

“Smarter” Home Blueprints

Family members will work together to create a blueprint of their living space that highlights ways that they can save energy and water.

BACKGROUND

Have you ever thought about how much water and energy your family uses in your home every day? What about every month? Every year? You may be surprised to learn that the typical household uses 1000kw hours of electricity per month and the average person uses 150 gallons of water every day!

Is all this water and energy use necessary? The good news is that there are many simple ways that your family can reduce the amount of energy and water used, and by reducing one, you are actually reducing use of the other resource too! Energy and water use are connected. It takes energy to move, heat, cool, and purify water, and water is used in the production of energy. This relationship between energy and water is referred to as the **energy-water nexus**. Reducing the use of both of these resources is important because it saves us money in our utility bills, and also helps to preserve our natural water and energy resources. Go to <http://stem.guide/the-worlds-biggest-challenges/> to find out why energy and water are considered to be some of the world’s biggest challenge for the future and why making smart choices about how we use these resources can impact can help create a more sustainable future for us all.

PLAN . . .

In this activity, families will form a team and assume the roles of an engineer, architect, and water and energy use specialists looking to make their living space a “smarter” place. They will tour difference spaces in their home and create a list of all the areas

ATTENTION PARENTS AND CAREGIVERS



Like many girls her age, your daughter is no doubt interested in learning more about the environment around her and how she can respect and protect our planet. That’s why she’ll be interested in joining [Girl Scouts of the USA](#) and participating in their “It’s Your Planet—Love It!” program. It gives girls the opportunity to learn about environmental topics such as clean water and air, noise pollution, climate change, agriculture, and so much more! Plus, it’s packed with fun activities and the most up-to-date environmental information and offers girls ways to improve life for everyone on the planet! Troops Leaders can also make this program part of troop meetings. Check out the [It’s Your Planet Love It Journey](#) now.

where they are using energy and water. When they have located these areas, they will use their list and the provided facts about water and energy use to come up with ways that these important resources can be conserved in their home.

Simple blueprints will be created by the architect. The team will then work together to highlight the areas in each living space where choices can be made to save water and energy using small stickers and captions that explain what “smarter” actions can be taken. These “smarter” home blueprints can serve as an informational reminder to take important water and energy saving actions every day.

DESIGN . . .

What are the materials you might need to get started?

- Graph paper
- Pencils
- Ruler
- A computer or phone with a connection to the internet
- Colored map dot stickers (or make colored dots with paper and tape)

CREATE!

Before you begin to create your “smarter” home blueprints, decide which member of the family will have each of the following jobs:

The Architect—the architect will work with the engineer, energy specialist, and water specialist to create a hand-drawn blueprint of the home using graph paper, a ruler, and pencils.

The Engineer—the engineer will take notes on where water and energy use are in the home and will calculate the energy and water savings that the “smarter” home will have in a (year) to add to the blueprints.

The Energy Specialist—the energy specialist will be in charge of identifying areas in the home where energy is used and sharing the ENERGY USE FACTS cards with the team when designing the “smarter” home blueprints.

The Water Specialist—the water specialist will be in charge of identifying areas in the home where water is used and sharing the WATER USE FACTS cards with the team when designing the “smarter” home blueprints.

STEPS FOR CONSTRUCTING YOUR “SMARTER” HOME BLUEPRINTS:

1. Begin this activity by assigning team roles to family members. Once roles are decided, the team will take a tour of their living spaces that will be included in the “smarter” home blueprints. The water and energy specialists will locate areas in each living space where water and energy are used, and the engineer will record the information from the water and energy specialists on the Design Sheet.
2. Next, the team should meet to brainstorm ways that water and energy could be saved in each living space. The Water Specialist should read the WATER USE FACTS cards to the team as water use is discussed, and the Energy Specialist should read the ENERGY USE FACTS cards to the team as energy use is discussed. The engineer should add facts and water and energy saving ideas to the design sheet.
3. Using the design sheet, the architect should use graph paper and pencils to create a blueprint of each living space. Before beginning the blueprints, the architect (and team) may want to watch a short video such as the one found here: <https://www.youtube.com/watch?v=2IzbSUNwZjs> that introduces how to draw blueprints. The architect may want to enlist the help of other team members to help draw blueprints depending on how many living spaces are included in the plans.
4. When the blueprints are finished, the small colored stickers should be placed in specific areas in each room. Using the list created in your living space tour, the team should use stickers to mark on the blueprints where choices can be made to save energy and water. The group can create a color-coded system with stickers, using different colors to label areas where water, energy, or both water and energy saving decisions can be made. A legend can be added to the blueprints if color-coding is used.
5. Captions should be written beside the stickers that explain the actions that should be taken to conserve water and energy. Facts from the WATER USE FACTS and ENERGY USE FACTS cards can be added to the blueprint captions, and

the engineer can calculate the total savings for each action per year. (For example, if turning off a faucet while brushing your teeth saves a gallon of water, the engineer could calculate that for a family of 4 turning off the water while brushing teeth twice a day would save 2,920 gallons of water.)

6. Finally, these completed “smart” blueprints can be posted in a central location in the home to remind family members of the important water and energy-saving actions they can take every day!

NEXT STEPS

To extend this activity, family members could film a video for YouTube that uses their “smarter” home blueprints to show the viewer how they can save energy and water in their own home by making energy and water saving decisions.

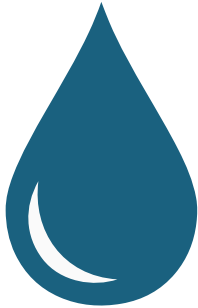
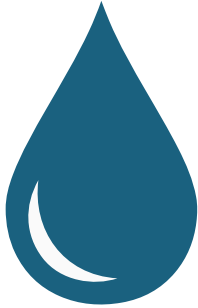
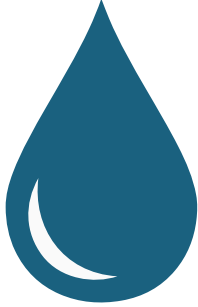
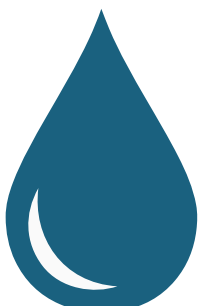
The blueprint captions and facts could also be used to create informational posters that could be hung near specific areas in the home that have been identified as places that energy can be saved, such as near the bathroom sinks or shower. These posters can help educate guests to take these actions for a “smarter” home!

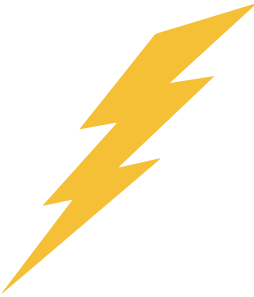
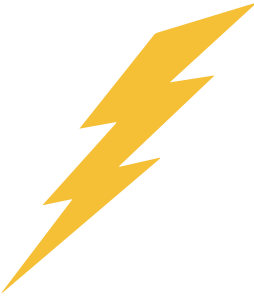
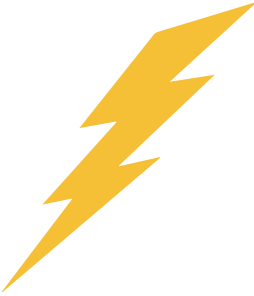
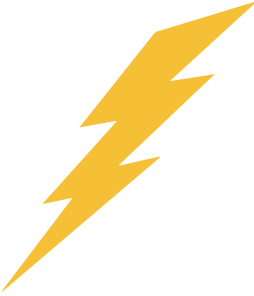
ROOM: _____

Area where energy or water is used:	Ways to reduce use:
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FRONT OF CARD	BACK OF CARD
	<p>WATER USE FACTS The average person uses about 150 gallons of water per day in the residential sector. This includes hoses, taps, showers, appliances, personal use, watering lawns, etc.</p>
	<p>WATER USE FACTS The average faucet running = 1–2 gallons per minute. If we turn the faucet off while brushing our teeth, it saves at least a gallon of water!</p>
	<p>WATER USE FACTS If you shorten your shower by 1–2 minutes, that saves 1–2 gallons of water! What if everyone in your family shortened their showers for a month? Think how much water that would save!</p>
	<p>WATER USE FACTS We consume 100 BILLION gallons of water a day as a nation! Saving just 1% of our daily national water use saves 1,000,000,000 gallons of water!</p>

FRONT OF CARD	BACK OF CARD
	<p>ENERGY USE FACTS A typical household uses 1000 kilowatts (kW) hours of electricity per month!</p>
	<p>ENERGY USE FACTS Turning off the lights saves water! One kilowatt hour of electricity requires 10–40 gallons of water. The average household uses 30kW hours per day, which means it takes 300–400 gallons of water to provide thus much light energy!</p>
	<p>ENERGY USE FACTS On average, we use more water in our home for electricity use than water use! Switching to LED lighting can change this impact dramatically. Saving energy saves water!</p>
	<p>ENERGY USE FACTS 40% of water use every day is actually used for the energy sector to cool generation!</p>