

POWERING EDUCATION



TEP
Tucson Electric Power

UniSource Energy
SERVICES

EXECUTIVE SUMMARY

What do you see? What do you wonder?



More than 25,000 students in communities served by Tucson Electric Power (TEP) and UniSource Energy Services (UniSource) answer these questions each year as they explore energy and science through education outreach programs brought directly to them in their classrooms, schools, or community groups.

At TEP and UniSource, our vision is to be an exceptional energy provider that positively impacts the lives of our employees, customers, and communities. This vision extends beyond our direct customers to their families and all members of our greater community. Even young members of our community are impacted by the ways we choose to do business and how we uphold our values as we strive to achieve our vision.

Education outreach in a classroom setting, with meaningful and impactful interactions with students, has become a cornerstone of our companies' social responsibility platform. For more than 30 years, we have advocated for teachers and students through direct classroom interaction. A partnership with local non-profit Environmental Education Exchange (E3) has allowed us to enhance our advocacy through the development of in-classroom programs focusing on various energy related subjects. The partnership with E3 allows a greater reach into the communities of our more than 676,000 customers across Arizona, including small rural schools in northwestern Arizona, bilingual schools in the border town of Nogales, and schools serving low income neighborhoods across metropolitan Tucson.

Our education outreach programs have been designed to reach students at their various stages of academic learning. Our goals include creating good stewards of the environment, developing educated energy users, fostering a sense of excitement about science, technology, engineering and math (STEM) subjects, and encouraging the pursuit of energy-related careers. Our program also supports our energy efficiency goals, which provide energy savings for customers and help improve our environmental performance.

The programs have an added impact as they provide a valuable resource for teachers looking to compliment their curriculum. All programs were designed to satisfy Arizona's state science standards for the grade levels associated with the program, paying mind to the "three-dimensional" learning concept: the ability to learn a concept, practice the concept, and connect it to other ideas and concepts. Most of all, our education outreach is designed to be fun, exciting, and engaging. We challenge students of all ages to observe the world around them and to question their understanding of it. Perhaps, then, it's appropriate that – in March 2020 – **we faced a big question of our own and wondered:**

How do you help students when they're no longer in the classroom?"

"I just wanted to say I really appreciate you and your coworkers taking the time and effort to present to us about these various energy resources! My students were enthralled by the experience and had a lot of fun today, and I think they learned some really valuable information today that will stay with them for a long time."

Mr. Carlson, Science Teacher, Desert Shadows Middle

POWERING EDUCATION

Academic Outreach Programs

SAFETYLAND

SafetyLand teaches second graders about electrical safety through a fun, interactive board game. All students receive a kit that includes outlet covers, a nightlight, and LED bulbs as a reward for doing their part to help Lumen the Safety Pup find his way safely back home.

BRIGHT STUDENTS

This three-part program is aligned with state science standards emphasizing energy awareness and energy resources. It encourages students to think about ways they can become more energy efficient.

RENEWABLE STUDENTS

Designed to reach high school students, this program is an immersive exploration of the renewable energy resources used for Arizona's energy needs. Students learn about the history, science, and current usage of solar, wind, and hydro power in a unique social media environment.

THE SITUATION

The TEP and UniSource education outreach plans were designed to meet teachers and students where learning traditionally takes place – in the classroom. By presenting lessons in-person, we can talk with students on their level and engage them in hands-on lessons. We also provide leave-behind materials that allow students to take lessons learned from the classroom into their homes and influence the energy behaviors of their families.

Our challenge came in March 2020, when the traditional model of learning disappeared. Schools closed and children's learning shifted from the classroom to living rooms and dining tables in their homes due to the pandemic. With a quarter of the school year left and curriculum requirements still in place, teachers were left scrambling to figure out how to deliver lessons to their students in a meaningful way. It was unknown if this was a temporary situation that would end in a couple of weeks, or if this would be a more permanent situation, carrying through to the end of the school year – or beyond.

Teachers, students, and parents were faced with figuring out not only new computer programs and processes, but new methods of teaching and learning. How do you keep students engaged in learning when they were not in a learning environment? Teachers had a greater need than ever for resources to assist them in reaching their students, and time was of the essence.

THE SOLUTION

Take 1: ‘Virtual’ becomes a household word

It was spring break for most school districts in the area, and decision-makers were weighing all of the options for how to continue instruction while keeping students and staff safe from the newly identified virus that was causing potentially deadly COVID-19 infections around the world. School closures became one of many options communities considered to help stop the spread.

To prepare for that possibility, at least for a short period of time, we immediately began internal discussions about how we could continue to provide our resources for teachers and their students, wherever they might be. We needed to be flexible, adapting to the way each school district was handling student instruction, communications, and logistics.

We put a plan together to create virtual presentations based on our in-classroom programs. The virtual presentations had to go beyond simple PowerPoint presentations and talking points and needed to be more than just a time filler. We needed to help ease the burden on teachers, not add to it. The virtual presentations needed to be valuable enough for teachers to use, interesting enough to hold the attention of students with all the distractions of home, and easy enough for parents to help the younger students access at home, as parents were juggling their own work and other children in the household.

So when Arizona’s governor announced the closure of all public schools, we were ready. As local school districts started rolling out their pandemic plans, we rolled out our own plan for moving our lessons online. Within two weeks of the closure, we were conducting our first Facebook Live presentation of the Bright Students program and had recorded the lessons for both TEP and UniSource. A week later, we were producing our SafetyLand program; shortly after that, we rolled out the virtual Renewable Students program.

Delivering the physical in a virtual world

One aspect of the programs that students look forward to most is the kit of goodies they get to take home with them after we present in their classroom. Students often know the kit is coming because



they have heard about the program from older students or siblings. The kits include LED bulbs, nightlights, sink aerators, and low flow shower heads. The energy savings generated through use of these items helps our companies satisfy the energy efficiency goals established by the Arizona Corporation Commission (ACC).

Getting the kits into the hands of students no longer in the classroom took some logistical planning. We contacted districts and schools to

learn how they were reaching students with materials. We did not want to add any unnecessary points of contact with teachers, parents, or students for safety reasons. While each district was using methods

that worked best for their community, all had some method in place. They allowed us to piggy-back on their system and we were able to utilize their contact points. This often meant going to schools and other locations when meals and schoolwork packets were being distributed. We were able to hand kits to parents as they drove through, giving us a chance to extend our reach beyond the students who participated in our programs to other families from the school. Many energy saving kits were distributed to families with children at schools that receive federal funding for free and reduced price lunch through the "Title 1" low-income assistance program. At a time when our nation's economy was bearing the brunt of the pandemic, we were pleased to continue providing items that help families manage their energy bills.

Take 2: Coming to you live...but not yet in person

As the school year ended, we began to strategize how we might improve upon the recorded presentations and increase engagement with students if classrooms remained closed into the start of the new school year. We surveyed teachers and asked for their input. We wanted to be respectful of their time and resource needs and did not want to create additional work for them on behalf of our programs.

We learned that teachers at all levels were very thankful to have the virtual programs available to them. Elementary and middle school teachers were still working through the technical aspects of virtual teaching and not yet ready for more advanced platforms. High school teachers, however, were excited for new ways to reach their students.

Closures continued for most schools in Fall 2020. We continued providing the recorded presentations for the SafetyLand and Bright Students programs. We began to offer Renewable Students lessons through live Zoomcasts for teachers who were ready to use that platform. This allowed real-time interaction with the students.

We were pleased to expand our Renewable Students outreach to include the live Zoomcast, but we had more work to do. We wanted to improve the quickly produced, but high-quality recorded presentations and offer more for SafetyLand and Bright Students. Our solution was to create activity booklets that matched up with our virtual presentation and could eventually compliment the in-classroom program. The activity booklets were designed to be used either in conjunction with another presentation method or as a stand-alone.

"Students love all the booklets and the backpacks of energy goodies. I was even able to provide them to students who were remote, having them pick them up from the front office so they could do the lessons with us. Went perfect with the online lessons and enriched the activities. Students were able to interact together a little more with the booklets."

Ms. Jeffries, Science,
Desert Sky Middle
School



15,733 activity booklets distributed in 2021

Take 3: The only thing consistent is change

Throughout 2021, the one thing that remained constant was that we never knew what each day would bring. By this time, students were learning in a variety of ways. Some were fully back in the classroom, some were virtual, others were hybrid – in the classroom a few days a week and virtual the other days – and still others had moved to homeschooling or community schools.

Whatever the platform, our goal remained the same: to provide a valuable resource to teachers and reach students in an engaging manner. As schooling became a hybrid of methods, so did our program outreach.

- ▶ Virtual, Recorded Presentations
- ▶ Activity Booklets
- ▶ Live Zoomcast
- ▶ In-classroom Presentations

When the fall semester began in 2021 with in-person schooling, we felt as excited as kids on their first day of school to resume our classroom presentations to students. We employed extra safety measures and modified a few processes so we were able to provide students with the hands-on portions of the presentations that they enjoy so much. Being back in classroom also meant we had to stay flexible. We've weathered last-minute cancellations due to COVID-19 quarantines, and there are times when pandemic-related absences reduce an anticipated audience of 25 to just a handful of students. But we're making it work, using a mix of methods to help us achieve our education outreach objectives.



THE RESULTS

Despite the pandemic's sudden and extreme impact on schools, our programs did not miss a beat. Much of this was due to our existing relationships with E3, teachers, schools, and school district administrators in our service territories. They have grown to trust us and our outreach, and they know that we are here to serve them. Because of this, they were immediately open to the modified programs, trusting the quality and value the programs would bring to their students in their new learning environments.

The development of virtual programming, activity booklets, and other enhancements allowed us to continue reaching schools in our service territories regardless of their instructional status. With our newly implemented efforts, we were able to meet our annual student participation goals, which remained unchanged from pre-COVID years. Company energy efficiency goals for each program were also met through the distribution of the energy saving kits.

Additional benefits realized

- ▶ Increased the number of rural and remote schools reached.
- ▶ Reached students in smaller school settings and homeschools.
- ▶ Encouraged parental involvement in activities, increasing familiarity with the company.
- ▶ Virtual presentations and booklets can continue to be used post-pandemic to supplement the programs. Teachers can pick the outreach method that works best for their students.
- ▶ Relationships with our local education communities have grown even stronger.

THE FUTURE

TEP and UniSource have a longstanding commitment to education, supporting teachers and providing students with resources. The pandemic strengthened this commitment, giving us an opportunity to enhance our engagement. It also brought forth challenges for the education community that allowed us to identify additional areas of advocacy work for our companies.

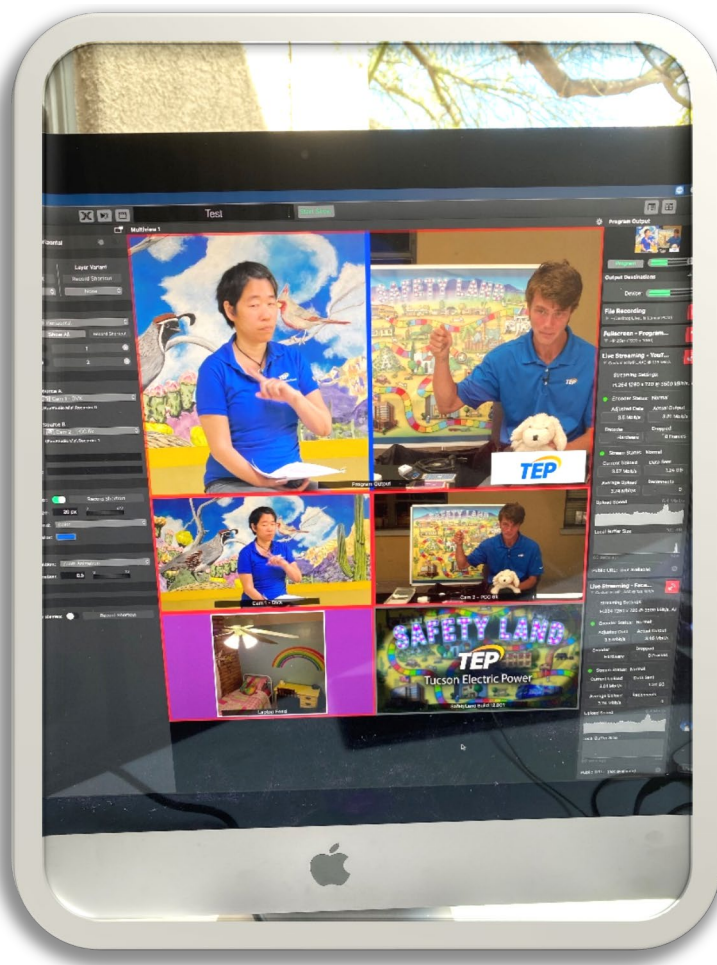
With the world quickly going virtual, technical resources and connectivity became an immediate need in many areas. Rural communities and underserved populations faced additional challenges. Families without internet access or computers found learning difficult, if not impossible, when schools were closed. Even teachers in certain areas lacked sufficient internet speeds to connect with their students online.

TEP and UniSource have become active participants in government and community stakeholder groups working toward greater broadband access for all of our customers. We lobby for funding at the federal and state levels and provide support for federal grant proposals. In the last three years, the State of Arizona has invested over \$200 million in broadband infrastructure, with an emphasis in rural areas of the state. Additional funding through the American Rescue Plan and Infrastructure Investment and Jobs Act will significantly increase broadband deployment throughout the state. TEP and UniSource have and will continue to engage with our public and private partners to make sure that all children in our geographically and demographically diverse service territories are well connected to educational opportunities in this new world.

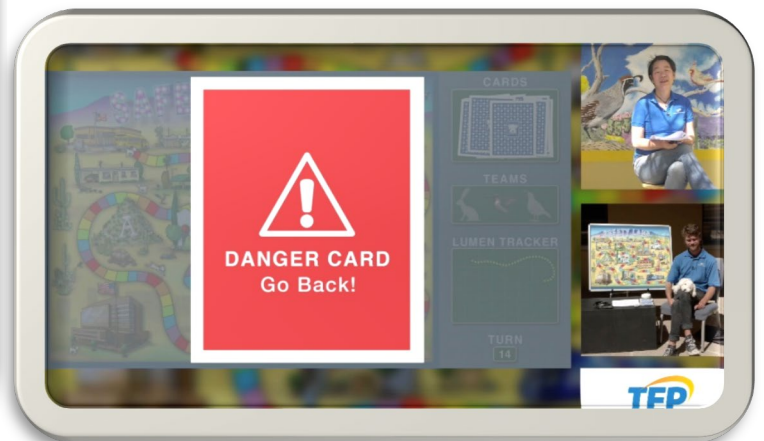
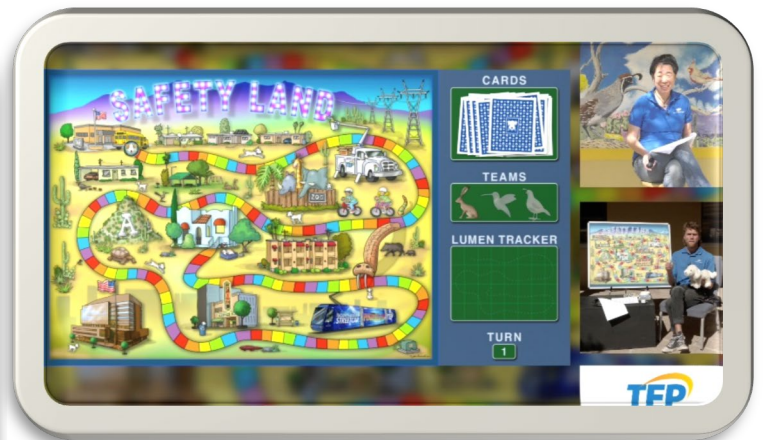
Education Outreach Programs Presentation Methods During School Closures



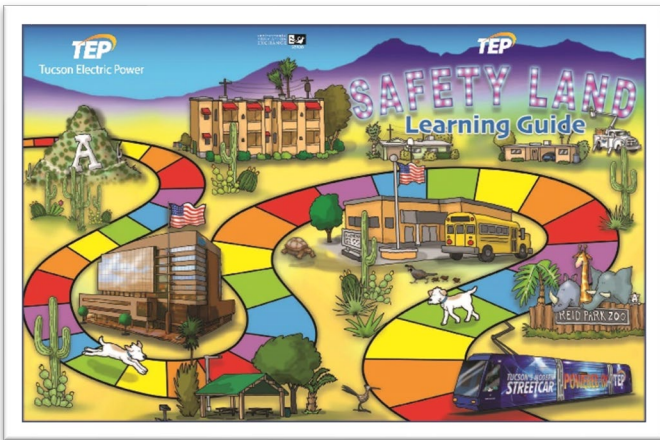
SAFETYLAND – FaceBook Live and Recorded Presentations



Behind the scenes



<https://youtu.be/55zPopQKqDE>



My Home

We can learn to be safe in a judge's home. We can learn to be safe in a judge's home. We can learn to be safe in a judge's home. We can learn to be safe in a judge's home.

Living Room
 Bedroom
 Kitchen
 Bathroom

After you complete the coloring pages, there is a special surprise for you. We will give you some FREE items from TEP to help you and your family save energy.

Use all the safety tips to help you be safe at home. Write your name in the space provided.

Safety Solver

Use the clues to solve the crossword puzzle. Write your answers in the spaces provided.

Across:

1. The person who checks the electrical system in a home is called a **_____**.
2. The person who checks the water supply in a home is called a **_____**.
3. The person who checks the plumbing in a home is called a **_____**.
4. The person who checks the electrical system in a home is called a **_____**.
5. The person who checks the water supply in a home is called a **_____**.
6. The person who checks the plumbing in a home is called a **_____**.

Down:

1. The person who checks the electrical system in a home is called a **_____**.
2. The person who checks the water supply in a home is called a **_____**.
3. The person who checks the plumbing in a home is called a **_____**.
4. The person who checks the electrical system in a home is called a **_____**.
5. The person who checks the water supply in a home is called a **_____**.
6. The person who checks the plumbing in a home is called a **_____**.

Saving Electricity

LED lights use less energy than incandescent lights. They last longer and save money.

LED lights are a great way to save energy. They last longer and save money.

LED lights are a great way to save energy. They last longer and save money.

Safety Pup Pledge

I, **_____**, promise to be safe at home. I will follow all safety rules and keep my family safe. I will be a safety pup.

1. I will be careful around electricity.
2. I will be careful around water.
3. I will be careful around fire.
4. I will be careful around cars.
5. I will be careful around tools.
6. I will be careful around animals.
7. I will be careful around heights.
8. I will be careful around strangers.
9. I will be careful around potholes.
10. I will be careful around potholes.

When I Grow Up...

When you grow up, you can be a safety professional. Here are some examples of safety jobs:

- Safety Inspector:** Checks for safety hazards in buildings.
- Customer Service:** Helps customers with safety equipment.
- TEP Operations:** Works to improve safety at power plants.
- Engineer:** Designs safe buildings and bridges.
- Renewable Resource Tech:** Works on solar and wind energy.
- Lifeguard:** Keeps people safe at the beach.

Lumen's Safety Story

Lumen is a safety pup who helps people stay safe. Here is his story:

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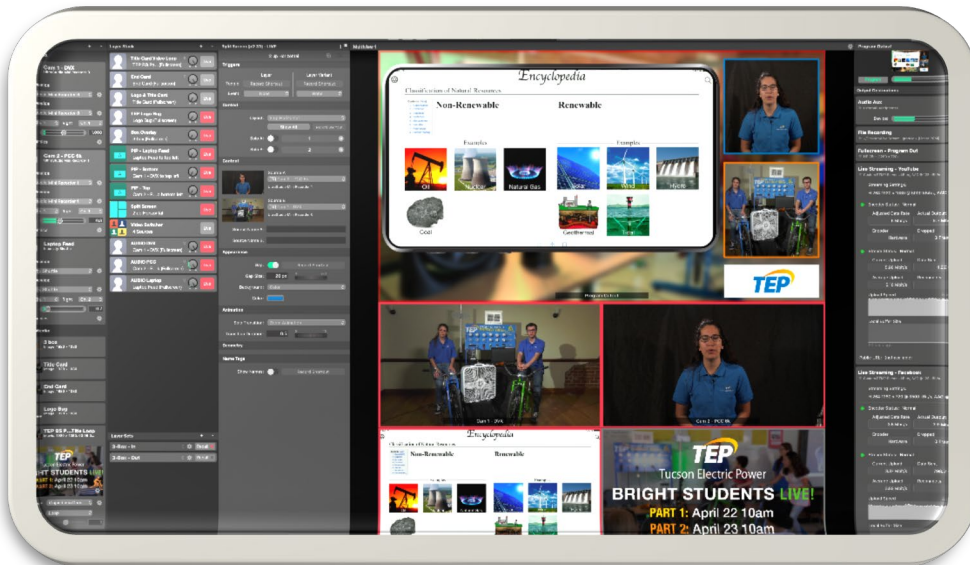
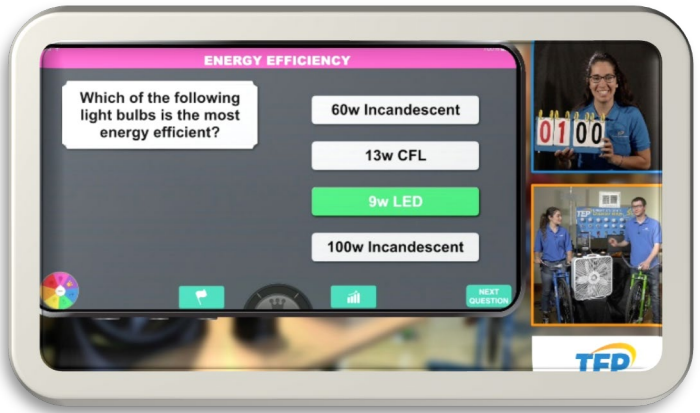
Answers for Grown Ups and Kids

Answers for the crossword puzzle and other activities.

Answers for the crossword puzzle and other activities.

Answers for the crossword puzzle and other activities.

Bright Students – FaceBook Live and Recorded Presentations



Behind the scenes





BRIGHT STUDENTS

A STEM ENERGY LEARNING GUIDE

Bright Students is an energy education program for 4th-8th grade students teaching about natural resources, energy transformations, electricity generation, and energy efficiency.

FORMS OF ENERGY

Draw a line from each energy image to the description in bold that best describes it.

SIMPLY PUT, ENERGY IS THE ABILITY TO DO WORK. That's correct! It's how, for example, solar energy is able to heat water or how wind energy is able to turn a wind turbine.

AND THE WORKING ENERGY OF THE SUBJECT IS TO DO WORK. This is the energy that is stored in a battery or in a stretched rubber band.

MY ENERGY LEVEL IS GOING UP! This is the energy that is stored in a battery or in a stretched rubber band.

IT'S ABOUT THE ENERGY THAT IS STORED IN A BATTERY OR IN A STRETCHED RUBBER BAND. This is the energy that is stored in a battery or in a stretched rubber band.

IT'S ABOUT THE ENERGY THAT IS STORED IN A BATTERY OR IN A STRETCHED RUBBER BAND. This is the energy that is stored in a battery or in a stretched rubber band.

PERFECT There are many more types of energy. Get online to discover what they are!

ENERGY TRANSFORMATIONS IN YOUR HOME

Get to know what the energy transformation is that happens in the home. It's the energy that is transformed from one form to another.

PERFECT There are many more types of energy. Get online to discover what they are!

PERFECT There are many more types of energy. Get online to discover what they are!

SAVING OUR PLANET IS THE MOST IMPORTANT PUZZLE OF ALL FORMS OF RENEWABLE ENERGY!

Put the pieces of the puzzle in the correct order to complete the puzzle.

PERFECT There are many more types of energy. Get online to discover what they are!

RENEWABLES IN TUCSON!

Real-time Solar and Wind Generation

TEP RENEWABLES	DAY 1 DATE	DAY 2 DATE	DAY 3 DATE
Daily Output in kWh			
Daily Peak in MW			

What are the reasons you would use renewable energy? Yes or No

1. What about the use of renewable energy, especially for the most energy, what are some advantages and disadvantages in energy output that you might see?

USING ENERGY IN TUCSON

PERK DEMAND

What are some things you can do to save energy during peak demand?

AND STORING ENERGY IN TUCSON

How many smart LED light bulbs are all in Tucson?

PERFECT TEP plans to have more than 100,000 of battery storage and get 30% of Tucson's energy from renewable sources by 2030.

WHAT COULD YOU DO AT TEP?

Customer Service, Cooling, Weather Forecasts, Anticreep, Sesmy! CROOK!

FAMILY PRICE

MONTH	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
2023-01	\$0.12	\$0.15	\$0.18
2023-02	\$0.11	\$0.14	\$0.17
2023-03	\$0.10	\$0.13	\$0.16
2023-04	\$0.09	\$0.12	\$0.15
2023-05	\$0.08	\$0.11	\$0.14
2023-06	\$0.07	\$0.10	\$0.13
2023-07	\$0.06	\$0.09	\$0.12
2023-08	\$0.05	\$0.08	\$0.11
2023-09	\$0.04	\$0.07	\$0.10
2023-10	\$0.03	\$0.06	\$0.09
2023-11	\$0.02	\$0.05	\$0.08
2023-12	\$0.01	\$0.04	\$0.07

READY TO SAVE SOME DOUGH? ENERGY SAVINGS TIPS FOR YOUR HOME

1. Turn off lights when they are not needed.

2. Turn off electronics when not in use.

3. Turn off the water when you are brushing your teeth.

4. Turn off the TV when you are watching it.

5. Turn off the AC when you are sleeping.

6. Turn off the AC when you are not home.

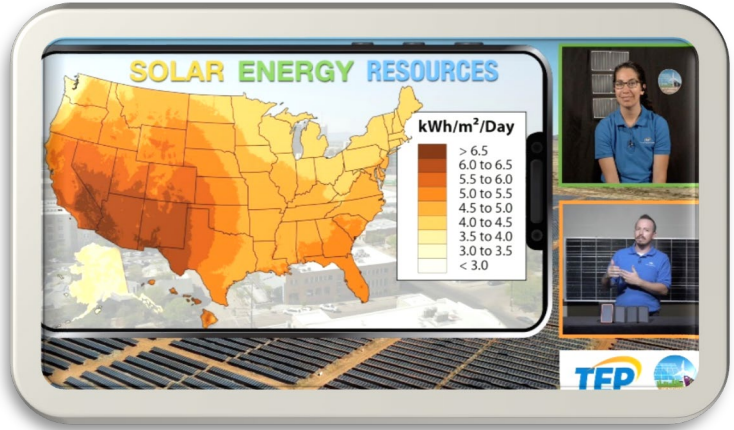
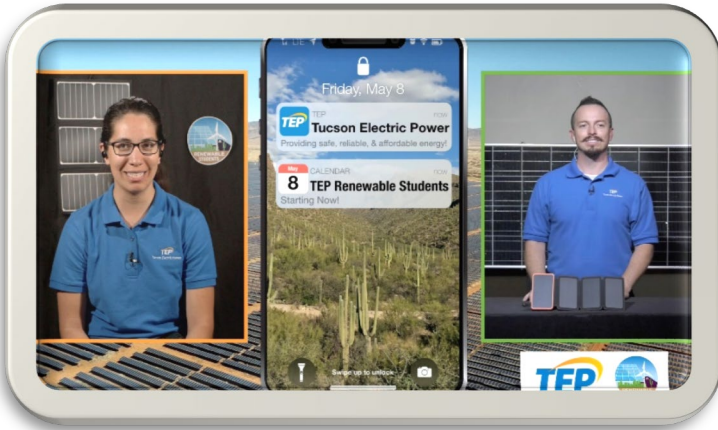
7. Turn off the AC when you are not in the house.

8. Turn off the AC when you are not in the house.

9. Turn off the AC when you are not in the house.

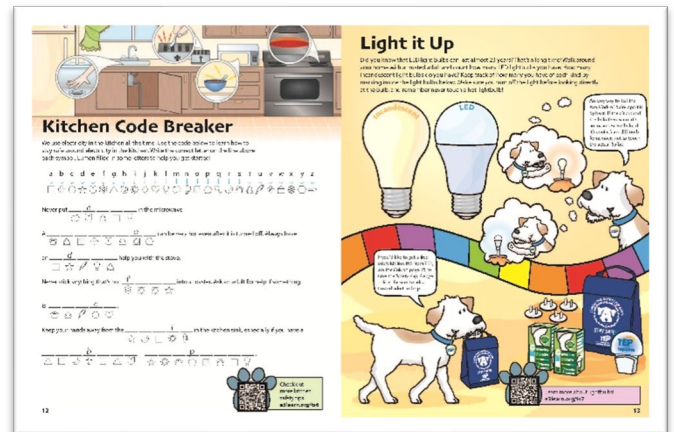
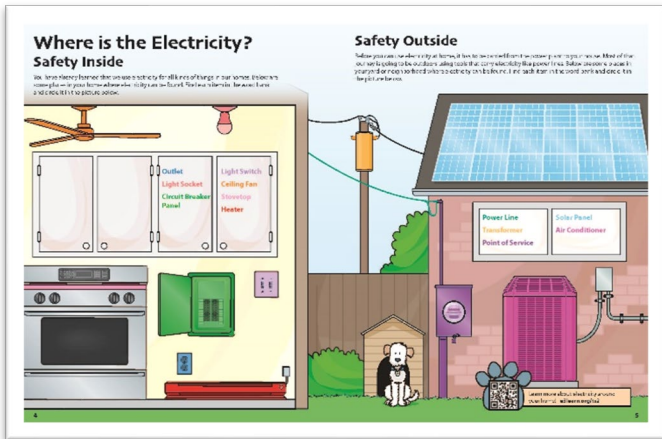
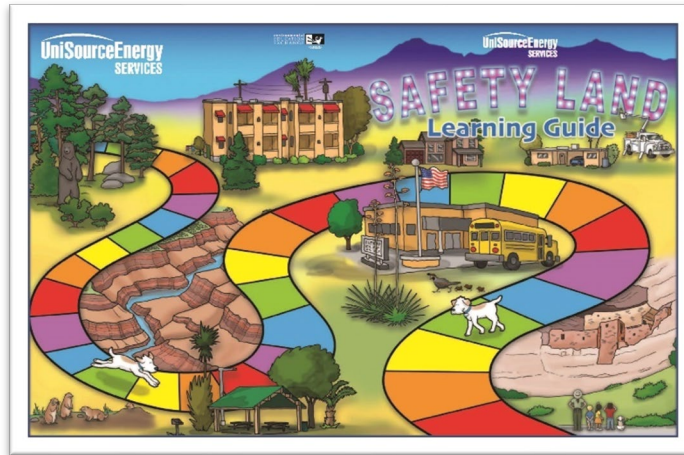
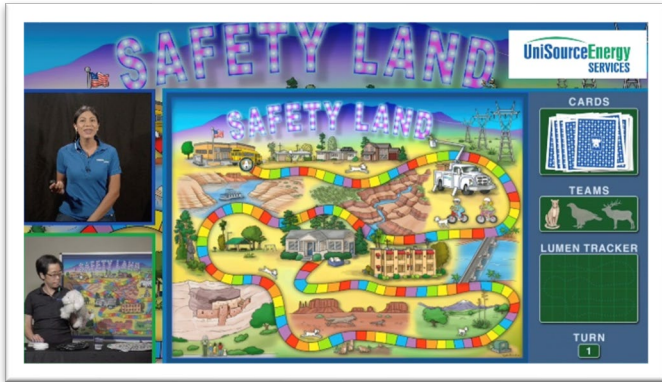
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Renewable Students – FaceBook Live, Recorded Presentations, and Zoom Cast

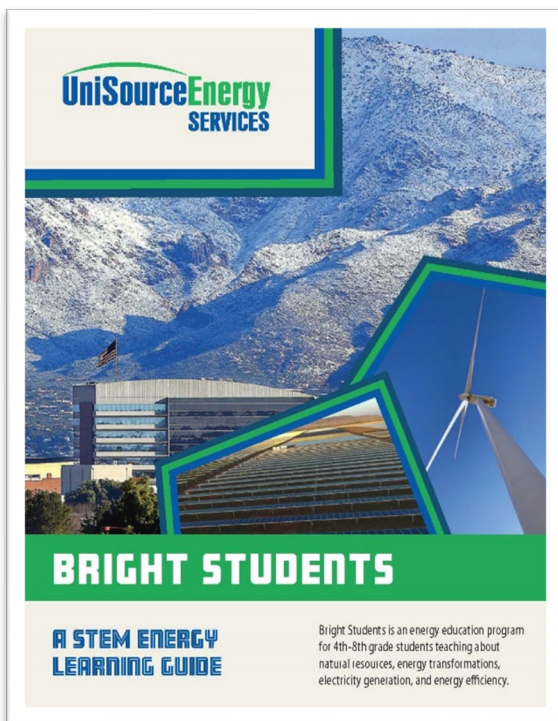
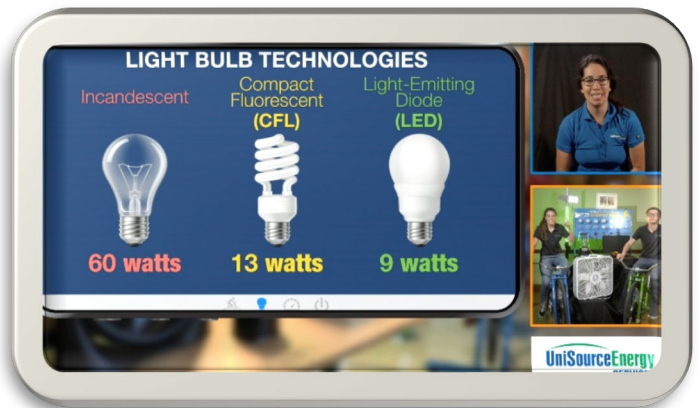


<https://youtu.be/unBRkaxw04E>

SafetyLand – FaceBook Live, Recorded Presentation, and Activity Book



Bright Students – FaceBook Live, Recorded Presentation, and Activity Book



<https://youtu.be/vjlwaatenCE>