

PIPELINE



SAFETY

Pipeline Safety Activities 3rd - 5th



Know what's below.
Call before you dig.



ONEOK

Dear Friends,

Approximately 327,000 miles of natural gas transmission pipelines, 1.8 million miles of natural gas distribution pipelines and 161,000 miles of liquid pipelines safely transport natural gas and a range of liquid petroleum products daily. Pipelines are the safest and most economical means of transportation. But like any other industry that deals with hazardous materials, there are potential risks. That is why pipeline operators go to great lengths to insure your safety through public awareness programs. Many risks can be prevented. This book is especially designed to help you become more aware of pipeline safety.

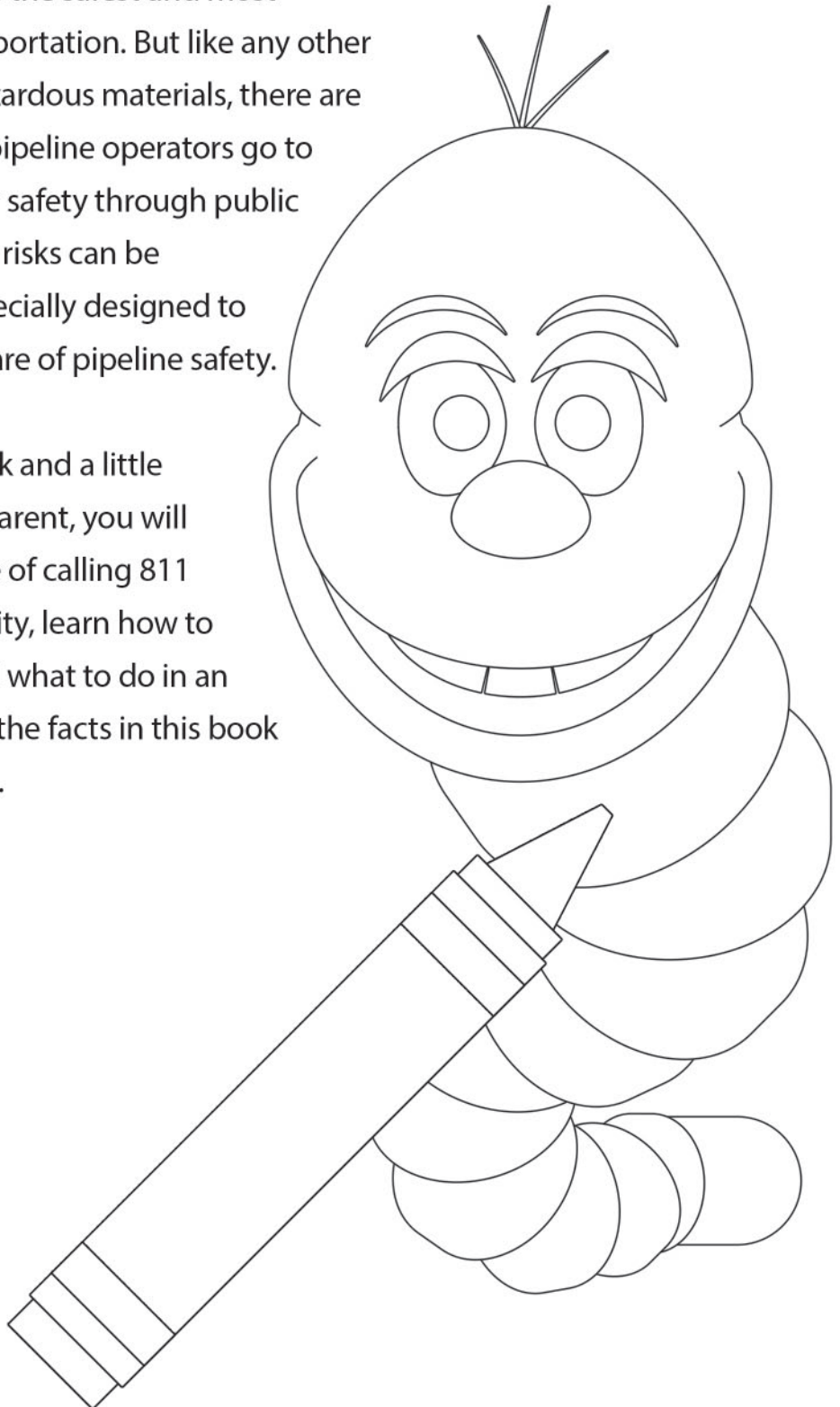
With the lessons in this book and a little help from your teacher or parent, you will understand the importance of calling 811 before any excavation activity, learn how to prevent a pipeline leak, and what to do in an emergency. Please go over the facts in this book and take the test at the end.

Sincerely,

Max

Max

The Pipeline Safety Worm



WORD SCRAMBLE



What is another
name for oil
and natural gas?

Unscramble the
letters below to
find the answer.

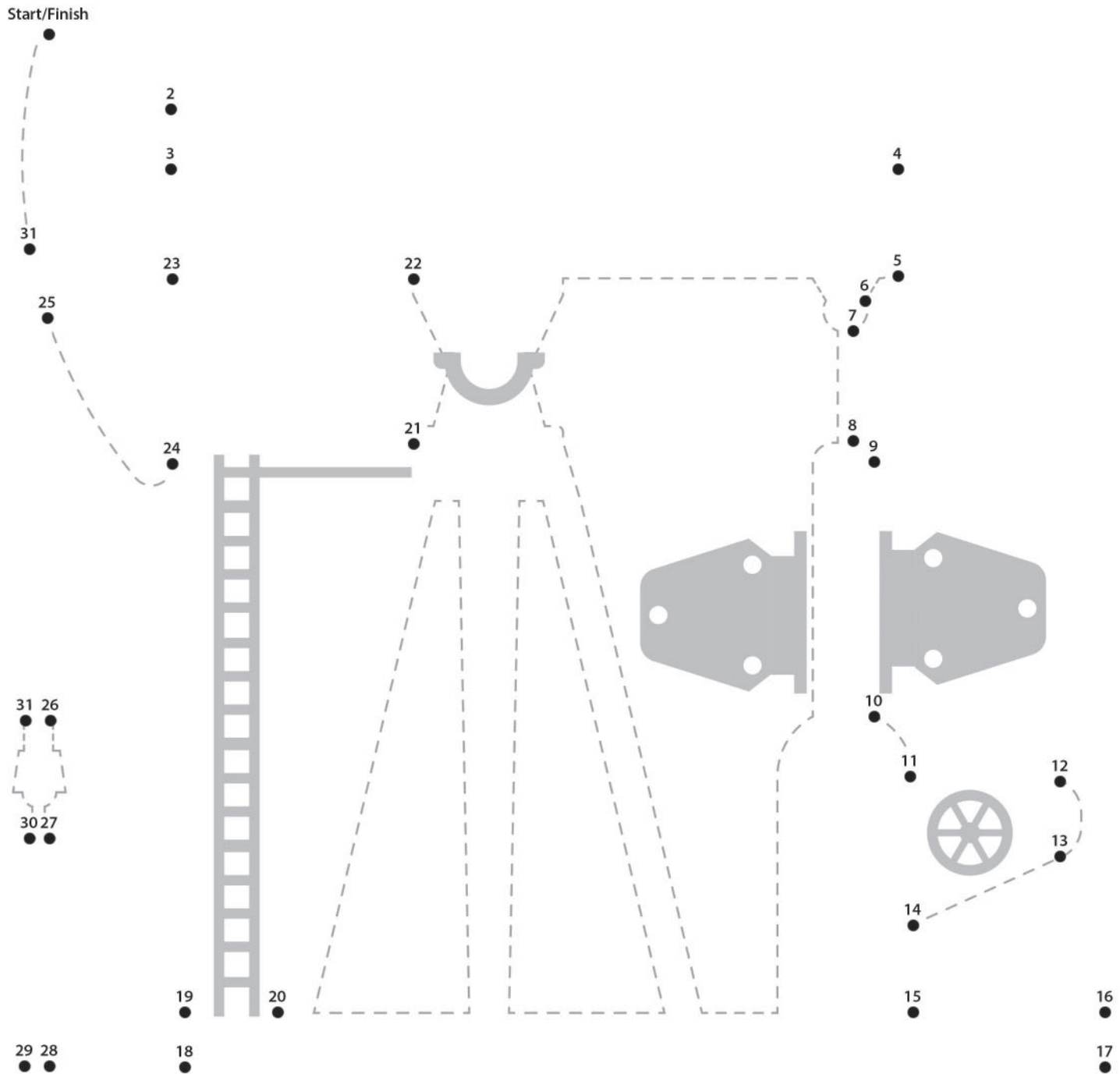
S I F L S O

— — — — —

E L F S U

— — — — —

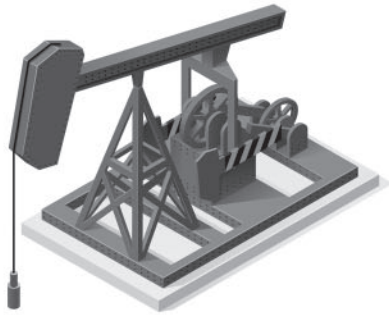
What is one piece of equipment you might see on an oil field?
 Connect the dots and complete the word scramble to find the answer.



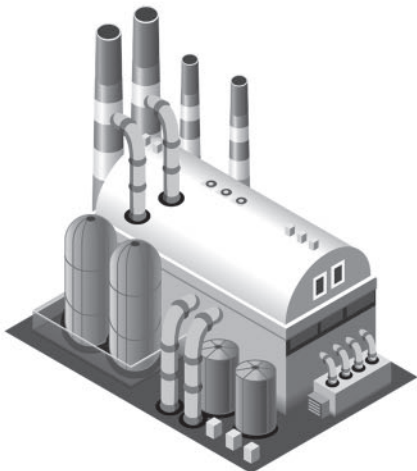
L E W L

O I L _ _ _ _

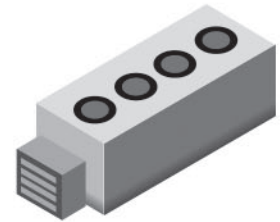
Can you find the path that follows the process of natural gas from its source to the city and your home?



Natural gas is a fossil fuel called a hydrocarbon that is formed naturally deep inside the Earth over millions of years. It is found in underground rock formations known as reservoirs. It is pumped out of the ground and sent through pipelines to a compressor station.



Natural gas is then sent to a processing plant. Natural gas is colorless and odorless. The strong rotten-egg-like smell is due to the addition of a chemical called mercaptan.



The compressor station compresses the natural gas providing energy to move the gas through the pipeline.



Storage facilities



Residential Customers



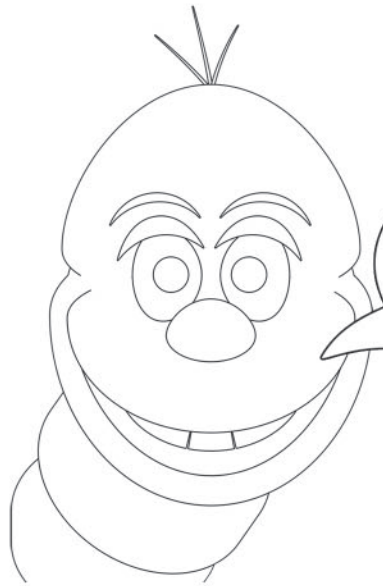
Commercial Customers

Color by Number

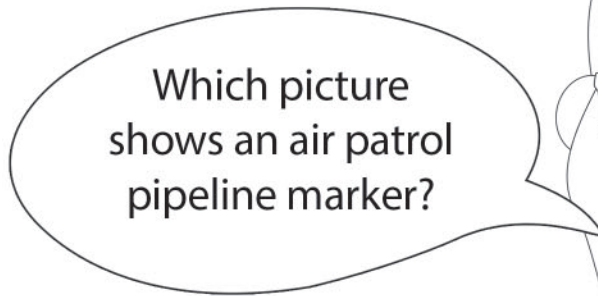


1 Light Gray 2 Dark Gray 3 Black 4 Pink 5 White 6 Brown

Draw a line from each character on the left to the pictures on the right that answers their question.



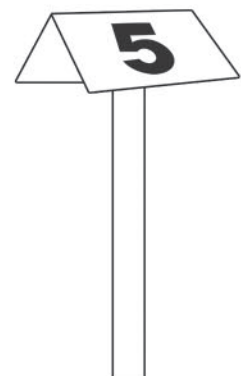
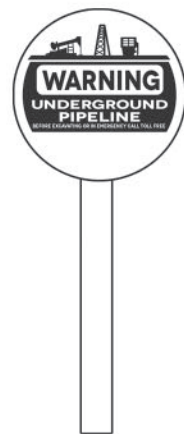
Which picture shows a round pipeline marker?



Which picture shows an air patrol pipeline marker?

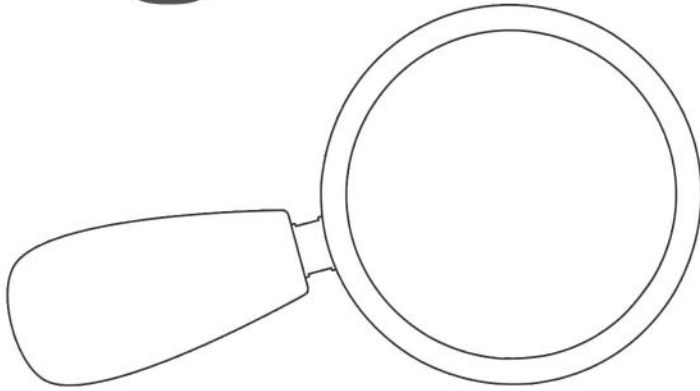


Which picture shows a pipeline post marker?



If you need help, look for clues on the back cover.

WORD SEARCH



Word List:

gas	oil	safety
pipeline	dig	natural
marker	see	hear
smell	call	fossil fuel
energy	heat	liquid
leak		rotten eggs

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

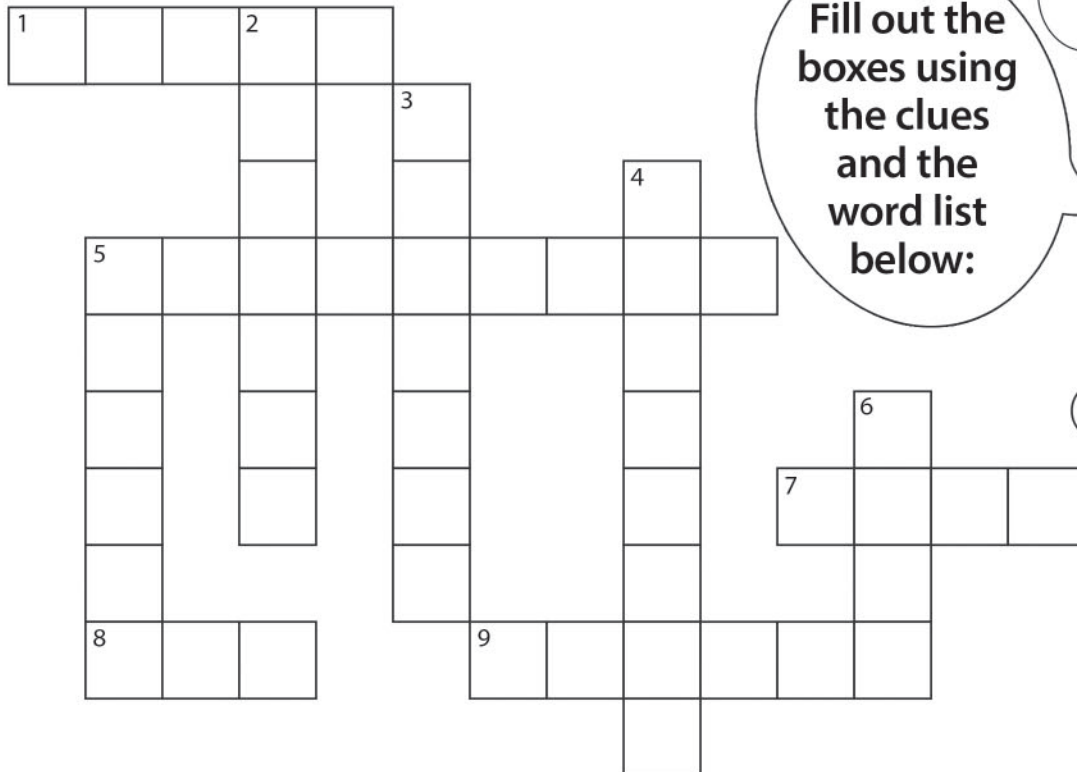
CROSSWORD

Across:

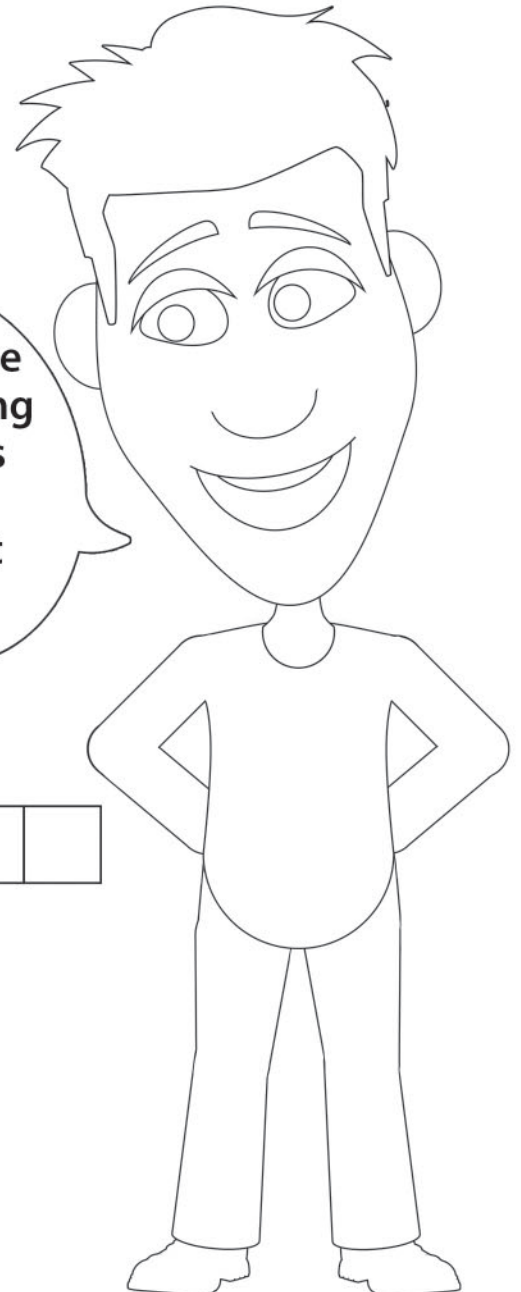
- 1.) If you think a leak has occurred, do not _____, breath, or make contact with possible hazardous materials.
- 5.) The primary means of transporting liquids and gases throughout the United States.
- 7.) If there is an unusual odor or scent near the pipeline, there may be a _____.
- 8.) If you _____ an unusual puddle of liquid on the ground near a pipeline, there may be a leak.
- 9.) The pipeline operating company's telephone number to call in case of an emergency is on the pipeline _____.

Down:

- 2.) If you suspect a leak, call 911 and the pipeline _____.
- 3.) What you need to do before digging.
- 4.) The facility that processes oil into different fuels and chemicals.
- 5.) If you see _____ or other foliage that are discolored near a pipeline, there may be a leak.
- 6.) If you _____ an unusual noise coming from a pipeline, there may be a leak.



Fill out the
boxes using
the clues
and the
word list
below:



Call811
Marker
Refinery

Touch
See

Hear
Leak

Company
Pipelines
Plants

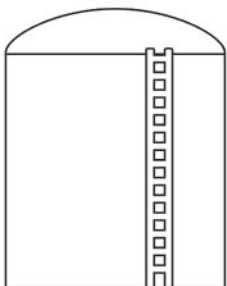


Ye Grand City

Oil Map

Use the story below to draw a path that leads to the source of the treasure of oil.

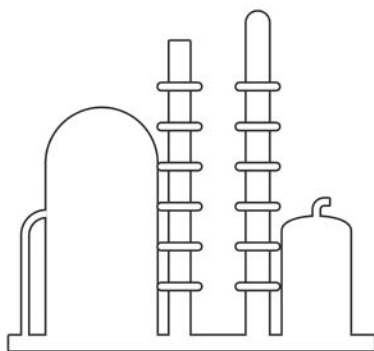
Max started his search for the treasure of oil at Ye Grand City. His first clue was gas station. Gas is one of oil's most recognized products. He followed the gas lines to Ye Gas Storage tank. This is where gas is kept until it is needed in Ye Grand City.



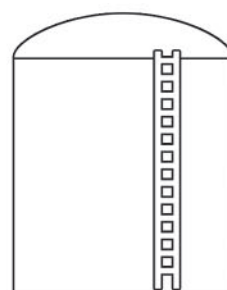
Ye Gas Storage Tank

Max then found a pipeline leading from Ye Gas Storage to Ye Refinery. There he found out that crude oil is heated and separated into several types of gas and chemicals. Max found another pipeline from Ye Refinery to Ye Oil Storage Tank. This is where crude oil is stored until needed at Ye Refinery.

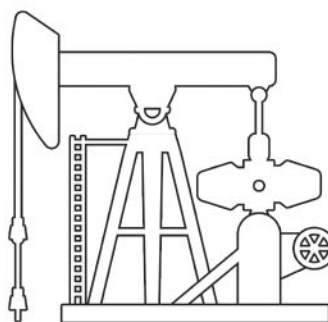
Max then found a pipeline from Ye Oil Storage Tank to Ye Oil Field. To his great delight there he found the source of treasure of oil. Oil wells were pumping it straight out of the ground. Max had found the treasure.



Ye Refinery



Ye Oil Storage Tank





Ye Oil Field



CODE BREAKER

Use the table below to reveal the hidden answer.

A	C	E	H	I	L	M	N
							
O	P	R	S	T	V	W	Y
							



What should you
do if a pipeline
leak occurs?

____ THE _____ ,





















____ 911 AND THE _____











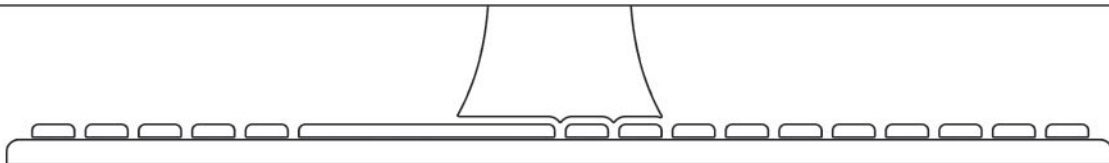






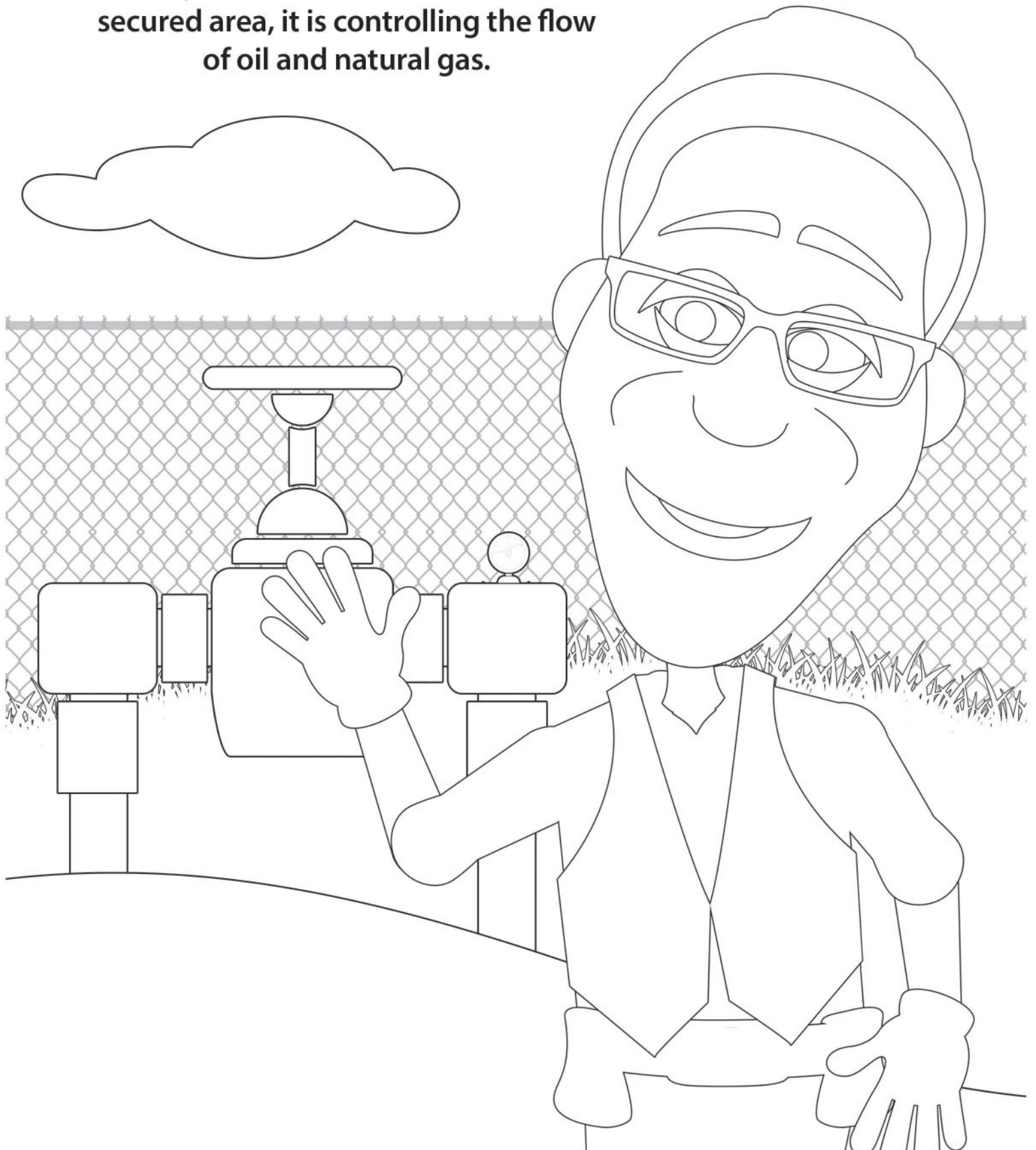






COLORING PAGE

When you see a valve in a fenced and secured area, it is controlling the flow of oil and natural gas.



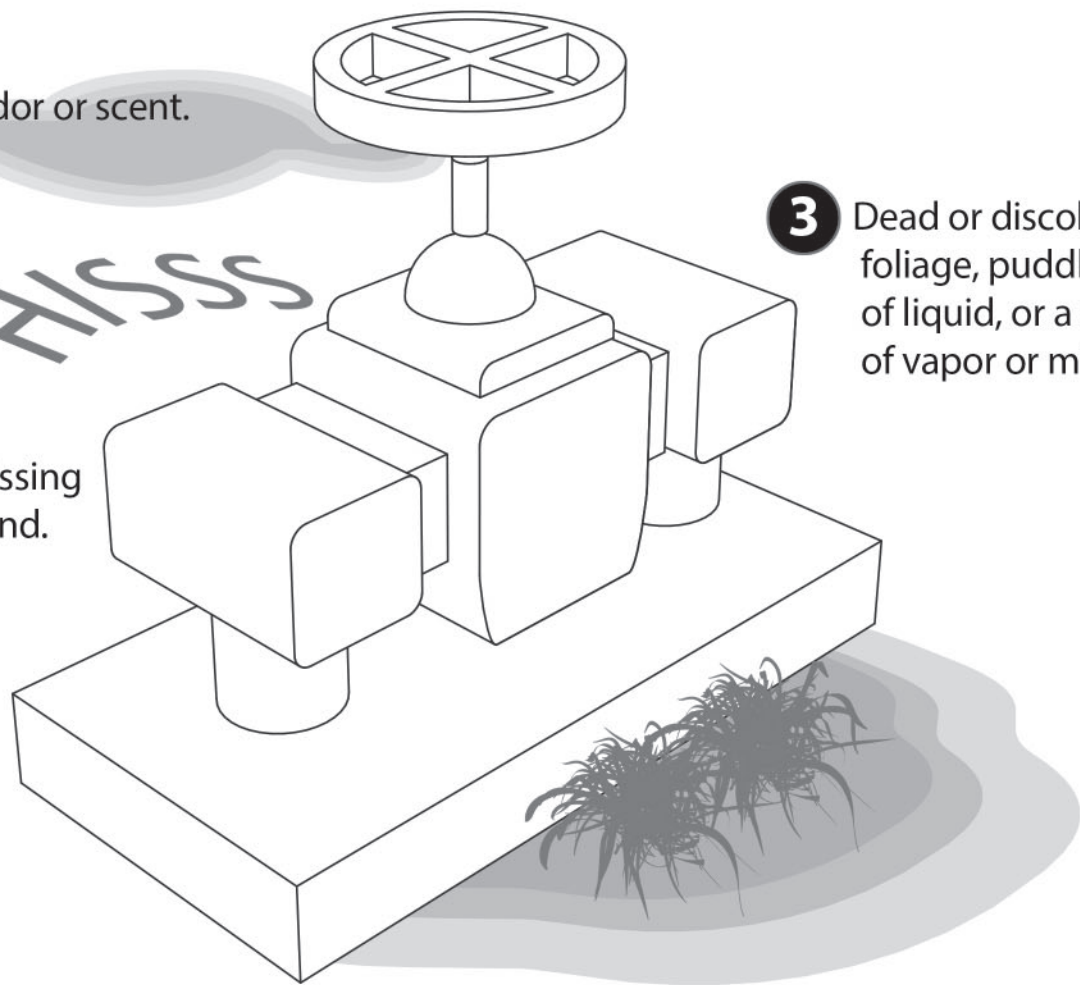
Along a Pipeline Right-of-Way

Signs of a pipeline leak are:

1 An unusual odor or scent.

2 An unusual hissing or roaring sound.

3 Dead or discolored foliage, puddles of liquid, or a cloud of vapor or mist.



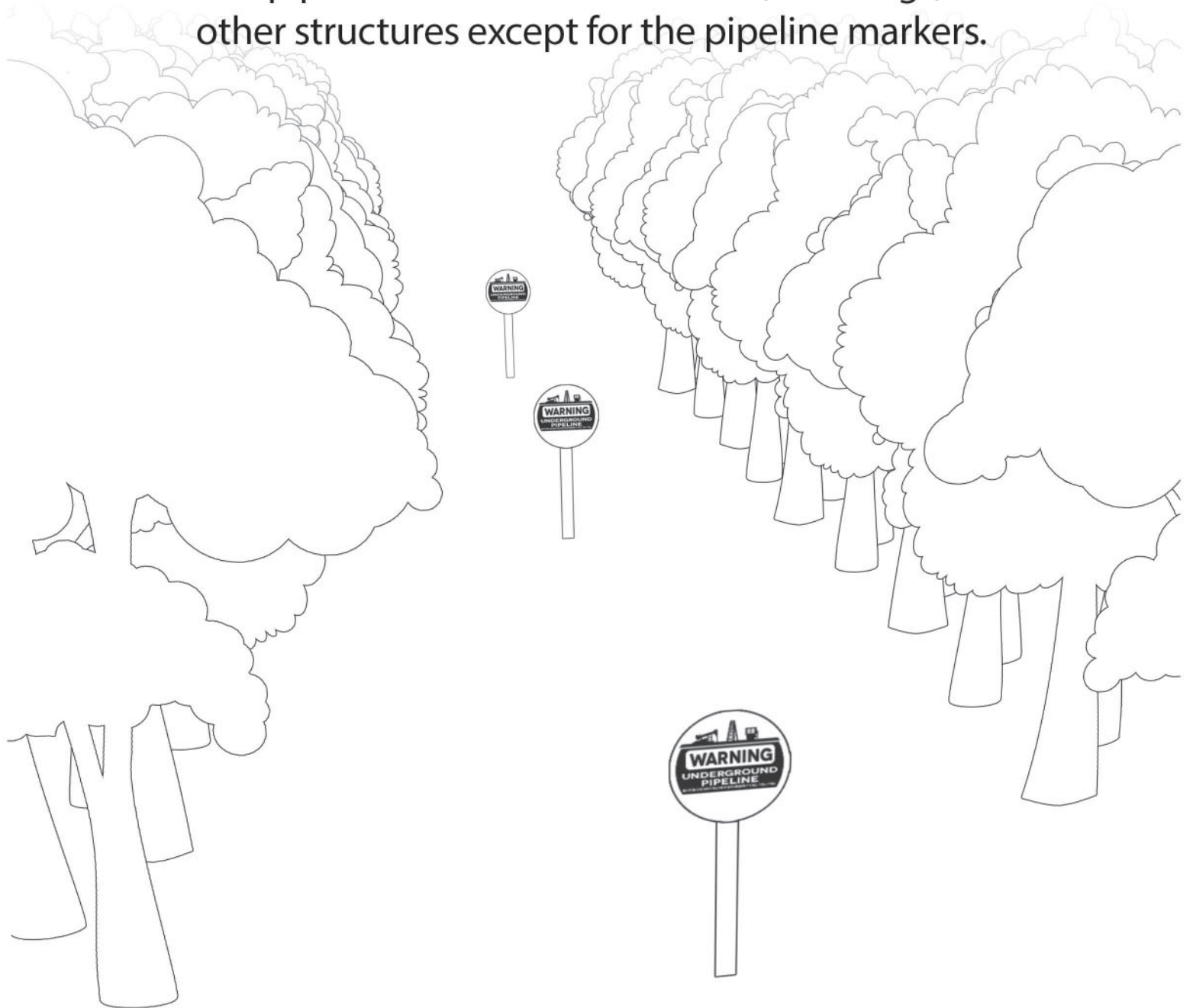
If you think a leak has occurred:

- Leave the area immediately. Stay upwind from possible dangerous fumes.
- Do not touch, breathe or make contact with possible dangerous materials.
- Avoid doing things that could cause a spark such as lighting a match, starting an engine, using a telephone, or switching lights on/off.
- Once out of the possible dangerous area, call 911 or local emergency response number and the pipeline company.
- Warn others.
- Do not drive into a possibly dangerous area.

R.O.W. stands for

RIGHT-OF-WAY

The pipeline R.O.W. is clear of trees, buildings, or other structures except for the pipeline markers.

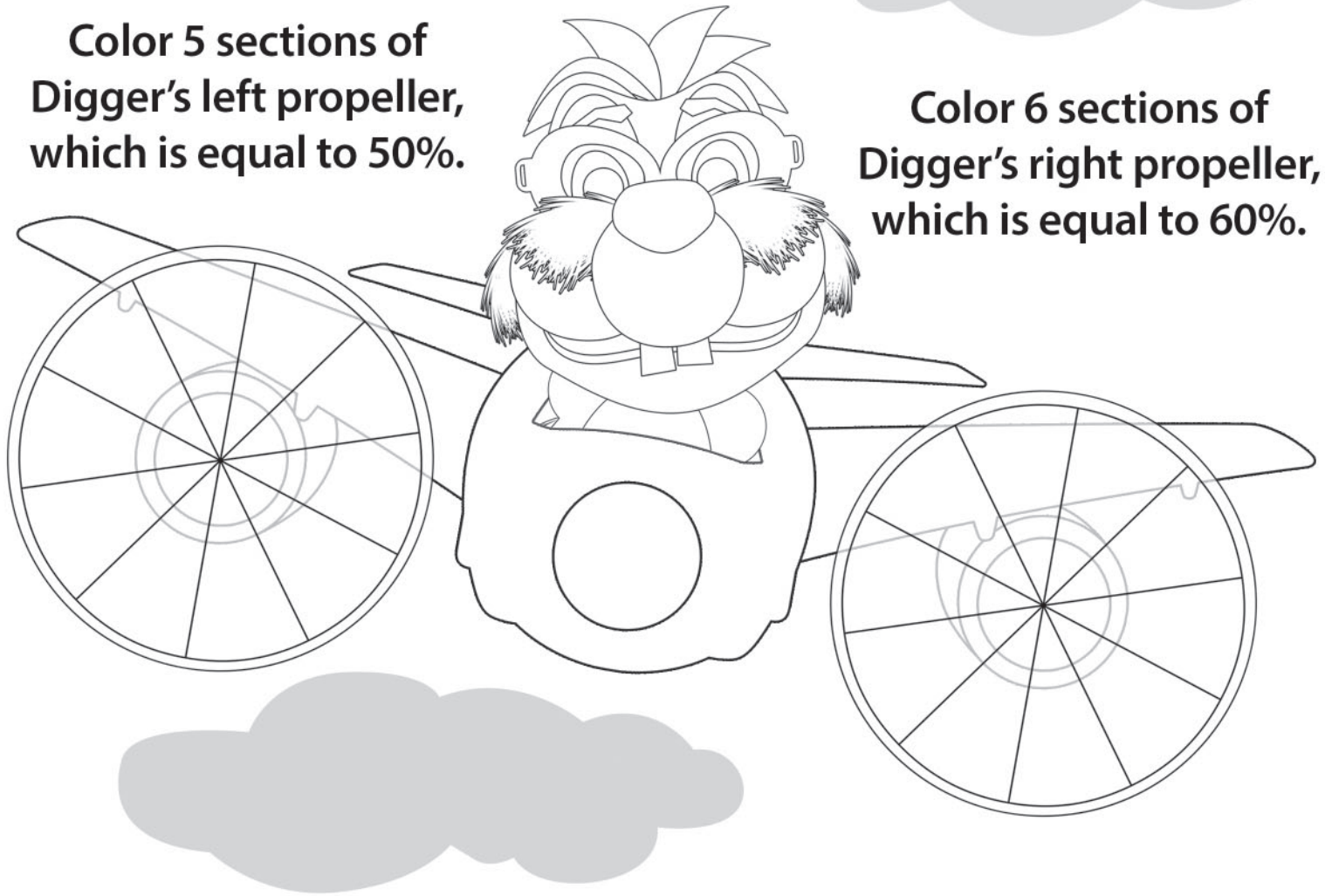


Can you color in the R.O.W. pictured above?

PIPELINE PATROL

Color 5 sections of Digger's left propeller, which is equal to 50%.

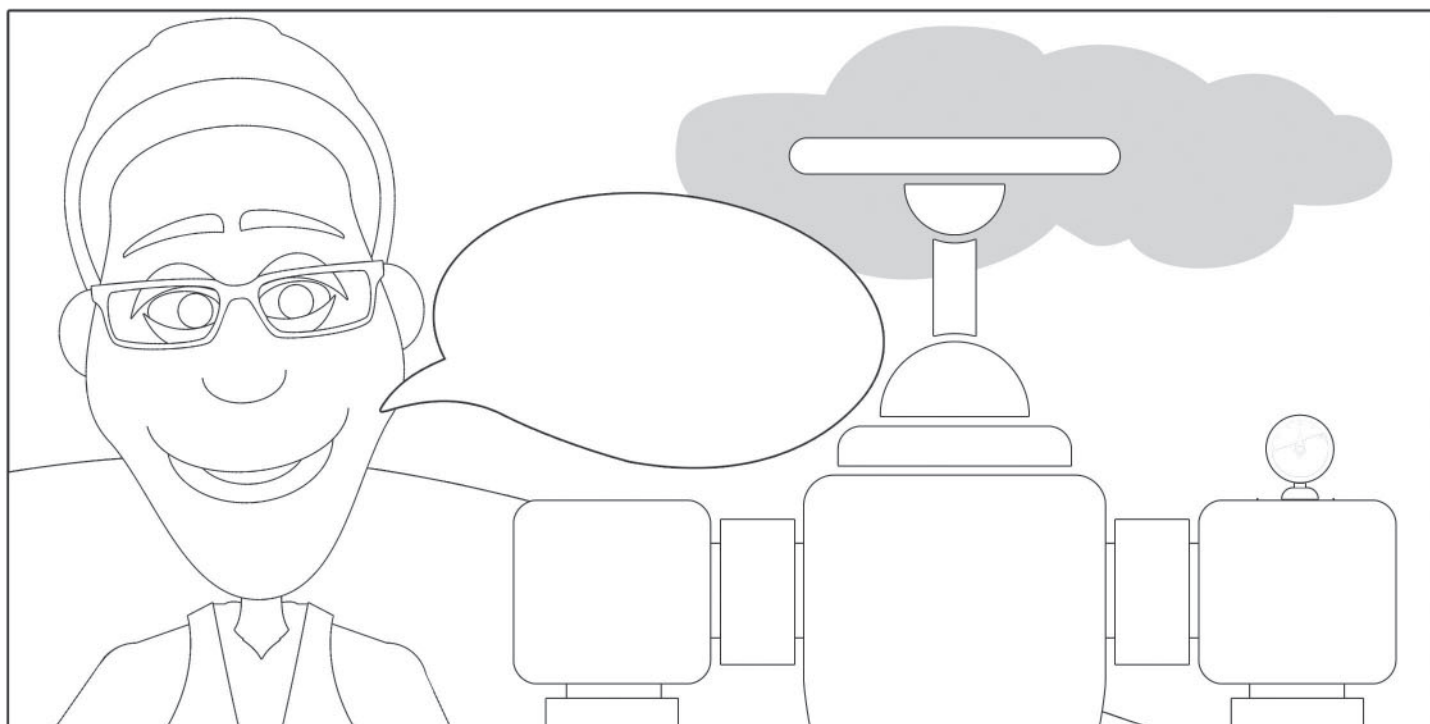
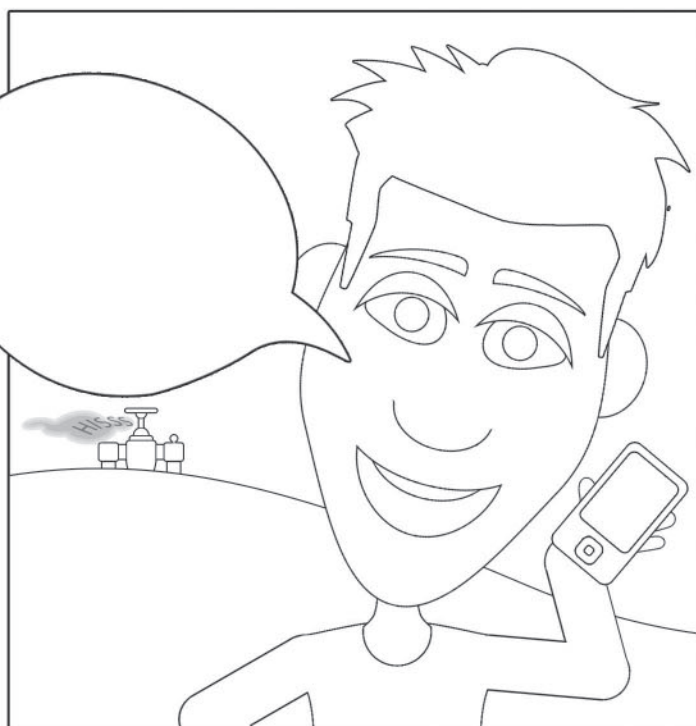
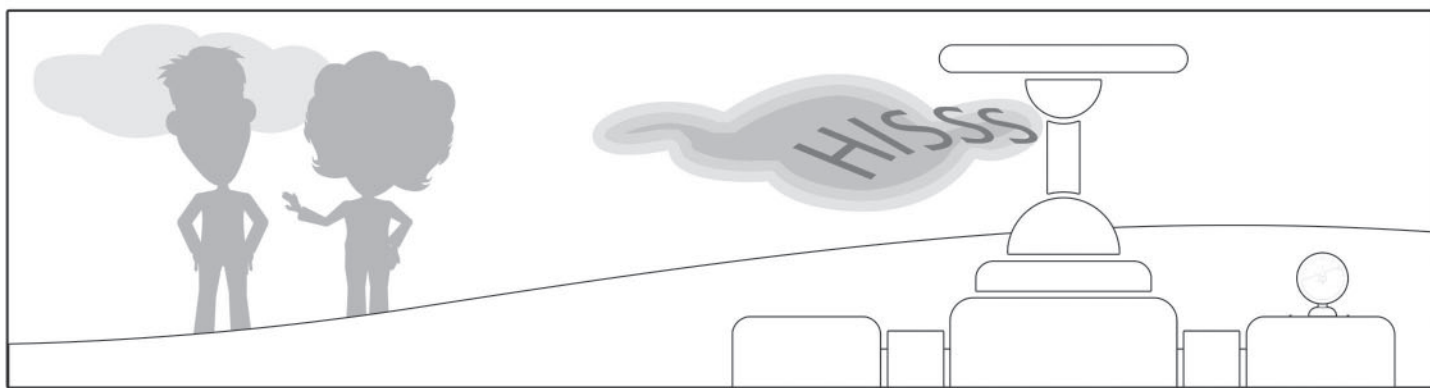
Color 6 sections of Digger's right propeller, which is equal to 60%.



Pipelines are monitored through a combination of systems and safety programs, such as aerial patrols that make visual ground inspections, computerized systems that report and record the line pressures and status, and inspections on foot or by vehicle.

The oil pipeline industry's spill record has improved greatly over the last 30 years. The annual number of spills or other safety incidents has decreased by over 50% and the volume of oil spilled has decreased by about 60%.

Think of a story to fit the pictures. Write the words in the bubbles.



**Find a pipeline marker, there may be one near your school or home.
Draw a picture of it and fill out the contact information you find
listed on the marker.**

Pipeline Company Name:

Emergency Phone Number:



Test your Knowledge

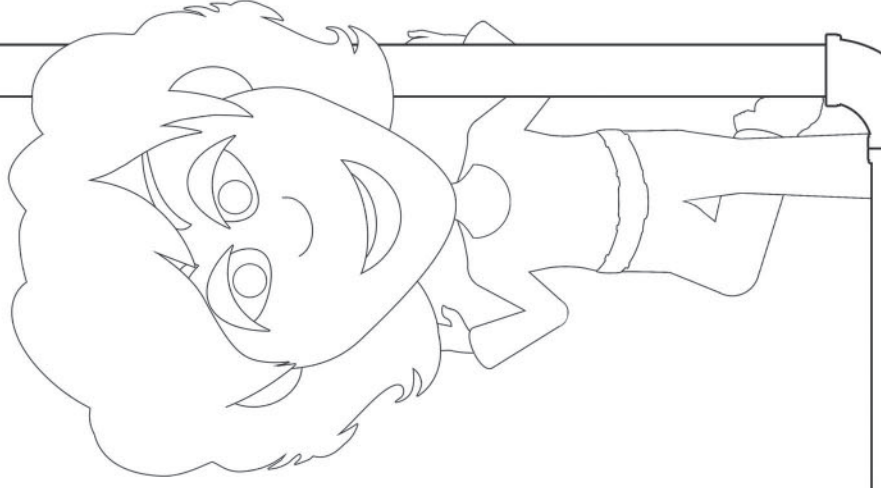
How well do you know pipeline safety? All the answers can be found in this book.

- 1.) What should you do before you dig? _____
- 2.) Where does oil and natural gas come from? _____
- 3.) What does natural gas travel through? _____
- 4.) Pipelines are marked by what? _____
- 5.) Three ways you can recognize a pipeline leak are _____ , _____ , and _____ .
- 6.) Pipelines are the _____ and most economical means of transportation.
- 7.) Pipelines are monitored through a combination of systems and safety programs such as aerial _____ that make visual _____ inspections, computerized systems that report and record the line pressures and status, and inspections on _____ or by vehicle.
- 8.) Natural gas is colorless and odorless but can be identified by its _____ smell.
- 9.) If a pipeline leak occurs you should _____ the _____ , warn others, call _____ and the pipeline company.
- 10.) R.O.W. stands for _____ .

Possible answers:

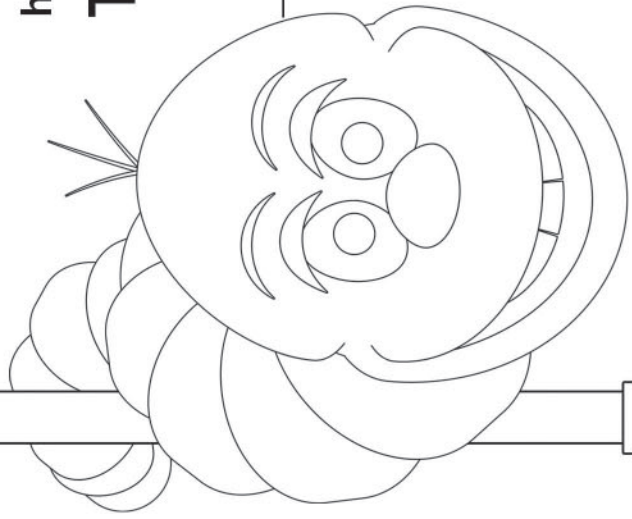
area	right of way	patrols	hear
call 811	foot	911	leave
markers	see	ground	safest
rotten egg	underground	smell	pipelines

Certificate of Completion



_____ has completed Pipeline Safety Activities 3rd - 5th

Thank you for keeping us safe!



_____ *Max*

Max

_____ *Piper*

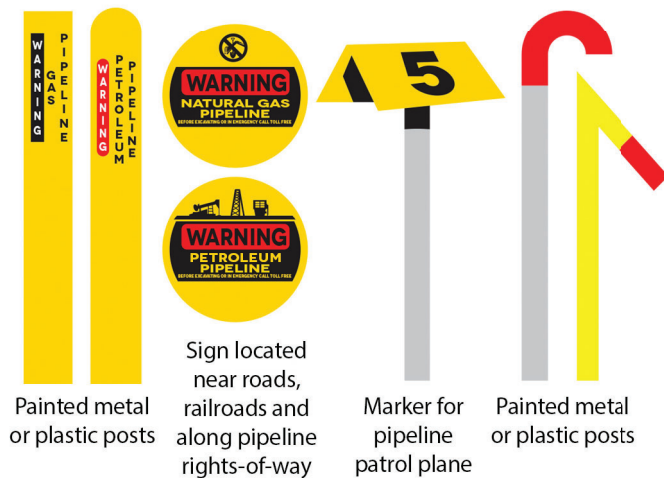
Piper



Pipeline companies take their responsibility seriously to ensure safe and reliable operations. But everyone can make a difference in pipeline safety!

Be aware:

- Pipelines exist almost everywhere throughout the U.S. and chances are that you may live near one.
- In most cases, you cannot see a pipeline because it runs underground. That is why pipeline markers (like the ones shown below) are so important. They are mostly yellow, black and red in color and they mark the general location of a pipeline.
- The state's one-call system should be contacted by anyone using digging equipment to prevent underground utilities from being hit during excavation.
- There are four standard types of pipelines: crude oil, liquid, natural gas, and chemical.
- Along a pipeline right-of-way, signs of a pipeline leak are: dead and discolored foliage, puddles of liquid, a cloud of vapor or mist, an unusual odor or scent, and an unusual hissing or roaring sound.



If you think a leak has occurred:

- Leave the area immediately. Stay upwind from possible hazardous fumes.
- Do not touch, breathe or make contact with possible hazardous materials.
- Avoid all acts that could cause a spark, such as lighting a match, starting an engine, using a telephone, or switching lights on/off.
- Once out of the possible hazardous area, **call 911** or your local emergency response number and the pipeline company.
- Warn others.
- Do not drive into a possibly hazardous area.

