Objectives:
- After reading 19th-century accounts of West Point Foundry, students will write letters describing their experiences as a foundry employee or visitor in the 1800s
- Students will better understand the lives of foundry workers and the historic significance of West Point Foundry
- Students will learn the mechanics of letter writing

Grade Level: 5th and up

Time Frame: 1 hour

Introduction:
This lesson will put students in the shoes of an employee or visitor at West Point Foundry in the 19th century. After learning about West Point Foundry’s history and the casting process, students will read firsthand accounts of the ironworks and use their knowledge to write a letter to a friend or family member as if they had been at the foundry during its years of peak production in the 1800s. This is a good lesson to add to your Civil War or New York State history curriculum.

Background:
Foundries are factories that produce metal objects. The casting process at West Point Foundry started with the creation of a pattern, a wooden replica of the object to be manufactured in iron. (The pattern was slightly larger than the item being produced, to allow for the metal’s shrinkage during cooling.) The pattern was embedded in a mixture of wet sand and loam and then carefully removed, leaving an impression (known as a mold). Iron mines in the Hudson Valley furnished ore that was combined with limestone and coke in a blast furnace. Bellows powered by a large waterwheel provided the air required to maintain a constant temperature in the furnace (about 1,500 degrees F). The molten iron that came out of the furnace was poured into “pigs,” which got their name because the liquid flowed through a main channel into side channels—resembling a mother pig suckling her young. (Each “baby pig” weighed close to 100 pounds.) Once the pigs hardened, they could be transported to the building containing the molds. There they were remelted in smaller furnaces, called cupolas, and the molten iron was carefully poured into a mold. After the object cooled (which could take several days, depending on its size), it would be taken to the boring mill, blacksmith shop or machine shop for additional work.
West Point Foundry was established in 1817 and up and running by the following year. It manufactured some of the nation’s first locomotives, steam engines and iron ships as well as pipes for New York City’s water system and about 2,500 Parrott guns—cannons credited with helping to win the Civil War. During the height of foundry operations during the war, about 1,500 men worked here—keeping the foundry going 24 hours a day, seven days a week. Each building at the foundry was dedicated to a distinct aspect of the manufacturing process. Products would move from one building to the next via a small railway, similar to the assembly-line process developed in the 20th century.

West Point Foundry’s Cold Spring location meant it could utilize the region’s vast natural resources. Local iron mines provided ore. Surrounding forests supplied fuel for the furnaces. Foundry Brook furnished water power for machinery. And sand from Foundry Cove was used for making molds. Perhaps most important was West Point Foundry’s proximity to the Hudson River. This allowed its heavy iron products to be shipped easily to New York City and beyond—as far away as Egypt.

West Point Foundry ceased operations in 1897. Another firm continued making iron here until 1911. Scenic Hudson acquired the property in 1996 and created West Point Foundry Preserve to protect the site’s extensive archaeological remains. In 2013 we opened an “outdoor museum” that tells the story of West Point Foundry and the land’s remarkable ecological renewal.

Materials:
- “Letters from West Point Foundry” worksheets, including firsthand accounts
- Paper
- Pen or pencil for writing

Procedure:
1. Review the casting process with students
2. Have students read firsthand accounts of the foundry
3. Hand out the “Letters from West Point Foundry” worksheets and have students write their own letter to a friend or family member
Letters from West Point Foundry

Throughout the 19th century, many people visited West Point Foundry to tour its operations. Its visitors included President Abraham Lincoln, who came in 1862 to witness the firing of Parrott guns, and future Confederate General Robert E. Lee, a frequent guest of the foundry’s owners when he served as superintendent of the U.S. Military Academy in the mid-1850s. You are going to travel back in time—to West Point Foundry in the 1800s—and imagine what it would have been like. You will then write a letter to your family or a friend about your experiences there. Use the following firsthand accounts as inspiration.

Option 1: You are a guest of the Kemble family, owners of West Point Foundry, who give you a tour of the operations. Write a letter describing your experience.

Option 2: You have moved away from your family and friends to work at West Point Foundry. Write a letter to those back home describing a typical day.

Instructions: Choose one of the options above.

1. Letters must be written with complete paragraphs and be one page long
2. They must be formatted like a proper letter
3. Your letter should describe the different things you experienced at the foundry:
   a. A building you saw and visited
   b. Sounds you heard as you visited the different buildings
   c. What the foundry looks like
   d. Someone interesting you met there and who they are
   e. Cultural context—how the foundry fits into the larger U.S. society
4. Remember, you are seeing these things for the first time and your family has never seen them—so you’ll need to use great detail.

Firsthand Accounts of West Point Foundry:

John Ferguson Weir
account of boring mill, ca. 1865:

“A huge and dusky canvas, dark and somber, spreads its surface opposite my table, near the wall. Charred and blackened seems it surface impenetrable soot, but by gradual developments unfolds its story to the eye. To the eye makes clear, its subject, shows a forge with grim men forging, forging shafts for floating engines, huge and ponderous, glowing hot, seething beneath the ponderous hammer hammered till its form is got, swung in chains from the huge cranes, fancy snakes that groan and squeak, smiths do swing these huge masses, glowing hot with flaming gas’s, from the furnace to the anvil ‘neath the hammers, then in anger it sputters, as it’s hammered into shape, like a thing of life it mutters, groans and sputters, sputters with brawny arms, arms of muscleshould be strong and large, with their tools and bars of iron, turn the monster on its back, hammer well its upper cranium, hammer well its spinal bone, make it groan in monotone, and flare at them in anger, flaming gas and sputtering all the while its horrid sweat of anguish, flaming sparks. They fall upon the smiths, upon their brawny arms and leather aprons stiff and black. But no need have they for aught, some welding into shape the seething monster, white with heat, with rage, with anguish, till the last thing is done.
**Account of foundry circa 1862**
(around the time of Lincoln’s visit):
“The foundry is in full blast with everything in the ordnance line. One can hardly worm his way through the piles of shot and shell for rifles; and the machine shop, foundry and boring mill contained nothing but rifled Parrotts of all sizes.

**West Point Foundry employee’s description of workday, ca. 1820s:**
“The horn would blow for the men to go to work at six o’clock, and at half-past six for breakfast; then again at seven to go to work. It would blow at twelve for dinner and at one to work. At six it would blow for the men to leave work.”

**John Ferguson Weir account of casting shop, ca. 1865**
Here a huge pot, filled with iron, molten hot, swings with dead and heavy weight, weight of metal molten hot, hands suspended from a crane, a crane of ponderous bulky form, by a chain of heavy links. Here, too, the mass is slowly moved about with the aid of windlass, block and muscle. The great beams creaking, groaning, covered with dust and cobwebs, blackened and charred, still sound at heart though greatly scarred. Standing on end in a deep pit stands a cannon mold, to mold a cannon great in size. And over this the great pot is bended, turned, turned, and down the molten metal flies, down into the throat of the ugly mold. Throttling, gurgling, choking it, till gass’y flames do rise up with

**Fanny Kemble (account of 1833 visit):**
“At length we were summoned down to the waterside, to see the success of the experiment. The cannon lay obliquely, one behind the other, at intervals of about six yards, along the curve line of the little bay: their muzzles pointed to the high gravelly bank, into which they fired. The guns were double loaded with very heavy charges, and as soon as we were safely placed so as to see and hear, they were fired. The sound was glorious: The first heavy peal, and then echo after echo, as they *rimbombavano* among the answering hills, who growled aloud at the stern voice waking their still, and noon-day’s deep repose. I pushed out in the boat from shore to see the thick curtain of smoke, as it rolled in its silver, and brassy, and black volumes over the woody mountain sides; parting in jagged rents as it rose, through which the vivid green and blessed sky smiled in their peaceful loneliness. They ended in discharging all the cannon at once, which made a most glorious row, and kept the mountains grumbling with its echoes for some minutes after the discharge.”

**David Wylie, West Point Foundry blacksmith, ca. 1850s (to brother):**
“I gave you all the particulars of this barren wilderness before. I am always working in the same place, nothing to do but work, eat and sleep. There is no place of amusement, no enjoyment like what I have been used to, nothing to gladden the heart for to make us forget our labor and our toil.”

**Fan**
ny Kemble

 accountant of 1833 visit):
“...