. To start, ask students, **“How much do you think it costs to power this room for one day?”** Write student guesses in a place everyone can see. Repeat this exercise by asking about **one week, one month** and **one year**. Then reveal the correct answer. Were the guesses too high or too low? Why?
3. Next, ask students **“Where do you think we use electricity in this room?”**. Create a list of student answers; we will use this list again in the Energy Audit. Some answers might be: Lights, heating, air conditioning, computers, phones or other devices.
4. Now, using the **Classroom Energy Audit Worksheet**, let students explore the classroom. Set a timer for 20 minutes for this portion. Depending on class size, you may want to have students work in pairs or small groups.
5. At the end of the timer, bring the class back together. Using the **Critical Thinking Questions** as a guide, discuss different ways the class could save energy. At the end of the discussion, write down three methods that the class agrees to implement going forward.
6. After the class discussion, have students use what they have learned to create posters and flyers that communicate easy ways to save energy at school. When students are finished with their creations, help them hang up the posters and flyers in the classroom with tape.

CRITICAL THINKING QUESTIONS

1. Why is it important to save energy?

Answers:

- *Saving energy saves money, which the school can use for other things for students.*
- *Saving energy at school means there is more energy for other people to use.*
- *Making electricity uses resources. Sometimes those resources are renewable, like wind and solar, but sometimes we use non-renewable resources, which could eventually run out.*

2. What can our class do to save energy?

Answers:

- *Turn off the lights when we leave the room.*
- *Completely power off computers, projectors and smartboards instead of leaving them on sleep mode.*
- *Unplug chargers once our devices are fully charged.*

3. How can we collect more data in the future?

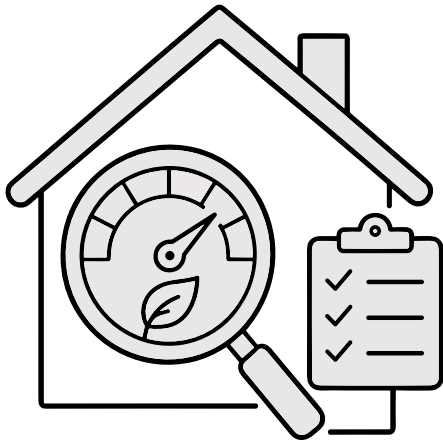
Answers:

- *Performing the energy audit at different times of year would help the class learn how energy use changes with the weather.*
- *Conducting the audit in other rooms of the school – the gym, the library, the cafeteria, etc. – would let the class compare how certain rooms use more or less energy.*
- *Purchasing or borrowing a watt-meter would let the class get more accurate data that is specific to the classroom.*

STUDENT WORKSHEET

Classroom Energy Audit

Name _____



An energy audit is an investigation of how much energy a space uses. Companies, schools and households use audits to find ways to reduce waste, save money and protect the environment. Today, you will conduct an audit in your classroom.

Use these wattage estimates to help you when filling out the Classroom Audit. A watt (W) is a unit that measures how much energy a device uses.

Energy Reference Guide

Energy User	Watts (W) per Hour
LED light bulb	10
Laptop/Chromebook	30
Desktop computer	130
Computer monitor	25
Smartboard	250
Projector	200
Printer	300
Phone charger	10
Electric pencil sharpener	60
Fan	50
Aquarium	100



To fill out the Audit Table, walk around the classroom and record every energy user you find. Estimate how many hours per day each energy user is turned on. Then, multiply the watts (W) by the number of devices and hours used per day to fill in the Daily Energy column. Finally, add up the Daily Energy of every energy user to find the Total Daily Energy for your classroom.

Classroom Audit Table

Energy User	Number Found	Watts (W)	Hours Used	Daily Energy

Total Daily Energy_____

Using your Audit Table, create a bar graph. Put each Energy User on the X-axis (the bottom) and graph Daily Energy on the Y-axis (the side).]



Looking at your Audit Table and bar graph, answer the following questions:

Which energy user is responsible for using the most energy?

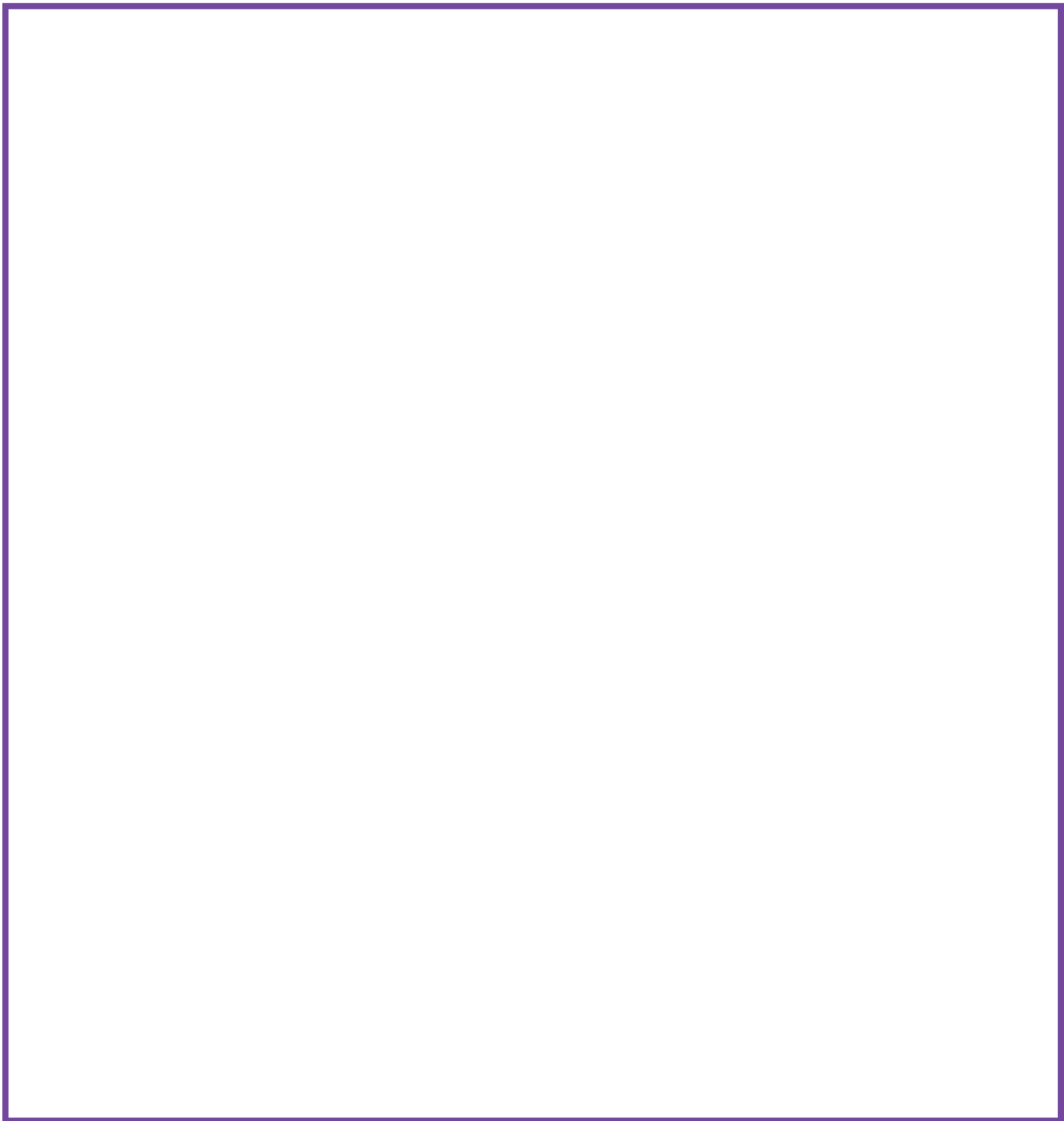
Which devices were on when they could have been off?

If you could remove or replace one thing in this classroom to save the most energy, what would it be?



Now it's time to spread the word!

Come up with a message that will help your class remember to save energy. Write that message in large letters in the middle of the space below, then decorate the rest of the space to make sure everyone sees your message. When you are finished, ask your teacher to help you hang your drawing in the classroom.

A large, empty rectangular box with a thick purple border, occupying the lower half of the page. It is intended for students to draw and write their energy-saving message.