

Name: _____



ENERGY EXPERT PATCH

Bear & Webelos Workbook

Consumers Energy

Count on Us

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

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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 3 - Natural Gas Safety

Page 5 - Sources of Energy

Page 6 - Electricity Generation

Page 7 - Energy Careers

Leaders:

This book is designed to be completed as a group. Please visit 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



ELECTRIC SAFETY

After talking with your pack about ways to stay safe around electricity, write your 3 favorite safety tips here:

1. _____

2. _____

3. _____

NEXT use your safety tips to finish either “Make a Safety Poster” or “Perform a Safety Skit” on page 2.

Make a Safety Poster

Make a poster that teaches others how to be safe around electricity.

Try using these materials to make it look great!

- Large foam poster board
- Markers
- Stickers
- Colored paper, tape and ribbon
- Glitter
- Pictures

Write the safety message you will put on your poster here:

Talk to your pack about places in your community where a lot of people would see your poster and could learn from it. Write down where you will hang your poster: _____

What kind of pictures could you put on your poster? _____

Perform a Safety Skit

Write and perform a short skit with your pack for younger Scouts or even adults!

Example Safety Skit: Stay Away, Stay Alive

Mr. Johnson: What a beautiful day! I think I'll go for a walk around my neighborhood.....(*big thud sound*).....what was that noise?

Timmy: Look, Mr. Johnson! That tree just fell down on that power line!

Mr. Johnson: Uh-oh. Timmy we need to stay at least 25 feet away. If we get too close, we could get electrocuted or shocked!

Timmy: Should we call 911?

Mr. Johnson: Good idea Timmy. (*Timmy and Mr. Johnson call 911*)(*Sirens sound*)

Fireman: You people okay? I'm glad you stayed far away from that power line or else you could have gotten hurt. I'm going to call Consumers Energy so they can come fix this. (*Fireman takes out phone and walks away*)

Consumers Energy Worker: I see we have a downed power line. Just give me awhile with my bucket truck and I'll get this place safe again. (*worker fixes the power line*)

Great job everyone. Anytime you see a downed power line, stay away to stay alive.

Everyone: Stay away, stay alive!

THE END

Title of your skit: _____

What safety message will the skit be about?

Who will the characters be? _____

What props will you need? _____

Who will you perform the skit in front of? _____

NATURAL GAS SAFETY

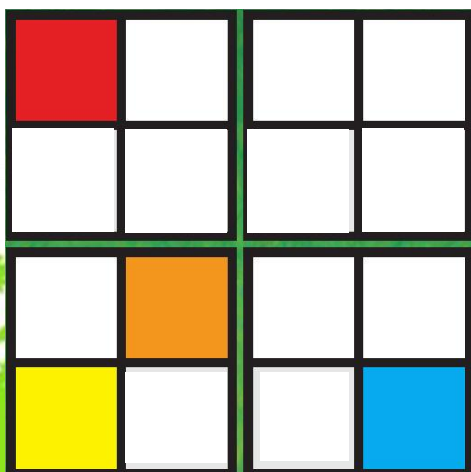
Natural gas smells like:



2

Take the Right Steps

Write the safety phrase under the right picture to learn how to react to a natural gas leak!



Utility Flag Sudoku

Color in the flags, so that each color flag only appears once in each row, column and box. (red, orange, yellow, blue)

The flags tell us what is underground!

Yellow = Natural Gas

Red = Electricity

Green = Sewer

Blue = Water

Orange = Cable/Telephone

3

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Gone BANANAS! Activity

Fill in the answers with your pack.



1. How do natural gas, electricity, water, cable and telephone get to your house?

2. What does the banana represent?

3. What do the spoon and knife represent?

4. What happened when you hit the spoon into the banana?

5. What happened when you dug into the banana with the knife?

6. What would happen if someone was digging and hit a natural gas pipe?

How can you avoid hitting a natural gas pipe? (circle the answer)

Call 811 / Call the police / You can't avoid it

How much does it cost? (circle the answer)

1 million dollars / FREE / 25 dollars

How long does it take? (circle the answer)

1 week / 1 year / 3 Days



SOURCES OF ENERGY

Read this story out loud.

Pretend Michigan is going through an energy crisis. There's not enough electricity to power all of the homes, businesses, or manufacturing plants, and power outages are happening everywhere. Consumers Energy has decided to build a new power plant in order to provide more electricity. But they don't know what fuel they should use. Do they use renewable, which is good for the environment, but not reliable? Or do they use non-renewable, which makes a lot of electricity at a low cost, but is not as good for the environment?

It's up to you to decide! Pick an energy source and write down why you think it is the best option.

I think the best energy source would be _____.

This source of energy is (circle one) renewable / non-renewable.

List some benefits of using this source:

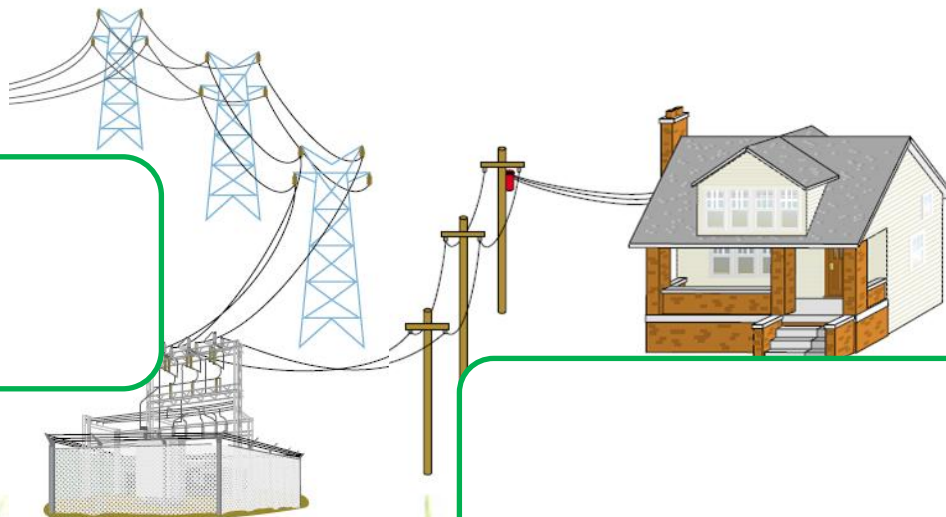
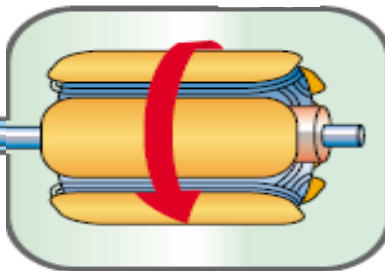
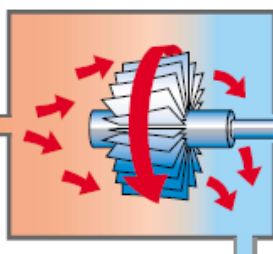
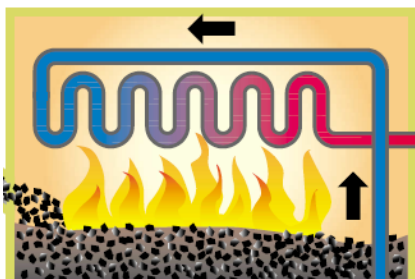
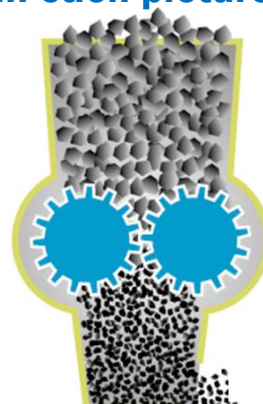
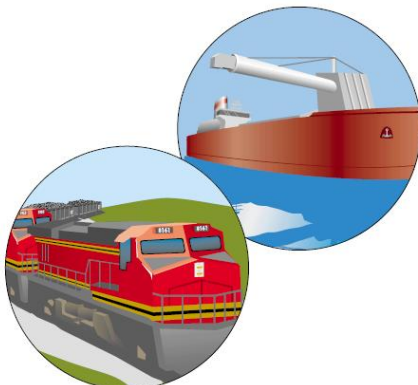
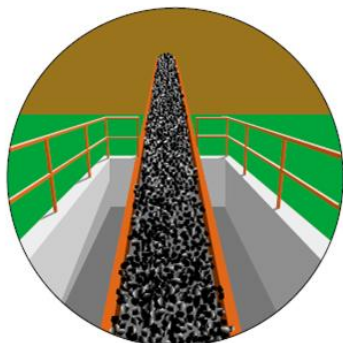
1. _____
2. _____
3. _____

List some problems with using this source:

1. _____
2. _____
3. _____

ELECTRICITY GENERATION

How is electricity made? Write what happens in each picture.





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.

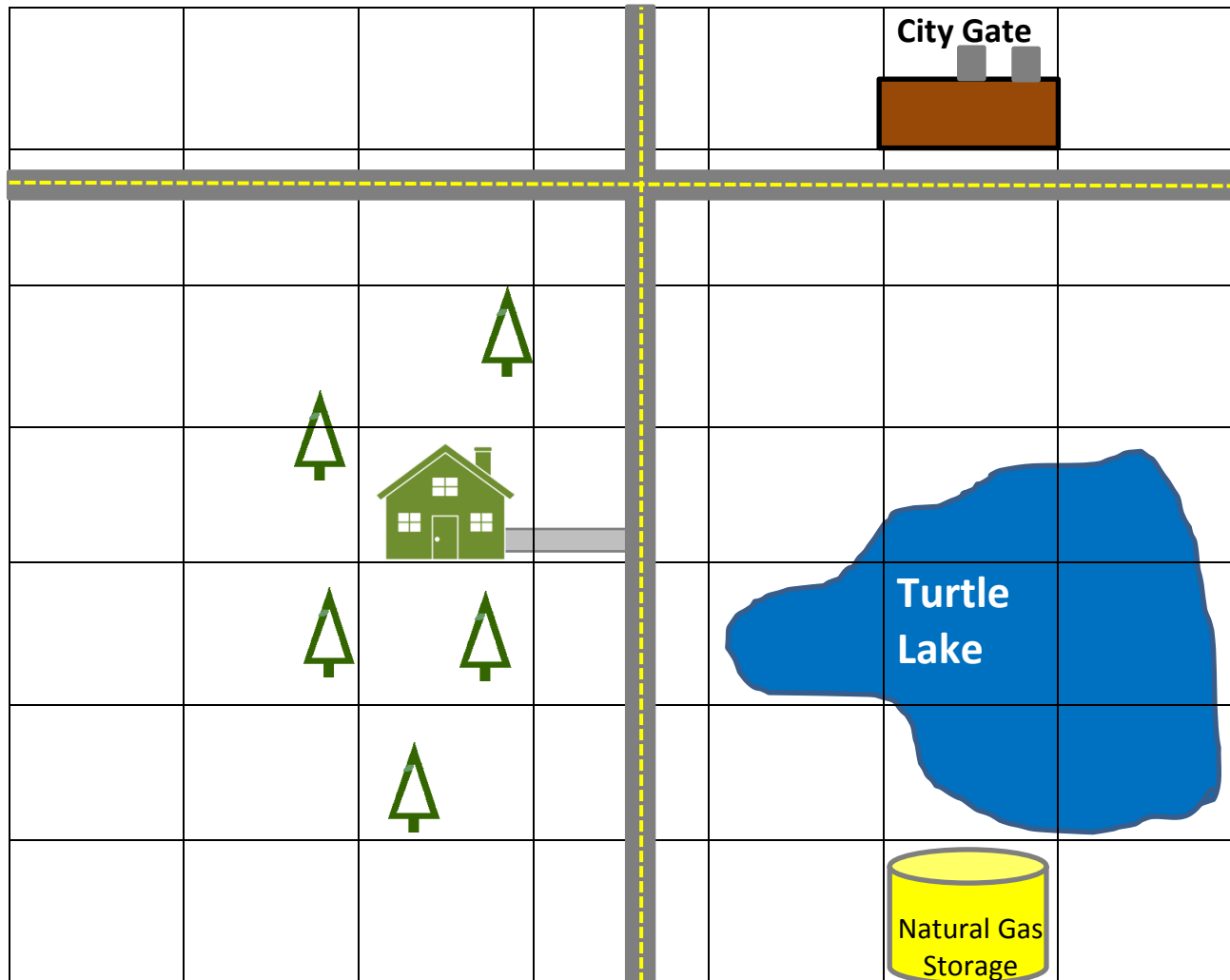
At Consumers Energy, we also have engineers who design where a natural gas pipeline goes in the ground. It's important when a new building or house is built that we get natural gas installed safely, and as inexpensive as possible.

Do you like to draw? Solve problems? Plan things out?

Find out on the next page if you could be one of these engineers!

Design a Pipeline!

Design (draw) the gas pipeline to go from the gas storage, to the city gate, to the house – as cheaply as possible.



1 square = 1 square mile = costs \$1,000 to lay pipe

Rules:

- If your pipe goes through any part of a square, you have to pay for that whole square.
- You cannot cut diagonally through the squares.
- You cannot run more than one natural gas pipe through the same square.
- Anytime you pass under a lake square it costs an extra \$2,000.
- Anytime you pass under a road square it costs an extra \$3,000.
- You **MUST** go to the city gate before the house, otherwise our resident's gas won't smell and that's dangerous!
- Avoid the barriers (like the drive-way or trees) or else your resident might get mad and make you do it over- doubling your cost!