

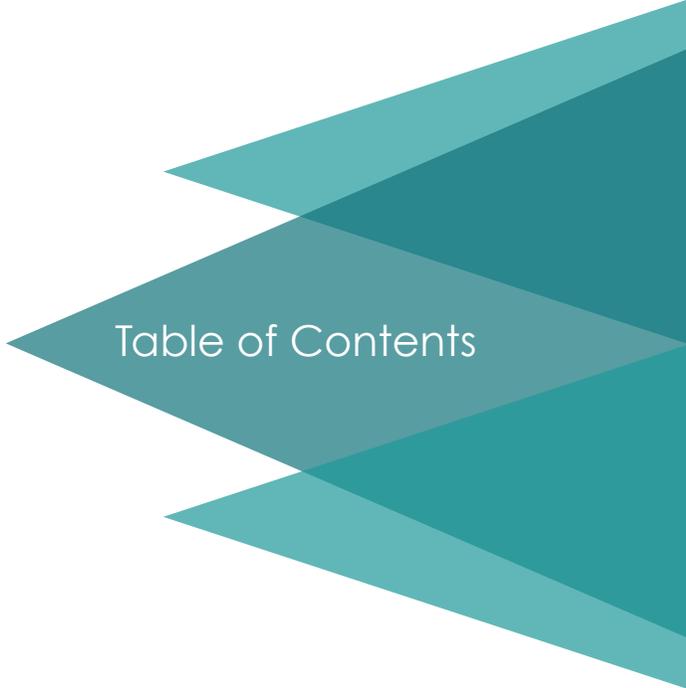


# Education Program for Fourth and Seventh Grade Students

Cooperstown Graduate Program  
Spring 2016

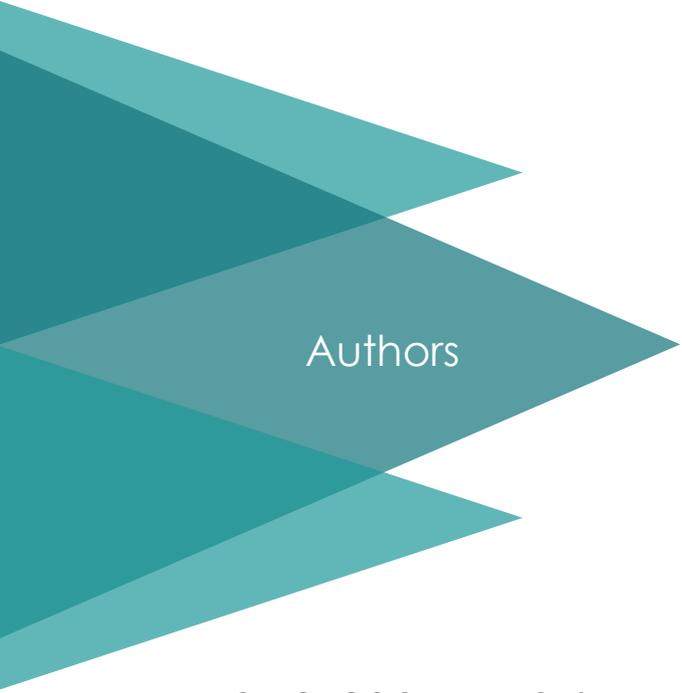






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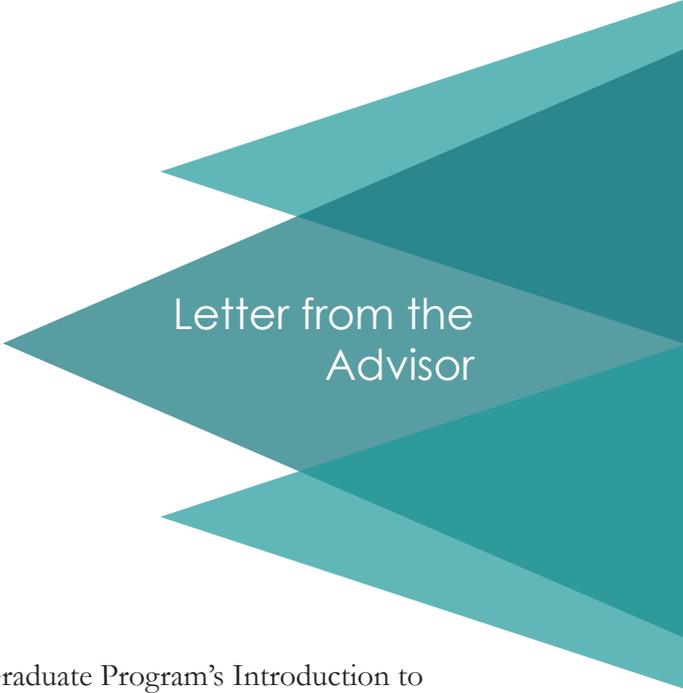
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## Letter from the Advisor

The faculty and students of the Spring 2016 Cooperstown Graduate Program's Introduction to Museum Education and Interpretation class wish to thank the staff of the Erie Canal Museum (ECM) in Syracuse, New York for welcoming and assisting with the creation of new Erie Canal lesson plans for school students. The project to produce pre-visit, visit and post-visit materials began with an initial site visit and collection of content material by the class instructor, Katie Boardman. This was followed by an early Spring semester class visit to the site to further explore the unique assets and stories of the Erie Canal Museum.

The class of students divided into work teams under the leadership of three student project coordinators. Periodic progress reports and group work sessions took place during scheduled class times, as well as outside of class. An initial draft review of the full project report took place on April 26 by phone conference call with ECM staff member, Vicki Krisak. She also gathered and shared review comments from two local retired teachers who are friends of the museum.

A second draft of the full report and lesson plans was sent to Ms. Krisak for a final review during the week of May 2. The completed digital package of project materials was delivered to the ECM during the week of May 9.

It has been a pleasure to work with the staff of the Erie Canal Museum. We appreciate their support of learning in their museum, both for elementary through high school students and graduate museum study students. We hope that these new materials will soon be used and enjoyed by staff and students to increase the number of students and teachers who discover the wonderful collections, spaces and stories of the Erie Canal Museum.

Kathryn Boardman  
Adjunct Professor  
Cooperstown Graduate Program in Museum Studies  
Cooperstown, New York

May 2, 2016





## Education Contacts

The New York State Common Core curriculum requires 4th and 7th grade students to study the Erie Canal.<sup>1</sup> As these lessons generally occur late in the second half of the school year, we recommend continuing the targeted marketing towards school districts during the second semester, in order to encourage school group attendance during the relevant educational quarter. This includes the distribution of marketing materials to teachers at the 4th and 7th grade levels. The Erie Canal Museum provides a valuable resource to teachers and students that enriches the standard learning experience. The Museum should put emphasis on the unique opportunity that it provides to supplement the state-required curriculum.

Currently, the Erie Canal Museum reaches out to public schools at the district level to advertise available educational programming. Marketing educational programming towards private schools is another possible avenue to pursue in increasing school trip visitation. Private schools tend to have a higher teacher-to-student ratio, allowing for increased flexibility for museum programming attendants and supervisors. The smaller class sizes at private schools could provide the Museum with opportunities to train new docents or volunteers in preparation for the larger class sizes from public schools, or to try out new programs on smaller, closely supervised groups.

The Erie Canal Museum also provides a prime potential learning environment for homeschooled children. New York State regulations require homeschooled students to study New York State history at least once in the first eight grade levels.<sup>2</sup> The Erie Canal is integral to the history of the state and appropriately targeted programming would supplement this aspect of the required curriculum. There are both group and individualized homeschool organizations that the Museum could contact to arrange these trips.

Please refer to Appendix A for a list of potential contacts for public, private, and homeschool organizations, and a map of the various travelling distances for public schools.

<sup>1</sup> The State Education Department, New York State Common Core Social Studies Framework: Grades K-8, by The State Education Department and the University of the State of New York (January 2015), 55,96. Accessed February 28, 2016. [https://www.engageny.org/file/14656/download/ss-framework-k-8.pdf?token=dnq0gU0CzLMxGVnbcMaLmBF1\\_yMC9d8Bib0dmMpNR9U](https://www.engageny.org/file/14656/download/ss-framework-k-8.pdf?token=dnq0gU0CzLMxGVnbcMaLmBF1_yMC9d8Bib0dmMpNR9U)

<sup>2</sup> New York State Education Department, “Part 100 Regulations: 100.10 Home Instruction,” accessed March 31, 2016. <http://www.p12.nysed.gov/part100/pages/10010.html>



## Similar Museums and Organizations

The Erie Canal, spanning the 363 miles from Albany to Buffalo, is a cultural highway that cuts through New York State. Cities, towns, and communities nestled along the canalway seek to interpret their histories through their connection to the historic waterway. According to the Erie Canalway National Heritage Corridor website, there are over 50 sites and museums that interpret the canal. Several of these institutions, centers, and parks interpret the canal through exhibitions, including the Rochester Museum and Science Center and Camillus Erie Canal Park. However, since none of these institutions make their lesson plans or school tour information available on their websites, there does not appear to be any

widely advertised competing school programs solely dedicated to the Erie Canal. We recommend the Erie Canal Museum publish all lesson plans and school tour materials online to use this absence of readily available school group program information at other sites as an opportunity to increase school group attendance to the museum.

We reached out to an array of area museums related to the Erie Canal in an effort to understand what is being offered to both schools and to the public. Of the nine organizations contacted, only the Camillus Erie Canal Park responded. Janet Conners, head of education programming, gave a summary of what a typical fourth grade tour would look like at their institution – a two-and-a-half hour tour, focusing on what makes this particular museum special in the scheme of Erie Canal-focused institutions.



## Unique Features of the Erie Canal Museum

The Erie Canal Museum possesses a number of features that can be utilized for educational programming. The Museum houses a multitude of rare Erie Canal artifacts and already benefits from active partnerships with a number of institutions throughout Upstate New York. The institution also serves a unique purpose as an introductory point to the history of the canal as a whole and the Erie Canalway National Heritage Corridor. There are a number of current exhibits which set the Erie Canal Museum apart from others, including a replica canal boat and various interactive features such as the Weighmaster canal game, that can be utilized for future school programs.

From our observations and discussions with various staff members, we have explored five areas in the Museum that have yielded valuable information about the institution and its collections and operations. We recommend that these unique elements of the Erie Canal Museum be taken into consideration when planning any museum programming and educational programming in the future.

### Mission and Vision

The Mission of the Erie Canal Museum is as follows:

“Committed to preserving the only existing weighlock building in the United States, the Erie Canal Museum collects and conserves Canal material, champions an appreciation and understanding of Erie Canal history through educational programming and promotes an awareness of the Canal’s transforming effects on the past, present and future.”

The Mission makes it clear that the building’s history as a weighlock building is one of the main reasons the Erie Canal Museum is in existence today. We recommend the Museum continue to utilize the historical relevance of the weighlock building towards a potential future exhibit or programming opportunity.

The Vision is as follows:

“As the world’s leading interpreter of Erie Canal history, our vision is to advance the understanding of the profound influence of the Erie Canal on the history of Central New York, the United States and the world. We will collect, interpret and make available the world’s most important and comprehensive collection of Erie Canal related documents, photographs, prints and rare books. We will share the rich history of the Erie Canal with visitors, both in person and online, by providing the highest quality exhibits, programs, scholarly publications and educational tools for children and adults. Our research will be of the highest caliber in terms of accuracy, objectivity and inclusiveness.”

The Museum’s focus on the broader social impact of the canal differs from the interpretive focus of many other museums that interpret the Erie Canal, which often have a greater focus on living

history. By providing a more comprehensive history of the canal, the Erie Canal Museum offers a unique perspective that underscores its significance to the history of New York and the country at large. This broad perspective on the history of the Erie Canal primes the Museum for content- and idea-driven educational programs that help visitors and students understand the canal's broader social and historical impact. Additionally, the Erie Canal Museum has the opportunity to market itself as the main introductory point of the Erie Canalway National Heritage Corridor given this broad focus on the history of the canal. This would make the museum the first logical place for teachers to seek out supplemental educational programming for their students regarding the Erie Canal.

## Site

The Erie Canal Museum's location in downtown Syracuse, in the last remaining weighlock building in the United States, is a major aspect of the organization's history and future. While this structure is integral to the canal's history, its distance from the current waterway limits the ability of the Museum to engage in living history interpretive programming. However, this unique location offers an opportunity to address changes in the canal overtime in exploring how the surrounding cityscape built up around the canal corridor, as part of exploring the larger social context of the Erie Canal. This fits well within the Museum's current broad historical interpretation of the canal and further differentiates it from other cultural institutions that explore the canal.

## Educational Programs and Features

Presently, the Museum has a number of educational programs that are beneficial to its mission, could be modified or expanded upon to better reflect its Mission, could be more engaging, or could be modified to better align with educational requirements for New York State, such as the Common Core. Below we provide of summary of some of these programs.

### Ticket to Ride

The Ticket to Ride Program completely funds school trips from around New York State to the Erie Canal Museum and other sites part of the Erie Canalway National Heritage Corridor. This runs on a first-come-first-serve basis but particular importance is placed on schools in the city of Syracuse and other local communities. This program helps to curb the expense associated with school trips to provide a valuable learning experience to students who might not ordinarily have access to similar opportunities.

### Educational Gallery

There are a number of permanent exhibit spaces on the second floor of the Museum designed to provide students with an idea of the businesses--such as general stores and taverns--located in canal towns and communities. These exhibits include panels addressing early small-town culture in these canal settlements, such as theater and music, along with period-appropriate costumes. These interpretive devices underscore how the canal facilitated the migration of people and development of communities. Consequently, these exhibits could be expanded upon to further explore themes such as immigration, canal settlement, community growth, and trade.

## Weighmaster Game

The Weighmaster Game is an interactive activity within the main exhibit space that is also featured on the museum's website. The game demonstrates how canal boat operators determined fares along the canal. However, the game simply demonstrates how this math was calculated rather than allowing visitors to actually determine the fares. The game could potentially be expanded upon to introduce STEM subjects, requiring visitors and students to perform this arithmetic (or aspects of it) themselves. This would make the game more interactive and engaging for visitors.

## Canal Boat

The canal boat is among the most notable components of the Museum, allowing students to explore how boat workers lived and how travelers were lodged onboard. The central portion of the boat currently houses a number of exhibit panels exploring the canal's construction and its effect on settlement, transportation and trade, though these panels should ideally be updated to better align with the new main exhibit gallery, and relocated within the Museum to open up the usable space onboard. The significance of the boat to the site makes it an ideal space to discuss and establish educational programming surrounding themes related to travel or work on the canal boat itself, and it is recommended a possible redesign of this central area be explored to turn it into a more interactive educational or interpretive site.

## Towpath Detective

This was a program that the Museum used to run that had students complete a "scavenger hunt" based on what they observed throughout the exhibit. With the new first floor exhibit, this program is presently outdated. However, it is entirely possible it could be revamped for this space if determined to still be an engaging program for students.

## Reading Groups

The Erie Canal Museum has hosted reading groups that read books on a modern theme, such as labor, and then made connections between the theme and the Erie Canal. A reading group or program like this could be conducted with school groups. Students could explore a theme in class through various assigned readings, and then connect this theme with programs, exhibits, or collections at the Museum. Teacher recommendations should be sought regarding what types of books would be considered best for such a program based on grade levels.

## Films

The Erie Canal Museum has two films that it has used or has plans to use in museum programming. The History of the Erie Canal provides a comprehensive overview of the history and building of the Canal, though it has not seen significant use since the Museum's theater was removed. We find the film informative but believe it is potentially too academic for fourth grade audiences. Boom and Bust is a newer film exploring some of the economic consequences of the canal, both positive and negative. This film seems intended for an older audience, though there are select segments that could be used effectively for educational programming with grade school children.

## Collections

The Erie Canal Museum has a large collection of unique artifacts related to the history of the canal. Many of these are archival and manuscript based, along with a significant number of authentic objects related to the canal's history. Among the most significant aspects of the Museum's collections are the records of the Canal Society of New York State, a research and academic group dedicated to studying the history and impact of the Canal. The Canal Society's archives highlight the Erie Canal Museum as a leading research center for academics and scholars looking to study the canal. While the collections of the Museum and the Canal Society are notable, there is a question of how useful such materials could be for fourth grade level programming. We recommend that museum collections play a supplemental role to educational programming versus being the main aspect of that programming, particularly for grade school oriented programs.

## Partnerships

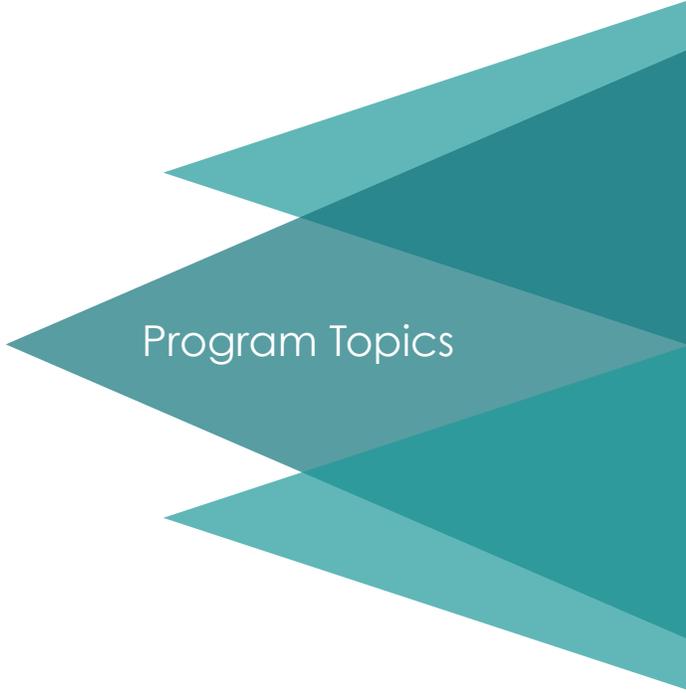
The Erie Canal Museum maintains a number of partnerships with institutions in the Syracuse area, in particular a strong relationship with the Erie Canal National Heritage Corridor, which includes all of the other Erie Canal museums and various other historic sites along the canal's length. These partnerships could be utilized for larger scale programming, particularly to provide funding or resources for collaborative education projects.

### Parks and Trails New York

Parks and Trails New York offers a multitude of outdoor programs. They preserve and create parks and trails throughout New York State, as well as advocating for better environmental policy and the creation of more pedestrian- and bike-friendly transportation routes around the state. The first event sponsored on their page is a biking event that travels along the Erie Canal from Albany to Buffalo. Travel along the canal is a major tourist industry in the summer for many of the canal sites, and the Erie Canal Museum's central location makes it a prime stop along these various biking and walking tours.

## Conclusion

The Erie Canal Museum explores a number of themes and subjects that could be utilized to make engaging educational programs for 4th and 7th grade students. Current exhibits provide a strong exploration of the social and historical significance of the canal, but could be improved with increased interactive programs to allow for more hands-on learning. By developing and offering programs that promote free-form and informal learning, the museum can further establish its role as the primary place for learning about the Erie Canal.



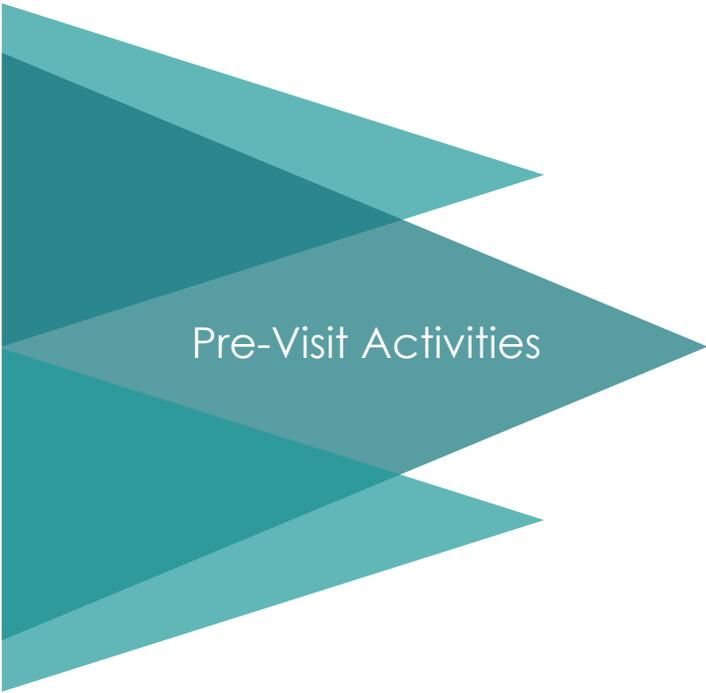
## Program Topics

We recommend three main programming options:

The first, and most recommended, is a program regarding agriculture and trade on the Erie Canal. The committee was informed that the Erie Canal Museum was seeking to incorporate more STEM based educational programming options. This particular program is flexible enough to meet those STEM requirements. This program is similar to one used at the New York State Museum and compares the effort of dragging a cart over land versus a boat on the canal. While this program would focus on demonstrating principles of physics, mathematics could be included by incorporating the calculation of tolls based on the weights of different goods passing through canal weigh stations.

The second recommendation would be a program on immigration and travel. This program would have fewer opportunities to meet STEM requirements, but it would meet New York State's Social Studies requirements. In 4th grade students study immigration, creating the opportunity to fulfill this requirement with a museum program that addresses immigrant labor and those who travelled on the Erie Canal.

The third recommendation would be a program on the environment and pollution along the canal. There has been extensive research on the sewage problem in the canal, which could be used to combine history with life sciences. This program has a potential for covering a long period of time, especially the late 20th Century with the passage of the Clean Water Act and the encroaching Zebra Mussel infestation.



## Pre-Visit Activities

The following pre-visit plan is designed to be sent to classrooms once they have scheduled a visit to the museum. We highly recommend that the museum not only send out the following materials but also high quality copies of the images included in Activity 3 for teachers to either print out or project as they see fit.

### Useful Resources

#### Map Resource Websites

<http://www.canals.ny.gov/maps/>  
<http://media.web.britannica.com/eb-media/58/125958-050-8380FC47.gif>

#### Books and Texts

Adams, Samuel Hopkins. *The Erie Canal*. Illustrated by Leonard Vosburgh. Eau Claire, WI: E. M. Hale and Company, 1953.

Andrist, Ralph. *The Erie Canal*. New York: American Heritage Publishing Co., Inc., 1953.

Harness, Cheryl. *The Amazing Impossible Erie Canal*. New York: Aladdin Picture Books, 1995.

Janey, Levy. *A Journey alongside the Erie Canal: Dividing Multidigit Numbers by One-Digit Numbers without Remainders*. New York: The Rosen Publishing Group, Inc., 2004.

Janey, Levy, ed. *The Erie Canal: A Primary Source History of the Canal that Changed America*. New York: The Rosen Publishing Group, Inc., 2003.

McGreevy, Patrick. *Stairway to Empire: Lockport, the Erie Canal, and the Shaping of America* (Albany: SUNY Press, 2009)

Spier, Peter. *The Erie Canal*. Garden City, NY: Doubleday & Company, Inc., 1970

#### Web Resources

<http://www.dec.ny.gov/education/40248.html>

<http://www.fws.gov/midwest/fisheries/library/fact-eriecanintro.pdf>

<http://eriecanalmuseum.org/wp/wp-content/themes/ecm/swf/ECMweb.swf>

## Pre-Visit Sample Letter

Name

School

Address Line 1

Address Line 2

Date

Dear Instructor,

Thank you for deciding to visit us at the Erie Canal Museum with your students. In preparation for your visit, we have prepared a few lesson plans for you and your class. Below you will find a link to a brief video from CBS Almanac providing some background on the Museum and the canal, the guiding questions for the lesson, and some basic information for students to keep in mind during their visit. Though you have full authority over what is used in this pre-visit plan, the Museum recommends allowing for between a half-hour and forty-five minutes to complete all the activities offered.

We thank you for allowing us to be part of the learning process for your class, and we look forward to seeing you soon.

Sincerely,

The Erie Canal Museum Staff

## Pre-Visit Activities

### Estimated Time

40 minutes

### New York Common Core and Learning Standards

*New York K-8 Social Studies Framework - March 2016*

#### Grade 4

- 4.6 Westward Movement and Industrialization, p. 55 - 56 / 4.6b, 4.6c, 4.6e, 4.6f

#### Grade 7

- 7.6 Westward Expansion, p. 96 / 7.6c

*New York State P - 12 Common Core Learning Standards for English Language Arts and Literature*

#### Grade 4

- Speaking and Listening Standards, p. 33 / SL.4.1, SL.4.3, SL.4.4

#### Grade 7

- Speaking and Listening Standards, p. 62 / SL.7.1, SL.7.4

## Learning Objectives

Students will:

- Learn new terms and vocabulary about the Erie Canal.
- Gain map-reading skills related to New York State geography and the Erie Canal.
- Develop skills analyzing historical evidence through primary source photographs.

## Guiding Questions

- Why is the Erie Canal important to New York State history and the development of the United States?
- How does the Erie Canal work and what are its uses?
- How has the Erie Canal impacted how we live today?

## I. Activity

*Erie Canal Video (5 minutes)*

Use the video from CBS Almanac: The Erie Canal to introduce the class to the history of the Erie Canal.

- <http://www.cbsnews.com/videos/almanac-the-erie-canal/>

## II. Activity

*Geography Lesson on the Erie Canal and New York State (15 minutes)*

Using maps on the Internet (links below) or classroom maps, show the geography of the Erie Canal. Identify what lakes and major waterways it travels to. Estimate as a class how many miles the canal might be. Identify the villages, towns, cities, and areas that the canal runs through. Have them point out areas on the map that they or a family member/friend live. Point out Syracuse, where the class will be visiting the Museum. The following links are useful maps:

- <http://www.canals.ny.gov/maps/>
- <http://www.canals.ny.gov/maps/index.html>

- <http://www.ptny.org/bike-canal/map/>
- Google Maps and Images

### III. Activity

#### *Pictures of the Canal (15 minutes)*

Using the provided photographs of the Erie Canal, ask the students what they see. This can be done as one large group or broken up into smaller groups of students. Use a magnifying glass if possible to let the students go “hunting” for any details that they might see.

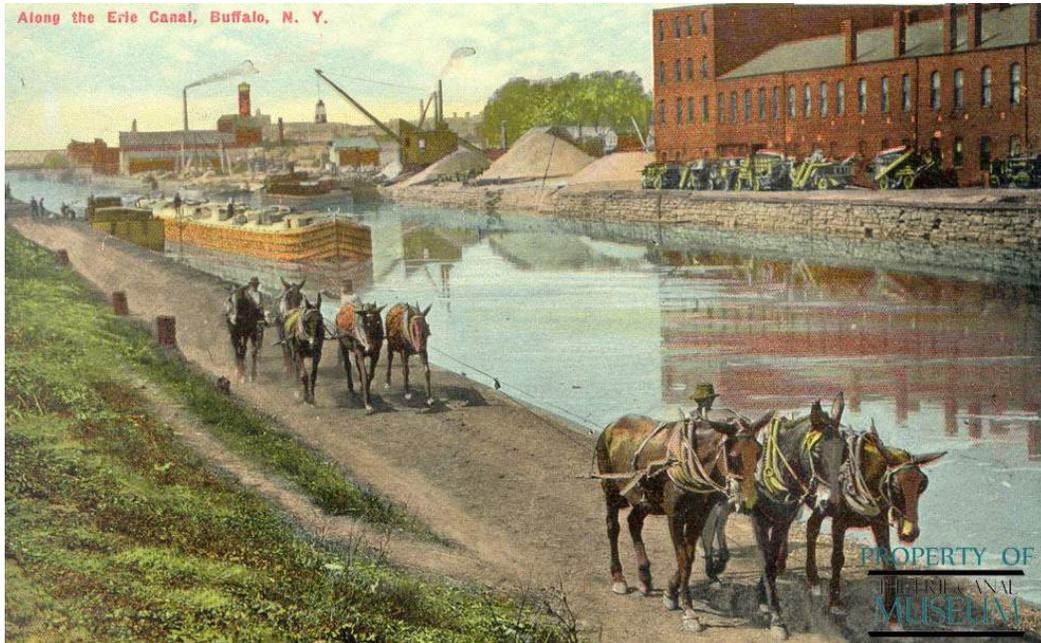


Photo One

- What do the mules appear to be doing?
- What is in the background of the postcard?
- When might this photograph have been taken?
- What is different about the boat compared to ships on the ocean?
- What might the boat be carrying?

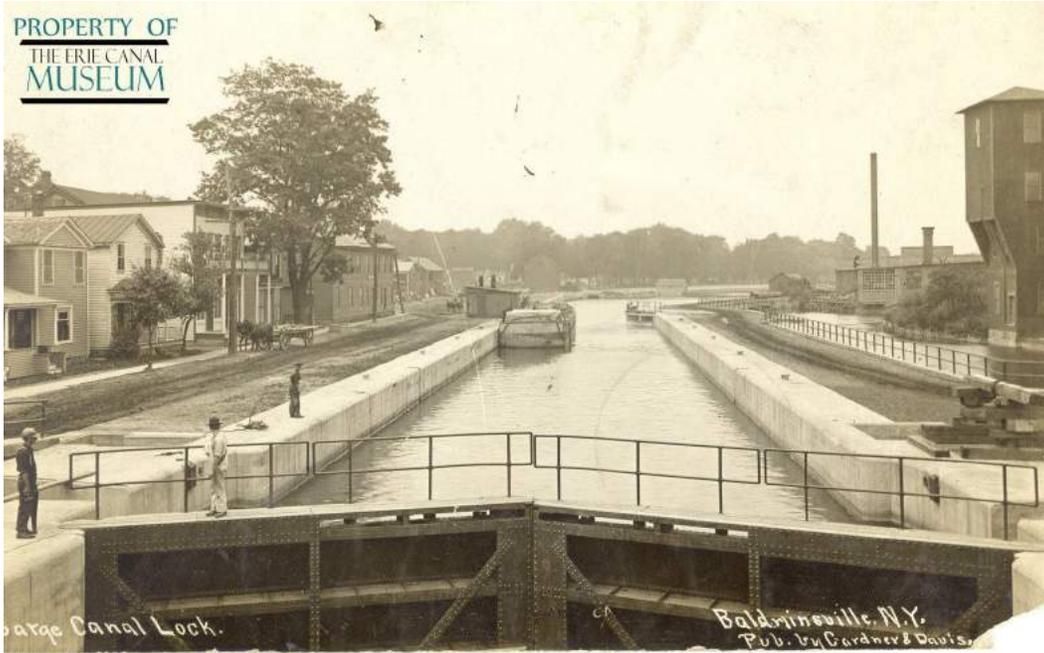


Photo Two

- How is this photograph the same (or different) to Photo One?
- Where was this picture taken?
- How many boats do you see in the canal?

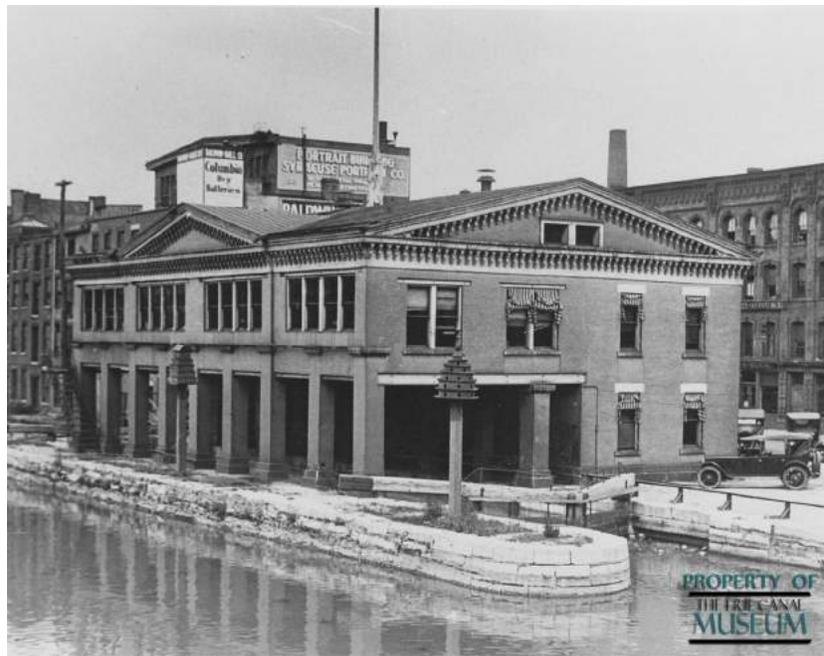


Photo Three

- What does this building appear to be?
- How do you know the location?
- How is this photograph similar to Photo One?

### Advanced Questions:

- Write a paragraph about the industries that developed because for the industries that developed because of the construction of the Erie Canal.
- What would have been different about in New York State and the world if the Erie Canal was not built?

### Optional Activity

Have students play the “Weigh Master Game” located on the Erie Canal Museum website (<http://eriecanalmuseum.org/history>) to visualize the lock system and how it works.

### Pre-Visit Answer Key

#### Photo One:

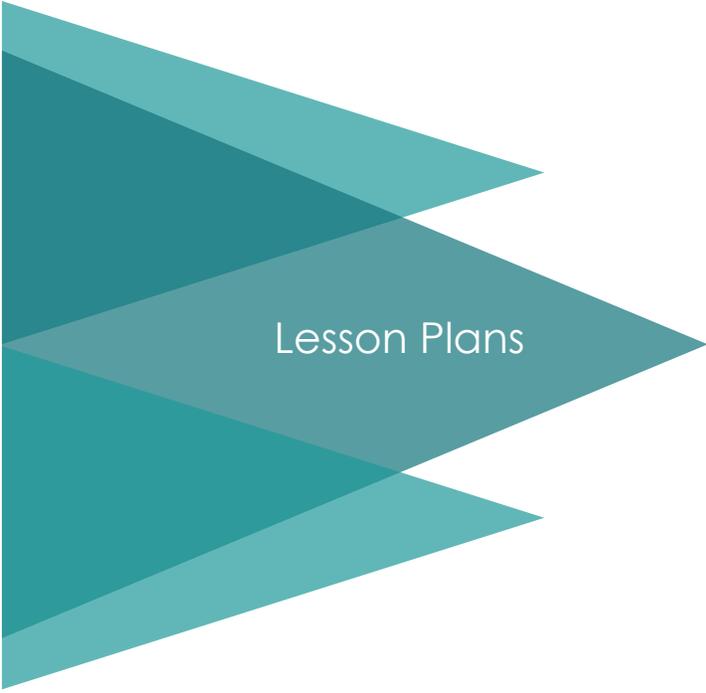
In this picture mules are pulling the canal boats down the Erie Canal. Before steamboats or engines, mules moved the boats down the canals and into the locks. Teams of mules like the ones pictured used their strength to move heavy boats full of supplies. Food, wood, medical supplies, animal feed, and clothing all came down the Erie Canal. Boats would be loaded in cities like Buffalo (the city in the background) and pulled down or up the canal to other cities. Boats coming down the canal allowed for the distribution of goods to families and farmers in New York and the United States. The boats that brought supplies on the canal were smaller than boats on the ocean as they needed to fit down the canal and into tight spaces called locks.

#### Photo Two:

In this photograph, you are looking at the locks of the canal. A canal boat going down the water would make its way into the lock where the doors would close and either fill or empty with water. The movement of water allowed boats to go up or down the canal easier and faster than when traveling over hills in the landscape. Not seen in this photograph are mules, as the boat the photographer was traveling on could have been a steamboat. Also seen in the photograph are two other canal boats, buildings, and a town in the background. This boat could be dropping off supplies to Baldwinsville, New York, the location of the photograph.

#### Photo Three:

Taken in Syracuse, New York, this photograph shows a weighlock building and the current site of the Erie Canal Museum. A weighlock building is a building that boats would be weighed to see how many pounds of supplies they were carrying. A single boat would be allowed into the building, much like a car into a garage. When you visit the Museum, compare how it looks in this picture to how it looks today. We will be visiting this building when we take our field trip next week.



## Lesson Plans

A note on the current state of the lesson plans:

The following lesson plans are suggested activities for students visiting the Erie Canal Museum. We have provided three options that meet different educational objectives and feature different aspects of canal history.

The visit activities require materials that we have not constructed or provided, due to lack of time and resources. Nothing should be too expensive, though it will take some time to assemble.

Other sections of the lessons are open to adaptation by museum staff and volunteers, who will have more expertise and familiarity with canal history. Each lesson plan is designed so that it can incorporate as much information about the canal as the lesson leader cares to provide. In this way, some of the facts and stories that would usually be included in a museum tour can be adapted to this interactive activity setting, and will hopefully encourage students to learn. Please feel free to fill in our gaps with museum-created scripts and prompts.

## Pack n' Go—an activity on Erie Canal immigration

### Summary

Students will be given an identity or character to take on for the duration of the activity to learn about travel, immigration, and work on the canal.

### Estimated time of activity

30 minutes

### Grades:

4 and 7

This activity can be completed by up to 10 students, each receiving their own character card. For a bigger group, or to encourage collaboration, students could be paired with partners and make decisions together.

### Common Core and New York State Learning Standards

*New York K-8 Social Studies Framework - March 2016*

#### Grade 4

- 4.6 Westward Movement and Industrialization, p. 55 - 56 / 4.6b
- 4.7 Immigration and Migration from the Early 1800s to the Present / 4.7a

#### Grade 7

- 7.6 Westward Expansion, p. 96 / 7.6c

*New York State Education Department Standards for Arts-1996*

#### All grades

- Standard 1: Creating, Performing and Participating in the Arts
- Standard 2: Knowing and Using Arts Materials and Resources

*New York State P - 12 Common Core Learning Standards for English Language Arts and Literature*

#### Grade 4

- Reading Standards for Literature, p. 18 / RL.4.1, RL.4.3
- Speaking and Listening Standards, p. 33 / SL.4.1, SL.4.3, SL.4.4

#### Grade 7

- Reading Standards for Literature, p. 47 / RL.7.9
- Speaking and Listening Standards, p. 62 / SL.7.1, SL.7.4

### Learning Objectives

Students will:

- Acquire a more detailed history of the canal, understanding the perspectives of those who worked and traveled along it, and how transportation and trade shaped their experiences.
- Engage with creative thinking, making decisions, and prioritizing items for different circumstances.
- Gain a further understanding of the immigration experience by learning about the personal experiences of these characters, understanding their feelings based on their circumstances, and learning more about the motivations for why they left their homes.

- Gain a better understanding of how the canal mattered to actual people by using personal accounts and real-life situations to make this history more relatable.

## Materials

- Character cards (10 printed and laminated, found in Appendix B)
- Store lists (10 printed and laminated, found in Appendix B)
- Suitcases (10 suitcases for 10 cards)
- Props for the store

## I. Activity Set-Up

1. Make sure the character cards are ready for students to choose from at random and that the store materials are set up so that they are easy to find and grab. The teacher will be in charge of taking objects from the store and handing them to students.
2. Be aware that part of this activity will take place on the Erie Canal Museum's boat. If this poses a problem, those components can be reworked to meet the group's needs.

## II. Introduction

[Italicized sections are script for the volunteer to read to students]

1. Teacher: *In this activity, each one of you will get the chance to be a person from another time traveling on the Erie Canal. Immigration on the Erie Canal was very important to New York and America. The canal allowed people to reach new places easily, and opened up opportunities for jobs in new farms, factories, and businesses. Immigrants allowed towns to grow by moving and working and spreading new ideas. They came from all over the world and formed the communities that still exist today. Some of your ancestors may have traveled on the Erie Canal.*
2. *Today, each of you will become a made-up character about to start a journey on the Erie Canal. You are all leaving your homes and journeying towards something new. You will start your journey with a suitcase and three things from home. You have the chance to get new things from the store, but remember—your suitcase can only fit three items, so if you want something new you'll have to trade.*
3. *To start, let's think about what it must have been like for people to leave their homes and go someplace entirely new. Raise your hand if you've moved before. What was it like?*
4. *Now think about what might be important to take with you when you move. If you had to leave your house tomorrow, what's one thing you would pack to bring with you?* [Go around the group and have each student name one thing]

## III. Get Characters

1. Give each student a suitcase and let them choose a character card at random.
2. Allow students time to read their cards and think about their character. Help with reading and answer any questions that may arise.
3. Teacher: *Please take your suitcases and line up in order of the year that your character was born, oldest to youngest. For example, if your character was born in 1800, you will stand in front of someone born in 1850.*
4. *You will now get the items that you already own—you can see them at the bottom of your card. While you're waiting for your turn, think about why these things might be important to your character.*
5. The student at the front of the line will come to the store first. Ask them what objects their character owns (located on the bottom their character card). Locate their three objects in the store and give them to the students to put in their suitcase. Give each student the store list so

that they can see all of the things they will have a chance to trade for.

#### IV. Introducing the Characters

1. Teacher: *Now we're going to introduce ourselves. Remember, you are now the character printed on your card! Going around in a circle, each of you will say the character's name and tell the others a little about yourself (use your own words, try not to just read from the card). You might want to share where your character is from, what you do for work, or what things you do for fun.*
2. Now go around in a circle and say why you're leaving home, and what you hope for in your future.
3. *Now that you each have your things and your suitcases, take a look at the list of things you can get at the store. This includes some of the items that you already have in your suitcases.* [Read the list out loud]

#### V. Trading

1. Teacher: *It's time to go to the store! Line up in order of birth year—this time, the youngest birth year goes first (the opposite order from last time).*
2. *You are all going to take turns choosing objects one at a time from the store. We will go around up to three times, since you can fit a total of three things in your suitcase. Remember—you can only have three things. If you want something from the store, you're going to have to trade an object you already have. Think hard about what you're going to need in a new town, and what is most important to you. For example, if you are a farmer and you have a shovel, a picture of your mother, and a candle, you might decide to get rid of the candle, because you could easily buy another and it's not as important to your work as a shovel is. That would make room for something new from the store.*
3. Each student will come up to the store with their suitcase. Help them decide if they should take something new, or keep what they already have. Encourage the other students to watch the process and give advice, if the student needs help.
4. Once the first round of trading is over, start the second round. Each student should come to the store, even if they tell you they want to keep what they have. If any of your students are still trading, go into the third round.

#### VI. Boarding the Boat

1. Teacher: *You're all packed! It's time to get on board the canal boat.*
2. Lead students onto the boat. If there are any mobility issues, try to set the scene for the students verbally instead.
3. Give students a sense of canal life with a short speech—here's a rough example that can be expanded upon by museum staff and volunteers: *Welcome to the Erie Canal! Each one of you have packed up and left your homes and everything you know. You are about to start a new adventure and a new life. During your lifetime, you would not have seen the road outside this building. You would be floating on the open water. The boat is tied to the shore in the busy city of Syracuse. There are people everywhere, coming and going, carrying luggage and boxes full of things to buy and sell. The mule over there is ready to pull the boat along the shoreline. You're probably a little nervous about traveling on the canal, and all the noise and commotion and strange smells aren't helping. You're going to be sharing this space with a lot of people over the next few days or weeks, depending on how far you're traveling. I hope you don't get seasick!*
4. *Now that you're on board, let's get to know each other a little better. We'll go around in a circle—each of you will show everyone what you've packed in your suitcase, and why you chose those three things.*
5. Have the students go around in a circle and introduce what they have packed.

6. *Thank you so much for being a great group of travelers. I know each of you will go off into the world and do great things. I wish you the best of luck! Please ask me any more questions you have about life on the Erie Canal.*
7. Collect the suitcases and items.

# Contamination in the Canal Activity

## Summary

Students will identify contaminants that contributed to the pollution of the Erie Canal in an aquarium demonstration. After discussing the connections between industry and population and their effects on the environment, students will be challenged to use the provided materials to filter the water to make it as clean as possible. The conclusion will include a discussion on the difficulty of reversing pollution, and what affects the pollution might have on the people and environment along the Canal, even today.

## Estimated Time

45 - 60 minutes.

## Grades:

4 and 7

## Common Core and New York State Learning Standards

*New York K-8 Social Studies Framework - March 2016*

### Grade 4

- 4.1 Geography and History of New York State, p. 52 / 4.1a, 4.1b
- 4.6 Industrialization and Westward Migration, p. 55 / 4.6b, 4.6c, 4.6e, 4.6f

### Grade 7

- 7.6 Westward Expansion, p. 96 / 7.6c

*New York State Next Generation Science Standards*

### Grade 4

- 4-ESS3 Earth and Human Activity / 4-ESS3-1, 4-ESS3-2

### Grade 7

- MS-LS2 Ecosystems: Interactions, Energy and Dynamics / MS-LS2-4, MS-LS2-5
- MS-ESS3 Earth and Human Activity / MS-ESS3-1, MS-ESS3-3

*New York State P-12 Common Core Learning Standards for Mathematics*

### Grade 4

- 4.OA - Operations and Algebraic Thinking, p. 26
- 4.NBT, 4.NF - Fractions and Number Operations, Number and Operations in Base of Ten, p. 27
- 4.MD - Measurements and Data, p. 28
- 4.G - Geometry, p. 29

### Grade 7

- 7.RP Ratios and Proportional Relationships, p. 41
- 7.NS The Number System, p. 41 - 42
- 7.EE Expressions and Equations, p. 42
- 7.G Geometry, p. 43

Grade 4

- SL.4 Speaking and Listening Standards, p. 33 / SL.4.1, SL.4.3, SL.4.4

Grade 7

- SL.7 Speaking and Listening Standards, p. 62 / SL.7.1, SL.7.4

## Learning Objectives

Students will:

- Identify sources of pollution throughout Erie Canal history and today.
- Explain the connections between people, industry, and the environment, both during the active years of the Erie Canal and today.
- Explain the cause and effect of pollutants in the Erie Canal and other bodies of water.
- Use creative problem solving to clean the contaminated water.
- Learn the basic of Erie Canal environmental history.
- Cooperate in a team environment and engage in group discussion and problem-solving.

## Materials

- Large aquarium
- Small containers, at least 20 oz.
- Water
- Something to represent industrial waste – cooking oil, etc.
- Something to represent building materials – bark, nails, larger objects, etc.
- Something to represent sewage – mud, colored flour in water, etc.
- Something to represent agricultural runoff – birdseed, grass, hay, etc.
- Something to represent garbage – newspaper, candy wrappers, plastic, etc.
- Liter soda bottles, cut in half (with a top and a bottom) with holes poked in the cap
- Cotton balls
- Sand
- Gravel
- Paper towel or coffee filter
- Ladle or large spoon
- Cleaning materials for afterwards

## Space

- Large, water-friendly or water-proofed environment
- Elevated table-space for initial demonstration
- Floor-space for students to work
- Consider water-proofing, like trash bags or tarps on the floor

## I. Activity Set-Up

1. Prepare the contaminants for the demonstration and the filter in cups or baggies. If you clog the water too much, the filter will still work but not nearly as well. Make the water murky but not thick or too full of large objects. Go sparingly, but enough to have an effect.
2. For the filter, if using a one-liter bottle, use 3-4 cotton balls, about a 1.5-2 cm layer of sand, a 4-5 cm layer of gravel, and one paper towel or coffee filter.

## II. Contamination

1. Start the demonstration with the aquarium half to two-thirds full of clean water and discuss where the canal builders got water for the canal (Lake Erie, rivers, diverted rivers, etc.). Discuss the state of the water before the canal was built (natural ecosystem).
2. Facilitator goes through the contaminants one by one and when they appeared in the canal. This can be a discussion of how people interact with their environment: building the canal where there wasn't a pre-existing waterway, building bridges over the canal, building farms and industry along the canal for easy access, etc. Talk about the various peoples and industries that contributed to the pollution (construction, agricultural, industrial, urban, etc.). Ask the students what kinds of contaminants might come from these groups and explain the time periods when these types of waste would be introduced to the canal. Allow students to help dirty the water with each representative as they are discussed. You can add as much or as little as you feel you would like, though the filter works better if the water is dirty but not thick with contaminants. Stir as you add.
  - Construction materials (represented by bark/wood chips/gravel)
  - Agricultural runoff (represented by grass, seed, etc.)
  - Industrial waste (represented by oil)
  - Garbage (represented with trash and wrappers)
  - Sewage (represented by the water- our creation/mud)
3. Talk about the various peoples and industries that contributed to the pollution (construction, agricultural, industrial, urban, etc.).
4. Ask the students what kinds of contaminants might come from these groups and explain the time periods when these types of waste would be introduced to the canal.
5. Allow students to help dirty the water with each representative as they are discussed. You can add as much or as little as you feel you would like, though the filter works better if the water is dirty but not thick with contaminants. Stir as you add. By the time the story arrives at the mid-20th century, the water should be dirty, dark, and object-filled.
6. Discuss how heavily this waterway was used. Discuss the impact of this level of use on the canal.
  - Would the students like to live near a waterway like this?
  - What would the canal smell like?
  - Do they think it would be a good idea to swim in this?
  - Would they like to float a boat in this water?
  - Why would it be a bad idea to swim in water like this?
  - Bring up the impact of the pollution on humans, such as disease.
  - If time, discuss the impact on the environment around the canal.
  - How would these contaminants affect the wildlife that live in and around the canal?
  - What about the plants and crops that would use the water in the canal to grow?
7. If time, discuss the impact on the environment around the canal.
  - How would these contaminants affect the wildlife that live in and around the canal?
  - What about the plants and crops that would use the water in the canal to grow?

## III. Cleaning

1. Scoop the water equally into the small containers and split the students into smaller groups

- (ideally supervised by a volunteer or chaperone).
2. Give each group one small container of water, the two halves of a soda bottle, and the prepared cotton balls, sand, gravel and paper towel/coffee filter.
  3. Challenge the students (or walk them through the process) to use the materials they were given to clean the water as best as they can.

#### IV. Solution

1. Turn the top portion of the soda bottle upside down and place it in the bottom half of the bottle.
2. Pack the neck of the top full of cotton balls.
3. Add a 0.5-0.75 inch layer of sand so that you can't see any cotton balls underneath.
4. Add a 1-1.5 inch layer of gravel on top of the sand.
5. Place a paper towel/coffee filter over the top of the layers, forming a bowl within the water bottle top.
6. Pour or ladle the water into the now completed filter and allow the water to drain into the container below.
7. The water will drain slowly, and may need a squeeze or gentle shake to keep the water moving. As it drains, discuss what the water looks like.
  - Is it totally clean, or is it still somewhat dirty?
8. Explain that this is a natural way that water cleans itself. Water gets strained through rocks, dirt, sand, and other materials and filters out the pollution. But this takes a long time.
9. After an allotted amount of time to clean the water, discuss the activity.
  - How did the water in the aquarium get so dirty?
  - What did all the things we put into the aquarium represent?
  - Did industry and the people along the canal affect the pollution?
  - How do you think the people living and working on the canal might have felt about the pollution?
  - Did the filter work very well?
  - How long did it take to clean the water?
  - How does the water in our filter compare to the canal?
10. Discuss the realization that the canal needed to be clean.
  - Examples: People discovering germs and realizing living near an open sewage canal was an unhealthy choice; the Canal Fire of 1969 and how it helped the New York state government pass the Clean Water Act and what happened to the canal's pollution after that.
11. Invite students to come up with ideas to help clean the canal even more, as communities near the canal still deal with pollution today.
12. For clean up, we would recommend a strainer so you can pour the water down a drain but catch all the contaminants you put into it.

#### Adaptions

This activity can be simplified significantly into a demonstration if it proves to be problematic or complicated with a large group of students. The Bottle Match activity, included in this packet, also offers a simplified version of the learning objectives into a display or demonstration only.

Make sure to have an additional educator on hand to assist students with motor-impairments with engaging the activity. While the other students are adding “pollutants” to the water, have the educator consult with any students with motor-impairments to add the pollutants at the instruction of the student. Make sure the aquarium or classroom space is large enough for students with walkers or wheelchairs to see and feel as included as other students who can stand around the aquarium. The educator assisting students with motor-impairments can also help them to identify the other pollutants once the group breaks up into smaller groups.

## Bottle Match

### Summary

This activity can be done in conjunction with, in replacement of, or entirely separately from the Contamination in the Canal Activity. It demonstrates different types of contamination in the canal based on what industries, populations, and technologies existed around the Erie Canal. This interactive can provide the basis for a discussion about negative effects of the canal on the environment.

### Time

Flexible; 15-20 minutes if structured but does not need to be facilitated

### Grades:

4 and 7

### Common Core and New York State Learning Standards

*New York K-8 Social Studies Framework - March 2016*

#### Grade 4

- 4.1 Geography and History of New York State, p. 52 / 4.1a, 4.1b
- 4.6 Industrialization and Westward Migration, p. 55 / 4.6b, 4.6c, 4.6e, 4.6f

#### Grade 7

- 7.6 Westward Expansion, p. 96 / 7.6c

*New York State Next Generation Science Standards*

#### Grade 4

- 4-ESS3 Earth and Human Activity / 4-ESS3-1, 4-ESS3-2

#### Grade 7

- MS-LS2 Ecosystems: Interactions, Energy and Dynamics / MS-LS2-4, MS-LS2-5
- MS-ESS3 Earth and Human Activity / MS-ESS3-1, MS-ESS3-3

*New York State P-12 Common Core Learning Standards for Mathematics*

#### Grade 4

- 4.OA - Operations and Algebraic Thinking, p. 26
- 4.NBT, 4.NF - Fractions and Number Operations, Number and Operations in Base of Ten, p. 27
- 4.MD - Measurements and Data, p. 28
- 4.G - Geometry, p. 29

#### Grade 7

- 7.RP Ratios and Proportional Relationships, p. 41
- 7.NS The Number System, p. 41 - 42
- 7.EE Expressions and Equations, p. 42
- 7.G Geometry, p. 43

*New York State P - 12 Common Core Learning Standards for English Language Arts and Literature*

#### Grade 4

- Speaking and Listening Standards, p. 33 / SL.4.1, SL.4.3, SL.4.4  
Grade 7

- Speaking and Listening Standards, p. 62 / SL.7.1, SL.7.4

## Learning Objectives

Students will:

- Identify sources of pollution throughout Erie Canal history and today.
- Identify the connections between people, industry, and the environment, both during the active years of the Erie Canal and today.
- Learn basic Erie Canal environmental history.

## Materials

- 5 water bottles filled with various forms of water pollution
  - Construction Era: dirt and mud
  - Early Years: broken ceramic/china, glass, corn husks/plant material
  - Industrial Growth: black sludge
  - Passage of the Clean Water Act: cleaner water but with plastics/oil
  - Today: candy wrappers and modern trash

## I. Activity

1. Show students each of the five bottles. Explain the contents inside them as representations of different eras of pollution in the Erie Canal. The items inside can either represent the differing levels of pollution (ex: using cooking oil to represent industrial oil) or actually acquire the types of pollutants that might have been found in the canal. However, do not identify the eras these levels might represent.
2. Ask the students to try to put the bottles in a timeline order of when the canal looked like each of these pollution levels.
3. Allow them to guess, then discuss. Explain the levels of pollution, how they came to be, what happened in between eras, etc.
4. Discuss the causes of pollution, who or what was responsible for the changes (people and industry), and why keeping the canal clean is important today.

## Adaptions

This activity can easily be a stand-alone interactive without a facilitator. Instead of fostering discussion, simply use displays and signage. Ensure to place these interactive displays at a height suitable to children or individuals with disabilities.

# Ship It!

## Summary

Students will recreate trade practices on the Erie Canal using model boats to simulate the transport and sale of cargo to different towns. Students will work together in groups to be successful traders. This activity incorporates Erie Canal history with a hands-on approach to reach different learning styles.

## Time:

30 minutes

## Grades:

4 and 7

## Common Core and New York State Learning Standards

*New York State P-12 Common Core Learning Standards for Mathematics*

### Grade 4

- 4.OA - Operations and Algebraic Thinking, p. 26
- 4.MD - Measurement and Data, p. 28

### Grade 7

- 7.RP Ratios and Proportional Relationships, p. 41
- 7.NS The Number System, p. 41 - 42
- 7.EE Expressions and Equations, p. 42
- 7.G Geometry, p. 43

*New York K-8 Social Studies Framework - March 2016*

### Grade 4

- 4.6 Westward Movement and Industrialization, p. 55 - 56 / 4.6b, 4.6c, 4.6e, 4.6f

### Grade 7

- 7.6 Westward Expansion, p. 96 / 7.6c

*New York State Next Generation Science Standards*

- Grades 3 - 5 Engineering Design / 3-5-ETS-1, 3-4-ETS1-2
- Grades 6 - 8 Engineering Design / MS-ETS1-1

*New York State P - 12 Common Core Learning Standards for English Language Arts and Literature*

### Grade 4

- Speaking and Listening Standards, p. 33 / SL.4.1, SL.4.3, SL.4.4

### Grade 7

- Speaking and Listening Standards, p. 62 / SL.7.1, SL.7.4

## Learning Objectives

Students will:

- Use practical math in measuring boats and comparing boat size to canal size.
- Understand the importance of technological advancements to trade on the Erie Canal.

- Learn basic Erie Canal history.
- Cooperate in a team project and engage in group discussion and problem-solving.
- Gain first-hand experience in the basics of engineering a canal while being mindful of both money and the expanding needs of commercial transport.
- Demonstrate math skills using addition, subtraction, and multiplication while using money.

## Materials

- 5 small boats measuring 4in. x 2in. x 1in. - boats should have “cargo” space
- 5 large boats measuring 5in. x 3in. x 2in. - boats should have “cargo” space
- 5 wood troughs: 12in. x 4in. x 1in.
- 6 wood troughs: measuring 12in. x 8in. x 1in.
- 1 wood trough with slight taper: 12in. x 4in. (tapering to 2in. in the middle) x 1in.
- 2 small locks: 5in. x 3in.
- 2 large locks: 8in. x 10in.
- 3 “shops”: 5in. x 4in.
- 90 1” cubes painted gold to represent wheat
- 90 1” cubes painted blue to represent fish
- 90 1” cubes painted grey to represent manufactured goods
- Rulers
- Paper/pencils
- Play money

## I. Activity Set-up

1. Set up the small canal; lay two of the straight pieces end-to-end, followed by the tapered piece, then the remaining straight pieces.
2. Place one shop at each end of the canal and the third shop just after the tapered piece.
3. Have the locks set up on either side of the tapered piece, sandwiched between it and the straight pieces.
  - See Diagram in Appendix C.

## II. Activity Introduction

1. Divide the students into groups of three.
  - One will be the team recorder and write down the amount of cargo and sales on a piece of paper.
  - The second will be the trader who is the only one that can talk to the shopkeeper and obtain cargo blocks.
  - The third is the captain, in charge of moving the boat.
2. Ground rules for the boats
  - Students have to move the boats slowly.
  - A lock takes 10 seconds of counting out loud to pass a boat through.
  - The small locks cost \$1 to use, while the large locks cost \$5 to use.
  - The curved piece can only have one boat in it at a time.
  - The facilitator will act as the lock keeper to take the lock fees.
3. Shopkeeper instructions
  - The shopkeeper is the second facilitator in charge of the cargo.

- When students come up to sell the cargo, they must say what they are selling and exchanging before buying their new cargo.
4. Trading Information
- Give students copies of the following:
- Shop 1 exports wheat and buys manufactured goods.
  - Shop 2 exports fish and buys wheat.
  - Shop 3 exports manufacture goods and buys fish.
  - Wheat costs \$3 at the store and sells for \$5.
  - Fish costs \$3 at the store and sells for \$6.
  - Manufactured goods cost \$5 at the store and sell for \$10.

### III. Small Boats - 10 minutes

1. Give each group a small boat and \$20. Tell them they need to get as much cargo as possible from one shop to the next as cheaply as possible.
2. Have the groups start at different shops along the model.
3. Have the students measure and record the dimensions of their boat.
4. Have each group go to the store; they will need to tell the shopkeeper what size their boats are, and pay for goods to trade at the next town. The group recorder should write down what is purchased.
5. Students will put the blocks onto the boats and send them through the canal. Have the students keep track of their profit.
6. Once this part is complete, have the students calculate their total profit.

### IV. Large Boats - 15 minutes

1. Give students the larger boats, explain that boats are getting larger with new technology.
2. The shopkeeper will stack the cargo in one of the new boats, ask them what is different about the newer boats that could be helpful for trade.
3. Measure the larger boats. Ask students to identify potential problems with the new boat size. Have students try to send boats through canals.
4. Ask them what they think the problem is, and brainstorm possible solutions.
5. The shopkeeper will bring out the larger set of canal blocks, explain that in 1836 they started a project to enlarge the canal to fit larger boats.
6. State that the money they paid each time they passed through the locks went towards buying the larger canal.
7. Have the students replace the first canal with the second, lining each trough up end-to-end. Explain that part of the canal expansion project also included making it straighter, and give them additional straight piece.
8. Students will notice the locks are now too small for the canal.
9. Explain with the increased trade, some locks were expanded to fit more boats at once.
10. Restart the activity with the larger canal.
11. Students will send the second set of boats through, count how much cargo made it, and compare the results. Ask students how the canal changed, and what that meant for trade.
12. At the end of the activity, students will calculate the total amount of profit they earned from using small boats verses large boats.

## Adaptations

For larger groups

- Double the groups to six members with two recorders, two traders, and two captains.

For older groups

- Have the shops be able to buy all the different cargos but buy at different prices than the others.
- Have the groups use both the small and large boats at the same time on the second half of the activity.
- Increases taxes on the locks and place tax on the goods for certain town shops.



## Post-Visit Activities

### Post-Visit Activity: Questions Along the Canal

Time Frame  
40 minutes

Grade Level:  
4

#### Standards

*New York K-8 Social Studies Framework - March 2016*

Grade 4

- 4.1 Geography and history of New York State, pp. 52
- 4.6 Industrialization and westward migration, pp. 55

#### *New York State Next Generation Science Standards*

Grade 4

- 4-ESS3 Earth and Human Activity
- 4-ESS3-1 Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.
- 4-ESS3-2 Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

Grades 3 - 5

- Engineering Design / 3-5-ETS-1, 3-4-ETS1-2

#### *New York State P-12 Common Core Learning Standards for Mathematics*

Grade 4

- 4.0A Operations and Algebraic thinking, pp. 26
- 4.NBT, 4. NF Fractions and number operations, number and operations in base of ten, pp. 27
- 4.MD Measurements and Data, pp. 28
- 4.G Geometry, pp. 29

#### *New York State P - 12 Common Core Learning Standards for English Language Arts and Literature*

Grade 4

- SL.4 Speaking and Listening Standards, p. 33 / SL.4.1, SL.4.3, SL.4.4

### Learning Objectives

Students will:

- Reinforce themes learned about the canal and how people interact with their environment
- Solve basic Erie Canal trivia
- Discuss what has been learned.

## Materials

- Introductory DVD
- White/black/smart board and writing tool
- Paper and pencil
- Canal boat cut-outs

## I. The Video:

The Erie Canal Museum has developed a short film detailing the history and impact of the Erie Canal. This video should provide some more detailed background on the Erie Canal, and to help prepare students for the next activity (The clip starts at approximately the six minute mark and goes until the end of the film. It is six minutes long). Additionally, this movie will reinforce ideas learned during the visit to the Erie Canal Museum.

## II. Erie Canal Trivia:

To see how much students absorbed from their visit to the museum, the teacher will divide students up into two equally sized teams.

1. Using the same map supplied in the pre-visit activity and the trivia questions supplied by the Erie Canal Museum, the students will take turns answering questions relating to math as well as the history, ecology, economics, geography, and technology of the Erie Canal. The objective of this activity is to travel the Erie Canal from Albany in the east to Buffalo in the west (both teams will have a canal boat to represent their team, one red and one blue, found in Appendix C).
2. Each round, the teams will be asked a question and given approximately 30-45 seconds to answer.
3. After the time has expired, have a representative from each team write their answer down on a whiteboard/sheet of paper.
4. Ask both teams to hold their answers up at the same time so the teacher can see.
5. Each question the teams get right allows them to move to a city farther down the canal. Though there will be twelve major cities marked on the maps, the instructor is welcome to use fewer if time is restricted.

## III. Concluding Discussion:

To conclude this post-visit activity and to also finalize the lesson emphasized during your visit, guide a discussion on the technology and impact of the Erie Canal.

1. Divide the class into four or five-person groups to brainstorm some of the technological processes and equipment needed to complete the canal and how the canal changed New York State. Try to allow the students to think about these questions on their own, but if they do need guidance, give them examples of technology/ processes used create the canal (such as stump pullers or weighlocks) or how it helped the state grow (for example, it expanded the economy).
2. After five to ten minutes, ask the students for their answers to these questions and try to ensure that all participate. One way to do this would be to gather the children in a circle and have them toss a ball around the circle. Whoever catches the ball has to provide an answer to the question. This can be repeated until everyone has participated.



The speed limit for traveling on the Erie Canal was about 4 miles an hour. The Erie Canal is around 364 miles long. How many hours did it take for a boat to make it from one end of the canal to the next?

Answer: *91 hours.*

Name an item traded on the Erie Canal.

Answer: *Items include potatoes, flour, guns, apples, lumber, whiskey, and fur.*

What are the names of the two cities at the beginning and the end of the Erie Canal?

Answer: *Albany and Buffalo*

Describe how locks work

1. *The boat enters a lock*
2. *The gates close*
3. *The boat is either raised or lowered to the level of the water*
4. *The boat is on its way!*

Bonus Questions (If the students/teacher wish to continue the game)

What was the nickname given to the Erie Canal during its construction?

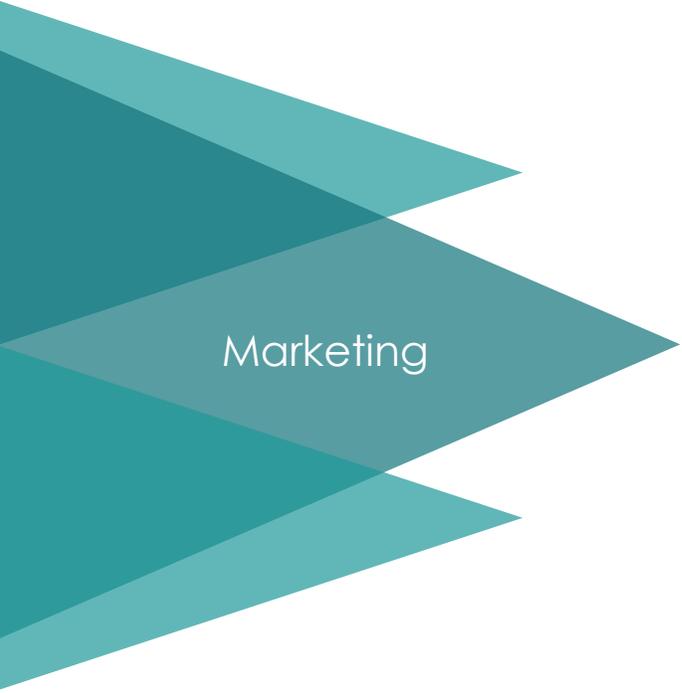
- A) *Clinton's Ditch*                      C) *Lincoln's Hat*  
B) *Washington's Monument*      D) *Clinton's Path*

What is the name of the river that the Erie Canal connects to near Albany

- A) *The Amazon River*                C) *The Hudson River*  
B) *The Mississippi River*         D) *The Mohawk River*

## Assessment Forms

Please find post-visit assessment forms for teachers, museum educators, and students in Appendix E.



## Marketing

This section outlines opportunities for the Erie Canal Museum to advertise new and current educational programming to encourage school group visitorship. There are a variety of methods through which the Museum can connect to educators. We suggest combining these options to increase the effectiveness of each individual method.

### Web Page

We recommend the addition of an “Educators” tab to the website to make pertinent information regarding museum educational programming more apparent to teachers.

Information to include would be a welcome section to educators with a brief explanation of what makes the Museum relevant to New York State education requirements, lesson plans, mock itineraries, prices, time requirements, and contact information for scheduling field trips. This will provide a comprehensive overview of what teachers and their students can expect during a visit. It should also include information about the Ticket to Ride program, possibly under the pricing section, to show how schools can offset the price of the trip.

### Blog

Blogs can be linked directly to the “Educators” tab on the website. We suggest that the blog posts include information that will engage teachers and encourage school visitorship to The Erie Canal Museum. Possible topics could include current school program offerings, past programs coupled with pictures of students engaged in hands-on learning activities, and specifics regarding targeted Common Core Standards in current programming opportunities. Including testimonials from teachers promoting the programs could also resonate strongly with other educators. This might also be an area of opportunity for students to write blog posts as part of their post-visit assignment.

### Twitter

The Erie Canal Museum already has a strong Twitter presence. Twitter is a great platform, particularly for the use of creative hashtags that are short, relevant, and include the museum name. For example, the museum could post, “Today Solvay Union students learned about . . . #ErieCanalMuseum #Syracuse #ErieCanalDiversity #ErieSTEM.” We recommend that blog posts be linked here as well to advertise new posts.

### Facebook

The Erie Canal Museum already has a strong Facebook presence. Adding more information about programming could also help attract more interest from educators. To increase Facebook followers, we recommend considering using hashtags related to the Twitter feed for special events

and specific programs. Additionally, it would be beneficial if these posts include which state learning standards the specific program covers and include links to blog posts on the topic, and every blog post the Museum produces would be beneficial to share on Facebook.

## Instagram

We recommend that photos from events be posted on Instagram. While photo releases would be needed to post pictures of students' faces, which should be distributed to schools as part of the pre-visit packet, other photography of activities could gain the interest of new audiences. If programs are opened to the public, photo release forms could be eliminated simply by not posting photos with faces.

## School Packets

We recommend sending packets out to schools with materials that will attract them to the Museum, starting with a small brochure. The sample brochure, below, is short, simple to read, and provides an overview of the lesson plan, including what Common Core and learning standards it addresses. It can be sent to teachers and schools as well as be left on the rack in the Museum lobby. The template is included in the packet so that it can be updated as the Museum sees fit.

## E-Blasts

Another effective method of communicating educational offerings is through a consistent "e-blast" for teachers wishing to stay informed. We recommend "e-blasts" be sent out roughly once a month regarding new education programming opportunities. These messages should be content driven and targeted.

Grade 7  
 MS-LS2 Ecosystems: Interactions, Energy and Dynamics / MS-L52-4, MS-LS2-5  
 MS-ESS3 Earth and Human Activity / MS-ESS3-1, MS-ESS3-3  
 New York State P-12 Common Core Learning Standards for Mathematics  
 Grade 4  
 4.OA - Operations and Algebraic Thinking, p. 26  
 4.NBT, 4.NF - Fractions and Number Operations, Number and Operations in Base of Ten, p. 27  
 4.MD - Measurements and Data, p. 28  
 4.G - Geometry, p. 29  
 Grade 7  
 7.RP Ratios and Proportional Relationships, p. 41  
 7.NS The Number System, p. 41 - 42  
 7.EE Expressions and Equations, p. 42  
 7.G Geometry, p. 43  
 New York State P - 12 Common Core Learning Standards for English Language Arts and Literature  
 Grade 4  
 SL.4 Speaking and Listening Standards, p. 33 / SL.4.1, SL.4.3, SL.4.4  
 Grade 7  
 SL.7 Speaking and Listening Standards, p. 62 / SL.7.1, SL.7.4

**Bottle Match**  
 New York K-8 Social Studies Framework - March 2016  
 Grade 4  
 4.1 Geography and History of New York State, p. 52 / 4.1a, 4.1b  
 4.6 Industrialization and Westward Migration, p. 55 / 4.6b, 4.6c, 4.6e, 4.6f  
 Grade 7  
 7.6 Westward Expansion, p. 96 / 7.6c  
 New York State Next Generation Science Standards  
 Grade 4  
 4-ESS3 Earth and Human Activity / 4-ESS3-, 4-ESS3-2  
 Grade 7  
 MS-LS2 Ecosystems: Interactions, Energy and Dynamics / MS-L52-4, MS-LS2-5  
 MS-ESS3 Earth and Human Activity / MS-ESS3-1, MS-ESS3-3

New York State P-12 Common Core Learning Standards for Mathematics  
 Grade 4  
 4.OA - Operations and Algebraic Thinking, p. 26  
 4.NBT, 4.NF - Fractions and Number Operations, Number and Operations in Base of Ten, p. 27  
 4.MD - Measurements and Data, p. 28  
 4.G - Geometry, p. 29  
 Grade 7  
 7.RP Ratios and Proportional Relationships, p. 41  
 7.NS The Number System, p. 41 - 42  
 7.EE Expressions and Equations, p. 42  
 7.G Geometry, p. 43  
 New York State P - 12 Common Core Learning Standards for English Language Arts and Literature  
 Grade 4  
 SL.4 Speaking and Listening Standards, p. 33 / SL.4.1, SL.4.3, SL.4.4  
 Grade 7  
 SL.7 Speaking and Listening Standards, p. 62 / SL.7.1, SL.7.4



# Educational Lesson Plan & Resource Guide For Fourth and Seventh Grade

# About The Museum

## Our Mission

Committed to preserving the only existing weighlock building in the United States, the Erie Canal Museum collects and conserves Canal material, champions an appreciation and understanding of Erie Canal history through educational programming and promotes an awareness of the Canal's transforming effects on the past, present and future.

## Lesson Plans and Learning Objectives

### Pack N' Go

- Acquire a more detailed history of the canal, understanding the perspectives of those who worked and traveled along it, and how transportation and trade shaped their experiences.
- Engage with creative thinking, making decisions, and prioritizing items for different circumstances.
- Gain a further understanding of the immigration experience by learning about the personal experiences of these characters, understanding their feelings based on their circumstances, and learning more about the motivations for why they left their homes.



## Contamination in the Canal

- Identify sources of pollution throughout Erie Canal history and today.
- Explain the connections between people, industry, and the environment, both during the active years of the Erie Canal and today.
- Explain the cause and effect of pollutants in the Erie Canal and other bodies of water.
- Use creative problem solving to clean the contaminated water.
- Be able to verbally share 3 basic facts about Erie Canal environmental history.
- Cooperate in a team environment and engage in group discussion and problem-solving.

## Bottle Match

- Identify sources of pollution throughout Erie Canal history and today.
- Identify the connections between people, industry, and the environment, both during the active years of the Erie Canal and today.
- Be able to verbally share 3 basic facts about Erie Canal environmental history.

# Common Core Standards

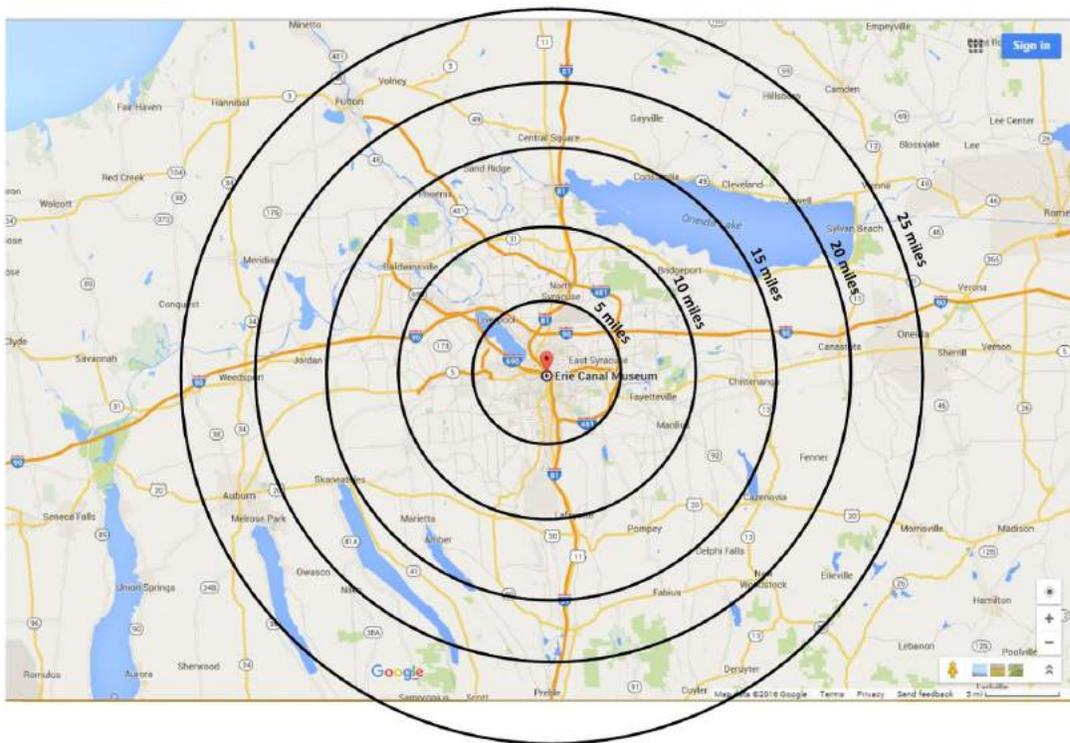
## Pack N' Go

- New York K-8 Social Studies Framework - March 2016
- Grade 4
- 4.6 Westward Movement and Industrialization, p. 55 - 56 / 4.6b
- 4.7 Immigration and Migration from the Early 1800s to the Present / 4.7a
- Grade 7
- 7.6 Westward Expansion, p. 96 / 7.6c
- New York State Education Department Standards for Arts-1996
- All grades
- Standard 1: Creating, Performing and Participating in the Arts
- Standard 2: Knowing and Using Arts Materials and Resources
- New York State P - 12 Common Core Learning Standards for English Language Arts and Literature
- Grade 4
- RL.4 Reading Standards for Literature, p. 18 / RL.4.1, RL.4.3
- SL.4 Speaking and Listening Standards, p. 33 / SL.4.1, SL.4.3, SL.4.4
- Grade 7
- RL.7 Reading Standards for Literature, p. 47 / RL.7.9
- SL.7 Speaking and Listening Standards, p. 62 / SL.7.1, SL.7.4

## Contamination in the Canal

- Common Core and New York State Learning Standards
- New York K-8 Social Studies Framework - March 2016
- Grade 4
- 4.1 Geography and History of New York State, p. 52 / 4.1a, 4.1b
- 4.6 Industrialization and Westward Migration, p. 55 / 4.6b, 4.6c, 4.6e, 4.6f
- Grade 7
- 7.6 Westward Expansion, p. 96 / 7.6c
- New York State Next Generation Science Standards
- Grade 4
- 4-ESS3 Earth and Human Activity / 4-ESS3-, 4-ESS3-2

## Appendix A Education Contacts



This map is a representation of the area surrounding the Erie Canal Museum. We divided it based on five mile increments in order to determine which school districts are closer and may be more likely to visit the museum. By dividing the area this way, the Erie Canal Museum can decide which districts would be most likely to be able to arrange field trips and focus their marketing and other outreach efforts towards these schools. Below is a complete list of districts, with contact information, organized by distance.

## School Districts - 5 Mile Radius

Lyncourt Union Free School District  
2707-09 Court Street  
Syracuse, NY 13208  
Telephone: (315) 455-7571  
Fax: (315) 455-7573  
[http://www.edline.net/pages/lyncourt\\_school](http://www.edline.net/pages/lyncourt_school)

Solvay Union Free School  
103 Third Street  
Solvay, NY 13209  
Telephone: (315) 468-1111  
<http://www.solvayschools.org/>

Syracuse City School District  
725 Harrison Street  
Syracuse, NY 13210  
Telephone: (315) 425-4499  
<http://www.syracusecityschools.com/>

Westhill Central School District  
4000 Walberta Road  
Syracuse, NY 13219  
Telephone: (315) 426-3000  
<http://www.westhillschools.org/>

## School Districts - 5 to 10 Mile Radius

Baldwinsville Central School District  
29 East Oneida Street  
Baldwinsville, NY 13027  
Telephone: (315) 638-6043  
Fax: (315) 638-6041  
<http://www.bville.org/>

East Syracuse-Minoa Central School District  
407 Fremont Road  
East Syracuse, NY 13057  
Telephone: (315) 434-3000  
Fax: (315) 434-3020  
[www.esmschools.org/](http://www.esmschools.org/)

Fabius-Pompey Central School District  
1211 Mill Street, PO Box 161  
Fabius, NY 13063  
Telephone: (315) 683-5301  
Fax: (315) 683-5827  
<http://www.fabiuspompey.org/>

Fayetteville-Manlius Central School District  
8199 East Seneca Turnpike  
Manlius, NY 13104  
Telephone: (315) 682-1234  
Fax: (315) 682-9193  
<http://www.fmschools.org/>

Jamesville-DeWitt Central School District  
PO Box 606  
DeWitt, NY 13214  
Telephone: (315) 445-8304  
Fax: (315) 445-8477  
[www.jamesvilledewitt.org](http://www.jamesvilledewitt.org)

LaFayette Central School  
5955 Route 20 West  
LaFayette, NY 13084  
Telephone: (315) 677-9728  
Fax: (315) 677-3372  
<http://lafayetteschools.org/>

Liverpool Central School District  
195 Blackberry Road  
Liverpool, NY 13090  
Telephone: (315) 622-7125  
Fax: (315) 622-7115  
<http://www.liverpool.k12.ny.us/>

North Syracuse Central School District  
5355 West Taft Road  
North Syracuse, NY 13212  
Telephone: (315) 218-2100  
Fax: (315) 218-2185  
<http://www.nscsd.org/>

## School Districts - 10 to 20 Mile Radius

Baldwinsville Central School District  
29 East Oneida Street  
Baldwinsville, NY 13027  
Telephone: (315) 638-6043  
<http://www.bville.org/>

Canastota Central School District  
120 Roberts Street  
Canastota, NY 13032  
Telephone: (315) 697-2025  
<http://www.canastotacsd.org>

Cazenovia Central School District  
31 Emory Avenue  
Cazenovia, NY 13035  
Telephone: (315) 655-1317  
<http://cazenoviacsd.com/>

Central Square School District  
642 South Main Street  
Central Square, NY 13026  
Telephone: (315) 668-4267  
<http://www.cssd.org/>

Chittenango Central School District  
Marcellus Central Schools  
2 Reed Parkway  
Marcellus, NY 13108  
Telephone: (315) 673-0201  
Fax: (315) 673-1727  
<http://www.marcellusschools.org/>

Jordan-Elbridge Central School District  
PO Box 902, Chappell Street  
Jordan, NY 13080  
Telephone: (315) 689-3978  
Fax: (315) 689-0084  
[www.jecsd.org](http://www.jecsd.org)

Phoenix Central School District  
116 Volney Street  
Phoenix, NY 13135  
Telephone: (315) 695-1573

Email: [Info@Phoenixcsd.org](mailto:Info@Phoenixcsd.org)  
<https://www.phoenixcsd.org/>

Skaneateles Central School District  
55 East Street  
Skaneateles, NY 13152  
Telephone: (315) 685-8361  
<http://www.skanschools.org/>

Tully Central School District  
20 State Street  
Tully, NY 13159  
Telephone: (315) 696-6200  
<http://www.tullyschools.org/>

## School Districts Within a 20-25 Mile Radius

Auburn School District  
78 Thornton Avenue  
Auburn, NY 13021  
Telephone: (315) 255-8800  
<http://district.auburn.cnyric.org/>

Camden School District  
51 Third Street  
Camden, NY 13316  
Telephone: (315) 245-2500  
Fax: (315) 245-1622  
<https://www.camdenschools.org/>

Fulton School District  
167 South Fourth Street  
Fulton, NY 13069  
Telephone: (315) 593-5500  
<http://www.fultoncsd.org/>

Hamilton Central School District  
47 W Kendrick Avenue  
Hamilton, NY 13346  
Telephone: (315) 824-3723  
<http://www.hamiltoncentral.org>

Oneida School District  
565 Sayles Street  
Oneida, NY 13421  
Telephone: (315) 363-2550  
<http://www.oneidacsd.org/>

Rome School District  
409 Bell Road  
Rome, NY 13440  
Telephone: (315) 338-6500  
<http://www.romecsd.org>

Utica School District  
106 Memorial Parkway  
Utica, NY 13501  
Telephone: (315) 792-2210  
<http://www.uticaschools.org>

Vernon-Verona-Sherill School District  
5275 NY-31  
Verona, NY 13478  
Telephone: (315) 829-2520  
<http://www.vvsschools.org>

Weedsport School District  
2821 E. Brutus Street  
Weedsport, NY 13166  
Telephone: (315) 834-6637  
<http://www.weedsport.org/>

## Homeschool Group Information

HLACNY - Home Learners Association of  
Central New York  
<http://www.hlacny.com/about-us/contact>

Syracuse LEAH(Loving Education at Home)  
<http://www.syracuseleah.org/contact-us/>

Oswego County LEAH(Loving Education at  
Home)  
Email: [oswegocountyleah@yahoo.com](mailto:oswegocountyleah@yahoo.com)  
[https://www.homeschool-life.com/600/index\\_public](https://www.homeschool-life.com/600/index_public)

Northern Onondaga LEAH (Loving Education  
at Home)  
Christine Hussak, Chapter Co-Leader  
Telephone: 652-7759  
Email: [ccplus1@hotmail.com](mailto:ccplus1@hotmail.com)  
Rachel Bunal, Chapter Co-Leader  
Telephone: 668-9340  
Email: [rmbunal@yahoo.com](mailto:rmbunal@yahoo.com)  
[https://www.homeschool-life.com/1132/index\\_public](https://www.homeschool-life.com/1132/index_public)

Forever Learning Academy  
Sakina  
Telephone: 315 278-0737  
Email: [MUFEAH@yahoo.com](mailto:MUFEAH@yahoo.com)

East Side Homeschool Association  
Email: [eastsidehomeschoolcooperative@gmail.com](mailto:eastsidehomeschoolcooperative@gmail.com)  
<https://sites.google.com/site/eastsidehomeschool/>

## Private School Information

Blessed Sacrament School  
3129 James Street  
Syracuse, NY 13206  
Telephone: (315) 463-1261  
<http://www.blessedsacramentschool.org>

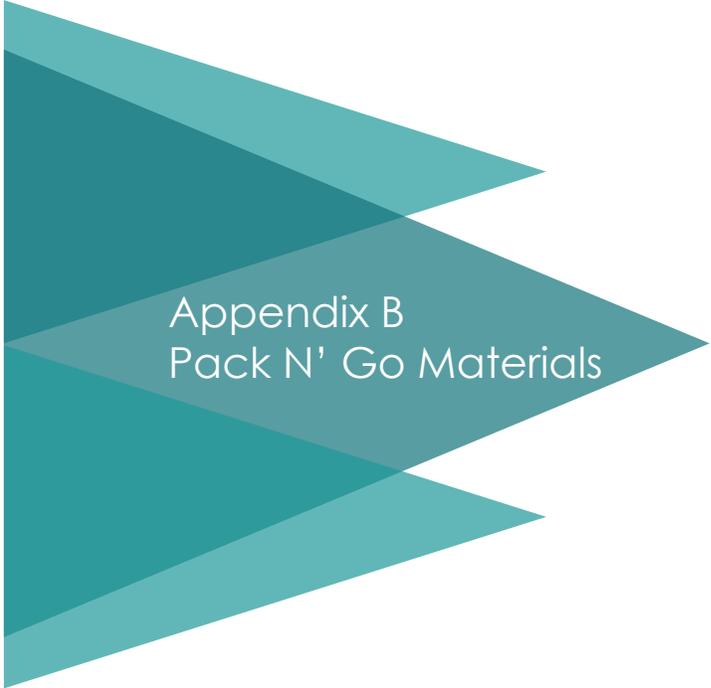
Cathedral Academy at Pompei  
923 North McBride Street  
Syracuse, NY 13208  
Telephone: (315) 422-8548  
Email: [Cap@syrdioese.org](mailto:Cap@syrdioese.org)  
<http://www.capsyracuse.org>

Faith Heritage School  
3740 Midland Ave  
Syracuse, NY 13205  
Telephone: (315) 469-7777  
<http://www.faithheritageschool.org/>

Ihsan School of Excellence  
1406 Park Street  
Syracuse, NY 13208  
Telephone: (315) 472-5040  
Email: [info@insanschool.org](mailto:info@insanschool.org)  
[http://ihsanschool.org/Home\\_Page.html](http://ihsanschool.org/Home_Page.html)

Manlius Pebble Hill School  
5300 Jamesville Road  
Syracuse, NY 13214  
Telephone: (315) 446-2452  
<http://www.mph.net/>

Montessori School of Syracuse  
155 Waldorf Parkway  
Syracuse, NY 13224  
Telephone: (315) 449-9033  
Fax: (315) 449-4021  
Email: [mssadmissions@gmail.com](mailto:mssadmissions@gmail.com)  
<http://www.mssyr.org/>



## Appendix B Pack N' Go Materials

### Store list

Cooking pot  
Violin  
Harmonica  
Toy dog  
Set of marbles  
Pick-up-sticks game  
Deck of cards  
Paper and pen for letter-writing  
Artist's kit (paper and paints)  
Nice clothes (3 suits for men, 3 dresses for women)  
Work clothes (3 sets male, 3 female)  
Winter coats (4)  
Shoes (3 sets male, 3 female)  
Blankets (3)  
Book that will help you learn English  
Teacher's book  
Sewing kit  
Blank journal  
Family portrait  
Child's drawing  
Fashion magazine  
Boy's cap  
Novel  
Hymn book  
Candle

Scarf  
Locket with painting  
Water flask  
Warm socks (3 pair)  
Seeds  
World map  
Handkerchief

<p>Antonio Costa, 22 years old, born in Italy in 1878. Quarry worker. Antonio is traveling on the Erie Canal to find stone cutting work. He comes from a long line of talented stone cutters in the village of Alfedena. His relatives say that their ancestors built Rome and now they are building America. Antonio is unmarried but has family already living and working in the quarries of Medina, NY, which are famous for their brownstone. He plans to stay with them until he can find a job and buy a home of his own. He only speaks a little English. Antonio loves painting and looking at artwork more than anything else, and doesn't think he could live without it.</p> <p>Already owns: Warm socks, portrait of parents, deck of cards</p>	<p>Tim Flannigan, 16 years old, born in Ireland in 1834. Tim is the youngest of four siblings and decided to leave Ireland. His older brothers are staying on the family farm, but there is hardly enough to support them and Tim wants more. He has no skills, but heard that there were jobs available in the salt industry. Tim is taking the Erie Canal to Syracuse, where salt is mined around Onondaga Lake. He doesn't know anyone in the area, but he knows there are a lot of Irish workers there so he might be more likely to get work and be less homesick. He hopes that there will be lots of dances in Syracuse.</p> <p>Already owns: Candle, work clothes, family portrait</p>
<p>Anna Simon, 8 years old, born in New York City in 1853. Anna is an orphan. Her parents died of a disease known as yellow fever, leaving Anna and her two brothers on their own. A charity called The Children's Aid Society took them in. They sent her brothers somewhere out west, and are sending Anna to a farm in Rochester. She is worried that he won't know where their new home is to write them letters. She might never see them again, and they're the only family she has left. Anna has never been outside of the city before, and doesn't know what country people are like. She's glad that she'll have enough food to eat again, but has been warned that she'll have to work hard on the farm to earn her living. She hopes her new family will be kind, and there will be at least one dog on the farm.</p> <p>Already owns: Father's harmonica, scarf, drawing by her brother</p>	<p>Mila Block, 19 years old, born in Germany in 1910. Mila's family left Germany because there was not enough work there. She is used to having to support herself with factory jobs, especially since she does not get along well with her family. Mila's parents have settled in Albany, but Mila wants to travel to Rome to work in a clothing factory. She will live in a female boarding house and hopes to make friends who will go to movies and dances with her. She also hopes to go on dates, and that her factory job will pay enough for a few new dresses. Mila loves music, and sings while she does her work.</p> <p>Already owns: Work clothes, fashion magazine, cooking pot</p>

<p>Albert Carlson, 54 years old, born in Sweden in 1785. Albert is headed farther west, but is traveling on the Erie Canal to the Great Lakes, where he will take a riverboat to Chicago. He has enough savings to buy farmland outside the city. Albert has heard that he can get an acre of farmland for about \$7. He plans to buy 100 acres, and get more with time. Once he builds a home (with help from his neighbors), he will send for his wife, his twenty year-old daughter, her husband, and their children. Albert loves playing games with his grandchildren more than anything else.</p> <p>Already owns: Locket with painting of his wife, blanket, water flask (to carry drinking water)</p>	<p>John Neumann, 30 years old, born in the Kingdom of Bohemia (now the Czech Republic, in Central Europe) in 1811. John (originally “Johann”) wants to become a Catholic priest, but there are no openings in Bohemia. His only chance to become a priest is to move to another country, so he travels to New York. John can speak six languages and is also interested in plants and astronomy (planets and stars). Once he got to New York City, a bishop finally made him a priest and sent him west to preach to German immigrants. He is on his way to Buffalo now. He is meeting many interesting people on his travels, since there are many religions spreading across New York State on the canal.</p> <p>Already owns: Suit, Bible, warm socks</p>
<p>Allie Campbell, 13 years old, born in Scotland in 1837. Allie (short for “Alison”) set sail for America with her mother when she was 10. They were hoping to meet her father in New York City, but when they arrived, they could not find any trace of him. Allie’s mother died of the flu a year ago, and Allie has to work to survive. She is disguising herself as a boy and has a job driving mules along the canal. Some of the boat captains are kind to her, and others are mean—one abandoned her in a town at the end of the season and she worked as a maid until she found a new boat.</p> <p>Already owns: Boy’s cap, mother’s hymn book (a book of religious songs), sewing kit</p>	<p>Harriet Carver, 15 years old, born in Philadelphia in 1818. Harriet is traveling with her mother, who was a slave but ran away on the Underground Railroad (a network of secret routes and safe houses that helped enslaved people escape to freedom in the North) when she was Harriet’s age. Harriet’s father is a potter, and makes plates and bowls. He just found a job in Troy, NY and wants Harriet and her mother to join him there. Harriet hopes that her father will teach her how to be a potter and that she will also be able to find a job. She has been living in Philadelphia and loved going to the theater there. Harriet is always reading and writing, and hopes that there will be plays in Troy.</p> <p>Already owns: Winter coat, novel, blanket</p>

Thomas Day, 25 years old, born in North Carolina in 1801. Thomas is a free African American furniture designer and cabinetmaker. He and his brother owned a furniture business in North Carolina together, but when his brother decided to move to Liberia (in Africa), Thomas decided it was time to move north. His work is very beautiful and business was good in North Carolina, so even though he knows he will have to face racial prejudice, Thomas hopes to open a successful shop in a town along the canal. He also wants get enough land to grow a garden. He has a violin, but he doesn't play it very often.

Already owns: Woodworking tools, suit, violin

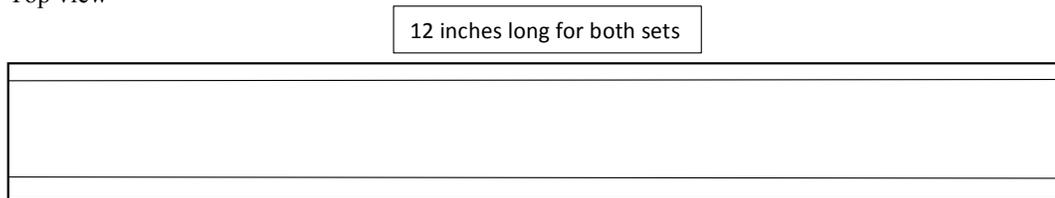
Danielle Leroy, 17 years old, born in France in 1890. Danielle wants to be a schoolteacher but could not find work in France. Her father died after his business failed, and there was not enough money in his will to support the family. Danielle is traveling with her mother and younger sister. She has a good education from the years when her family had more money, and learned English when she was very young. She is worried that her accent will make her an outsider in a new country. Her favorite subject is geography, because she has always wanted to travel the world. She loves to meet new people and try new things.

Already owns: Teacher's book, work clothes, handkerchief

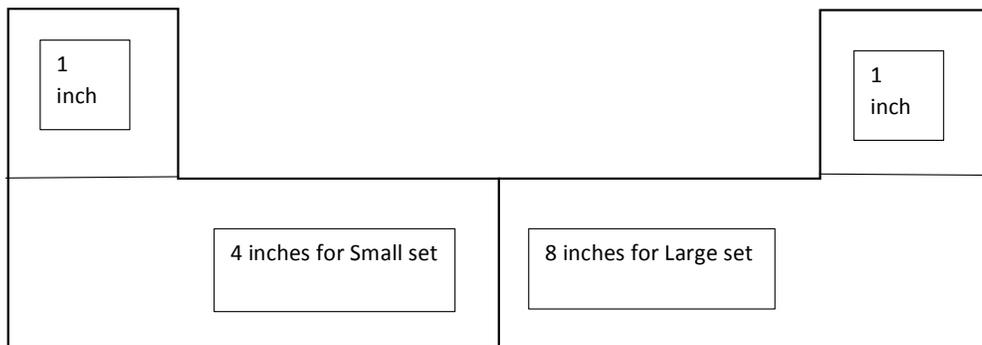
# Appendix C Ship It! Diagrams

## Canal Pieces (both Small and Large)

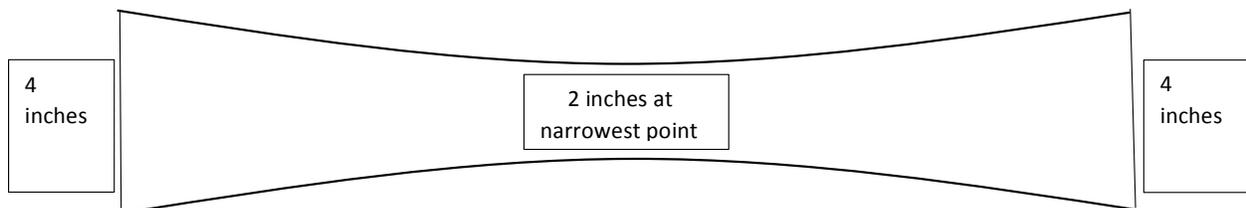
Top view



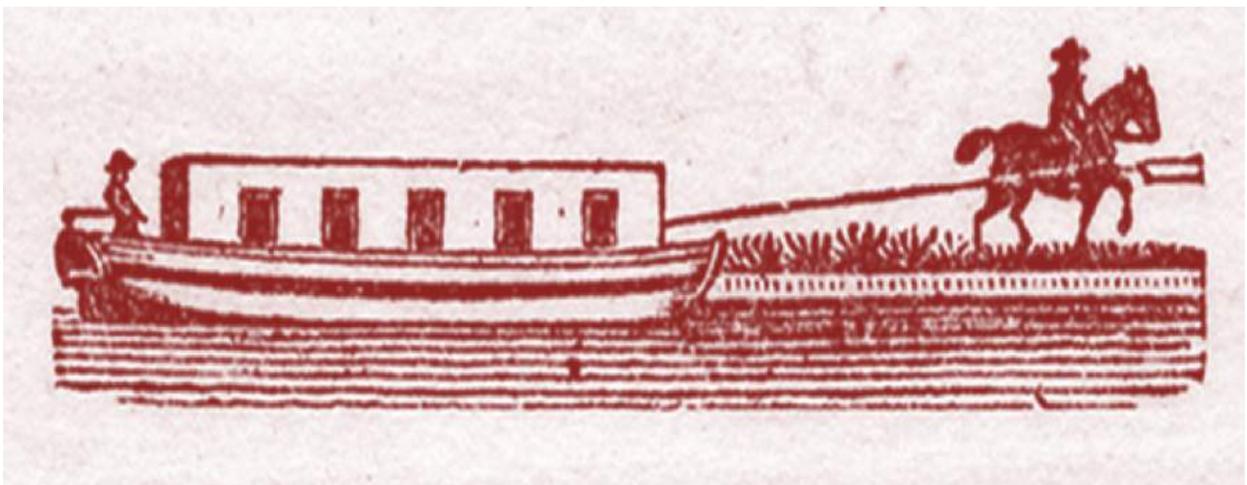
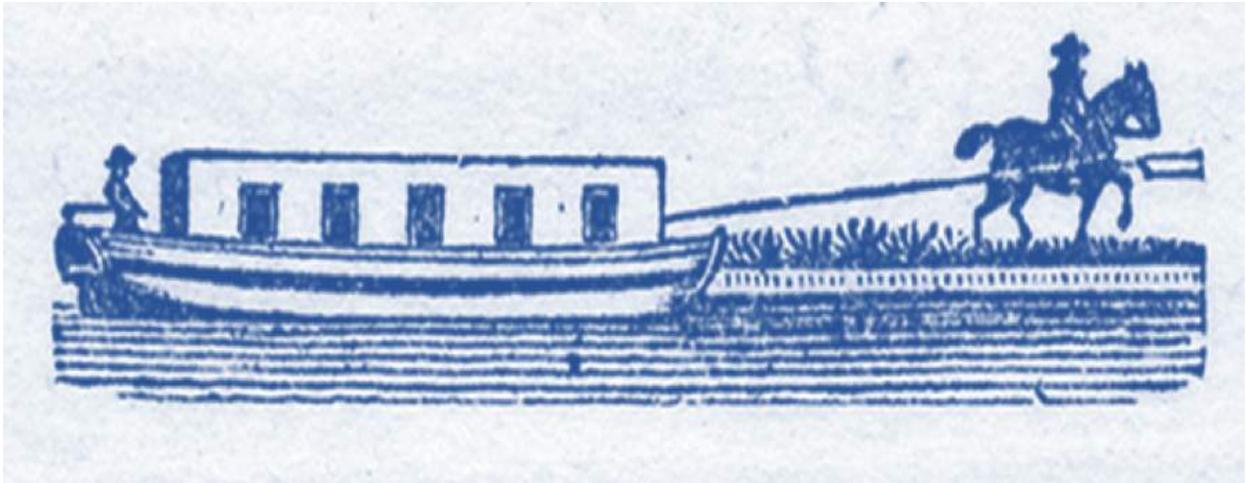
Front View



## Curved Piece (For Small set)



Appendix D  
Post Visit Materials





Appendix E  
Evaluations









## Student Evaluation

What was your favorite part of your visit?

What's one thing you learned on your visit?

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What was your favorite part of your visit?

What's one thing you learned on your visit?

## Appendix F Learning Standards

### CCL and New York State Standards

#### Pack n' Go

#### New York K-8 Social Studies Framework - March 2016

*Practices (applicable for grades 5 - 7; helps informing learning objectives)*

##### A. Gathering, Interpreting, and Using Evidence

1. Develop questions about New York State and its history, geography, economics and government.

2. Recognize, use, and analyze different

forms of evidence used to make meaning in social studies (including sources such as art and photographs, artifacts, oral histories, maps, and graphs).

3. Identify and explain creation and/or authorship, purpose, and format for evidence; where appropriate, identify point of view.

6. Create an understanding of the past by using primary and secondary sources.

##### C. Comparison and Contextualization

4. Recognize the relationship between geography, economics, and history in social studies

##### F. Civic Participation

4. Identify opportunities for and the role of the individual in social and political participation in the school, local, and/or state community.

5. Show respect in issues involving differences and conflict; participate in negotiating and compromising in the resolution of differences and conflict. 6. Identify situations in which social actions are required and suggest solutions.

7. Identify people in positions of power and how they can influence people's rights and freedom.

#### *Standards*

#### Grade 4: New York State and Local History and Government Standards

4.6 Westward Movement and Industrialization, p. 55 - 56

4.6b In order to connect the Great Lakes with the Atlantic Ocean, the Erie Canal was built.

Existing towns expanded and new towns grew along the canal. New York City became the busiest port in the country.

Students will examine the physical features of New York State and determine where it might be easiest to build a canal, and form a hypothesis about the best location.

Students will compare their hypothesis with the actual location of the Erie Canal.

Students will examine how the development of the canal affected the Haudenosaunee nations.

Students will locate and name at least five towns and four cities along the canal, and identify major products shipped using the canal.

4.7 Immigration and Migration from the Early 1800s to the Present: Many people have immigrated and migrated to New York State contributing to its cultural growth and development.

4.7a Immigrants came to New York State for a variety of reasons.

Students will research an immigrant group in their local community or nearest city in terms of where that group settled, what types of jobs they held, and what services were available to them, such as ethnic social clubs and fraternal support organizations.

Grade 7: History of the United States and New York State 1

7.6 Westward Expansion, p. 96

7.6c Westward expansion provided opportunities for some groups while harming others. Students will examine the Erie Canal as a gateway to westward expansion that resulted in economic growth for New York State, economic opportunities for Irish immigrants working on its construction, and its use by religious groups, such as the Mormons, to move westward.

New York State Education Department Standards for Arts-1996

*Standards*

Standard 1: Creating, Performing and Participating in the Arts

Students will actively engage in the processes that constitute creation and performance in the arts (dance, music, theatre, and visual arts) and participate in various roles in the arts.

Standard 2: Knowing and Using Arts Materials and Resources

Students will be knowledgeable about and make use of the materials and resources available for participation in the arts in various roles.

New York State P - 12 Common Core Learning Standards for English Language Arts and Literature

Reading Standards for Literature K-5

Grade 4

1. Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
3. Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).

Grade 7

9. Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history.

Speaking and Listening Standards K-5

Grade 4

1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly. (same for all grades)
3. Identify the reasons and evidence a speaker provides to support particular points.
4. Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at

an understandable pace.

#### Grade 7

Speaking and Listening Standards, p. 62 / SL.7.1, SL.7.4

SL.7.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.

SL.7.4 Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

## Bottle Match and Contamination on the Canal

### New York K-8 Social Studies Framework - March 2016

#### *Practices*

##### B. Chronological Reasoning and Causation

4. Distinguish between long-term and immediate causes and effects of a current event or an event in history.
5. Recognize dynamics of historical continuity and change over periods of time.
7. Recognize and identify patterns of continuity and change in New York State.

##### C. Comparison and Contextualization

4. Recognize the relationship between geography, economics, and history in social studies.

##### D. Geographic Reasoning

1. Use location terms and geographic representations (maps and models) to describe where places are in relation to each other, to describe connections between places, and to evaluate the benefits of particular places for purposeful activities.
2. Distinguish human activities and human-made features from “environments” (natural events or physical features—land, air, and water — that are not directly made by humans).
3. Identify how environments affect human activities and how human activities affect physical environments.
4. Recognize relationships between patterns and processes.
5. Describe how human activities alter places and regions.

##### E. Economics and Economic Systems

1. Explain how scarcity necessitates decision making; compare the costs and benefits of economic decisions.
2. Distinguish between the various types of resources (human capital, physical capital, and natural resources) required to produce goods and services.
3. Explain the role of money in making exchange easier; examine the role of corporations and labor unions in an economy.
4. Explain why individuals and businesses specialize and trade.

#### *Standards*

##### Grade 4: New York State and Local History and Government Standards

4.1 Geography and History of New York State, p. 52 / 4.1a, 4.1b

4.1a Physical and thematic maps can be used to explore New York State's diverse geography.

Students will be able to identify and map New York State's major physical features, including

mountains, plateaus, rivers, lakes, and large bodies of water, such as the Atlantic Ocean and Long Island Sound. Students will examine New York State climate and vegetation maps in relation to a New York State physical map, exploring the relationship between physical features and vegetation grown, and between physical features and climate.

4.1b New York State can be represented using a political map that shows cities, capitals, and boundaries.

Students will create a map of the political features of New York State that includes the capital city and the five most populous cities, as well as their own community. Students will examine the location of the capital of New York State and the major cities of New York State in relation to their home community, using directionality, and latitude and longitude coordinates. Students will use maps of a variety of scales including a map of the United States and the world to identify and locate the country and states that border New York State.

4.6 Westward Movement and Industrialization, p. 55 - 56

4.6b In order to connect the Great Lakes with the Atlantic Ocean, the Erie Canal was built. Existing towns expanded and new towns grew along the canal. New York City became the busiest port in the country.

Students will examine the physical features of New York State and determine where it might be easiest to build a canal, and form a hypothesis about the best location.

Students will compare their hypothesis with the actual location of the Erie Canal.

Students will examine how the development of the canal affected the Haudenosaunee nations.

Students will locate and name at least five towns and four cities along the canal, and identify major products shipped using the canal.

4.6c Improved technology such, as the steam engine and the telegraph made transportation and communication faster and easier. Later developments in transportation and communication technology had an effect on communities, the State, and the world.

4.6e Entrepreneurs and inventors associated with New York State have made important contributions to business and technology.

4.6f Between 1865 and 1915, rapid industrialization occurred in New York State. Over time, industries and manufacturing continued to grow. Students will trace manufacturing and industrial development in New York State and in their local community in terms of what major products were produced, who produced them, and for whom they were produced from the 1800s to today.

Grade 7: History of the United States and New York State 1

7.6 Westward Expansion, p. 96

7.6c Westward expansion provided opportunities for some groups while harming others. Students will examine the Erie Canal as a gateway to westward expansion that resulted in economic growth for New York State, economic opportunities for Irish immigrants working on its construction, and its use by religious groups, such as the Mormons, to move westward.

New York State P-12 Common Core Learning Standards for Mathematics

*Standards*

Grade 4

4.OA - Operations and Algebraic Thinking, p. 26

Use the four operations with whole numbers to solve problems.

4.NBT, 4.NF - Fractions and Number Operations, Number and Operations in Base of Ten, p. 27

Explain why a fraction  $a/b$  is equivalent to a fraction  $(n \times a)/(n \times b)$  by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size.

Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as  $\frac{1}{2}$ .

Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

Understand decimal notation for fractions, and compare decimal fractions

4.MD - Measurements and Data, p. 28

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

4.G - Geometry, p. 29

Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

## Grade 7

7.RP Ratios and Proportional Relationships, p. 41

Analyze proportional relationships and use them to solve real-world and mathematical problems.

7.NS The Number System, p. 41 - 42

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

7.EE Expressions and Equations, p. 42

Use properties of operations to generate equivalent expressions.

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

7.G Geometry, p. 43

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

## New York State P - 12 Common Core Learning Standards for English Language Arts and Literature

### *Standards*

#### Grade 4

Speaking and Listening Standards, p. 33 / SL.4.1, SL.4.3, SL.4.4

SL.4.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

SL.4.3 Identify the reasons and evidence a speaker provides to support particular points.

SL.4.4 Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

#### Grade 7

Speaking and Listening Standards, p. 62 / SL.7.1, SL.7.4

SL.7.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.

SL.7.4 Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

## New York State Next Generation Science Standards

### *Standards*

#### Grade 4

4-ESS3 Earth and Human Activity

4-ESS3-1 Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

4-ESS3-2 Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

#### Grades 7

MS-LS2 Ecosystems: Interactions, Energy and Dynamics

MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical biological components of an ecosystem affect populations.

MS-LS2-5 Evaluate competing design solutions for maintain biodiversity and ecosystem services.

MS-ESS3 Earth and Human Activity

MS-ESS3-1 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

## Ship It

## New York State P-12 Common Core Learning Standards for Mathematics

*Practices (applicable for grades 5 - 7; helps informing learning objectives)*

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others
4. Model with mathematics
6. Attend to precision
7. Look for and make use of structure
8. Look for and express regularity in repeated reasoning operations and algebraic thinking

## Standards

#### Grade 4

4.OA - Operations and Algebraic Thinking, p. 26

Use the four operations with whole numbers to solve problems.

4.MD - Measurement and Data, p. 28

Solve problems involving measurement and conversion of measurements from a larger unit to

a smaller unit.

## Grade 7

### 7.RP Ratios and Proportional Relationships, p. 41

Analyze proportional relationships and use them to solve real-world and mathematical problems.

### 7.NS The Number System, p. 41 - 42

Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; Represent addition and subtraction on a horizontal or vertical number line diagram.

Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

Solve real-world and mathematical problems involving the four operations with rational numbers

### 7.EE Expressions and Equations, p. 42

Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.

Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically

### 7.G Geometry, p. 43

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

## New York K-8 Social Studies Framework - March 2016

### *Practices*

#### B. Chronological Reasoning and Causation

4. Distinguish between long-term and immediate causes and effects of a current event or an event in history.

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## E. Economics and Economic Systems

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4. Explain why individuals and businesses specialize and trade.

### *Standards*

#### Grade 4: New York State and Local History and Government Standards

##### 4.6 Westward Movement and Industrialization, p. 55 - 56

4.6b In order to connect the Great Lakes with the Atlantic Ocean, the Erie Canal was built.

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4.6e Entrepreneurs and inventors associated with New York State have made important contributions to business and technology.

4.6f Between 1865 and 1915, rapid industrialization occurred in New York State. Over time, industries and manufacturing continued to grow. Students will trace manufacturing and industrial development in New York State and in their local community in terms of what major products were produced, who produced them, and for whom they were produced from the 1800s to today.

#### Grade 7: History of the United States and New York State 1

##### 7.6 Westward Expansion, p. 96

7.6c Westward expansion provided opportunities for some groups while harming others. Students will examine the Erie Canal as a gateway to westward expansion that resulted in economic growth for New York State, economic opportunities for Irish immigrants working on its construction, and its use by religious groups, such as the Mormons, to move westward.

### New York State Next Generation Science Standards

#### Science and Engineering Practices in NGSS- April 2013

- 1. Asking questions (for science) and defining problems (for engineering)
- 2. Developing and using models
- 3. Planning and carrying out investigations
- 4. Analyzing and interpreting data
- 5. Using mathematics and computational thinking

6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Each of the eight principles builds in complexity with each grade level.

### *Standards*

#### Grades 3 - 5 - Engineering Design

##### 3-5-ETS-1

Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time or cost.

##### 3-4-ETS1-2

Generate and compare multiple solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

#### Grades 6 - 8 - Engineering Design

##### MS-ETS1-1

Define criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

#### New York State P - 12 Common Core Learning Standards for English Language Arts and Literature

### *Standards*

#### Grade 4

Speaking and Listening Standards, p. 33 / SL.4.1, SL.4.3, SL.4.4

SL.4.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

SL.4.3 Identify the reasons and evidence a speaker provides to support particular points.

SL.4.4 Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

#### Grade 7

Speaking and Listening Standards, p. 62 / SL.7.1, SL.7.4

SL.7.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.

SL.7.4 Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

## Pre-Visit Activities

For all activities

### New York K-8 Social Studies Framework - March 2016

#### *Standards*

##### Grade 4

###### New York State and Local History and Government

4.6 Westward Movement and Industrialization, p. 55 - 56 / 4.6b, 4.6c, 4.6e, 4.6f

4.6b In order to connect the Great Lakes with the Atlantic Ocean, the Erie Canal was built. Existing towns expanded and new towns grew along the canal. New York City became the busiest port in the country.

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4.6f Between 1865 and 1915, rapid industrialization occurred in New York State. Over time, industries and manufacturing continued to grow.

##### Grade 7

###### History of the United States and New York State 1

7.6 Westward Expansion, p. 96 / 7.6c

7.6c Westward expansion provided opportunities for some groups while harming others. Students will examine the Erie Canal as a gateway to westward expansion that resulted in economic growth for New York State, economic opportunities for Irish immigrants working on its construction, and its use by religious groups, such as the Mormons, to move westward.

### New York State P - 12 Common Core Learning Standards for English Language Arts and Literature

#### *Standards*

##### Grade 4

###### Speaking and Listening Standards, p. 33 / SL.4.1, SL.4.3, SL.4.4

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##### Grade 7

###### Speaking and Listening Standards, p. 62 / SL.7.1, SL.7.4

SL.7.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.

SL.7.4 Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

## Post-Visit Activities

For all activities

### New York K-8 Social Studies Framework - March 2016

#### *Standards*

##### Grade 4

4.1 Geography and history of New York State, pp. 52

4.1a Physical and thematic maps can be used to explore New York State's diverse geography.

4.1b New York State can be represented using a political map that shows cities, capitals, and boundaries.

4.6 Industrialization and westward migration, pp. 55

4.6a Farming, mining, lumbering, and finance are important economic activities associated with New York State.

4.6b Entrepreneurs and inventors associated with New York State have made important contributions to business and technology.

4.6c Between 1865 and 1915, rapid industrialization occurred in New York State. Over time, industries and manufacturing continued to grow.

### New York State Next Generation Science Standards

#### *Standards*

##### Grade 4

4-ESS3 Earth and Human Activity

4-ESS3-1

Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

4-ESS3-2

Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

##### Grades 3 - 5 - Engineering Design

3-5-ETS-1

Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time or cost.

3-4-ETS1-2

Generate and compare multiple solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

### New York State P-12 Common Core Learning Standards for Mathematics

#### *Standards*

##### Grade 4

4.0A Operations and Algebraic thinking, pp. 26

4.OA - Operations and Algebraic Thinking, p. 26

Use the four operations with whole numbers to solve problems.

4.NBT, 4. NF Fractions and number operations, number and operations in base of ten, pp. 27

Explain why a fraction  $a/b$  is equivalent to a fraction  $(n \times a)/(n \times b)$  by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size.

Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as  $\frac{1}{2}$ .

Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

Understand decimal notation for fractions, and compare decimal fractions.

4.MD Measurements and Data, pp. 28

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

4.G Geometry, pp. 29

Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

## New York State P - 12 Common Core Learning Standards for English Language Arts and Literature

### *Standards*

#### Grade 4

Speaking and Listening Standards, p. 33 / SL.4.1, SL.4.3, SL.4.4

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#### Grade 7

Speaking and Listening Standards, p. 62 / SL.7.1, SL.7.4

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