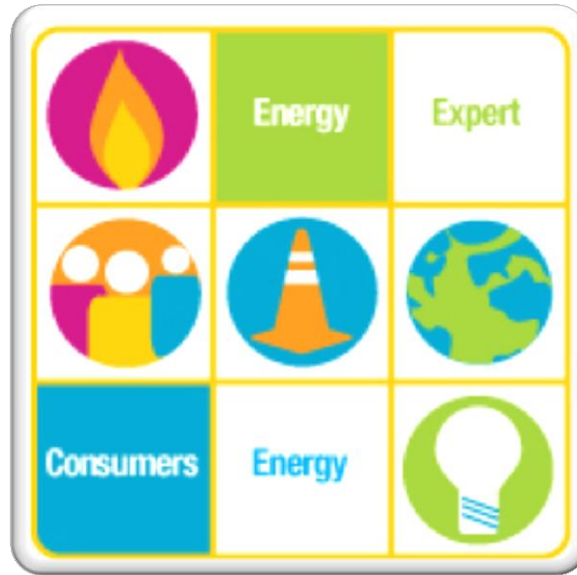


Name: \_\_\_\_\_



# ENERGY EXPERT PATCH

## Brownie Workbook

**Consumers Energy**

*Count on Us*

PROVIDING ENERGY EDUCATION TO STUDENTS IN THE COMMUNITIES  
WE SERVE. THAT'S OUR PROMISE TO MICHIGAN.

For more great energy resources visit:  
[www.ConsumersEnergy.com/kids](http://www.ConsumersEnergy.com/kids)

# Hey there Scouts!

Ready to earn your Energy Expert patch? This book will help you become an expert at:

**Page 1- Electric Safety**

**Page 2- Natural Gas Safety**

**Page 3- Respect the Flags**

**Page 4- Energy at Home**

**Page 5- Sources of Energy**

**Page 6- Water Power**

**Page 7- Energy Careers**

**Leaders:**

This book is designed to be completed as a group. Please visit [www.ConsumersEnergy.com/scouts](http://www.ConsumersEnergy.com/scouts) to download the leader guide that includes the answers to this book, talking points for discussion, and how to order your patches.

Questions? Feel free to email us at [education@consumersenergy.com](mailto:education@consumersenergy.com)



# ELECTRIC SAFETY

Electricity travels at \_\_\_\_\_ miles per second! That's why it's important to understand the correct way to handle yourself around electricity.

3 things can happen if you touch electricity, you can be:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

\_\_\_\_\_ allow electricity to flow.

\_\_\_\_\_ stop the flow of electricity.

Draw a picture of the power lines above or underground bringing electricity to your house.

## Remember!

Electricity, people, water DON'T mix!

Look up for POWER LINES when climbing a tree or flying a kite

Stay away from downed power lines and call Consumers Energy right away (800) 477-5050

# NATURAL GAS SAFETY



Can you see natural gas if it's leaking?

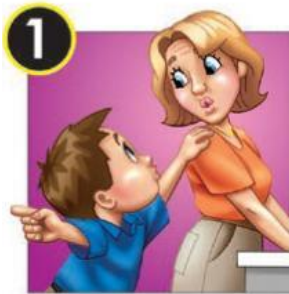
Circle one: Yes / No

What can happen if natural gas is leaking? Write your answer.

Natural gas smells like \_\_\_\_\_.

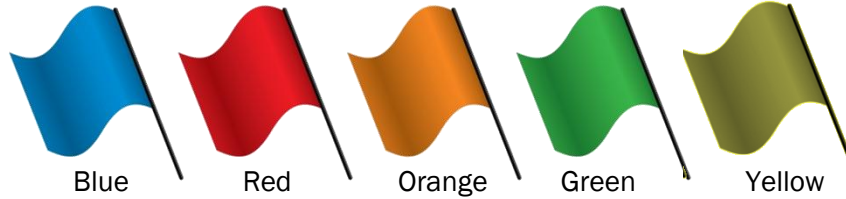
## Take the Right Steps

Write the safety phrase under the right picture, and learn what to do if you smell natural gas!



# RESPECT THE FLAGS

Flags are used to mark \_\_\_\_\_ that are buried underground.



Match the flag to the right utility



Before starting a digging project, you should always call \_\_\_\_\_ at



**Know what's below.  
Call before you dig.**

## What's Wrong?

Draw an X over what these kids are doing wrong





# ENERGY AT HOME

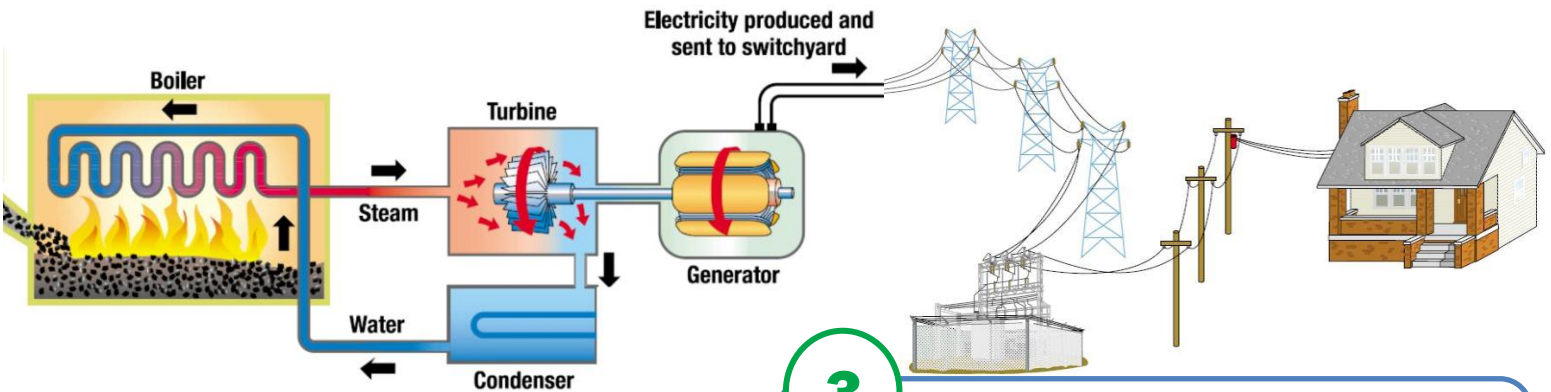
How DOES electricity get to your house?

**1**

Coal is mined out of the ground, and sent on trains and boats to a power plant

**2**

Coal is burned to make steam, which turns a turbine, turning a generator



**3**

Electricity is generated, sent through transmission lines, into a substation, then over distribution lines to your house!



## THINK ABOUT IT

What would life be like without electricity? On a separate piece of paper, draw a picture or write a story about your life without electricity.

Electricity is measured by using a \_\_\_\_\_ that is attached to your house.

In Michigan, when do we use more electricity? Circle one.

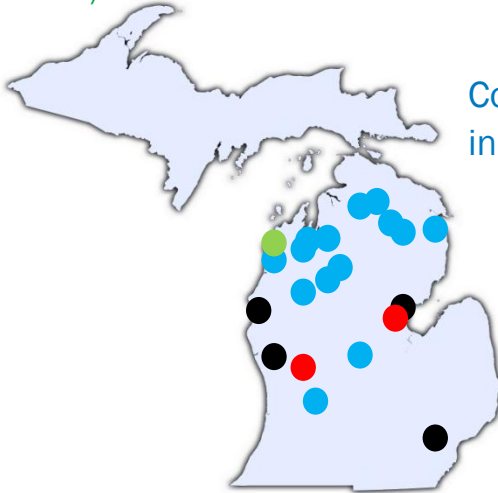
Summer   or   Winter

Write one way you can use less energy at home starting today!

# SOURCES OF ENERGY

\_\_\_\_\_ energy sources are fossil fuels like coal, oil, and natural gas.

\_\_\_\_\_ energy sources can be reused like wind, water, and solar.



Consumers Energy has many power plants in Michigan that use different sources of energy.

- Hydro Power Plant
- Wind Farm
- Natural Gas Power Plant
- Coal Power Plant
- ★ Where do you live? Mark it on this map with a star.

## TYPES OF FUEL WORDSEARCH

Coal	Natural Gas	Nuclear	Oil	Sun	Water	Wind													
C	U	P	X	E	M	F	A	V	P	L	Q	M	Y	L	K	D	F	B	E
P	L	X	V	G	A	L	U	C	M	W	I	L	X	C	T	I	S	Z	P
W	C	V	Y	I	W	S	Z	L	E	S	A	L	O	S	V	I	S	D	P
A	U	M	E	I	N	S	X	G	P	E	B	M	A	X	T	N	U	M	O
W	N	Y	S	U	A	I	C	R	C	U	M	S	I	L	A	P	N	E	M
M	L	Z	H	C	T	Q	I	P	T	J	L	F	M	T	D	A	R	W	X
P	M	Y	V	O	U	V	I	O	F	P	L	V	X	S	T	E	Y	Q	L
S	O	I	Y	X	R	M	W	A	T	E	R	A	N	K	L	T	U	D	P
J	G	A	Q	P	A	B	S	G	I	K	R	M	V	P	L	R	Y	U	Z
A	F	M	E	I	L	W	A	T	R	I	L	P	D	I	V	M	K	W	Q
I	W	P	O	X	G	X	D	J	E	Y	Z	U	K	R	S	S	C	O	X
G	R	E	U	U	A	Y	C	G	I	H	A	O	R	M	H	Q	A	L	N
T	Y	J	H	P	S	K	I	I	E	F	Y	I	B	O	L	U	O	U	T
E	I	R	R	M	B	M	L	P	C	B	E	L	M	T	Y	R	L	T	U
L	P	K	D	E	N	C	E	T	U	Y	H	E	E	P	R	F	D	R	E
R	G	L	F	U	E	A	B	E	Q	J	L	W	Z	N	I	O	R	U	D
U	B	W	B	M	R	D	L	C	Z	E	A	S	C	F	P	Y	E	I	F
M	W	I	D	N	T	U	S	M	S	S	E	P	C	O	A	L	T	G	J
O	I	Q	I	K	I	P	Z	R	U	V	E	I	R	W	D	P	Y	V	T
T	N	J	W	G	L	Q	A	F	F	P	M	O	W	Z	L	Y	W	R	R
R	D	Z	S	D	W	I	N	U	C	L	E	A	R	Q	P	M	P	C	E
E	M	C	R	C	Q	B	E	H	C	S	A	R	F	A	E	G	V	M	H



# WATER POWER

Read this out loud.

Our energy choices can impact our world in many ways. Using water to make electricity means we can't use it for other things. It's important to think about the benefits and the problems of using an energy source before we make a decision to use it. Let's think about water a little bit more.

Another word for a power plant that uses water to generate electricity is **HYDROELECTRIC**

Water is (circle one) renewable / non-renewable.

Think of ways we can use water if we don't use it for electricity:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

List some benefits of using water for electricity:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

List some problems with using water for electricity:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_





# ENERGY CAREERS

Match the right career with the work they like to do.

Engineer

I like working on the computer and solving problems.

Customer Service Representative

I like writing and talking in front of groups of people.

Executive Communications

I like to design things, and I'm good at math.

Information Technology (IT)

I like to talk to people and help solve problems.

Electric Lineworker

I like to be outside, ride in vans, and help people.

Forestry

I like to walk, work independently and meet new people.

Natural Gas Worker

I like to work with trees and help the environment.

Meter Reader

I like to be outside, climb high and ride in trucks.

Draw a picture of yourself working in your favorite energy career.