

Youngstown Historical Center of Industry & Labor



YOUNGSTOWN
STATE
UNIVERSITY



PREVISIT PACKET

The YHCIL (Steel Museum) is dedicated to preserving the industrial heritage of Youngstown & the Mahoning Valley. The museum's exhibit, *By the Sweat of Their Brow: Forging the Steel Valley*, traces the evolution of labor, immigration & urbanization within the context of the rise & fall of the American steel industry.

Three Points to Remember:

1. The Mahoning Valley was a prime location for steel making due to its proximity to raw materials & a water source.
2. The natural resources needed to produce iron & steel are coal (later coke), limestone & iron ore.
3. Immigrants and migrants came from all around the world to work in the Mahoning Valley Steel Mills.



For The Teacher

Introduction: The Youngstown Historical Center of Industry Labor (YHCIL) is also known as the Steel Museum. Our museum offers a variety of curriculum-related displays, multi-media exhibits and activities for your students. A visit to our facility will promote an appreciation & understanding of the people, industries & organizations that helped shape our community, region, state & nation. The museum employs an educational intern that is a licensed teacher in the state of Ohio with classroom experience to ensure the programs & tours offered are an enriching addition to your curriculum, as well as a memorable experience for your students. Guided tour & select activities are available for all students, from 4th grade through 12th grade. We also have specialized programs for students with special needs & students on the Autism Spectrum.

Typical School tours are broken down into two, 30 minute segments with an optional 15 minute introductory video of Youngstown & steel making played before the tour or activities. The optional movie added makes the total time spent in the museum around 1 hour and 15 minutes. The video can be sent to you for viewing before your visit, please contact the museum for this information.

Additionally, if no activities are required, a 45-60 minute tour can be adapted for students, please let the museum staff know ahead of time of your preference. Adjustments are available to suit your group's needs & schedule.

→30 minute guided tour— our regular tour takes groups of 15-20 through the exhibits as docents lead students on a tour of the museum & highlight the various elements required in the process to make iron & steel. Museum staff identify why steel production occurred in the Mahoning Valley, as well as discuss the role & importance of immigration & welfare capitalism to steel making.

Differentiated tours based on classroom learning are available & preferred for school groups to engage students' prior learning. Please contact museum staff prior to visit to book a differentiated tour.

Differentiated guided tour subjects/featured topics:

- Women in the workforce
- Immigrants and Migrants in the Mahoning valley
- Safety in the Mills
- Industrial Revolution
- The rise and fall of industrialization (abbrev. From regular tour)
- Deindustrialization and recovery in the Mahoning Valley
- Welfare Capitalism and the rise of Unions in the Mahoning Valley

→30 minutes of hands-on activities—teachers may choose from the activities below. We will divide students into small groups to accommodate the activities & tours. (Choose one thirty minute program or two fifteen minute programs)

For Groups larger than 40

→**Integrated Tour**— This option is recommended for larger groups (40+) but can be manipulated for smaller groups. An integrated tour ensures our larger groups that everyone gets an enriching experience from their time at the museum. This tour rotates small groups through stations and exhibits. Visitors interact with our trained docents and participate in set activities at each station. There are typically four to five (4-5) stations that each group will spend 10-15 minutes at before moving to the next station. The stations follow a chronological format of our museum, which allows visitors to see the history of the Mahoning Valley. The list of subjects below can be made into an integrated tour for your group, when booking an integrated tour, please let us know what you would be interested in seeing and we will do our best to accommodate your group.

Activities Available Upon Request:

- Company Store (30 minute program)
- Hot Strip Rolling Mill Process (30 minute program)
- Wood versus Steel (15 minute program)
- Pattern Making/Sand Casting (20-30 minute program)
- Safety in the Mill (15 minute program)
- Primary & Secondary Sources (30 minute program)
- Poetry in the Mills (30 minute program)

Student Learning Objectives: The student will:

The Company Store (7th-9th grade)

- o Learn about & be able to define what a company store is.
- o Learn what items were available in company stores, examine 1928 prices, evaluate 1928 steel worker wages, determine what a typical family might buy for the week, & how to budget their “steel worker paycheck.”
- o Learn about the various jobs in the mill, pay range, deductions, & how workers shopped at the store.
- o The student will calculate the cost of food and goods at the the company store & use tokens to “buy” their goods & make change using their budgets.

Hot Strip Rolling Mill Process (7th-10th grade)

- o Learn how steel workers rolled steel in the hot strip mill to make it into new forms.
- o Compare steel to other objects & learn how to make it malleable.
- o Operate a “mini hot strip mill” (pasta maker) to see how the process works.
- o Be able to describe the hot strip mill process & its importance in the steel mill.

Wood versus Steel (6th-9th grade)

- o Learn the components of wood & steel.
- o Compare the two substances.
- o Contrast the two substances.

- o Experiment to see which substance, steel or wood, is stronger.
- o Be able to describe the similarities & differences between wood & steel & explain why one is stronger than the other.

Pattern Making (Sand Casting Process) (4th-7th grade)

- o Learn about the pattern making process in steel mills.
- o Handle patterns.
- o Demonstrate & discuss the sand casting process.
- o Identify the limitations of the sand casting process.
- o Discover how sand cast materials can have defects & small voids that are not visible on the surface.
- o Determine how properties of a metal change through processing.
- o Experiment with wax & sand to make pattern copies.

Safety in the Mills (4th- 10th grade)

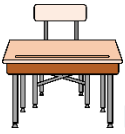
- o Learn about the evolution of safety equipment in steel mills.
- o Learn about typical hazards in steel mills.
- o Learn about safety equipment.
- o Examine historic equipment.
- o Learn about newly developed safety equipment.
- o Try on clothing & equipment.
- o Be able to describe common mill injuries & avoidance measures.

Primary & Secondary Sources (4th-12th grade)

- o Learn about & be able to define primary & secondary sources.
- o Provide examples of primary & secondary sources.
- o Examine primary sources—newspapers, photographs, oral histories &/or documents.
- o Analyze four main elements of a primary source.
- o Examine secondary sources—books, tools reproductions, & stories.
- o Describe how students can use primary & secondary sources in their work.
- o Identify three primary sources.

Poetry in the Mills (7th – 12th grade)

- o Learn about Michael McGovern, “the puddler poet.”
- o Learn where McGovern immigrated from by looking at maps, immigration records & photographs.
- o Learn what puddlers did in the mills & examine images of puddlers at work.
- o Examine three of his poems & discuss the elements mentioned & their meanings.
- o Identify the central themes of each poem & analyze word choices used.
- o Write a poem about their visit to the museum.
- o Be able to explain the concept of immigration, define poetry & explain why someone would write poems.



For the Students

- Student Vocabulary with glossary of terms
- Kahoot of vocabulary terms ([link](#))
- Crossword puzzle & word search (using vocabulary terms)
- Pre-visit facts
- Pre-visit questions
- Rules of conduct
- Additional resources

During the visit, students will be asked questions related to their knowledge of industry in the Mahoning valley as well as informal questioning as they go through the exhibit. There will be many opportunities for students to interact with artifacts & ask questions throughout their tour.

Student Vocabulary:

Kahoot Link: <https://play.kahoot.it/#/k/1dd6fe2a-fb1a-476b-afcd-f4c6cf961e8e>

Students should be able to define the following terms:

Blast furnace	Immigrant	Open-hearth Furnace
Iron ore	Immigration	Raw Materials
Charcoal	Migration	Steel
Limestone	Migrant	Iron
Charged	Company house	Ingot
Tapped	Guardhouse	Welfare Capitalism
Pig iron	Deindustrialization	Natural Resources
Coke	Black Monday	
Coal	Pulpit	

Glossary of terms:

Blast furnace—furnace in which iron ore, coal or coke, & limestone are smelted to make molten iron. The blast furnace received its name from the blast of air which is forced into the bottom of the furnace to increase the temperature.

Iron ore—one of the raw materials used to make molten pig iron in the blast furnace.

Charcoal—Blast furnace fuel produced by slowly burning wood. Charcoal was replaced by coking coal in the mid-19th century.

Limestone—One of the raw materials used to make molten pig iron in the blast furnace. Limestone removes the impurities from the ore.

Charge(Charged or Charging)—Raw materials for making iron or steel. Also—term used to describe the loading of raw materials into a furnace.

Tapped—Tap—To let out molten iron or steel through an opening in the bottom of a furnace or ladle.

Smelt—The separation of impurities from iron ore in the blast furnace.

Pig iron—Molten iron produced in a blast furnace. At one time, workers poured the iron for the blast furnace into a series of molds which resembled nursing pigs. For this reason, iron from the blast furnace came to be known as pig iron.

Coke—One of the raw materials for making pig iron in the blast furnace. Coke is produced by slowly heating coal in a coke oven. Coke began to replace charcoal in the second half of the 19th century.

Coal—carbonized plant matter, in the form of a rock that is used for fuel.

Immigrant—Person who moved from one country to another. They often move for better opportunities or work.

Immigration—The act of moving from one country to another.

Migration—The act of moving from one place or region of a country to another place or region of the same country.

Migrant—A person who moved from one place or region of a country to another place or region of the same country. The person often moves for better opportunities or work.

Company house—House or apartment built by large companies for their workers. Workers could then rent or buy the home as long as they remained employed & in good standing with the company.

Guardhouse—Small structure or office where a company guard oversees everyone who enters & exits the company grounds. Guards protect the company & its products & make sure people obey the rules.

Deindustrialization—The process of industrial decline. In the Mahoning Valley, it began when the steel mills closed their doors & began dismantling or pulling down their blast furnaces & mills.

Black Monday—September 19, 1977 when Youngstown Sheet & Tube's Campbell Works closed their company & fired all of their employees. Other local mills in the area would also closed their mills, leading to a decline in business, industry and jobs for the area.

Pulpit—Room in which workers control the operation of machines in a mill or factory. The museum's blooming mill pulpit contains the controls used to guide the movement of the ingot as it was converted into a bloom.

Open-hearth Furnace—Furnace invented in the 1850s for making steel from iron. Because it produced larger batches of steel, the open-hearth process gradually replaced the Bessemer process.

Raw Materials—Materials converted into new products or items. The raw materials for making iron include iron ore, limestone & coal/coke/charcoal.

Steel—A type of metal produced from iron. Steel is stronger & more durable than iron.

Iron—Metal produced from iron ore, usually in a blast furnace.

Ingot—A shape into which iron or steel is initially cast.

Facts:

- 1) James & Daniel Heaton, founders of Niles, Ohio, built their first stone stack furnace near Yellow Creek, in Poland, Ohio in 1802.
- 2) Immigrants came from Poland, Hungary, Italy, England, Wales and many other countries to work in the Mahoning Valley's steel mills.
- 3) By the 1920s Youngstown produced the second most steel in the country.
- 4) Workers at "Little Steel" Companies in Youngstown and other areas struck for better wages on March 26, 1937. This became known as the "Little Steel Strike."
- 5) James Campbell & George Wick founded Youngstown Sheet & Tube Company in 1900. At the time it was called Youngstown Iron Sheet & Tube Company.
- 6) The YST Riot or Riot in East Youngstown, 1916, drew 2,000 Ohio National Guard Troops to the area on January 7, 1916.
- 7) We still have working steel mills in the area. As of 2017, we had 73 steel mills in the area who employ approximately 4,000 people.
- 8) Steel can be recycled. North America recycles about 69% of steel each year, which outpaces recycling of other products such as paper & plastic.
- 9) Safety was and is a key concern of steelworkers who work around molten steel, heavy cranes, and dangerous machinery.
- 10) Steel mills provide jobs for workers, who in turn, spend a portion of their paychecks in local businesses which helps our economy.

Questions: Students can research the answers prior to their visit or find the answers as they tour the museum.

- 1) Why were so many steel mills located in the Mahoning Valley?
- 2) How did steel mill employers get enough people to work in their factories?
- 3) What is welfare capitalism? Provide three examples.
- 4) What types of work did steel workers do?
- 5) Do men & women work in the mills?
- 6) What caused so many local mills to close in the 1970s & 1980s?
- 7) Did your grandparents ever work in a steel mill? Ask them!
- 8) What were the most common types of injuries that steel workers endured on the job?

- 9) What were conditions like in the mills?
10) (If you view the video) How important to the community were steel mill jobs?

RULES FOR VISITING: [Also in our Pre-Visit PowerPoint]

- Walk, no running
- If someone else is talking, please be quiet & listen
- Raise your hand if you have a question or comment
- Be polite
- Have FUN!

ADDITIONAL RESOURCES:

Ohio History Connection—Our state’s historical society
www.ohiohistory.org

Iron & Steel Industry, Encyclopedia of Cleveland
<https://case.edu/ech/articles/i/iron-and-steel-industry>

Hot Rolling Mill, Youtube
<https://www.youtube.com/watch?v=AuuP8L-Wppl&t=9s>

Seamless Tube Mill, Youtube
https://www.youtube.com/watch?v=Rhc_Kkc-vMY

Youngstown, Ohio, Ohio History Central
[http://www.ohiohistorycentral.org/w/Youngstown, Ohio](http://www.ohiohistorycentral.org/w/Youngstown,_Ohio)

Black Monday, '77, When the Mill Shutdown in Youngstown Gave Birth to the Rust Belt, Moyers
<https://billmoyers.com/story/black-monday-77-mill-shutdown-youngstown-gave-birth-rust-belt/>

Sources:

Ohio History Central, [http://www.ohiohistorycentral.org/w/Youngstown, Ohio](http://www.ohiohistorycentral.org/w/Youngstown,_Ohio)

The Vindicator, The Youngstown Sheet & Tube Riots,
<http://www.vindy.com/news/2016/jan/24/youngstown/?print>

WKBN First News, Remaining mills carry on Valley's steel legacy after Black Monday,
<https://www.wkbn.com/local-news/remaining-mills-carry-on-valleys-steel-legacy-after-black-monday/1067781956>