

### EXPLORE Canalside Then & Now for Students 2018 School Tour Grid 2018 School Tour Grid

Tour Stop & General Info	Primary K-4 What is a community?	Middle 5-8 Individuals in a Community	Secondary 9-12 Regional & Global Communities
#1 Buffalo & Erie County Naval & Military Park 1979  The Naval Park was established 1976 & opened 1979. It is the largest inland park of its kind in the US. The ships displayed are: the destroyer USS Sullivans, the guided missile cruiser USS Little Rock, & the submarine the USS Croaker. Museum building was constructed in 2008.  Village of Buffalo became a port of entry in 1805. After the War of 1812 & the Burning of Buffalo, a group of citizens founded the Buffalo Harbor Company (1819) & began trying to raise funds to build a functioning harbor.  Many initially pledged support, but ultimately the small group had to use their own funds to support the project. An experienced harbor engineer was hired but was unable to complete the project, so Samuel Wilkeson, one of the members of the original group, took over & led the building efforts despite his lack of experience. With the help of Buffalo citizens, the harbor was completed in just 221 days. Buffalo then became Black Rock's major competitor for the Western Terminus of the Erie Canal.	This park contains US Navy ships/boats that visitors can walk through. It also has special monuments to help us remember soldiers from our area.  The location of physical features affects where people settle and how they live. Many years ago, this area was occupied by Native Americans. Europeans eventually settled here, and this area became the Village of Buffalo.  Citizens, members of a community or group, helped to create Buffalo's waterfront. Because of the hard work of many citizens, we were chosen to be the end point for the Erie Canal, which helped us grow & develop as a city Why is water important to helping communities exist & grow?	Park opened in 1979, contains the USS Sullivans, Little Rock, & Croaker Visitors to the Naval Park can tour the ships - some people even sleep overnight in them.  Physical features affect where people settle. Many years ago, this area was traversed by Native Americans, mostly Iroquois (Haudenosaunee). Different European settlers moved through this land, until it finally became the Village of Buffalo in the early 1800s. After the War of 1812, Buffalo was burned to the ground. We needed a way to help rebuild our economy.  A small group of citizens put in their own time & money to work together & dredge the Buffalo harbor, which became a deciding factor in Buffalo becoming the terminus of the Erie Canal (Black Rock, just a little ways north of here, was a tough competitor for the terminus).	Describe the Naval Park & ships. Discuss the war memorials & their commemorative, reflective purpose.  Native American inhabitants, Village of Buffalo, Burning of Buffalo, importance of dredging the Buffalo harbor, Samuel Wilkeson, Buffalo chosen as terminus for Erie Canal instead of Black Rock.  Have you ever donated your time or money to something you believe strongly in?



Tour Stop & General Info	Primary K-4	Middle 5-8	Secondary 9-12
	What is a community?	Individuals in a Community	Regional & Global Communities
#2 Commercial Slip  The restored Commercial Slip is an important representation of the Canal Era. After the Canal was completed, waterways bustled with activity and became congested. Ship canals and slips were used to lessen the delays and overall congestion. Several other slips/canals in the waterfront included Prime Slip, Ohio Slip & Basin, Coit Slips  Commercial slip was filled in the 1920s. The lowest portion of the Commercial Slip was restored as part of the Canalside Restoration Project & dedicated July 2, 2008.  The ruins beside the slip are the uncovered foundations of a canal-era building which served many different purposes. Dug's Dive, "dive bar" owned by former slave William Douglas.  "Wedding of the Waters"	This is called a slip. It's like a bridge for boats. Imagine if all of us were trying to get over one bridge all at the same time. It'd be pretty crowded! But if there were ten different bridges we could all choose from, things would be a lot easier. Slips were water bridges that connected different parts of the canal & helped speed up traffic, since there used to be a lot of boats here.  Those ruins are part of a building that stood here almost 200 years ago. We uncovered them when we were digging this slip Engineers are the people who design things that help solve problems, like slips. Have you ever had an idea for a way to fix a problem?	A slip is like a water bridge that connect two different bodies of water and helps to speed up traffic. This area was once a thriving hub called the Canal District - shops, saloons, businesses, warehouses, lots of boats.  Commerical Slip was filled in the 1920s, when Canal use was becoming less popular. It was restored in 2008.  Point out the ruins. Imagine if this slip were lined with buildings packed together on both sides. That's what this area was once like! Engineers design things like slips to help make life easier. Do you know of any other things in your community that might have been designed by engineers to make life easier?	Factors such as new economic theories & practices and technological innovations influence the development of new systems of communication, transportation, & production.  Definition of a slip; discuss thriving Canal District & how this area was once full of shops, saloons, businesses, warehouses, & boats. Filling in & restoration of Commercial Slip. Ruins, Dug's Dive.  What types of engineers are there? (Civil, Electrical, Mechanical, Biomedical)  What sort of engineer might be responsible for designing something like a slip? (Civil = design, construction, & maintenance of the physical & natural built environments)  Do you know of any other things in your community that might have been designed by engineers to make life easier?



During this tour, some important themes are: Industrialization, Local Economy, Innovative Thinkers, & Technological Advancements  To a Class & Consults &			
Tour Stop & General Info	Primary K-4 What is a community?	Middle 5-8 Individuals in a Community	Secondary 9-12 Regional & Global Communities
#3 Erie Canal Map 1817-1825  Jesse Hawley, a flour merchant who had gone bankrupt due to the high cost of shipping grain to the coast, was an early major proponent for the canal. He was supported by Governor DeWitt Clinton. Skeptics dubbed the project "Clinton's Ditch/Folly" and derided its vision.  Construction of the Erie Canal began in Rome, NY in 1817. The canal opened in 1825. It was 363 miles long and had 83 locks. It cost over \$7 million.  The Erie Canal prompted settlement, commercial agriculture, and manufacturing across upstate NY as well as opened vast areas in the middle of the American continent to similar development.	Using the map, show where grain come from in the Midwest, point out Lake Erie and the Atlantic Ocean, and explain how people wanted an easy way to get grain from the lake to the ocean. Either they had to travel over land, which was difficult due to the Appalachian mountains, or they had to travel all the way down the Mississippi River to Florida and all the way back up! It took weeks or sometimes months, and was really expensive.  The Erie Canal was a human-made waterway that connected the lake and the ocean. Thanks to the Canal, people & goods could now go directly across New York State in only about 7 days! It was much cheaper, too How do we ship/move goods today?	People adapt to and modify their environment in order to meet their needs. Some geographic factors make meeting needs easier, while others act as deterrents.  Use the map to explain what grain shipment was like before and after the Erie Canal. In order to connect the Great Lakes to the Atlantic Ocean, the Erie Canal was built. The project was supported by Governor DeWitt Clinton, and was widely criticized early on. But the canal cut down the time of shipping grain from weeks or months to about 7 days. Also made shipping grain much cheaper - from \$100/ton to only \$10/ton. Existing towns expanded and grew along the canal. The Erie Canal was the leading factor that helped Buffalo transform into a thriving city.  The Canal was 363 miles long and took 8 years to build. It cost \$7 million.  Discuss major products shipped along the Canal.	Jesse Hawley, DeWitt Clinton, & creation of the Erie Canal. Grain shipment before v. after the Erie Canal. Canal statistics.  The Erie Canal was a major factor that helped the US transform from an agrarian to an increasingly industrialized & urbanized society - cities & industries grew along the canal route.  What other industries besides grain would have flourished thanks to the Erie Canal?



Tour Stop & General Info	Primary K-4 What is a community?	Middle 5-8 Individuals in a Community	Secondary 9-12 Regional & Global Communities
Squire Whipple was an engineer born in Massachusetts who lived as an adult in central NYS. He became interested in the construction of wooden and iron bridges. He held apprenticeships with the Erie Canal enlargement project.  In 1814 he designed a "bowstring iron truss arch" and had it patented for the construction of iron truss bridges.  Died in Albany in 1888. His obituary in Engineering News read, "The death of Squire Whippleremoves from the engineering world a man who by his individuality and originality practically created the modern art of bridge construction; not only for substituting iron for wood in bridges but in also the law governing the distribution of strain in framed structures"	Talk about different kinds of materials with students - what materials are strong? What materials are soft? What is stronger, something made out of wood or metal?  Explain that metal is stronger, and this kind of bridge was really important because it was one of the first bridges to be made out of strong metal instead of wood.  Advancements in technology (using metal instead of wood) help bring about changes to our built environment.  Point out, too, that there are not columns under the bridge holding it up, meaning that canal boats could easily pass underneath it. However, these bridges are low - hence, "low bridge, everybody down!"	Squire Whipple was a visionary engineer who revolutionized bridge construction. Switched from wooden bridges to iron, which was a much stronger building material.  He also designed this style of bridge, called a "bowstring iron truss arch." Notice that there are no columns underneath the bridge holding it up, but that it is held up from the top by the trusses. This way, canal boats could easily pass underneath them.  Why would it have been important to have a clear passageway under canal bridges, without columns or supports? (talk about towpath, mules pulling canalboats by rope)	Squire Whipple, civil & mechanical engineering. The technological innovation of using iron instead of wood revolutionized bridge construction.  "Bowstring iron truss arch" construction, weight is supported from the top rather than from underneath, leaving a clear passageway beneath the bridge for canalboats.  Towpaths, mules, system of moving canalboats.



### **EXPLORE** Canalside Then & Now for Students 2018 School Tour Grid 2018 School Tour Grid

Tour Stop & General Info	Primary K-4 What is a community?	Middle 5-8 Individuals in a Community	Secondary 9-12 Regional & Global Communities
#5 Beginning of the Boardwalk 1979 Buffalo's waterfront is made up of	Go over the geography of this area. Point out & name the Erie Canal, the Buffalo River, Commerical Slip, and Lake Erie. These bodies of water	Geography of this area: Erie Canal, Buffalo River, Commercial Slip, Lake Erie.	Geography of Buffalo's waterfront; Inner & Outer Harbor; Canalside programming.
the Outer Harbor, Inner Harbor, and the Black Rock Channel.	make up Buffalo's waterfront.  Roads, canals, bridges, and parks are	This is part of the Inner Harbor. Discuss some of the different attractions on the Inner & Outer	The Canalside project adopted by the Erie Canal Harbor Development Corporation focuses on a deliberate
Outer Harbor: Fuhrmann Blvd., Tifft Nature Preserve, Gallagher Beach, Buffalo Harbor State Park, Times	all examples of how people modify the physical environment to meet their needs & wants. Point out how	Harbor.  Vibrant community programming at	reinvigoration of this Canal District space that celebrates the connection between downtown & the waterfront
Beach Nature Preserve. Inner Harbor: Erie Basin Marina, Canalside along the Buffalo River.	all of these exist at Canalside, along Buffalo's waterfront. Where we're standing is part of the	Canalside As we walk along the boardwalk, take	, & that encourages visitors to reconnect to our water by engaging in activities along the water year-round.
Black Rock Channel: West Side Rowing Club, Buffalo Yacht Club, Fontana Boathouse.	boardwalk at Canalside. There are things happening here all year long - concerts, carnivals, festivals, markets,	a look around you & find one aspect of Canalside that makes you feel like you are welcome here.	As we walk along the boardwalk, take a look around you & identify some
There are many activities that take place at Canalside today, including	kayaking, water bikes! As we walk along the boardwalk, take		ways that Canalside seems to fit the goal of connection & engagement set forth by the ECHDC.
kayaking, water bikes, paddle boats, sailing, boat tours, the Queen City Bike Ferry, ice skating, vendor kiosks, concerts, and various events/festivals/ exercise sessions.	a look around and find one thing that you could do here - even if it's as simple as having a picnic.		



### EXPLORE Canalside Then & Now for Students 2018 School Tour Grid 2018 School Tour Grid

Tour Stop & General Info	Primary K-4 What is a community?	Middle 5-8 Individuals in a Community	Secondary 9-12 Regional & Global Communities
#6 On the Boardwalk  The Public Art initiative between the Albright-Knox, Erie County, & the City of Buffalo aims to enhance our shared sense of place & cultural identity in the urban & suburban landscapes of WNY.  Public art is an important element in making shared community spaces feel welcoming, engaging, & interactive.  Illumination (Ambiances Design Production, 2015) Light show installed fall 2015; takes place all year long from sunset - 11 pm. Intended to visually connect the inner & outer harbor; theme centers on the four seasons as seen through a kaleidoscope.	Public art, or art outside of a museum that anybody can see, helps to make spaces feel welcoming & interesting.  Explain Illumination light show.  What did you find that you could do here? All of the different things you've found are ways to make you feel welcome in this space, like it's an open community space that anybody can enjoy.  What things do you see here that you also have in your community? What things do you see here that you don't have in your community?	Define public art, & discuss the Public Art Initiative in Buffalo.  Discuss the Illumination light show; mention the Silent Poets that used to be located here (removed Winter 2017).  What things did you find that make you feel welcome? All of these factors contribute to Canalside feeling like a welcoming community space that anyone can enjoy.  Why is it important to have spaces in a community that feel open, safe, & fun for everyone?	Public Art & the A-K Public Art Initiative; Illumination & the Silent Poets.  What things did you notice that help foster connection & engagement?  How does public art help to make a space feel engaging & welcoming?  What other things would you like to see in this space to continue to make it even more friendly to a wide variety of visitors?



Tour Stop & General Info	Primary K-4 What is a community?	Middle 5-8 Individuals in a Community	Secondary 9-12 Regional & Global Communities
#7 End of the Boardwalk  **Take the sidewalk in front of The Dish to get to Harborcenter in order to avoid the sandbox.**  Connecting Terminal Elevator: The oldest section of the structure standing is from 1915; annex built in 1954 was the last concrete elevator built in Buffalo. It has a 1.6 million bushel grain capacity. It was originally owned by the Pennsylvania Railroad Co., today owned by NY Power Authority.  Joseph Dart (1799-1879), Buffalo merchant who invented the grain elevator with the help of machinist Robert Dunbar. Grain coming to Buffalo was originally unloaded by dock workers who carried bushels of grain from the cargo's hold to the top of the silo. Dart developed a conveyor belt system, marking a turning point from manual to mechanized labor.  General Mills, originally Washburn Crosby, established in Minneapolis 1889 & came to Buffalo 1903. General Mills, Inc. formed 1928. A late 1930s expansion made the Buffalo plant the largest of its kind in the world. Today the plant manufactures Cheerios, Lucky Charms.	Look across the water at the grain elevator, where we said Illumination takes place. Buffalo is famous for its grain elevators! The person who invented them was from Buffalo.  Before they were invented, people had to go inside the bottoms of ships, load up the grain into buckets on their backs, climb up to the top of the silos to dump the buckets in, and then do it all over again. Grain elevators were a conveyor belt that could empty the boats automatically. New technology like the grain elevator helped make trade cheaper & quicker.  Grain is ground into flour, and then turned into things we can eat - like Cheerios!	The technological development of the grain elevator, invented by Buffalonian Joseph Dart, contributed to Buffalo becoming a leading grain port in the US. Unloading the boats manually used to take a week or longer, while the invention of the grain elevators cut that time down to several days.  Grain is ground into flour & made into a variety of goods. General Mills has been a mainstay of Buffalo's economy; generations of Buffalonians have worked there & they continue to produce Cheerios, Lucky Charms, & more in Buffalo today.  What are some contemporary technical innovations you're aware of that change the roles & responsibilities of workers?	Joseph Dart & invention of the grain elevator; Connecting Terminal; grain & the way it is made into common products; General Mills.  Industrialization and immigrant contributed to the urbanization of the US. Discuss how the canal & the grain elevators were a major factor in the industrialization of Buffalo; as well as how immigrants made up the main workforce in these industries & moved into the Canal District/First Ward to live near where they worked.  Although industrialization & urbanization created new economic opportunities, they also led to societal issues such as unsafe working conditions, long work days, & squalid living conditions.  In what ways would the invention of the grain elevators have been positive for the workers? Negative?



Tour Stop & General Info	Primary K-4 What is a community?	Middle 5-8 Individuals in a Community	Secondary 9-12 Regional & Global Communities
#8 Harborcenter 2014-2015  Originally this plot was known as the "Webster block" and was used for warehousing & manufacturing until 1980, when is was turned into a parking lot. Harborcenter Development LLC, led by Terry Pegula, acquired the site & broke ground April 2013.  A hub for hockey players & fans, it contains 2 NHL-sized rinks. It is an excellent example of a multi-use building in Buffalo, with the ice rinks, a hotel, various restaurants, groundfloor shopping and retail, a parking garage.  Terry & Kim Pegula own the Buffalo Bills, Sabres, Bandits, & Beauts. They have had a huge influence on Buffalo's renaissance.	Explain some of the things that can be found inside Harborcenter.  A multi-use building is a building that has a lot of different uses. Multi-use buildings are important to communities because people can do a lot of things all in one space.  Have any of you been to a hockey game here, or maybe played hockey here?	Multi-use buildings are an important feature of Buffalo's renaissance, since we have many large & empty buildings in our city.  Activities & resources available for people in urban, suburban, & rural communities are different. Multi-use buildings are useful in urban communities because they can fit many things into one space.  Discuss history of Harborcenter, what can be found inside the building, & the impact the Pegulas have had on Buffalo.  Do you know of examples of multi-use buildings in your community?	History of the Webster Block, construction of Harborcenter, multiuse buildings, Pegulas & their influence on Buffalo.  What are some reasons why multiuse buildings are so important to Buffalo's renaissance?  What are other examples of multi-use buildings in your community/in Buffalo?



Tour Stop & General Info	Primary K-4 What is a community?	Middle 5-8 Individuals in a Community	Secondary 9-12 Regional & Global Communities
#9 Tim Horton Statue	Tim Horton was a Canadian hockey player who played in Buffalo for	Tim Horton & the donut chain.	Tim Horton; the Aud.
Tim Horton (1930-1974) played for the Toronto Maple Leafs from 1949-1970, played for Buffalo Sabres 1972-1974.  In 1964, he opened up a donut shop in Hamilton, Ontario. Died in 1974 in a car accident while travelling back to Buffalo from Toronto.	about 2 years.  He didn't just love hockey - he also loved donuts! He opened one donut shop in Canada that has since grown to have hundreds of shops all over. He was an entrepreneur, a fancy word for a person who starts a business.	Entrepreneurs & local business owners are helping to energize Buffalo's renaissance & making important contributions to Buffalo's economy.	Entrepreneurs in Buffalo today.
The Memorial Auditorium was completed in 1940 and dedicated to those who lost their lives in WWII combat. It was home of the Buffalo Bisons (1940-1970), the Buffalo Sabres (1970-1996), and the Buffalo Braves (1970-1978). In 1994, ground breaking took place for the new "Crossroads Arena" (now Key Bank Center) and the Aud was abandoned. Demolished 2009. Center ice on the Canalside ice rink is said to be in the same location as center ice was in the Aud.	Entrepreneurs, or people who start their own businesses, are helping Buffalo grow.		



Tour Stop & General Info	Primary K-4 What is a community?	Middle 5-8 Individuals in a Community	Secondary 9-12 Regional & Global Communities
#10 Replica Canals 2012 - Erie Canal Harbor Development Corporation (ECHDC)  Construction of replicas began spring 2012. The replicas represent the location of original canals and bring to mind Buffalo's once-thriving canal district. Today they're the site of year-round activity: ice skating, ice bikes, curling, remote control boats, paddle boats.  Inner Harbor development: 1960s - Urban Renewal Plan adopted for the Waterfront Redevelopment Project; 1970s - Erie Basin Marina constructed, Naval Park established; 1980s - NFTA completed Metro Rail project & pedestrian mall on Main St.; 1990s - City developed comprehensive Inner Harbor Plan, moved the Naval Park further west to be linked with new Veterans Park; 2000s - ECHDC created & Canalside Project launched, historic streets, Commercial Slip, & replica canals restored, Explore & More Kids Museum (2018), DL&W Terminal redevelopment (pending), Canalside set to be completed in 2031.  ECHDC's goal is to connect downtown Buffalo with its waterfront through interpretive displays and water elements to create a series of interconnected areas that make up a thriving community space	This is where the canals used to be. These replicas, or remakes of the originals, are meant to show us what this area once looked like so that we can understand how humans have changed this space over time to meet their needs.  During the winter, you can go ice skating here, and during the summer you can rent paddle boats.  This area is still changing & growing. Someday, you might even have a say in what this area looks like What is something you would add to this space right now if you could?	The replica canals inspire us to think about the past & to examine change over time - we think about what this area once looked like, what it looks like today, & what it could be in the future.  Go over this area's timeline (summarizing the tour) & emphasize that the students could one day have a say in revitalizing this space, or other areas like it in Buffalo.  What is something you would like to see added to this space to make it a better community space?	Replica canals; continuity & change over time; summarize the Canal District's timeline & emphasize that students like themselves will be the innovators, engineers, & entrepreneurs of tomorrow that will help revitalize spaces like Canalside What is something you would like to see added to this space to make it a better community space?



Tour Stop & General Info	Primary K-4 What is a community?	Middle 5-8 Individuals in a Community	Secondary 9-12 Regional & Global Communities
#11 Shark Girl 2013 - 2014 - Casey Riordan Millard  Millard is an American artist (b. 1973), received her BFA from Ohio University.  Sharkgirl installed at Canalside in 2014 as part of the Public Arts Initiative between the Albright Knox, Erie County, & the City of Buffalo.  Symbolizes a fish out of water - Sharkgirl is patiently waiting for a companion. Reflects themes of sorrow, loneliness, love, family, & loss.	Sharkgirl came to Buffalo in 2014. Like Illumination & the Silent Poets, it is public art that is meant to help make this space interesting, interactive, & welcoming.  Sculptor Casey Riordan Millard describes Sharkgirl as a "fish out of water" Close your eyes & think about a time when you felt out of place or like people didn't understand you. Did you feel lonely? Sad?  Sharkgirl reminds us that even when we feel alone or left out, we're still special & important - and someday we'll find a friend to be at our side!	Millard & Sharkgirl.  Many of the people we talked about on the tour today were considered "fish out of water" to the people around them - they had outlandish ideas that many people thought were impossible or foolish. But they believed in themselves, stuck to their dreams, & helped Buffalo become an important city! If you ever feel like a fish out of water, just remember those stories & that one person's dreams can make a big difference.	Millard & Sharkgirl.  Engineers, innovators, & entrepreneurs from WNY have made important contributions to business & technology, & to Buffalo's reputation as the Queen City. Many of these people were considered "fish out of water," but they believed in their dreams & persisted in their goals. Sharkgirl reminds us that it's okay to be a fish out of water, & that one person can make a big difference.