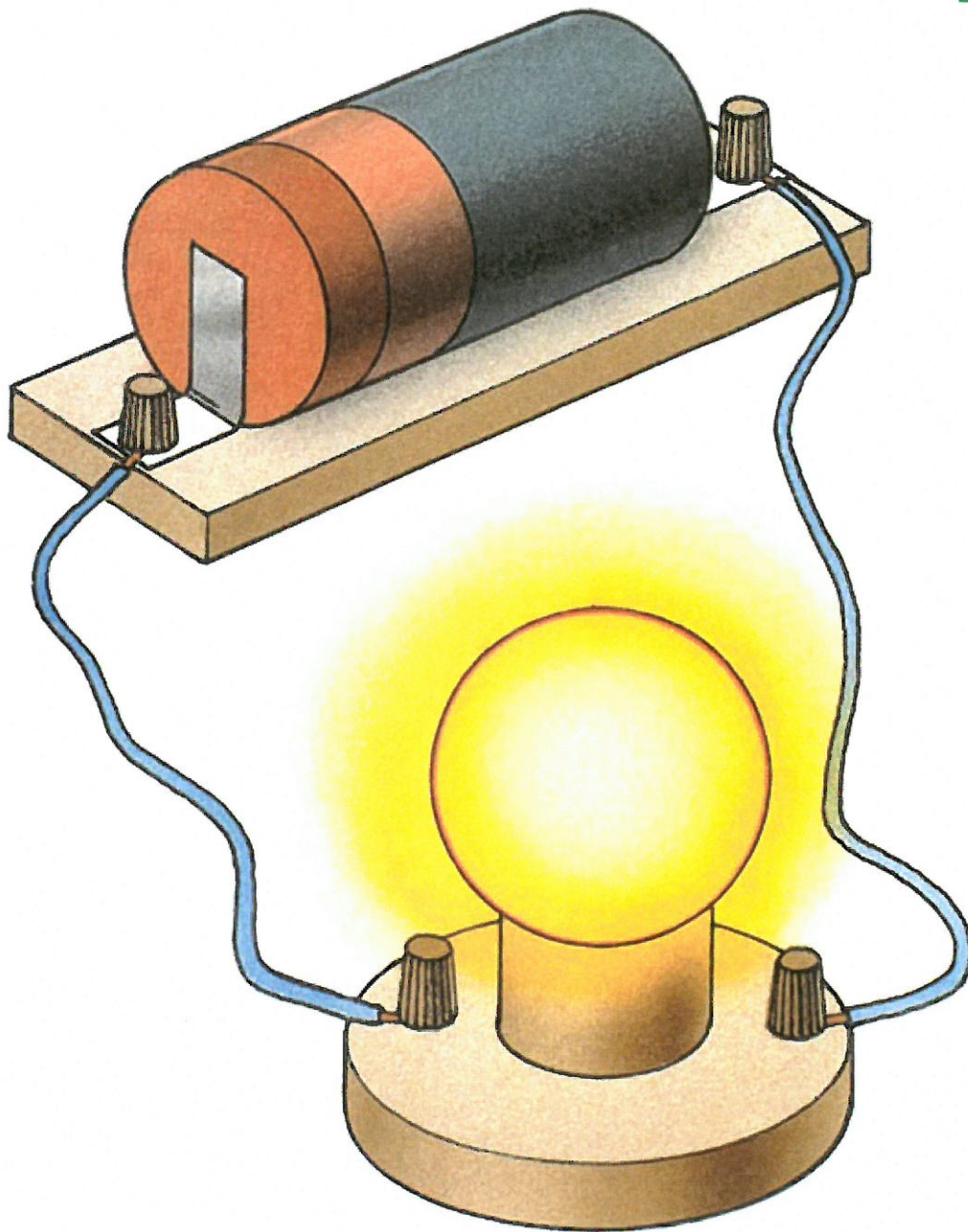


Noble County Mini 4-H



Electric

MINI ELECTRIC

It's fun to learn about energy, especially renewable energy. In your electric project, you will learn about solar power as one source of renewable energy.

REQUIREMENTS

1. Read all the important information in this book.
2. Complete the fun activities in this book. Then have an adult check your work. Note: this book does not get turned in with the project at the fair.
 - a. For Kindergarten activity "Conductors and Insulators" and "Summer Maze"
 - b. For First Grade: activity "What is Solar Energy?" and "Summer Search"
 - c. For Second Grade: activity "Renewable Energy- Wind Turbines" and "Energy Types"
3. In this project, you should obtain a grade specific kit from the extension office. With the help of an adult, assemble the kit.
 - a. For Kindergarten: Energy Stick
 - b. For First Grade: Solar car
 - c. For Second Grade: Windmill

We hope you enjoy working with your Mini 4-H Electric project this year. Keep up your enthusiasm and when you're in the 3rd grade you can join in more fun by joining a 4-H club and continue with the electric project or enroll in other projects.

Mini 4-H Helper's page

Welcome to the Mini 4-H Program! Mini 4-H is designed for children in grades K-2 to explore a variety of project activity areas and to interact with caring adults and other children.

Children receive this project activity manual when they enroll in Mini 4-H. This manual and the manuals on various other topics will provide fun, age-appropriate learning activities throughout their year(s) in Mini 4-H.

As a Mini 4-H adult helper, your job will be to guide and encourage each child through the activities. A wide range of activities is provided to allow you to choose the ones most appropriate for the children you are working with. It is strongly suggested that you do not complete the activities for them. Instead help them, guide them, work with them and let them do all that they possibly can. 4-H believes in allowing children to learn by doing. The Mini 4-H project activities are hands-on learning opportunities designed to provide a meaningful educational experience for youth.

Additionally, the Mini 4-H program is set up to allow children to display a project activity that is based upon information in this manual. Some children may want to exhibit at the 4-H Fair. The 4-H Fair is an exciting week that allows community youth to showcase their enthusiasm for learning. Children may choose to display a project activity they did by themselves or one they did with a group. Other children may choose to showcase their work in other ways, such as displaying it in a special place in their own home.

Mini 4-H is fun! Children will certainly enjoy it. You can have fun too, by guiding and helping as children participate in the program. Encourage and praise the children as they have fun learning and sharing with you. If you have any questions regarding Mini 4-H or other 4-H programs, please contact the Extension Office in your county.

Helper's Tips

The Mini 4-H Program can be used with individual children, but it works best when used in a group of 2 or more children. Children working cooperatively in groups develop positive images of themselves and their ideas. Other ways adult helpers can maximize the benefits of Mini 4-H are to:

- **Work on a subject interesting to the child by encouraging children to choose the content area.** Look through this manual and choose the project activities based on the interests and skill levels of the children
- **Relax and have fun.** Some children will want to finished their activities, others may not. There is no need to pressure children of this age to finish an activity, because the real learning takes place while they participate in the activity and interact with others. The finished project should not be the main focus. The knowledge children gain while they explore new areas and experiment with new ideas should be the primary goal.
- **Remain flexible and adapt to the changing needs of the children.** Restlessness or boredom may indicate a need to stop the activity and come back to it later.
- **Encourage children to talk and work with each other.** Children learn best when they are encouraged to freely share their reactions and observations. You may want to ask the children about what they did during an activity, what happened, what was the easiest, and what they like the most.

This manual contains activities for children that allow for a wide range of abilities and provide practice for developing a variety of skills.



Mini 4-H Page

Mini 4-H'ers have lots of fun! There are many activities for you to explore. You can try new things. You can share them with your friends and family.

Here are some things to know about 4-H.

The 4-H symbol is a four-leaf clover with an "H" in each leaf. Clover is a plant that grows in fields, yards and along roadsides. Most clovers have three leaves. Sometimes, if you look very carefully, you may get lucky and find a special clover with four leaves. A four-leaf clover is used as the symbol for 4-H to let everyone know 4-H is a special kind of group.



The 4-H colors are green and white. The four-leaf clove is green and the "H" in each leaf is white.

A group motto is a saying that tells people what is important to the group. The 4-H motto is "To make the best better." When something is better than all the others it is the best. Think about a time when you did your best. Maybe you threw a ball farther than you have ever thrown it before. Now, think about some ways you could do better. You may be able to throw farther by practicing for a while or by watching someone who can throw farther than you, to see how they throw so far. Even if you throw the ball farther than you have ever thrown it before. There are still ways that you can do better the next time. 4-H encourages you to always try to do better, even if you are doing the best you have ever done.

*"To make the
best better"*


The 4-H Pledge


A pledge is a promise you make to yourself and to the people around you. The 4-H pledge is a bold print below.


I pledge...


my **head** to clearer thinking,
my **heart** to greater loyalty,
my **hands** to larger service, and
my **health** to better living for
my **club**, my **community**,
my **country**, and my **world**.


What do these words mean?

I Pledge my Head  to clearer thinking, means I promise to use my head to make good choices.

My heart  to greater loyalty, means to use my heart to be a good friend.

My hands  to larger service, and, means to use my hands to do helpful things for others.

My health  to better living, means to take care of my body and to show others how to live in a healthy way.

For my club, my community, my country  and my world, means to help my group, my community, my country and my world be happy and safe for everyone.

How to be a "Super Energy Saver"

FOLLOW THESE SIX SIMPLE STEPS!



1 Turn off all the lights when you leave the room.

2 Shut down the computer when you are not using it.

(If you need help, ask mom or dad.)



3 Unplug electronics like cell phones, video games and televisions when not in use.

4 Set your thermostat to 78° in the summer and 68° in the winter.



5 Don't hold the refrigerator door open for long periods of time.

6 Change the light bulbs. Help your mom or dad change regular light bulbs to CFLs like Charlie.

FIVE RULES FOR ELECTRICAL SAFETY

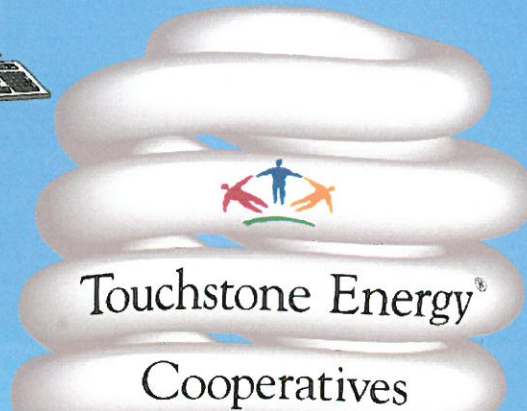
1. Always ask an adult for help when you need to do something that uses electricity.

2. Don't yank or pull cords from an electrical outlet.

3. Never overload outlets with too many plugs.

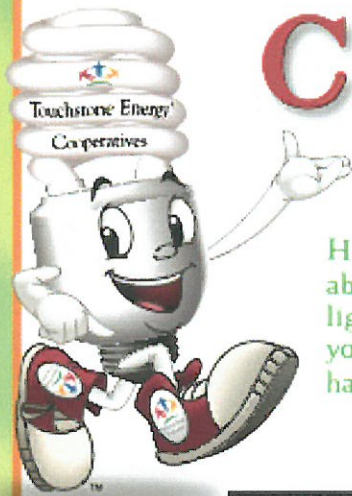
4. Keep electrical stuff away from water. Water and electricity don't mix.

5. Never touch a power line, especially if there is one that may have fallen down.



www.touchstoneenergykids.com

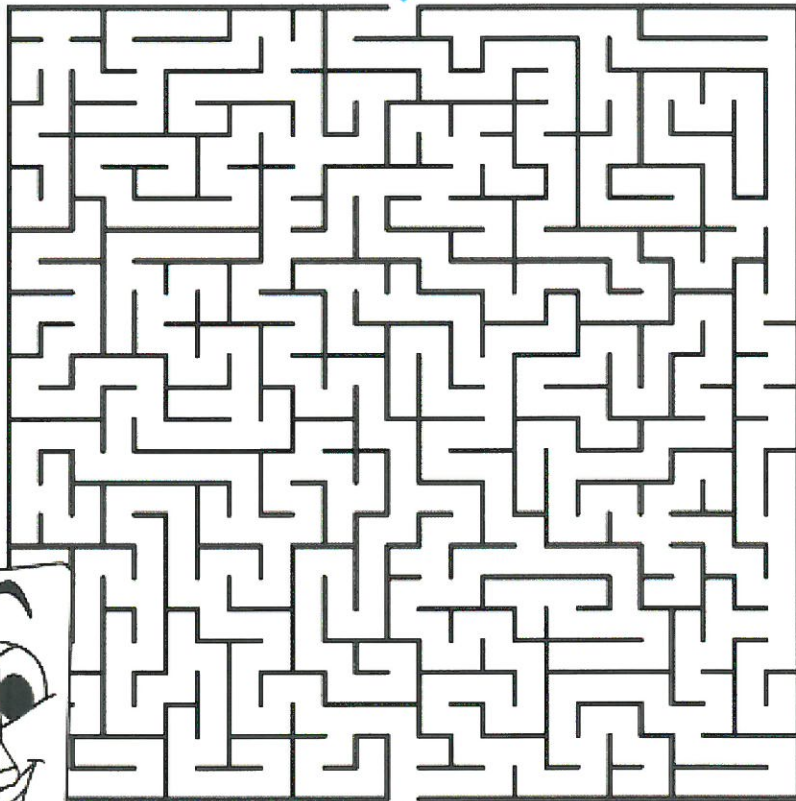




CFL Charlie's Summer Maze

Hi kids! CFL Charlie here. One of my favorite things about summer is playing outside! I make sure that the lights are off inside the house before I go out. Can you help me check if the lightswitch is turned off? We have to go through the maze first. Let's go!

Start! Good Luck!



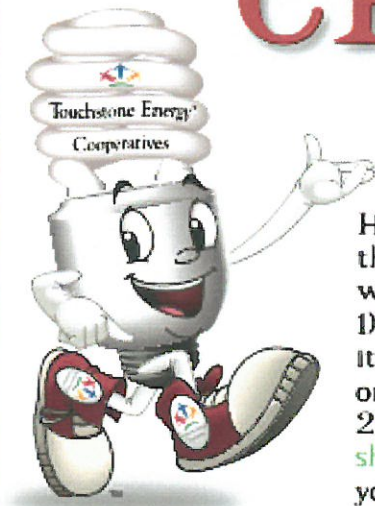
Finish! Awesome! Great job!



Touchstone Energy® Cooperatives
The power of human connections®

www.kidsenergyzone.com

CFL Charlie's Summer Search



Hey kids! CFL Charlie here. Looking to stay cool over the summer? Here are some tips on how to do that while saving energy.

- 1) Turn your thermostat up a few degrees - it can save you a lot of money! If you're still hot, turn on a ceiling fan or have a popsicle.
- 2) Make sure to turn off things like your TV and shut down your computer - those make a lot of heat if you leave them on.
- 3) Finally, make sure to replace your regular light bulbs with CFL or LED light bulbs - these save energy and aren't as hot.

l	i	g	h	t	b	u	l	b	s	f	e	o
p	o	p	s	i	c	l	e	e	u	f	n	t
l	n	w	o	d	t	u	h	s	l	o	e	a
e	i	l	r	a	h	c	p	o	o	n	r	e
d	n	l	m	t	c	f	t	e	o	r	g	h
n	a	f	g	n	i	l	i	e	c	u	y	l
i	t	h	e	r	m	o	s	t	a	t	a	a

Charlie
Cool
Energy
Thermostat

Ceiling Fan
Popsicle
Turn Off
Shut Down

Heat
Light Bulbs
CFL
LED



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The power of human connections®

www.kidsenergyzone.com

WHAT IS SOLAR ENERGY?

Solar energy comes from the sun. The sun is an important resource, as it helps sustain life. Without the sun, our planet would have no life. Through the use of technology, we are able to harness the energy from the sun to convert it to electricity.



SOLAR CELLS are tools that change light energy from the sun and other light sources into electricity. Many calculators use solar cells to power them.



A **SOLAR PANEL** is a group of solar cells connected to form a large, flat surface.

THINK AND DRAW

What do you think a car powered by the sun would look like? Draw a picture.

A large empty rectangular box with a red border, intended for a student to draw a picture of a solar-powered car.

CONDUCTORS AND INSULATORS

A **conductor** is a material that allows electricity to flow through it.

An **insulator** is a material that electricity cannot flow through.

Project Directions:

To find out if an object is a conductor or insulator, use your energy stick to see if it lights up!

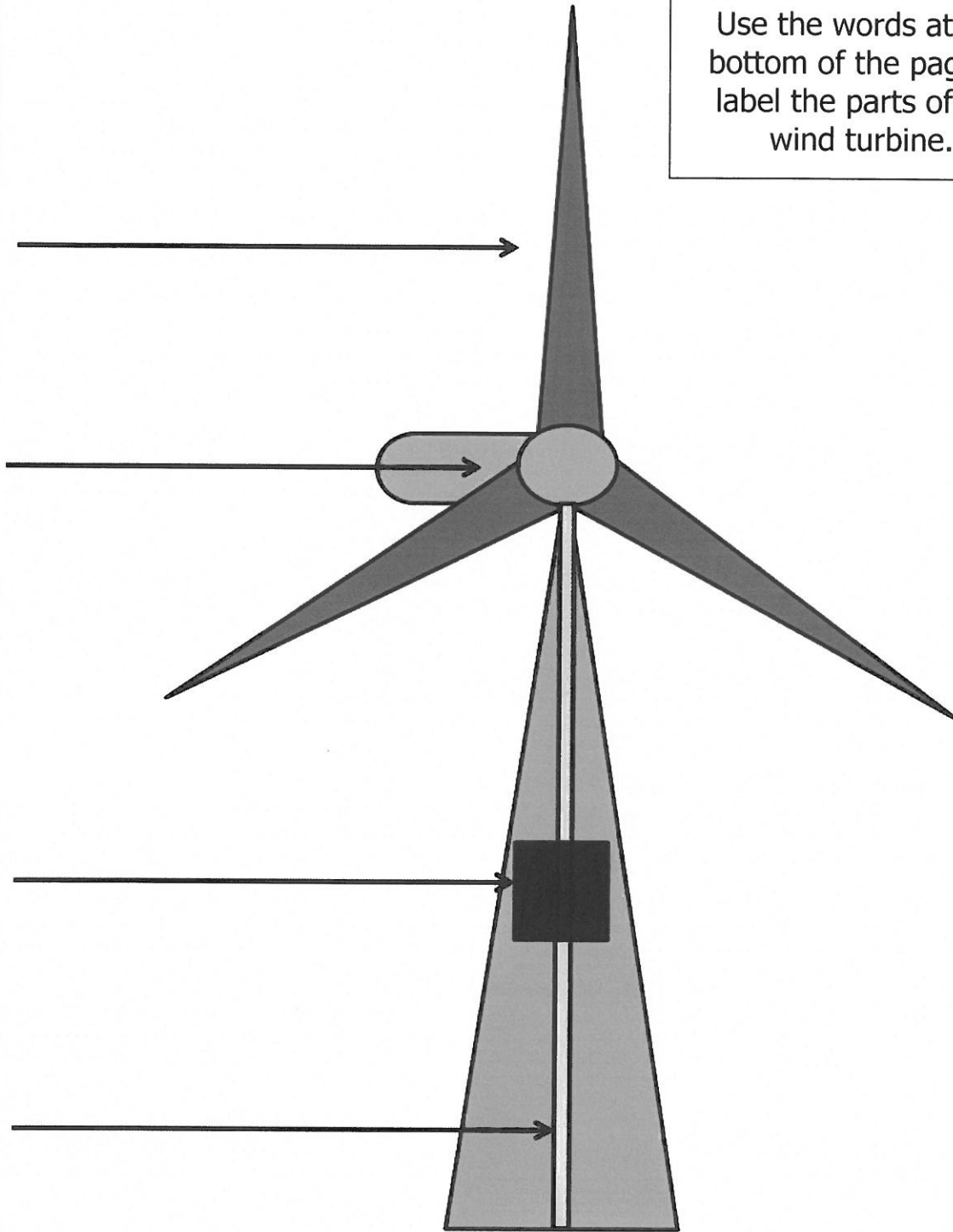
Once you have determined if the item is a conductor or insulator, display the items you tested along with your findings.

Don't forget to bring your energy stick to be displayed at the Fair!

<u>Object</u>	<u>Conductor or Insulator?</u>
Rubber Band	
Penny	
Paper Clip	
Toothpick	
(Your Choice)	
(Your Choice)	

Renewable Energy - Wind Turbines

Use the words at the bottom of the page to label the parts of the wind turbine.



Cable

Generator

Blades

Computer System

Energy Types

Directions: Use the words below to answer the questions and fill in the crossword puzzle.

BATTERY

RENEWABLE

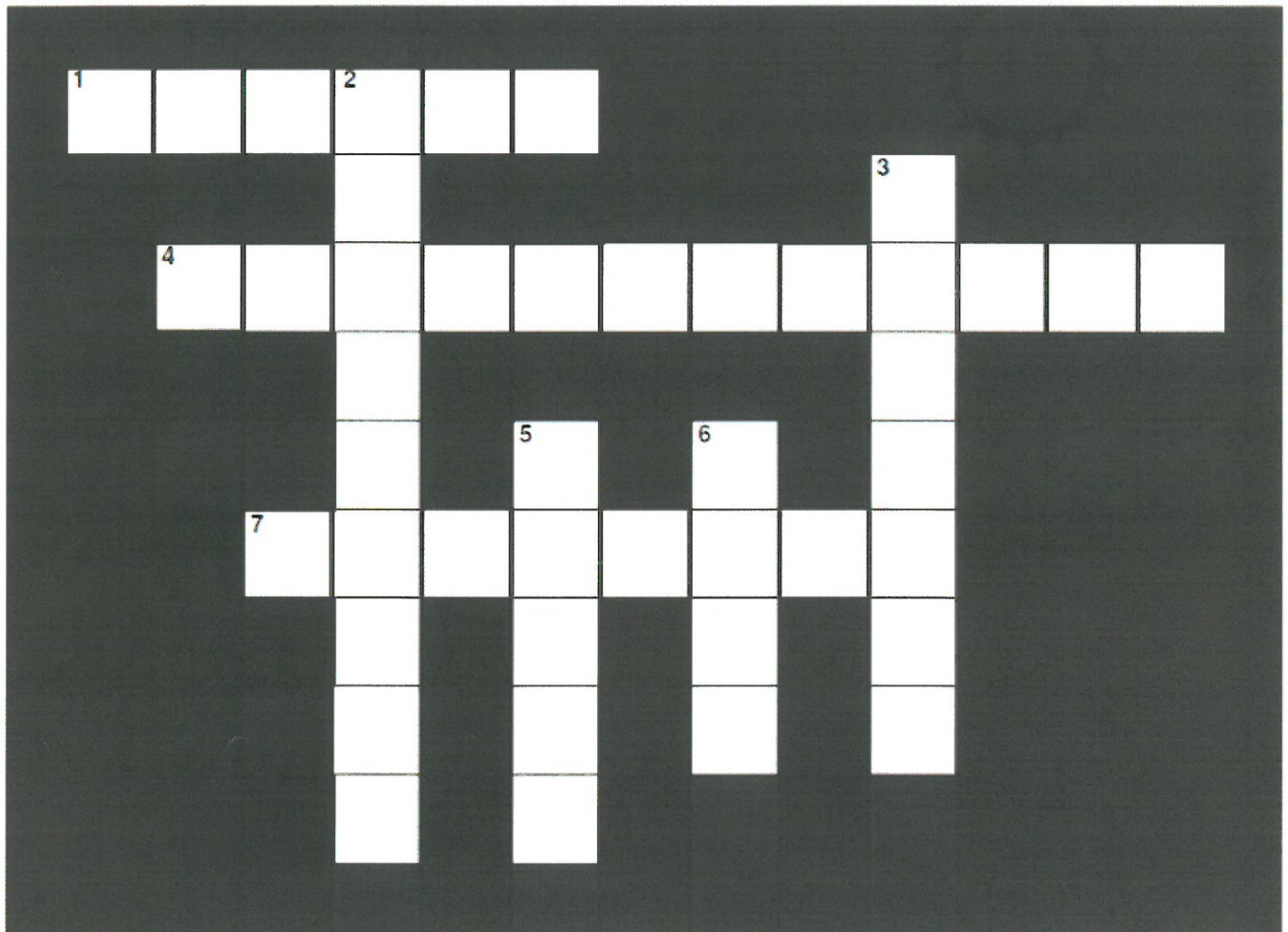
ENERGY

SOLAR

GASOLINE

WIND

NONRENEWABLE



ACROSS:

1. What we need to work and play
4. An energy source that can run out
7. The energy source we use in a car

DOWN:

2. An energy source that will never run out
3. An energy source used in flashlights and cell phones
5. Energy that comes from the sun
6. Energy source that uses windmills

Name: _____

CONDUCTORS AND INSULATORS

A conductor is a material that allows electricity to flow through it.
An insulator is a material that electricity cannot flow through.

Project Directions:

To find out if an object is a conductor or insulator, use your energy stick to see if it lights up!
Once you have determined if the item is a conductor or insulator display the items you tested along with your findings.

Object	Conductor or Insulator?
Rubber Band	
Penny	
Paper Clip	
Toothpick	
(Your Choice)	
(Your Choice)	

Electric
Kindergarten



stevespandescience.com

\$ 7.99 - 1 pack
29.99 - 4 pack

Electric
1st grade

ROBOTIKITS

SUPER SOLAR RACING CAR

OWI-MSK671



*not actual size

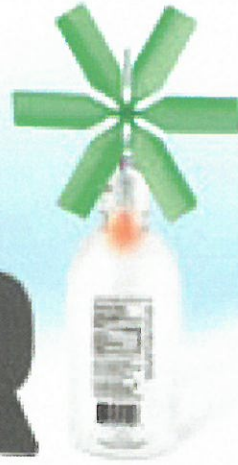
BUILD IT YOURSELF
Educational Robot Mini Solar Kit

Steve Spangher Science \$12.99

Electric
2nd
grade

GREEN SCIENCE

WINDMILL GENERATOR



Build this amazing wind generator and learn about renewable energy. Watch the LED glow as it is powered by free energy from the wind. No batteries required!

Help save the planet by recycling a plastic bottle to support your wind generator.



- 1 Battery
- 1 Electrical Connector
- 1 Motor/Generator
- 1 Instruction Manual
- 1 Generator Kit
- 15-201001-1-1

FOR AGES OVER 6

WARNING:
CHOKING HAZARD - Small parts.
Not for children under 3 years.



Kids Labs
FOR CURIOUS FUTURE

4m

GREEN SCIENCE
WINDMILL GENERATOR

teachersource.com \$11.95
incrediblescience.com \$9.99