Take the box out of the garage and unpack it. Put the car and water sensor to the side.

Plug the multi sensor into a black adapter. Then plug it into a smaller outlet on the back of the house.

Plug the home into the wall.

To open the roof, turn the two metal hasps. Then lift the metal straps.

Closed Hasp - Twist and Lift to Open

Loosen the strap that holds the tablet. Turn on the tablet.

A phone or tablet is used to control most home automation systems.

The power button is on the side. It looks like a circle. Press and hold the power button for 5 seconds, then let it go. Keep doing this until it turns on.

If the tablet does not turn on, plug the cord into the tablet. Wait 5 minutes before you turn it on.

Your tablet will show one of three screens after you swipe up:

Option 1) The smart home interface. This is a web page in the Chrome browser. If you are on a different page, type the address (http://192.168.1.2/) into the address bar. Press Go.

Option 2) The Android menu screen. Open the Chrome browser. If you are on a different page, type the address (http://192.168.1.2) into the address bar. Press Go.

Option 3) The grid construction game. This is a web page in the Chrome browser. Click the home icon to go to the smart home.
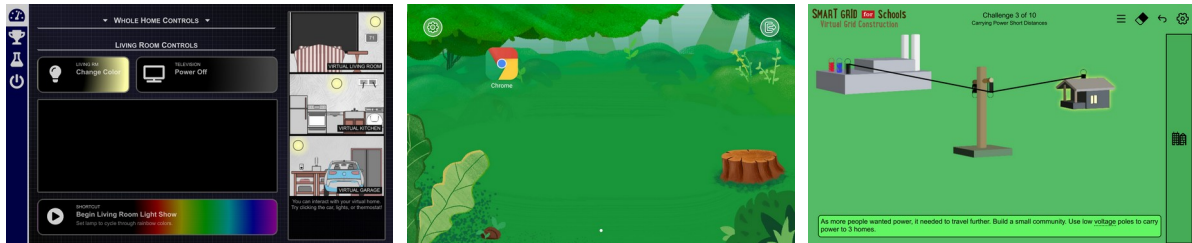

Make sure you are on the home page.

⚙ Dashboard
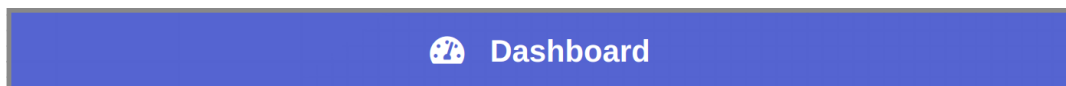
Explore this page. Tap icons to control the home. You can click on rounded buttons and items in the virtual home. Square buttons may not let you click them.

When you are finished exploring, answer the questions below.

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

Go to the 🏆 Challenges page.

For each challenge, follow the on-screen prompts. Many of the challenges have multiple parts, so continue through each part until you see the completion notification at the bottom of the screen. You may need to scroll to see new information which has appeared below the bottom of the page.

💡 Light Bulb Challenge
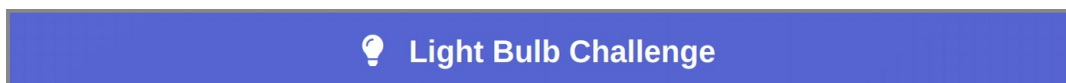
How much energy can you save with a new bulb?

Complete the activities on screen. Before you click the check mark, 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?

The LED is cheapest. It wastes very little of its energy making heat -- almost all of the energy makes light.

Use subtraction to see how much money you can save. What is the difference between the 1-year cost of an LED and the 1-year cost of an incandescent?

(Answers will vary. 1-year energy costs for LEDs are 15% of an equivalent incandescent.)

🌡 HVAC Challenge

How much money can you save as the seasons change?

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

Why should you keep your house cooler when it is cold outside? Why should you keep your house warmer when it is hot 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

How much energy can you save by upgrading your appliances?

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

Which fridge did you choose? Why did you choose that over the other?

A fridge uses 3600 W in 24 hours, but energy is usually measured in kW. If a kW = 1000 W, how many kW did you use?

3.6 kW

Go to the 🧪 Experiments page.

🏠 Home Automation Experiment

What can your home do to automatically save energy?

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?

(Answers will vary. Answers typically surround either energy efficiency or convenience.)

☁ Solar Collection Experiment

Where do solar cells receive the most light energy?

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

What is lightest area? What is darkest? What evidence have you collected to support that?

🌬 Wind Power Experiment

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

> In either case, the wind turbine will not turn. When there isn't enough wind, the blades cannot turn. When there is too much wind, the turbine will use brakes to stop the blades from spinning unsafely.

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?
> (Answers will vary. Each phone charger uses about 5W.)

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?
> Laptops are powering larger screens, and they have more computing power. They are designed to run many programs at the same time, while phones are designed primarily to run one app at a time.

Final Reflections

You explored different parts of a smart home. How can a smart home help you use less energy?

Shutting the System Down

Please do not unplug the home without turning it off first. This could damage the computer inside the home. You can turn the home off from the tablet's Admin menu (power icon). Please power the tablet off also: press and hold the power button on the side, then press Shut Down on screen. Please leave the tablet plugged in to charge.

Repacking the Home

Return each of the devices to their places in the home's garage box. Please ensure that all components fit snugly in the box and that they will not be jostled when the home is shipped to the next school.

Problem-Solving

If you have problems with home devices, check that each device matches your home. Each device has a label which should match the house number.)

Next, restart by going to the Admin menu (power icon) and clicking Refresh System. You might also shut the system down, unplug it, and plug it back in.

If you are having more major problems, please contact CeMaST. The homes do not connect to your school's wireless network, so your school's technology specialist may not be able to help.