The Internet-based smart home is available at https://smarthome.cemastprojects.org/ **or** https://cemastprojects.org/IBSH/.

⏱️ Dashboard

Take a moment to explore the functions on this page. You can tap many elements on this screen to control your home, but some elements provide status information only. When you are finished exploring, answer the questions below.

The dashboard shows an interface you might see on a tablet if you lived in a smart home. Based on what you see, what does it mean for a home to be 'smart?'

'Smart' devices have built-in microcomputers / microprocessors which enable them to be automated, and especially to be automated based on sensors or other sources of data.

Which of the controls on this page do you like the best? Why?

🏆 Go to the Challenges page.

💡 Light Bulb Challenge

Complete the activities on screen. Before marking the challenge complete, answer the questions below.

Look at the 15-Year Energy Cost. Which bulb is cheapest? Why do you think each bulb's cost is so different?

🌡️ HVAC Challenge

Complete the activities on screen. Before marking the challenge complete, answer the questions below.

Why should inside temperatures be low when it is cold outside?

The greater the difference between the indoor and outdoor temperatures, the more energy you will use to maintain that different temperature.

🛒 Smart Shopping Challenge

Complete the activities on screen. Before marking the challenge complete, answer the questions below.

Which fridge did you choose? Why?

⚗️ Proceed to the Experiments page.

🏠 **Home Automation Experiment**

Complete the activities on screen. Before you click the check mark, answer the questions below.

What was the plan you developed for your car's arrival? Why was this a good plan?

🚿 **Water Heater Experiment**

Complete the activities on screen. Before you click the check mark, answer the questions below.

🌬 **Wind Power Experiment**

What happens when there is not enough wind? Too much wind?

When there is too much or too little wind, the turbine does not spin.

Where do you get your electricity if there is no power coming from the turbine?

Most homes do not rely exclusively on wind power. Instead, they are connected to the country's electrical grid. This allows them to use other sources of energy when they need them and gives them a place to send any extra power.

How many phone chargers are plugged in at your house? How much wind do you need to charge them all at the same time?

(Each phone charger uses about 5W. See the chart in Part 1 of this activity for corresponding wind amounts.)

If the wind is blowing at 12mph, your turbine can power 1 laptop computer or 10 phones. Why do you think the laptop uses more power?

The laptop is larger, which means it has a larger screen, and it has more (and more powerful) parts to keep going.

Final Reflections

What kinds of household tasks use the greatest amount of energy?