

Directions

Read the following selections from, *O is for Oil* and *Road to Petroville*. Answer the question that follows.

The SDE extends their thanks to the Oklahoma Energy Resource Board (OERB) for allowing us to use OERB materials.

Excerpt from *O is for Oil*

By Susan Jacobs and Tommy Thomason
Oklahoma Energy Resource Board

D is for Derrick

To get the oil deep in the earth, drillers set up steel structures called derricks to drill into the ground, sometimes as deep as five miles. In the early boomtown days, derricks were built of wood. Derricks hold the pipe attached to a drill bit that bores through soil, then solid rock, on its way to the oil and natural gas deep underground. Derricks can rise as high as 200 feet – the deeper the well being drilled, the bigger the derrick.

E is for Energy

Energy is power. Scientists define it as the ability to do work. You get energy to play from the food you eat. But what about machines --like cars? Where do they get energy? Most cars get their energy from gasoline, which is made from oil. You may get the energy to heat your house from natural gas. You also can thank oil or natural gas for your hot shower this morning and the stove that cooked your eggs.

F is for Fossil

Millions of years ago, Oklahoma was covered by water. The remains of animals and plants that lived in the Oklahoma ocean are called fossils. Over time, more and more mud and sand covered the dead plants and animals, and they were squeezed and “cooked” by pressure and high temperatures. Under pressure, these plants and animals became oil and natural gas -- today’s fossil fuels.

H is for Horizontal Drilling

Energy companies don’t always just drill down to get to the oil and natural gas underground. Sometimes, they drill down, then sideways. Most oil and natural gas reservoirs spread out horizontally (left to right), not vertically (up and down). But wells, until recently, have been only vertical. New drilling technology allows drillers to go down, then gradually turn until they

are drilling horizontal to the surface of the ground. The drill can curve to find hard-to-reach pockets of oil. Horizontal drilling also helps to recover more oil and natural gas.

N is for Natural Gas

It is formed the same way oil is — by the decay of microscopic organisms buried deep in sedimentary rock. Energy exploration companies typically find natural gas buried deeper in the earth than oil. Methane is a type of natural gas, and it has all kinds of uses. Factories can burn methane to make electricity, and we can use it to heat or cool our homes and cook our food. We can even use it in vehicles built to run on methane. NASA is even testing methane as a fuel to power rockets into space!

O is for Oil in Oklahoma

In 1859 settlers drilling for salt water near present-day Salina struck oil instead. That discovery was the first of many to come, making Oklahoma one of the nation's leading oil-producing states. Today oil and natural gas provide more income to Oklahomans than any other industry. Oklahoma is among the top five states in the production of oil and natural gas.

X is for eXploration

Oil and natural gas don't just appear. You have to look deep underneath the ground. Oklahoma oil and natural gas producers spend millions of dollars each year trying to find the energy the rest of us use every day. A century ago, oil explorers would just drill where they thought they might find oil. Now teams of scientists use high-tech equipment to explore underground by satellite imaging, measuring magnetic fields of rocks or bouncing sound waves off of rocks to find the type of places where oil and natural gas are likely to exist. Then they drill a test well to see if their predications were right.

Excerpt from *The Road to Petroville*

By Landi Thompson and Rachel Johnson
Oklahoma Energy Resource Board

It was a cold winter night in Petroville, Oklahoma. Pappy Pete was tucking in his grandson, Petro Pete, but Pete did not want to go to sleep. “Okay, Pete, it’s time for lights out,” said Pappy.

“Wait!” exclaimed Pete. “Grand Pappy, will you tell me one more story . . . *please?*”

“Well . . . alright,” Pappy agreed. “What story do you want me to tell?” Pete thought for a few minutes before asking, “Will you tell me the story about how you and Grammy Petunia moved to Oklahoma?”

“I remember the first day like it was yesterday,” Pappy recalled. “I showed up at the Petroville oil field just as Wildcatter Wally was explaining where we were going to drill. He held out his hand to show us a shiny wet rock with a peculiar smell . . . the smell of oil! He told us there was no guarantee, but he thought there was oil under our feet.”

“The first thing to be done was to build a wooden derrick so we could drill into the ground for the oil trapped in the rocks below.”

“Once the construction crew was finished building the derrick, the drilling crew got to work,” Pappy explained.

“Toolpusher Tommy was my boss. He oversaw the drilling crew. He was on call at all times in case any of us needed him. He was the most experienced man on our crew. At the drilling site, Tommy lived in a shotgun house, a very small, one-or two –room house with doors at each end. If the front and back doors were open, you could see right through it. “

“Driller Dalton kept a close eye on the derrick hands and roughnecks to make sure drilling went smoothly. When Toolpusher Tommy was trying to get a few hours of sleep, the crew relied on Driller Dalton for instruction.”

“Derrickhand Dan was responsible for running drill pipe into the hole from the derrick. One length of drill pipe, called a joint, was 60-90 feet long. We put drill pipe into the hole to keep it from collapsing. By connecting these joints together, we could drill a well 2,000 feet deep, which isn’t very deep considering today’s wells can be more than 30,000 feet deep!”

“Roughneck Ralph and I handled the lower end of the drill pipe while Derrickhand Dan lowered the pipe from above. We used big wrenches called tongs to tighten the joints together. We also had to keep the rig clean and help repair it when things were broken.”

“It sounds like a lot of work, Pappy,” Pete said.

“It was hard work,” Pappy replied, “but we had a great time. We never dreamed the work we were doing would play such an important role in the success of Oklahoma. That’s why it is so important for you to learn about the oil and natural gas industry.”

Writing Prompt

Both excerpts describe the changes in oil exploration from the 1800s to today. Using fact and details from both of the excerpts, *O is for Oil* and *The Road to Petroville*, explain how oil drilling and exploration have changed from the early days to today.

Remember:

- To provide a clear topic.
- To develop the topic with facts and details.
- To link ideas.
- To use precise language.
- To provide a conclusion that follows from information in your text.

Grade 5 Common Core Standards

Reading Information: 5.1-9

Writing 5.2 a-e