

Galt

MUSEUM
& ARCHIVES

stories unfolding...



RACE FOR RESOURCES



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TEACHER'S MANUAL

RACE FOR RESOURCES

Teacher's Guide

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This teacher’s guide offers background information and ideas for classroom activities designed to complement a visit to The Galt. It contains information to assist you in planning your visit, information and activities for both before and after your visit, and outlines what you can expect from your education program.

The Galt’s Mission

The Galt Museum & Archives engages and educates our communities in the human history of Southwestern Alberta by preserving and sharing collections, stories and memories that define our identity and guide our future.

Program Overview

The “Race For Resources” program encourages students to learn about the coalmining heritage of Lethbridge and southern Alberta and to raise awareness of and appreciation for the contributions of coal miners. The program discusses the formation of coal, its exploitation near the Belly River, and the effects of coalmining on the community. In addition, “Race For Resources” introduces students to various coalmining artifacts and to stories and anecdotes about our coal mining heritage.

Program Length

“Race for Resources” runs throughout the school year and is designed to be 90 minutes in length. Groups wishing to remain for a longer time should make arrangements with the Museum Educator.

Curriculum Connections

Written to complement the Grade 4 curriculum, “Race for Resources” highlights the natural resources of south western Alberta, particularly coal, and illustrates how coal has affected the development, growth and history of Lethbridge and area. The program is also designed to raise student awareness that early pioneer were not only involved in agriculture but were drawn to the area because of various natural resources.

Confirmation, Cancellations, and Contact Information

Your program has been scheduled as per the information on your confirmation sheet. If you have any questions about your booking or the program, please contact the Museum Educator at tours@galtmuseum.com or (403)320-4248. If you must cancel or reschedule a program, please let us know as soon as possible. We will try to fit your class in at another time as time permits.

Payment

Payments can be made in advance of the program or on the day of the program. The Galt accepts VISA, Mastercard, debit, cash, and cheques. Cheques should be made out to the Galt Museum & Archives or City of Lethbridge. If payment is made in advance, receipts will be available on the day of the program. Otherwise, receipts will be mailed out to the school. The payment amount is \$45 per class per program.

Expectations for Visitors

- There should be one or two adult supervisors per class (this may include yourself). More adults are always welcome and there is no cost for adult supervisors. Younger siblings accompanying the class with their parents are also most welcome to attend the program.
- Running is not permitted in The Galt. There is green space to the south of The Galt if the class requires a space to stretch their legs
- In order to protect and preserve the artifacts, drinks, food, and chewing gum are not permitted in the galleries or Archives. Drinking and eating are permitted in the Viewing Gallery.
- Because they are fragile and irreplaceable, artifacts on display should not be touched or handled.
- It is requested that there be no flash photography in the galleries. Light can, over time, damage the artifacts. Flash photography can be taken in the viewing gallery and programming areas (ie classroom).
- Visitors are not required to whisper in The Galt. Indoor voices are preferred.
- Washrooms are located on the main floor of The Galt in the old section of the building.

The Role of Adult Supervisors

Adult supervisors are an integral part of The Galt's programs. The following suggestions are provided to help make their role clearer and easier to manage. Teachers may photocopy these for their adult supervisors.

- ✓ Float around and assist during the activities.
- ✓ Maintain the focus of the activities as you assist students through the activities. Remind students what they are trying to discover and help them troubleshoot problems they encounter.
- ✓ Depending on the activity, supply the students with answers to questions and additional information. Your Museum Education Volunteer (Docent) or Museum Educator will answer any questions you may have. If a question can not be answered during the program, it will be recorded and more information will be forwarded to the school.
- ✓ Assist in keeping students together.
- ✓ Ensure that students do not: run in the galleries, touch the artifacts on display, or drink or chew gum in the exhibits.
- ✓ Ask any available staff for assistance if there is an emergency.
- ✓ Encourage the students to ask questions and get involved.
- ✓ Enjoy your visit.

Your Arrival at The Galt

- The Galt has a bus and vehicle parking lot north of the building.
- Buses and vehicles may drop off and pick up students at the north east corner of the building (using the east entrance). This is a fire access road so please do not leave vehicles here once they are emptied.
- Please enter through the east entrance. There is a coat room down the hallway to your left as you enter. Please leave all coats and backpacks here. Students do not need to remove boots. This coat room is solely for the use of programs and is not for general visitors.
- Galt staff will meet you at the east entrance.

Background Information for Race for Resources

COAL: THE BEGINNING

Coal is formed from plants that grew in vast swamps and forests throughout the world. As these plants died and decayed over thousands of years they formed bogs of peat that were many metres deep. Over time the peat was covered by soil and, in turn, that soil turned to rock. Millions of years of pressure and heat ultimately compressed the peat and turned it into coal. To this day, in many coal deposits the remains of plants can be recognized. Some coal is actually in the form of pine needles from forests that covered the planet over 100 million years ago. The coal mines of Alberta and British Columbia have been operating for just over 125 years.

Coal is generally classified by what is known as “rank” which is based on the degree of transformation of the original plant material to carbon. The ranks of coals, from those with the least carbon to those with the most carbon, are lignite, sub-bituminous, bituminous, and anthracite.

COAL AND THE BLACKFOOT

“The Blackfoot knew coal would burn but had taboos against its use, particularly in tipi fires. Natives of other regions, notably the Hopi of Colorado, mined and used coal from exposed seams for hundreds of years before the coming of the whites, but the Blackfoot never did.

“Taboos against the use of coal probably originated many years ago when whole families died mysteriously in their sleep from poisoning from carbon monoxide, the gas given off by a coal fire. Gradually the relationship of coal fires-mysterious deaths became convincing and taboos evolved to provide the necessary protection.

“The fuel used by the Blackfoot included the dried branches of willow and, particularly, poplar, which the women pulled down by means of a hooked stick on a long pole. Other trees and shrubs were burned, as was dried buffalo dung, later to be called bois de vache, the “wood of the cow” by the early explorers.

“All of these fuels were widely and readily available, thus lessening dependence on a resource such as coal.” Pg 25 *Lethbridge Centennial History*

The Blackfoot name for the place Lethbridge would eventually become known as sik-oooh-ko-toki or “place of the black rocks”. This was translated into The Coal Banks by the Europeans.

COAL: THE START OF LETHBRIDGE

George Mercer Dawson was one of the most remarkable scientists and explorers in Canadian history. Dawson’s work with the Geological Survey of Canada from 1881 through 1883 was the impetus for much of the early investment in coal and coal mines in Alberta and southeast British Columbia. Although it was known that there were coal fields in the area, it was Dawson’s maps and research that brought to light the magnitude of the deposits and provided the credibility necessary to invest in the coal mines. One of the patrons of the Geological Survey was Sir Alexander Galt and, without doubt, it was Dawson’s work that led Galt to direct much of his fortune to the coal mines that brought Lethbridge into being.

Nicholas Sheran came to the banks of the Belly River around June of 1874 following a life of adventure that included work on Arctic whalers and service in the American Civil War. Sheran established a ferry service across the Belly and grubbed coal from its banks; this coal he sold to near-by Fort Whoop-Up.

When the North West Mounted Police established Fort Macleod in the autumn of 1874, Sheran saw an opportunity to expand his coal operation. He opened a seam at Coal Banks and began providing coal to the fort in time for winter.

Sheran operated his mine until his death by drowning in 1882. His sister, Marcella, who had moved to the area in 1877, managed the operation until her death in 1896. Nicholas Sheran is credited with being the first coal miner in Alberta or southeast British Columbia.

In 1879 Elliott Galt visited Nicholas Sheran at his mine. Galt lost no time in advising his father, Sir Alexander Galt, of the potential of a mining operation. The elder Galt was interested in the idea because he knew that a trans-continental railway was to be built on a route across the southern prairies. The railway and the settlers it would bring would make a profitable market for coal.

Sir Alexander Galt hired William Stafford and Captain Nicholas Bryant to examine five possible sites for a large coal mining operation. The site they chose was across the river from Sheran's mine. On 13 October 1882 Stafford and a group of Nova Scotia miners opened the first drift mine of the North Western Coal & Navigation Company.

Sir Alexander Galt created the company with the participation of English investors. The NWC&NCo. was capitalized at \$250,000 and the largest shareholder, publisher William Lethbridge, became its first president.

By 1900 about 150 men were employed and they mined about 300 tons of coal daily. Coal production peaked during the First World War, when 2,000 miners in 10 large mines extracted 1,000,000 tons of coal a year. The coal industry gradually declined after 1919 with the development of oil and natural gas resources. The last mine at Lethbridge, Galt No. 8, closed in 1957 and the entire industry collapsed when the mine at Shaughnessy closed in 1966.

The end of mining doesn't mean that there isn't any coal left in southern Alberta. All of the mines in the region extracted only a fraction of the available coal. The seam still lies about 300 feet deep over an area of about 400 square miles. Estimates are that about 800 million tons of coal is still there to be mined.

COAL: THE GREAT DEPRESSION AND THE DEATH OF ISTEVEN (STEVE) VOYTKO

The Great Depression began in Lethbridge in August 1929. By October 29, the day of the Wall Street stock market crash, unemployment in Lethbridge's coal mines, always very sensitive to the fluctuations of the marketplace, had reached alarming proportions with many applications for relief. The usual high winter unemployment failed to correct itself in spring 1930 and economic hardship became a way of life for many coal miners.

The depression bottomed out in 1933 and, except for a downturn in 1937, conditions gradually improved until the outbreak of war in 1939 brought about full employment once again.

Meanwhile, the unemployed coal miners had to live, cook their meals, and heat their homes. They could not afford to buy coal and many of them went down to the river bottom with picks and burlap sacks and, although hounded and harassed by mine owners, grubbed bagsful of coal from the thin, exposed seams there.

On Saturday morning, 21 March 1931, Steve Voytko, his son Albert, and Steve Bullas left their North Lethbridge homes and went down to the river bottom. They began digging coal and putting it in a sack at a point about ¼ mile south of the CP Rail High Level Bridge on the west side of the river. Miners had been warned about this area as the slopes were steep and unstable and there was a danger of landslides. The three men were picking away at the exposed portion of a seam when the bank collapsed and entirely covered Steve Voytko. The others dug him out and got him to the Galt Hospital as quickly as possible, but he died of his injuries a day or so later.

Steve Voytko came from Hungary and had been in Lethbridge for 26 years. He left a wife and 6 children in the family home at 1013 7 St N. He was buried under his proper name of Isteven Voytko in St. Patrick's Cemetery.

In 1931, there were estimated to be in the order of 750 million tons of coal in the Lethbridge field. Steve Voytko died trying to obtain 100 pounds of it.

COAL AND MINING

Historically, underground methods were used to mine coal. When a coal seam was to be mined, a tunnel was driven to access the coal. Branching off this main tunnel were smaller tunnels that ran into the coal seam and allowed it to be mined. As time and mining progressed, each mine consisted of many miles of these workings. The earliest mines were usually worked largely by hand: the miners using picks and shovels to dig and load the coal into one ton coal cars. "Pit ponies" pulled trains of coal cars on rails to the surface, though in some mines the miners pushed the coal cars

themselves. These techniques were inefficient and by the 1900s, mechanization was becoming common in coal mining; although in some

mines, to reduce chance of sparks and explosions, hand mining continued for many years.

Galt Mine #8, a shaft mine, opened in the 1930s and employed men and boys as young as 16 to help load coal into carts to be moved out. The tibble stands 400 ft above the ground. The shaft is 185 ft deep (almost as far down as it stands high). Coal miners would ride a small elevator down and then go out into the shafts and tunnels which sprawled in various directions to follow the coal seam. These tunnels would extend 5 miles from the shaft itself.

In the 1930s, it cost a man \$17 to start at Galt Mine #8. This gave him the equipment he needed to start: 2 picks and a hat. The miner needed to bring warm clothes, overalls, and sturdy boots to wear to work. At Galt Mine #8, each miner had his own basket in the bath house. When he arrived at work, he took his work clothes from the basket and put his clean ones inside. The basket was then pulled to the roof. At the end of the shift, the miner would shower with his clothes on and put them inside the basket and take clean ones out. By the next day, the steam from the showers had dried his clothes. Some miners only took their work clothes home every 2-3 weeks to get scrubbed clean; some only took them home when they needed mending. Others still, wore their clothing until they completely wore out, never taking them home for a good scrubbing. Lamps, for the miners' hats, were rented before each shift for the cost of one cent. This allowed them to be safety inspected daily.

By 1939, a decline in the coal market was evident. Miners were only working one quarter of the hours they had previously worked. The development of oil and gas resulted in a decreased market for coal.

DECLINE OF COAL

After fuelling the industrial revolution and driving the expansion of western North America, coal had finally had its day by the 1950s. Natural gas and other fuels replaced coal in the homes, buildings, and vehicles of the time, leaving coal and the coal industry fighting for survival.

Coal was down, but not out, as in the late 1960's the economic renewal of post-war Japan brought about a new market for coal. The steel smelters of Japan were hungry for Canadian coal and the coal seams of the Elk Valley opened up to fill the need. Alberta's boom from an agricultural economy to

that of resource extraction generated a new need for electricity and coal was the chosen fuel.

Pre- and Post-Activities

These activities can be done prior to your visit to The Galt or after you have returned to your classroom.

YOUR CHOICE

Students are asked what display (object or picture) they liked the best and what they liked the least. Encourage them to analyze their reactions. This activity offers a chance to discuss fact and opinion. This activity may be done as journal writing to allow reflection and internalization of the experience or as a letter to the museum.

GALT ADVERTISING COMPANY

Pretend you work for the Galt Coal Company (North Western Coal & Navigation) and you are the person responsible for advertising your coal. Develop an advertising campaign or poster that would ensure that people buy your coal. Your audience might be individual home-owners who use the coal as a source of heating, the railway companies, or businesses. What makes your coal better than other people's coal? What are people looking for in coal?

COAL FLOWERS

This activity is designed to help students learn about crystal formation as well as traditions surrounding coal mining families. The lesson will take approximately 30 minutes but the coal flowers may need to sit several hours for full crystal formation to take place.

Materials

- Shallow glass or plastic bowl
- Pieces of coal or charcoal briquettes
- Cup or small bowl
- Spoons or stirring stick
- 6 tablespoons salt
- 6 tablespoons laundry bluing
- 6 tablespoons water
- 1 tablespoon ammonia
- Optional items:
 - Glue
 - Twigs or toothpicks
 - Paper or pieces of cloth
 - Food colouring

Procedure:

1. Explain to the class that making coal flowers is a historic craft from the late 1800s. Mining families with little money to decorate or purchase toys for holidays used common household items and coal to make crystal flowers. Since they resemble snowflakes, coal flowers made without food colouring are great winter decorations, and were often used by mining families throughout their homes.
2. Explain to the students that the coal plays no chemical role in the formation of the crystals. The coal provides a location for

the crystals to grow and it was readily available to mining families.

3. Provide the students with the following instructions for growing coal flowers:

- Place several small lumps of coal in the shallow bowl.
- If desired, glue twigs, toothpicks, paper or pieces of cloth onto the coal.
- In a separate cup, mix together the salt, laundry bluing, water, and ammonia.
- Pour the mixture over the coal.
- Drop dots of food colouring over the coal for a coloured effect, if desired.
- Place mixture in a safe location.

** Crystals should begin to form quickly but could take several hours (depending on room temperature and mixture concentration).

**Please be aware that this mixture can be quite odiferous so place in a suitable location.

SING A COAL MINERS SONG

There are many songs written about the life of a coal miner. Explore some of these songs with your class and encourage students to write their own poem or song about the life of a southern Albertan coal miner.

Your Galt Program

ACTIVITY 1: WELCOME AND INTRODUCTION

Students will be welcomed to the museum and will review what a museum is and the expectations of visitors to the museum. Students will be introduced to the activities that will be covered in the rest of the program.

ACTIVITY 2: VIEWING GALLERY

Students will be introduced to the early history of coal mining in southern Alberta through a visit to the Viewing Gallery.

ACTIVITY 3: MAIN GALLERY TOUR

Anecdotes, artifacts, and exploration will highlight the students' visit to the main gallery.

ACTIVITY 4: CONCLUSION

Students will review the activities of the program and will be invited to visit the museum and Archives again.

Glossary

Adit: A nearly horizontal passage from the surface by which a mine is entered and dewatered. A blind horizontal opening into a mountain, with only one entrance.

Auger: A rotary drill that uses a screw device to penetrate, break and then transport the drilled material (coal).

Backfill: Mine waste or rock used to support the roof after coal removal.

Black damp: A term generally applied to carbon dioxide. Strictly speaking, it is a mixture of carbon dioxide and nitrogen. It is also applied to an atmosphere depleted of oxygen, rather than having an excess of carbon dioxide.

Brattice or brattice cloth: Fire-resistant fabric or plastic partition used in a mine passage to confine the air and force it into the working place.

Cage: In a mine shaft, the device, similar to an elevator car, that is used for hoisting personnel and materials.

Crosscut: A passageway driven between the entry and its parallel air course or air courses for ventilation purposes.

Drift: A horizontal passage underground. A drift follows the vein, as distinguished from a crosscut that intersects it, or a level or gallery, which may do either.

Drift Mine: An underground coal mine in which the entry or access is above water level and generally on the slope of a hill, driven horizontally into a coal seam.

Face: The exposed area of a coal bed from which coal is being extracted.

Fire damp: The combustible gas, methane, CH₄. Also, the explosive methane-air mixtures with between 5% and 15% methane. A combustible gas formed in mines by decomposition of coal or other carbonaceous matter, and that consists chiefly of methane.

Incline: Any entry to a mine that is not vertical (shaft) or horizontal (adit).

Methane: A potentially explosive gas formed naturally from the decay of vegetative matter, similar to that which formed coal. Methane, which is the principal component of natural gas, is frequently encountered in underground coal mining operations and is kept within safe limits through the use of extensive mine ventilation systems.

Room and pillar mining: A method of underground mining in which approximately half of the coal is left in place to support the roof of the active mining area. Large “pillars” are left while “rooms” of coal are extracted.

Shaft Mine: An underground mine in which the main entry or access is by means of a vertical shaft.

Subsidence: The gradual sinking, or sometimes abrupt collapse, of the rock and soil layers into an underground mine. Structures and surface features above the subsidence area can be affected.

Timbering: The setting of timber supports in mine workings or shafts for protection against falls from roof, face, or rib.

Tipple: Originally the place where the mine cars were tipped and emptied of their coal, and still used in that same sense, although now more generally applied to the surface structures of a mine, including the preparation plant and loading tracks.

White Damp: Carbon monoxide, CO. A gas that may be present in the afterdamp of a gas- or coal-dust explosion, or in the gases given off by a mine fire’ also one of the constituents of the gases produced by blasting. Rarely found in mines under other circumstances. It is absorbed by the

hemoglobin of the blood to the exclusion of oxygen. One-tenth of 1% (0.001) may be fatal in 10 minutes.

Working: When a coal seam is being squeezed by pressure from roof and floor, it emits creaking noises and is said to be “working”. This often serves as a warning to the miners that additional support is needed.

Evaluation

An evaluation form was sent out with your confirmation. Evaluation results allow us to offer the most effective and highest standard program that we can. Your feedback and suggestions are greatly appreciated. Please fax the form back to us at (403) 329-4958 or mail to Museum Educator at 910 4 Ave S, Lethbridge, AB T1J 0P6.



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