



The National
Theatre for Children

ENERGY EFFICIENCY
STUDENT BOOKLET



SPACE STATION CONSERVATION



pecoSM

AN EXELON COMPANY

SPACE STATION CONSERVATION

Welcome to Space Station Conservation! Here on Mars, astronauts Harmonica Mars, Sally Tide, Dr. Egbert Schmeinstein and Laika the Space Dog are working together to teach Bile the Martian how to save energy. But they can't do it alone! Complete the activities in this booklet to help the team save energy and get back to Earth!

There are many important words to know when we talk about energy. See how many you can find in the word search below, then search for the definitions throughout the book!

Conserve	Resource
Energy	Renewable Resource
Electricity	Waste
Kilowatt	

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

Sally Tide



Laika the Space Dog



Bile

Egbert Schmeinstein



Harmonica Mars

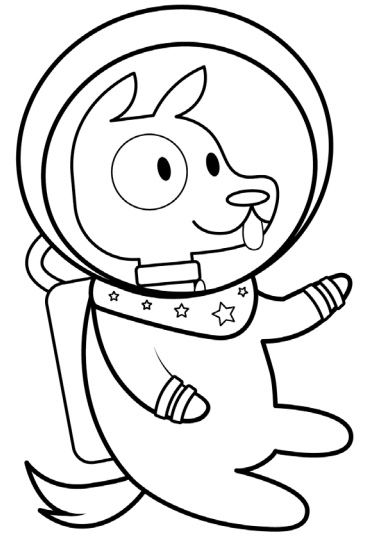
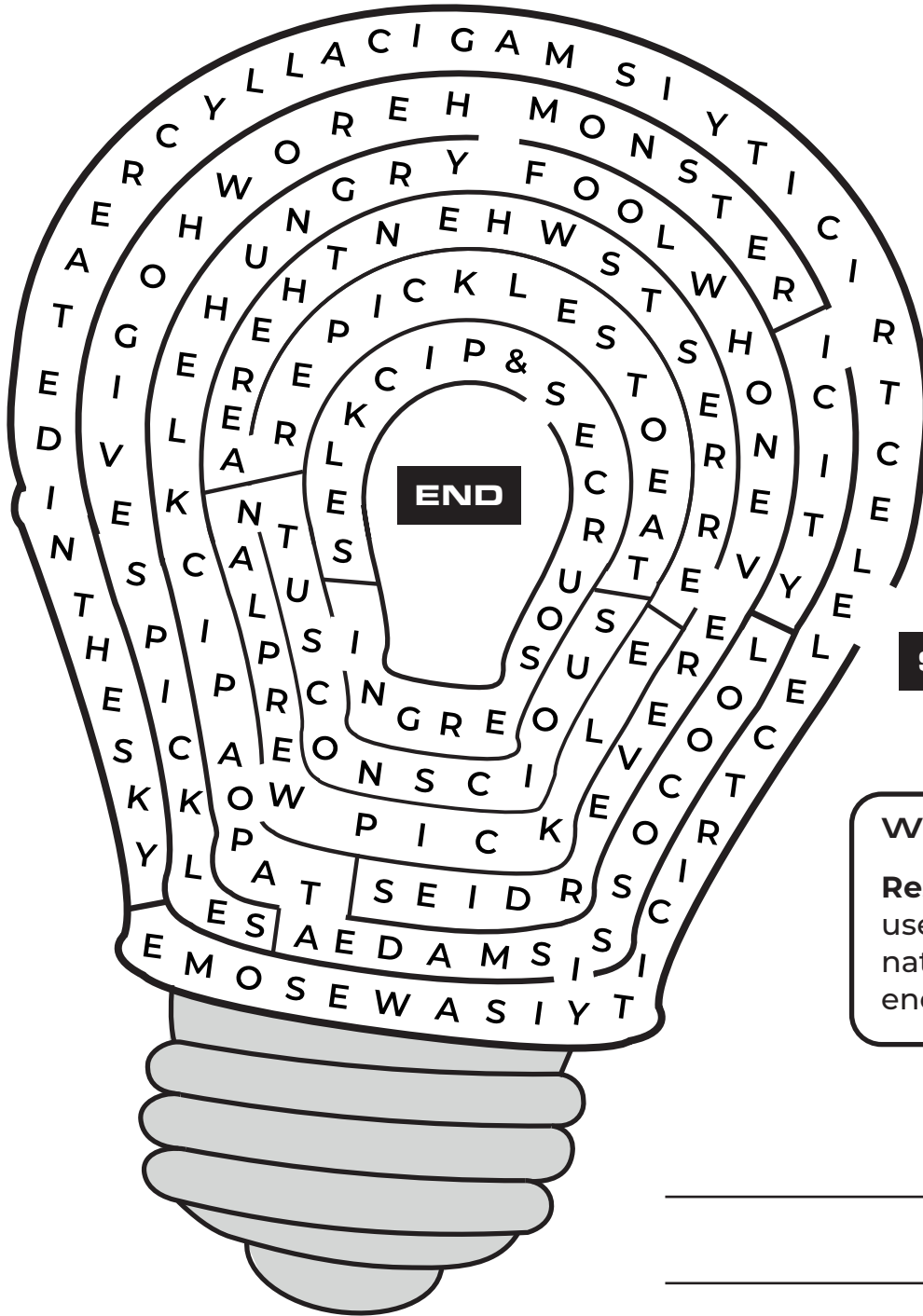


Educational Concepts

- How electricity is made
- The uses of electricity
- How to identify dangerous electrical situations
- Ways to stay safe around electricity

MAZE MESSAGE

Laika the Space Dog is Harmonica's faithful companion on the station, and she's passionate about saving energy! Unfortunately, she's still a dog – it's hard for her to write with those little paws. Can you solve the maze to uncover Laika's important message about saving energy? Then, share it with a friend.



START

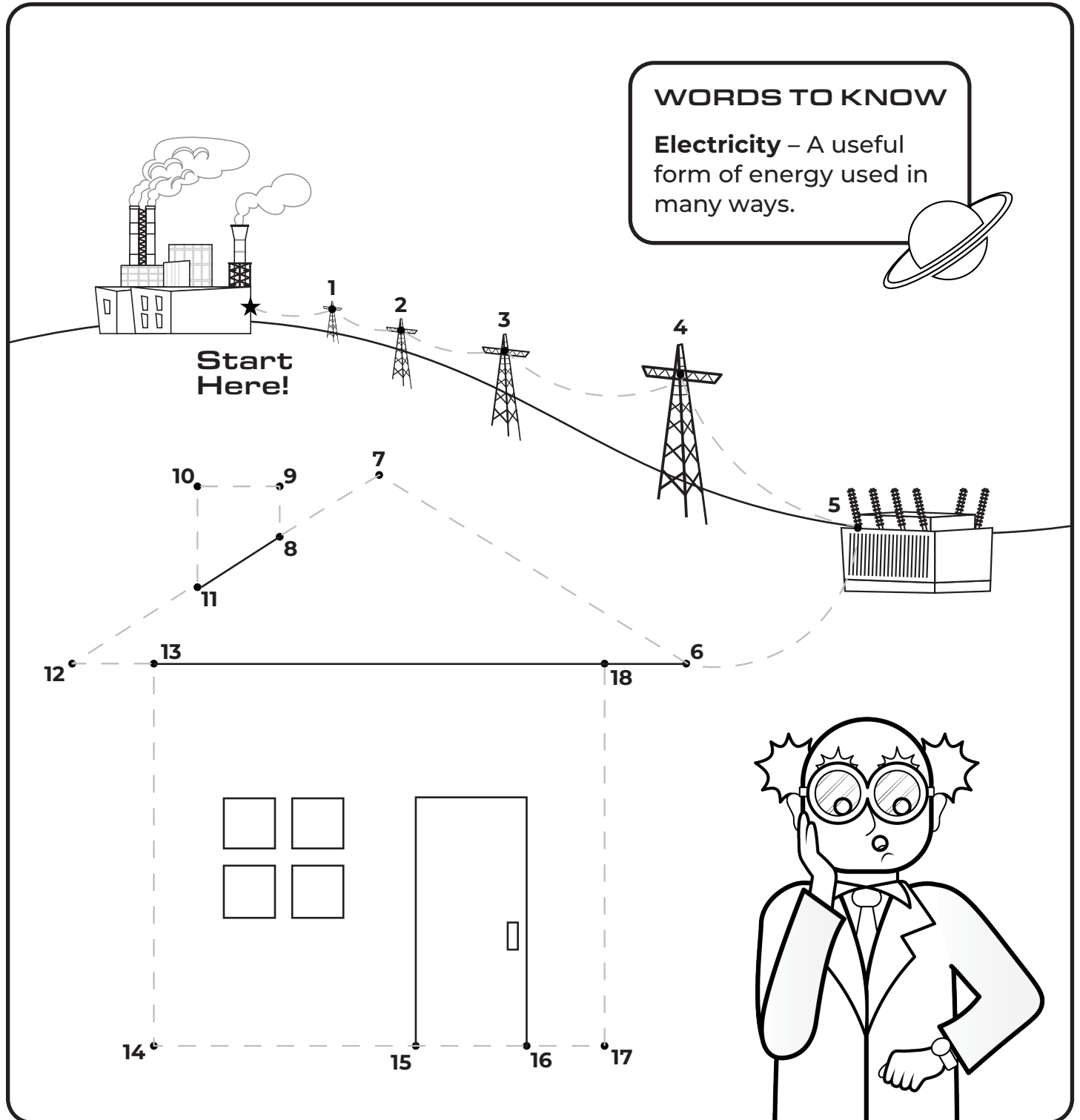
WORDS TO KNOW

Resource – Something we use to make electricity, like natural gas, water, solar energy and wind.



DOT TO DOT

Dr. Schmeinstein has something interesting pulled up on the station computer – is that Earth? It is! He's trying to figure out how electricity gets to our homes, but he needs some help. Connect the dots to see how electricity flows through power lines, substations and transformers to get where it needs to go.



MARTIAN MATCH

Bile the Martian has been going around telling people facts about energy. Some of his facts are correct – others are false! Draw lines to match the correct answers, then cross out and rewrite the incorrect answers.

LED bulbs save energy.

Leave your lights on all the time.

Use energy wisely.

Don't leave chargers plugged in when not in use.

Run your ceiling fan in empty rooms.

Use energy wisely.

Don't use LEDs, use incandescent light bulbs.

LED bulbs save energy.

Don't leave chargers plugged in when not in use.

WORDS TO KNOW

Waste – To use more than necessary.

KITCHEN COLORING

Here on the space station, it's important to save energy in every area we can – including the kitchen! Color the scene below and read the energy-saving tips. When you are done, share the tips with your family.

WORDS TO KNOW

Conserve – To save or use wisely.



Lights On, Lights Off

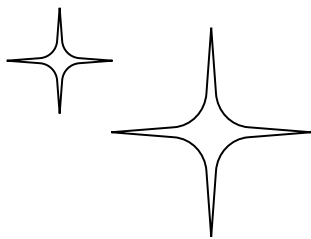
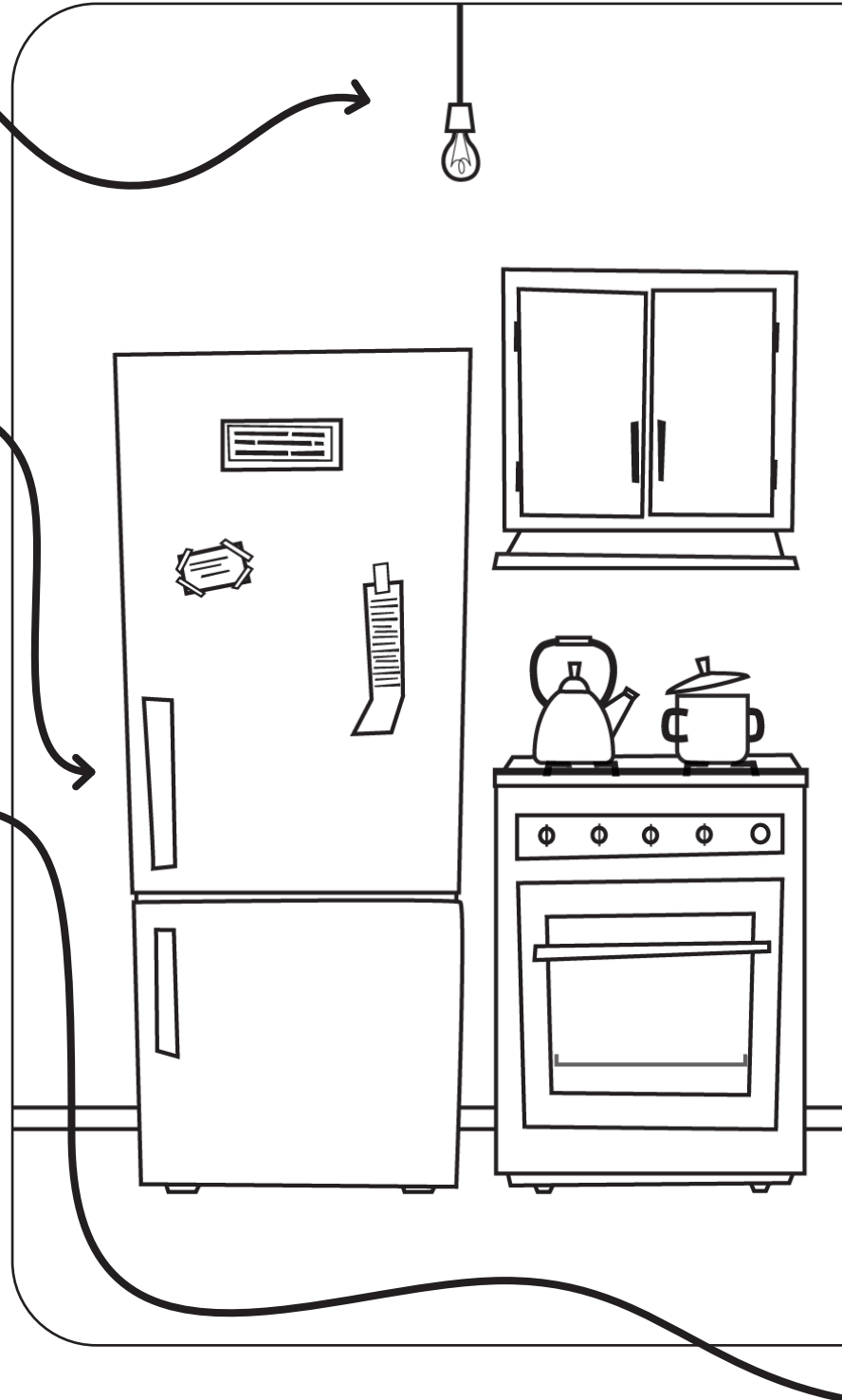
One of the most common ways to save energy is turning the lights off when you leave a room.

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

Running a dish washer too frequently can waste energy, especially if your home has an electric water heater. Only do full loads of dishes – you can wash them by hand to save energy, too.





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

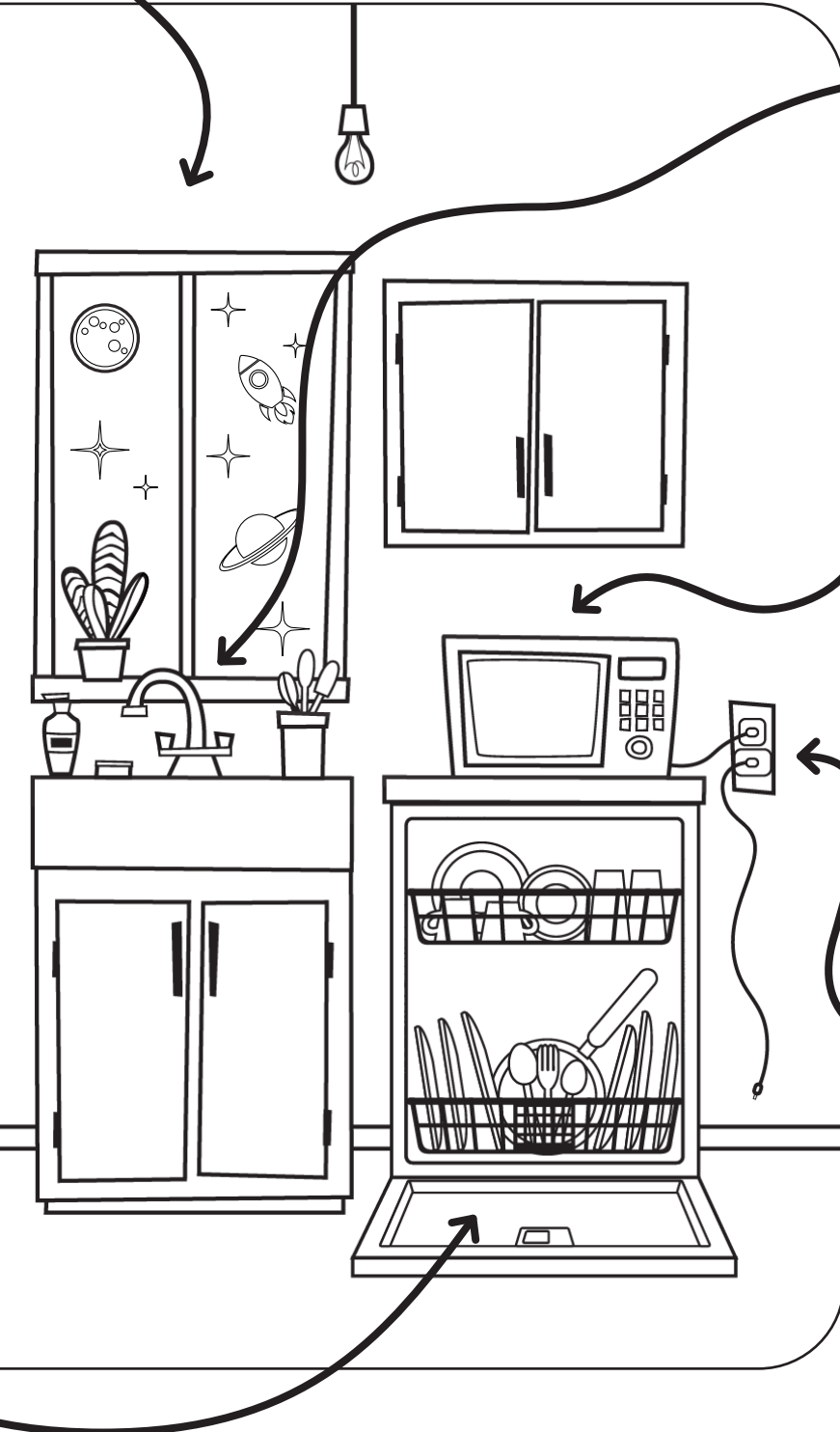
A faucet that drips might not seem like a big deal, but over the course of a whole year it wastes a lot of water – and therefore, energy.

Energy Vampires

Some appliances and electronics, like phone chargers, gaming consoles and laptops, consume electricity even when they're turned off. These sneaky energy vampires drain power in "standby mode". Unplug them or get a power strip to completely cut the power!

Unattended Chargers

Even though our gadgets are not plugged in, the chargers keep using energy. Remember to unplug chargers once your devices are fully charged.

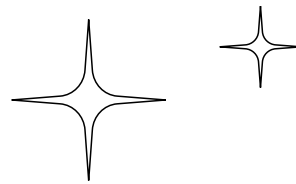
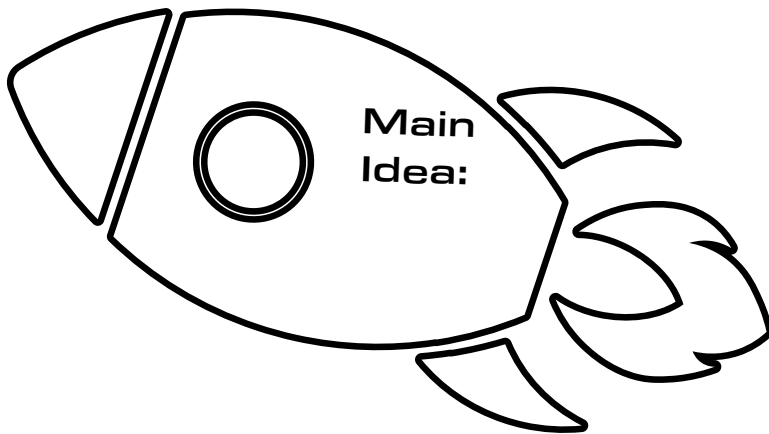


READ WITH SALLY TIDE



Commander Sally Tide has been working on this paragraph about renewable resources to share with the crew. You can help her out by determining the main idea and identifying three supporting details. Check with your friends to make sure you got it right!

Every day we flip light switches, charge tablets and use electricity for lots of cool things. Right now, we get most of our electricity from natural gas, which works really well. However, natural gas is a non-renewable resource. Non-renewable means that one day, it will run out and we won't be able to use it anymore. The good news is that nature gives us amazing ways to make electricity that never run out: renewable resources! We can use sunshine with solar panels, wind with big spinning windmills and flowing water to create all the power we need. When we use these natural energy sources along with natural gas and remember to turn off lights when we leave a room, we're helping make sure kids in the future will have plenty of electricity, too!



Detail #1:

Detail #2:

Detail #3:



WORDS TO KNOW

Renewable Resource – A natural resource that keeps coming back again and again.



WATT'S WATT

Harmonica has learned so much on the space station, but she wants to make sure she can apply these lessons when she gets back home. Can you help her figure out which of these appliances uses more energy in the following scenarios? Use the table below to help you – it will tell you the wattage (electricity) it takes on average to use each appliance for one hour.

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

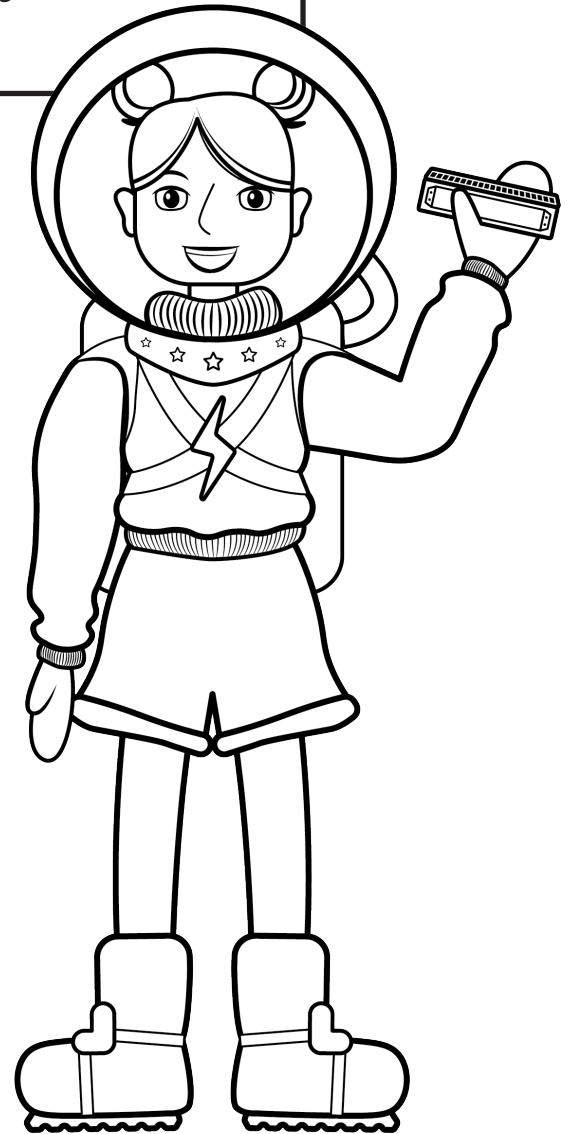
or

LED lightbulb for 1 hour?

LED television for 2 hours

or

Laptop for 1.5 hours?



WORDS TO KNOW

Kilowatt – One thousand watts; one watt is a unit of measurement of electricity.



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

MARTIAN SOCIAL MEDIA

With your help, the team has taught Bile so much about saving energy! Now, Bile wants to help spread the word on Martian social media to all his space alien friends. Can you help him decide what to say? Include at least one renewable resource and one way to save energy. And of course, every good post includes a picture, so draw something eye-catching that would make people click on Bile's 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

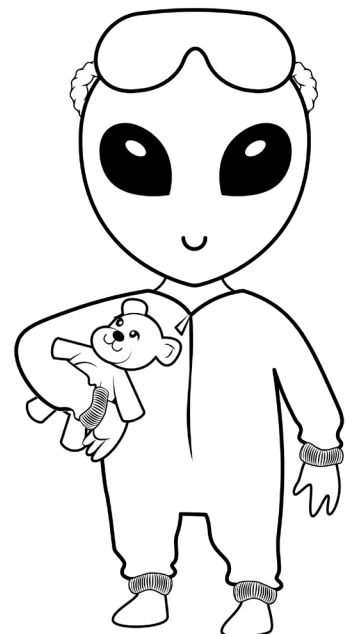
What is the difference between renewable and nonrenewable resources, and why are resources important?

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?

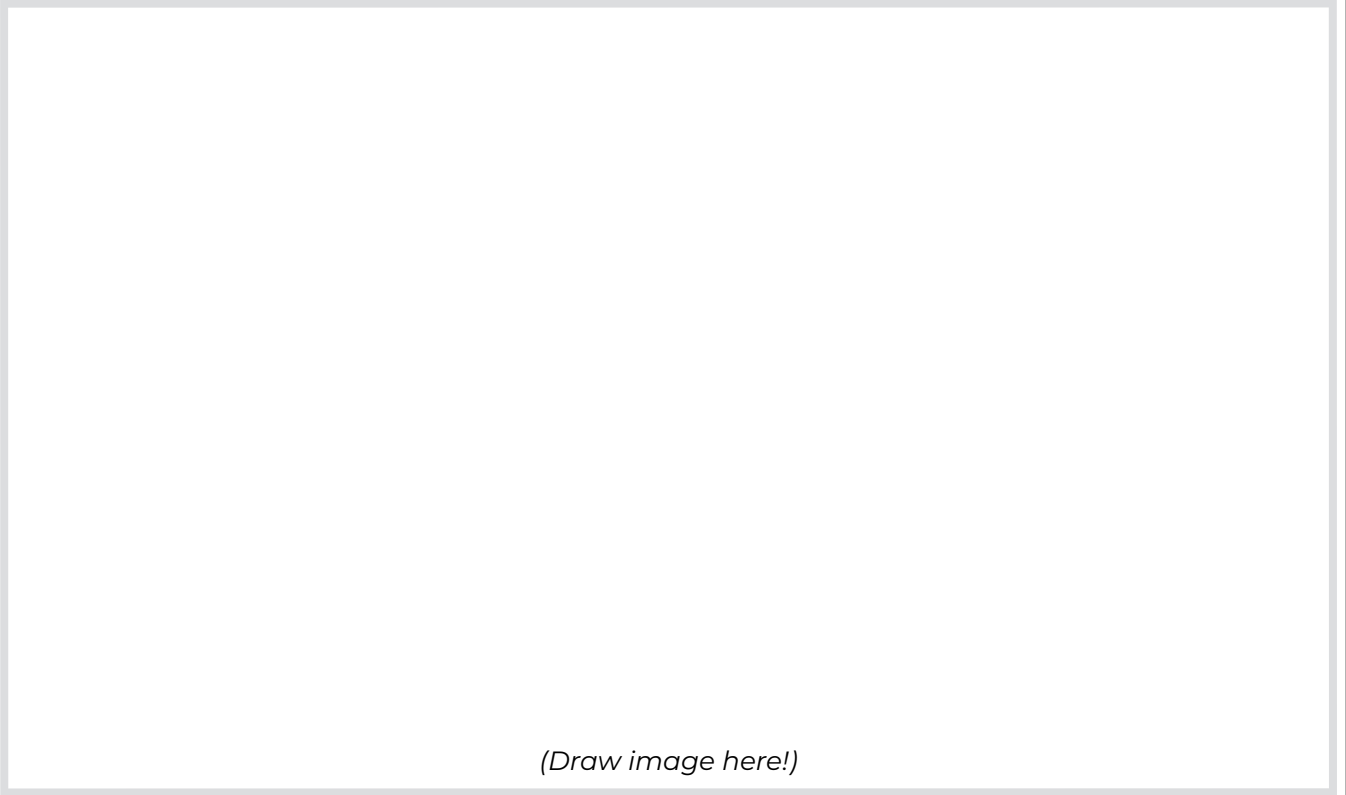
WORDS TO KNOW

Energy – The ability to do work; the power that makes things work.





BileTheMartian



(Draw image here!)





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Hey parents, students and teachers!

GO TO: **NTC** **playworks.com**



Check out more fun learning activities on this topic at **NTCplayworks.com!**

Here's How:

1. Go to [NTCplayworks.com](https://www.ntcplayworks.com)
2. Select your state and program
3. Enjoy the digital games, interactive activities, e-books and more