



The National
Theatre for Children

This booklet belongs to:

POWER PLAYERS



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What's inside:

- Important information about energy and electricity
- Energy-saving tips
- Fun facts, activities and more

Share this booklet with your family!

POWER PLAYERS



Educational Concepts:

- Define energy and electricity
- Describe energy resources
- Show how energy is used unwisely
- Share ways we can use energy efficiently

Words to Know:

Electricity - A source of energy that runs our appliances

Vocab Search

There are helpful words to know scattered throughout this booklet. See if you can find them all here, first!

T	W	A	S	X	W	R	A	Y	B	V	Q	R	C	U	B	Z	H	P	C	D	A	O	E
I	E	N	D	H	M	E	C	O	N	S	E	R	V	E	L	G	F	B	S	K	F	R	J
G	F	J	C	E	H	T	K	F	D	I	L	D	G	T	H	J	M	U	E	C	I	N	L
T	F	M	D	X	S	N	C	F	T	O	A	B	P	Q	S	R	G	B	P	A	K	W	O
Q	I	X	U	E	N	E	R	G	Y	R	V	S	Y	H	W	E	V	T	Z	X	Q	A	U
D	C	V	S	C	W	T	B	I	X	U	O	J	A	Y	V	S	Z	N	W	K	Z	T	Y
R	I	E	Z	L	Q	A	L	F	M	B	G	P	M	H	C	O	N	I	O	D	J	T	N
K	E	M	R	E	N	E	W	A	B	L	E	R	E	S	O	U	R	C	E	L	M	E	K
F	N	J	G	N	I	H	L	O	Y	H	K	P	I	G	J	R	Q	K	F	O	L	R	E
V	T	C	U	P	M	T	P	N	E	L	E	C	T	R	I	C	I	T	Y	D	S	O	P
B	W	Q	I	R	X	E	S	Y	F	A	G	T	Z	W	U	E	H	J	A	V	X	Q	B

Conserve

Efficient

Electricity

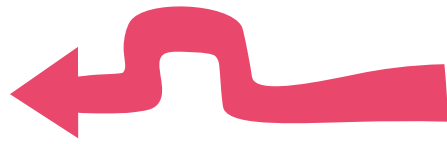
Energy

Renewable Resource

Resource

Watt

Fill in the Flow



Take a look at the script below. Fill in the blanks with the correct parts of speech. Read your completed script out loud with a friend, parent or guardian to hear your answers – the sillier, the better.

News Anchor: And for our _____-th story on tonight's news, we have a very _____ story. We'll take you to our reporter, who is live on the scene at _____.

(number)
(adjective)
(location)

Reporter: Thank you. It's becoming clear to all the _____ watching that the key to this story is energy. Energy is the ability to do work or make things change. It comes in many forms, like muscles powering a bicycle, the sun giving off heat and light, and food providing nutrients.

(plural noun)

News Anchor: Interesting. Do we all use energy? Even my _____?

(family member)

Reporter: Yes, energy is all around us and we use it every day. I've seen a _____ using energy, I've seen _____ using energy, I've even seen _____ using energy.

(animal) (noun)
(adjective) (noun)

News Anchor: Tell me more about this energy! Is it running out? Do we have to move _____ to get it?

(adverb)

Reporter: We use electricity, which is a special type of energy that powers our homes, schools and cities. It is created when tiny particles called electrons move through a wire. I've always wondered if we could use electricity to make _____.

(noun)

News Anchor: Well, thanks for that report. We're out of time, but as I always say: Don't forget to _____ the _____ _____!

(verb) (adjective) (plural noun)

Words to Know:



Energy - The ability to do work and the force that makes things change



Math Message

Solve the math problems below, then place the matching words on the correct lines in the sentence. Read the message out loud once you've completed it.

$15 - 9 = \boxed{} \text{ IS}$

$17 + 6 = \boxed{} \text{ A}$

$12 \div 12 = \boxed{} \text{ AT}$

$11 \times 2 = \boxed{} \text{ ELECTRICITY}$

$8 \times 5 = \boxed{} \text{ BY}$

$20 \div 5 = \boxed{} \text{ PLANT}$

Words to Know:

Resource - Things we use to make electricity, like coal, oil, natural gas, water, solar energy and wind

$26 \times 1 = \boxed{} \text{ RESOURCES}$

$140 - 37 = \boxed{} \text{ POWER}$

$6 \times 4 = \boxed{} \text{ USING}$

$16 + 23 = \boxed{} \text{ MADE}$

_____ 22 _____ 6
_____ 39 _____ 1 _____ 23 _____ 103 _____ 4 _____ 40

Words to Know:

Renewable Resource - A resource that can be replaced in about the same time it takes to use it

_____ 24 _____
_____ 26 _____ •

Resource Round-Up



Someone mixed up the resource files! Investigate each kind of resource and determine whether it is renewable or non-renewable, then circle your answer.



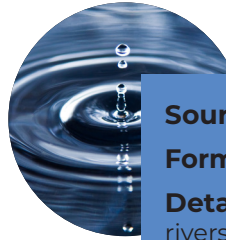
← Coal

Source: Mines on Earth's surface.

Formation Time: Millions of years.

Details: Ancient plants absorbed energy from the sun. When they died, their remains got buried under layers of dirt and water. Over time, the pressure and heat from the Earth transformed them into coal.

Renewable? or Nonrenewable?



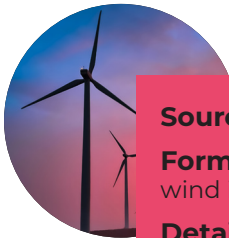
← Water

Source: Rivers and lakes.

Formation Time: As often as it rains.

Details: Moving water, such as rivers or waterfalls, spin a turbine. This creates electricity that we call "Hydroelectricity."

Renewable? or Nonrenewable?



← Wind

Source: The wind.

Formation Time: Every second the wind is blowing.

Details: We harness the power of the wind with wind turbines. When the wind blows, it spins the turbine, which produces electricity.

Renewable? or Nonrenewable?



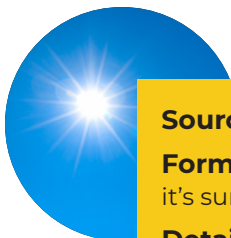
← Oil

Source: Wells on Earth's surface.

Formation Time: Millions of years.

Details: Tiny creatures lived in the sea millions of years ago. When these creatures – and some plants – died, their remains settled on the ocean floor and were covered by layers of mud and sand. Heat and pressure eventually turned them into a thick, sticky liquid called oil.

Renewable? or Nonrenewable?



← Sunlight

Source: The Sun.

Formation Time: Every day – when it's sunny.

Details: Special panels called solar panels capture sunlight and convert it into electricity. This is "solar power".

Renewable? or Nonrenewable?



← Natural Gas

Source: Wells on Earth's surface.

Formation Time: Millions of years.

Details: Much like oil, natural gas formed from small creatures and plants in ancient oceans. Heat and pressure eventually transformed their remains into the gas we use today.

Renewable? or Nonrenewable?

Start Saving Energy

Explore ways to conserve energy at home. Color the scene below and read the energy-saving tips. When you are done, share these tips with your family.

Lights On, Lights Off

One of the most common ways to save energy is turning the lights off when you leave a room.

Open Fridge Mysteries

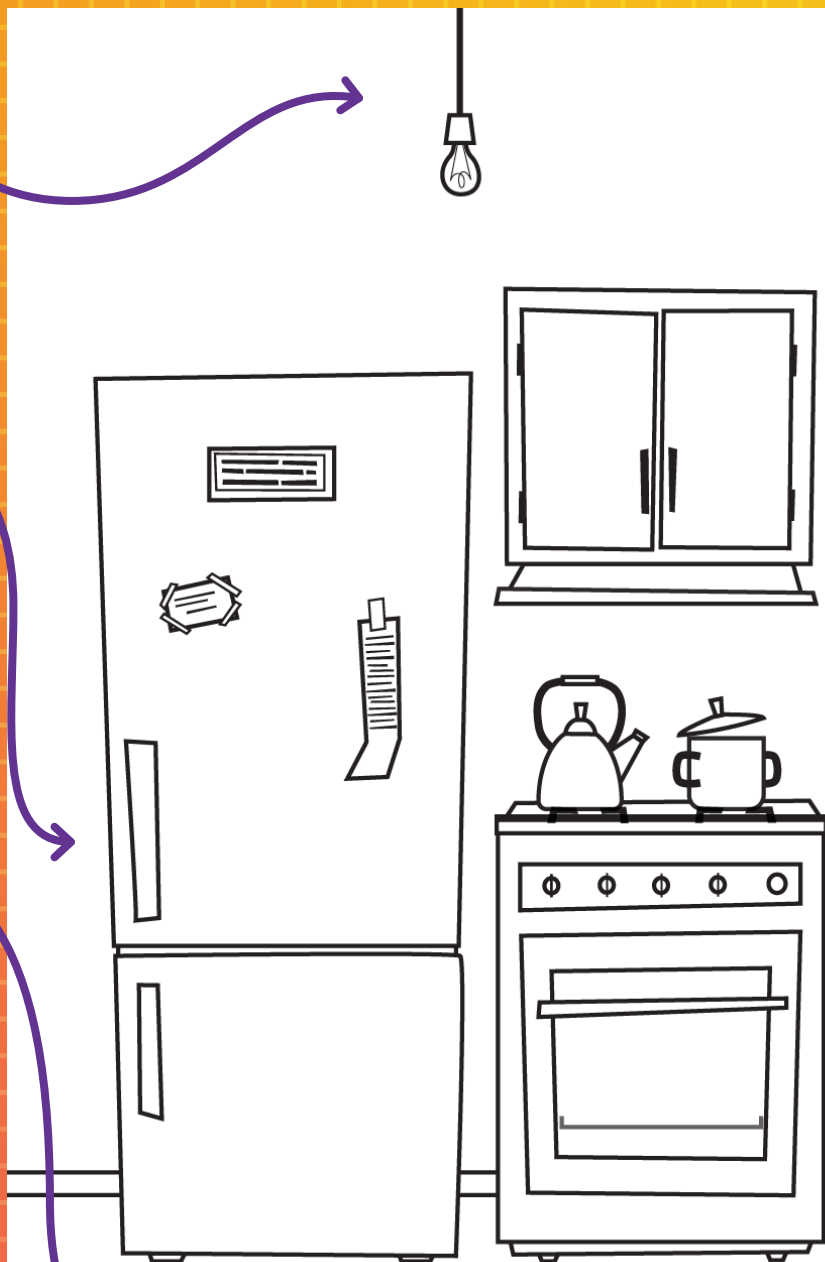
We often stand in front of the refrigerator, wondering what we want to eat. But did you know that keeping the fridge door open for too long wastes electricity?

Dish Washing Waste

Dishwashers use water and energy, but they're still more efficient than washing dishes by hand. Save even more by waiting until you have a full load before hitting start!

Words to Know:

Conserve - To save or use wisely



Air Leaks

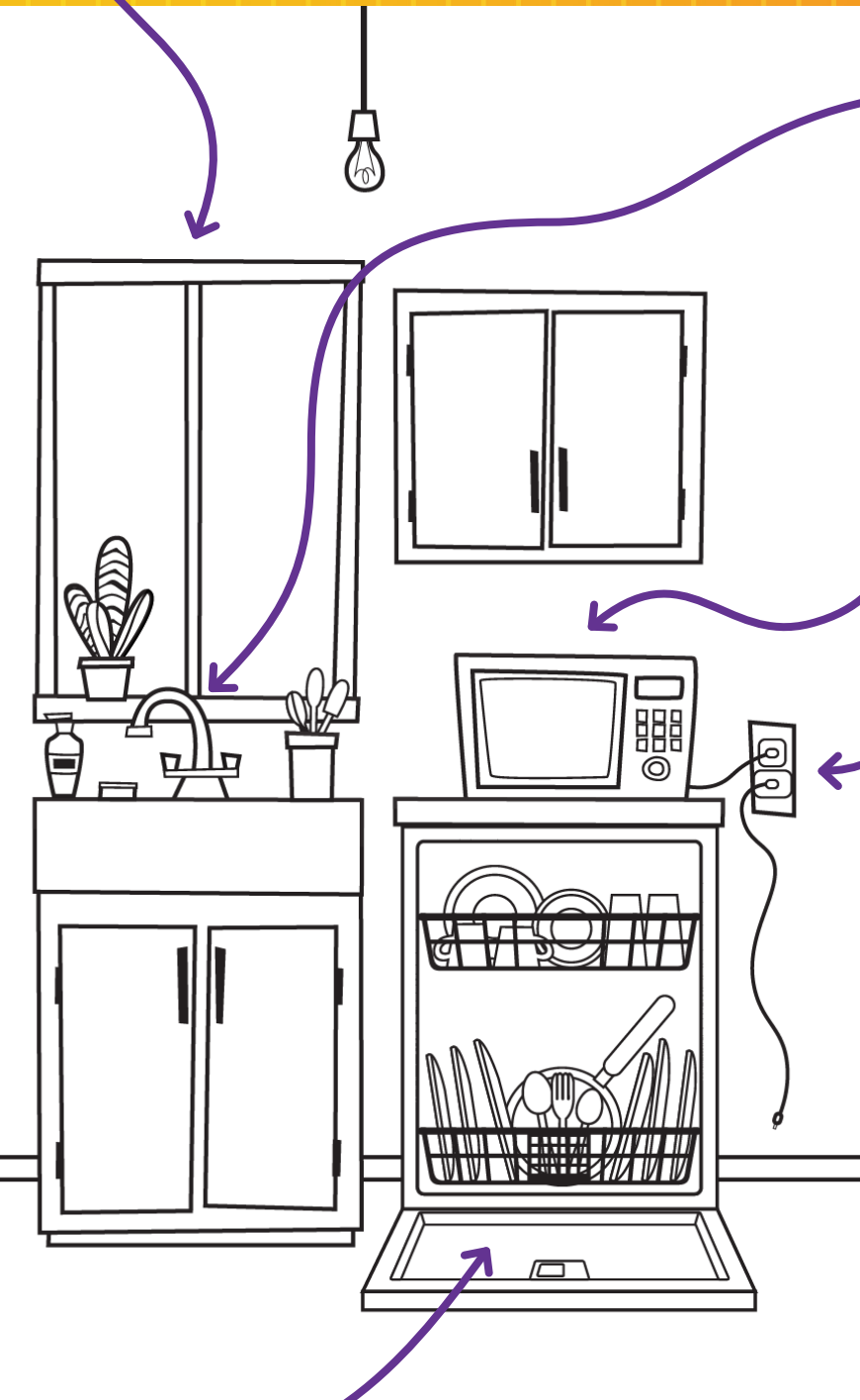
Poorly sealed windows and doors can let hot or cold air escape, making our heating or cooling systems work extra hard, and that wastes energy.

Leaky Faucets

A faucet that drips might not seem like a big deal, but over the course of a whole year it wastes a lot of water – and therefore, energy.

Energy Vampires

Some electronics use energy even when they're not in use! Phone chargers, gaming consoles, laptops, and even microwaves can draw small amounts of electricity while plugged in or on standby. Unplug chargers when your devices are fully charged, and use a power strip to easily cut power to other energy vampires when you're not using them.





Knowing What's Watt

Every appliance in your home uses electricity. Below is a list of appliances and the amount of electricity it takes on average to use each one for 1 hour, measured in watts. Appliances marked with a ** denote an electric (not natural gas) version of that appliance.

Window Air Conditioner – 730

Ceiling Fan – 75

Clothes Dryer** – 4000

Laptop – 50

Washing Machine** – 4300

LED Television – 71

Lightbulb (incandescent) – 60

Lightbulb (LED) – 8-15

Microwave – 1440

Air Fryer – 1550

Which appliance do you think uses more electricity? Circle the correct answer.



**Microwave
for 1 hour**

or



**Air fryer for
1 hour?**



**Window air
conditioner
for 1 hour**

or



**Ceiling fan
for 5 hours?**



**Incandescent
lightbulb for
30 minutes**

or



**LED lightbulb
for 1 hour?**



**LED television
for 2 hours**

or



**Laptop for
1.5 hours?**

ANSWERS: air fryer, window
air conditioner, incandescent
lightbulb, LED television

Words to Know:

***Watt** - A unit of electricity*

Fun Facts

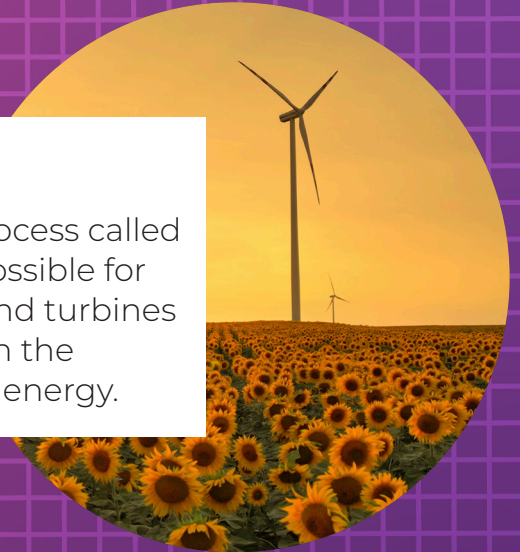


Solar Super Charge

You can charge your phone for free by using a small portable solar panel charger! That's one great way to stop energy vampires.

Dancing Sunflowers

Sunflowers follow the sun's movement during the day, a process called heliotropism. They do this to absorb as much sunlight as possible for energy. It's like they're doing a slow dance with the sun! Wind turbines do a similar dance. They can change their position based on the wind's direction, to capture the maximum amount of wind energy.



Sunny Side Up

Solar energy is derived from the sun. Did you know that the amount of sunlight that reaches Earth in just one hour is enough to meet the world's energy needs for an entire year?

Human Batteries

Our bodies can generate electricity! Inside us, there are tiny electrical signals that help our heart beat, our brains think and our muscles move. We are like walking, talking batteries!





Spread the Word

To get the word out about saving energy and renewable resources, imagine you just started a new social media page called **Watts Up Wednesdays**. Every Wednesday, you post new information to help your friends learn about clean energy. Now imagine that you need to write a new post telling your followers why energy efficiency is important. What would you say? Fill-out the brainstorming questions below, then write your post on the following page. Every good post includes a picture; draw something eye-catching that would make people click on your post!

Teachers/caregivers, have your student read their post out loud to you when they're done. Then, tear out the page and hang it up somewhere everyone can see it!

Brainstorming Questions

What does it mean to be efficient? (*hint: see the vocab word at the bottom of this page!*)

What is the difference between renewable and nonrenewable resources, and why are resources important?

What is one energy conservation tip you learned in this booklet?

What is a snappy and fun motto you could share with your followers to remind them to save energy?

Words to Know:

Efficient - Getting the desired result using the least amount of resources.

[illegible]

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