

Lesson #5-Leduc #1

With this lesson plan, students will learn how an oil strike can change the dynamics of a community. They will also learn the differences in the petroleum industry and in people's lifestyles between the 1940s and the 1990s.

This lesson plan was developed by The Black Gold Regional Division No. 18 and teachers Margaret Lyall and Kimberly Epp.

Black Gold: the Story of Oil

Section Seven

**Leduc #1:
How Does an Oil Strike
Change a Community?**

Black Gold: the story of Oil

Section 7: Leduc #1: How Does an Oil Strike Change a Community?

Purpose:

- ◆ Students will realize how an oil strike can change the dynamics of a community.
- ◆ Students will recognize the differences in the petroleum industry and in people's lifestyles between the 1940s and the 1990s.

Materials:

- ◆ Video: *A Mile Below the Wheat*
- ◆ Blackline Masters #39 to #50
- ◆ small envelopes (if doing option 2 below)

Procedure:

1. Review:

Have the students write down four notable events in the history of petroleum from the last class. In groups of four, compare what they thought was notable to what the others wrote down.

2. Life Back Then

Ask the students to recall stories they have heard about the "olden days". Watch the 15 minute video *A Mile Below the Wheat*, a film from the late 1940s about the Leduc oil strike. Ask the students if they saw anything that reminded them of any other stories about the olden days.

Choose one of the two following activities to focus the students on what changes actually occurred:

Option one: Read and Write

In pairs, read the text from Blackline Masters #39 to #41. As the students read, they fill in the comparison chart on Blackline Master #42. When this is completed, have the partners get together with another group to share each other's findings, adding new information where they can.

Option two: Mix and Match

Before the class, you'll need several copies of these:

- ◆ Blackline Master #43 photocopied on pink
- ◆ Blackline Master #44 photocopied on green
- ◆ Blackline Master #45 photocopied on yellow
- ◆ Blackline Master #46 photocopied on blue

Cut each page in two, separating the 1940s information from the 1990s, and give each student one half page. The student cuts the items apart and puts them in an envelope. Then each student must find a person with the other, matching halves. They should note that pink matches with pink, etc. When each student finds a partner, the two should match the facts together, and glue them onto a colour-coded sheet of paper. Then they should come up with a title that reflects the information given. If time (and class behavior) permit, you can repeat this, giving each student a chance to use a different colour.

Section 7, cont.

3. Leduc #1

Read and discuss the information on Blackline Masters #47 to #49. Have the students illustrate the text in the spaces beside the text boxes. To help with drawing drilling rigs, the students may use books, or you may use the overhead transparency of Blackline Master #17. The students can turn back in their notes for help to keep their illustrations factually correct.

4. Language Enrichment

Have the students write a paragraph about how their lives would change if an oil strike occurred near where they live. Use Blackline Master #50 to help them develop their ideas.

Alternatively, they can write a story about having a blowout on their farm, like Atlantic Leduc #3. In that particular case, the farm family had to be evacuated as oil swirled over their fields!

*(We have two-thirds of a page left here, so let's fill it in with a quote from the **Edmonton Sun**, Monday, January 27, 1997.)*

Leduc salutes black gold strike First oil gushed 50 years ago

Residents of Leduc are gearing up this year to celebrate the golden anniversary of the first oil strike in the area.

In 50 years, the industry that began in February 1947 at Alberta's Leduc No. 1 oilfield has proved a powerful locomotive for Alberta's economy.

"We're the province that oil built," says Peter McCormick, a political scientist at the University of Lethbridge.

"We've been so rich and smug about for so long, it's hard to remember that."

...Dan Claypool will be one of those celebrating. Claypool left the ranch for the oil rigs in 1949. He didn't know what to expect but he was prepared for anything.

"On the farm we got something else on our boots, so a little bit of oil and mud didn't scare us a bit," he says now, reflecting on his years on the rigs near Leduc.

"There was mud halfway up your legs."

That was long before rigs were protected from the biting winter cold. Safety was non-existent. Most of the workers wore only knit caps.

"Those first years it was pretty cold, and pretty tough work," remembers Claypool.

It was tough to find the oil, too.

The industry had almost given up on Alberta before the Leduc strike.

Imperial had drilled 133 dry holes. One last-ditch attempt just southwest of Edmonton struck black gold.

"I was the first man to see that live oil," recalls Steve Cosburn, the geologist in charge of No. 1 who held the sample from 1,544 metres down on Feb. 3, 1947.

"We'd been hunting so long. It was sure gratifying."

The well officially opened Feb. 13 in front of a crowd of 500.

The pipe coughed mud and water, then spewed oil into a pit with a soft whoosh. A roughneck tossed a burning rag into the pool and the ignition puffed out a smoke ring 10 metres across, followed by a column of flame 20 metres tall.

Provincial minister of mines Eldon Tanner turned a valve to divert the flow into a tank--and Alberta began its transformation from a rural, farming province to a modern economy.

Towns and cities swelled as workers left farms for the oilpatch. The town of Devon didn't even exist until Leduc No. 1.

Edmonton and Calgary grew from just over 100,000 citizens each in 1946 to more than 400,000 by 1971 and more than 600,000 today.

Dene Moore, staff writer

Then and Now: Fifty years of change

Leduc

Leduc was a small, sleepy town in 1947. Most houses in town had electricity, but the farms did not, unless the farmer put up his own windmill to make his own electricity. Most farmers couldn't afford this.

Houses in Leduc did not have natural gas, so people heated their homes with wood or coal. Some houses had indoor toilets; others still used outhouses.

The only paved roads in Alberta were in Edmonton and Calgary. Roads in the country were very muddy when they were wet, so driving in the springtime was risky. So was driving in the wintertime, because there were no snowploughs.

Some people in the town of Leduc would have had telephones, but most farms did not. Later, when farms did get phones, they were on party lines (the last party line in Alberta disappeared in the early 1990s). Of course, there were no modems or faxes, and no one had even thought of them. There were only two long distance lines between Edmonton and Calgary. After oil was discovered, the toolpushes often needed to phone their head offices in Calgary, and they had to book their long distance calls hours ahead of time!

Many people in 1947 owned radios, but they were very large and expensive. Batteries for a radio cost \$1.25, which sounds cheap, but in those days you could buy 10 loaves of bread for \$1.25. Some people had record players, but there were no cassette players, no CD players, no televisions, and no computers.

Suddenly, in 1947, hundreds of oil workers wanted somewhere to live! Homeowners with extra rooms could rent them out, and sometimes there would be several men in one room. Workers lived where they could, sometimes even living in unheated graineries. Leduc became crowded and much noisier. Trailers and skid shacks were brought in for oilmen's families.

Many people in Leduc were happy to see the oil workers there--especially the store owners. Other people didn't like the extra noise, and they especially didn't like it when young oil workers got into fights at the bars.

Imperial Oil, the company that had discovered Leduc #1, decided to build a new town, even closer to the oil field, for their workers and families.

Devon: a Model Town

The new town Imperial Oil built was just north of Leduc #1. Since the oil was discovered in a reef that was formed 350 million years ago in the Devonian Period, the town was called **Devon**. A barley field high on a flat, overlooking the beautiful North Saskatchewan River, was chosen as the site. The Alberta Town Planning Commission was asked to help plan "Canada's First Model Town".

Right from the start, all the buildings in Devon had electricity, natural gas, running water, and indoor toilets. The houses were *pre-fabricated* in Calgary, then put together on basement foundations. A house cost between \$3600 and \$6000.

At first, the company ran a bus service to Edmonton. When the first store was built in Devon, the bus stopped, and some of the oil wives were quite sorry. They had enjoyed getting together for the drive.

Then and Now: Fifty years of change

Changes on the rig:

Life on the drilling rig is different now. In the 1940s, setting up a rig took 8 to 10 days, but by the 1990s, a rig could be set up in a day and a half. Life is a little easier on the rig; in the wintertime today workers can wear down-filled clothes made with man-made fibres like nylon. In the 1940s, no one had invented nylon, and down-filled jackets weren't available. Workers had to wear wool underwear and wool outer clothes. Many rigs in the 1940s had no protection from the wind, but in cold weather today, canvas is put around the floor and around the derrickman's runaround to protect workers from the wind.

The pay has changed too. In 1947, a roughneck made \$.90 an hour; in 1949 they were pretty happy when the pay went up to \$1.10 an hour. In 1997, a roughneck earned \$15 to \$18 an hour. Of course, a dollar isn't worth nearly as much today as it was then!

Safety changes:

We are much more concerned today about safety. Did you know that 50 years ago, cars didn't even have seat belts?

There are many safety changes in the oil industry too. Today, everyone on a drilling rig must wear a hard hat, but in the 1940s, people thought you were a "green hand" if you wore one! Today, rig workmen must wear safety boots with steel toes and steel arch supports--they didn't have those 50 years ago. Today, many companies provide flame-resistant outerwear and goggles; these will protect a worker for a few seconds in a fire, which will probably be time for him to run for safety. Fifty years ago, workers didn't have them.

Workers at a well that has "sour gas"--gas that has hydrogen sulphide--must each have a breathing mask and oxygen bottle. They must also have special training before they can work at these wells. Rigs fifty years ago did not have these.

In the 1940s, a young man from the farm could go straight to work on a drilling rig without any special training. In fact, during the Second World War, when so many men were in the armed forces, toolpushers used to go to high schools at 3:30 on Fridays to ask strong-looking students if they'd like to work for the weekend.

Today, before working on a rig, you must have 19 days of training, which includes 5 or 6 days of safety training. *The Petroleum Industry and Training Service* (PITS) has been in Nisku (just north of Leduc) since 1988 and provides this training. One third of its students come here from other countries, including Russia, Libya, Bangladesh, Pakistan, and South America.

Concern with safety has been growing over the years. In 1949, safety courses started in a basement at the University of Alberta, and grew into PITS in Nisku today.

Environmental Changes:

We are much more concerned about the environment today than we were fifty years ago. You've probably noticed this at home:

- ◆ when someone changes the oil in your car, is the oil recycled, or just dumped?
- ◆ does your school recycle paper?
- ◆ does your family recycle its newspapers?
- ◆ does your family recycle tin cans?

Recycling is not new: fifty years ago, people didn't have as much as we have today, so they re-used things at least as much as we do today. However, we are recycling a lot more than we were 25 years ago.

Governments and industry are much more concerned about the environment today than they were fifty years ago. Here are some examples in the oil industry:

- ◆ Oil used to be stored in open tanks, and light oils (like gasoline) evaporated into the air. Oilmen called the smell *the smell of money*. Today, oil is stored in closed tanks to stop this evaporation. This is healthier for the workmen, and actually saves money for the oil companies, because they're not losing light oils to the air any more.
- ◆ Natural gas was usually burned, because it cost so much to build gas pipelines. Today, oil companies must conserve their natural gas. They can sell it, or they can pump it back down the well. (Sometimes, if there's just a little bit of natural gas, the company may burn it, but they must get permission from the government first.)
- ◆ Pipeline ditches used to be cut right through roads, but today they must be drilled underneath the roads. This protects the road surface, and makes it safer to drive on later.
- ◆ Pipeline ditches used to be dug through river bottoms, disturbing the river life. Today, if it's practical, pipelines are drilled under the rivers, protecting the river life.

Then and Now: Fifty Years of Change

Fifty Years Ago	Today

Then and Now: Fifty Years of Change

Safety Changes

1940s	1990s
In the Petroleum Industry	In the Petroleum Industry
Only a few workers wore hard hats. If you wore a hat at work, you were a “green hand”!	Everyone on a drilling rig must wear a hard hat.
Most workers started with no training--a young man could go straight from the farm to the oil rig.	Before working on a rig, you should have 19 days training at PITS (Petroleum Institute Training Service) in Nisku, Alberta. This includes 5-6 days of safety training.
Rigs did not have any self-contained breathing apparatus.	Any well with “sour gas” must have a breathing mask and bottle for each worker. Workers must have H ₂ S safety training.
There were no safety boots.	Workers must wear safety boots, with steel toes and steel arch support.
There was no flame-resistant outerwear or safety goggles.	Most companies provide flame-resistant clothes and safety goggles.
At Home	At Home
Cars did not have seat belts.	All cars must have seat belts, and the law says we must use them

Then and Now: Fifty Years of Change

Environmental Changes

1940s	1990s
In the Petroleum Industry	In the Petroleum Industry
Natural gas was usually just burned, because it cost so much to build gas pipelines.	Oil companies must conserve their natural gas. They can sell it or pump it back down the well. Sometimes, if there's just a little bit of gas, the company may get permission to flare it.
Pipeline ditches were cut right through roads.	Pipelines must be drilled underneath roads.
Pipeline ditches were dug through river bottoms.	If practical, pipelines are drilled under rivers.
Oil was stored in open tanks, and light oils evaporated into the air.	Oil is stored in closed tanks to stop evaporation.
At Home	At Home
Used lubricating oil was dumped.	Used lubricating oil is often still dumped, but many communities now recycle it.

Then and Now: Fifty Years of Change

Changes at Home

1940s	1990s
Cities had electricity, but most farms did not. A farmer who wanted electricity had to have a windmill to make his own.	Most farms in Alberta now have electricity.
Leduc, like most towns in Alberta, did not have natural gas to heat the homes.	All Alberta towns and cities are heated by natural gas. Some farms have natural gas, some use propane, and a few still burn wood.
Many houses in Leduc did not have indoor toilets.	All Alberta towns and cities now have indoor plumbing. Most rural homes do too.
There were no paved roads outside Edmonton and Calgary. Most rural roads were very muddy when wet. There were no snow ploughs.	There are many paved roads throughout the province. Most rural roads are gravel, but are much better than 50 years ago. All municipalities have snow ploughs.
Most farms did not have phones. Later, when they did get phones, they were on party lines.	Almost everyone has a phone, and since the early 1990s, every phone in Alberta is on a private line. Many people use them for modems & faxes. Many people also have cell phones.
There were only two long distance telephone lines between Edmonton and Calgary. The toolpushes had to book their long-distance calls to Calgary hours ahead of time!	There are so many long distance lines that the only time you have to wait to place a long distance call within North America is on Christmas Day or when there is a disaster (like the Edmonton tornado).
Many people had radios, but they were very large and expensive. Some people had record players. There were no TVs and no computers.	Radios are cheaper and smaller. Record players have been replaced by cassette players and CD players. Televisions and VCRs are very common. More and more families now have home computers.
If a rig was in the bush, the company provided skid shacks, heated with coal or wood stoves.	Workers in the bush live in heated, insulated camps with showers, electricity, movies, and TV.
Oil workers and their families lived wherever they could, even in unheated graineries. Families would follow the worker around; an oilman's child might go to 15 or 20 schools!	Families can find better places to live. When the children start to go to school, usually the family stays in one place instead of following the worker around

Then and Now: Fifty Years of Change

Working conditions

1940s	1990s
Setting up a rig took 8 to 10 days.	A rig can be set up in a day and a half.
A roughneck made \$.90 an hour; in 1949 this was raised to \$1.10 an hour.	A roughneck makes \$15-18 an hour. Of course, a dollar isn't worth nearly as much as it was 50 years ago!
There were no down-filled jackets or nylon clothes. Workers wore wool underwear and wool outer clothes.	In the winter, workers can wear down-filled clothes with man-made fibres (like nylon).
Many rigs had no protection from the wind.	In cold weather, canvas is put around the floor and around the derrickman's runaround to protect workers from the wind.

Leduc #1

Name _____

Too Many Dry Holes

Drilling for oil is long, hard work. Can you imagine what it's like to drill for weeks or months, a kilometer or two or three, and not find any oil or gas? This is called a **dry hole**.

In 1946 (just after World War II), Imperial Oil Company drilled **133** dry holes in Alberta and Saskatchewan! The company was just about to give up, but decided instead to drill one more line of "wildcat" wells across Alberta.

Questions:

- ◆ What is a dry hole? _____
- ◆ How many dry holes had Imperial Oil drilled in Alberta and Saskatchewan by 1946? _____

Leduc #1

The very first of these wells was on a farm belonging to a farmer called Mike Turta. It was 15 km west of Leduc and 50 km south of Edmonton. Nobody had drilled for oil around there before, not for 80 km.

The well was called **Leduc #1**, and drilling started November 20, 1946. That very cold winter, toolpush Vern Hunter and his crew drilled 1544 meters (that's one and a half kilometers). In February, 1947, they found oil!

Questions:

- ◆ How far was the well from Leduc? _____ How far from Edmonton? _____
- ◆ How many meters did they have to drill before they struck oil? _____

If you walked 1.5 km from your school, where would you be? That's how far down the oilmen had to drill.

The Celebration

Imperial Oil Company bosses were so excited, they decided to have a celebration. They invited a lot of important people, like the mayor of Edmonton, to come to the well on February 13, 1947.

Guess what? Some equipment broke down the night before! The crew worked all night to fix it, but they still weren't ready on time. People waited and waited, but many got cold and tired, so they left. About a hundred people stayed, though.

Finally, at 4:00 p.m. (six hours late), the equipment was fixed, the mud blew out of the hole (in a controlled way), and everyone saw terrific columns of smoke and fire as the first gas and oil flared in the evening sky.

The Canadian oil industry burst into the modern age.

Question:

- ◆ What day was the celebration? _____

Leduc #2

Imperial Oil started another well, Leduc #2, 3 km SW of #1. They were disappointed when they did not find anything at 1544 meters. Some men wanted to quit drilling, but they kept going until suddenly, at 1657 meters (100 meters deeper than #1) they struck oil.

Leduc #1 found oil in a very old reef from the Devonian period, but Leduc #2 found oil in a much bigger reef, one of the biggest in Canada! Both of these reefs used to be at the bottom of the sea 350 million years ago, so we call them **Devonian reefs**.

Question:

- ◆ What is the name of the reefs under Leduc? _____

Some people in the town of Leduc liked having the oil workers there, but some others did not. Besides, there weren't many places to live in the town, and the town wasn't very modern (people still used outhouses!).

Imperial Oil Company decided to build a new "model town" for its employees and their families. This new town was called **Devon** after the Devonian reefs.

Question:

- ◆ What is the name of the new town built just north of the well? _____

Disaster!

Other oil companies were excited by the discovery and moved to the Leduc area. A small Alberta company called (for some reason) the Atlantic Oil Company Limited started to drill a well called **Atlantic #3**, near Leduc, on a farm belonging to the Rebus family.

March 8, 1948, Atlantic #3 blew out! First the drillers' mud was blown out, then the ground shook, and with a roar, the mud was followed by oil and gas that splattered the snow.

Drillers pumped tons of mud down the hole, and after 38 hours they stopped the oil--but not for long!

The well was out of control for six months. Oil was all over the ground, the farm family had to move out, and some of the oil even flowed into the North Saskatchewan River. Downriver in Edmonton, people complained that their water tasted oily.

The oilmen bulldozed dirt so that most of the oil was trapped in big pools.

For six months, the well kept blowing oil onto the fields--then on September 6 (Labour Day), the well caught fire! Flames shot high into the air, and the fire spread to some of the pools of oil on the ground.

Brave men worked frantically for 59 hours until they put out the fire and got the well under control.

Questions:

- ◆ What was the name of the well that blew in 1948? _____
- ◆ How long was it out of control? _____
- ◆ How long was it on fire? _____

A Radio Report of the Fire

It's hard to believe, but there was no TV in 1948. On Labour Day, some radio reporters in Edmonton looked out their window, saw the cloud of smoke and guessed at once that Atlantic #3 had caught fire. They rushed out to the scene, and this is some of their radio broadcast:

We arrived at the site of the outlaw Atlantic No. 3 Leduc. 500 feet is not very far away when the temperature at the well is 2000 degrees Fahrenheit! We saw the boiling and the bubbling up from below that sent the flames hundreds of feet into the air; eruptions that sent mud and shale flying in every direction from the centre of the well.

To the north of the well, a sump or a man-made lake containing 70,000 barrels

of the crude that had been recovered as it seeped up through the earth, also caught fire and was adding to the heat, smoke and the flames.