

Getting a Sense of Time

Chicago River Classroom Activity

Summary

Students will construct a time line using events from U.S. and Illinois History. Then they will attempt to place events particular to the history of the Chicago River within the timeline (without being given dates for them). After the Chicago River program presented by Friends of the Chicago River, students will revise their placement of Chicago River historical events.

This lesson can be used as a pre- or post-lesson with a Chicago River field trip exploration.

Background

The Chicago River played an important role in the development of the Chicago area. Early Native Americans used the river for transportation. By portaging (carrying) their canoes between the Chicago River and the Des Plaines River they could canoe all the way from Lake Michigan to the Gulf of Mexico.

Early settlers were drawn to the area due to the fertile land and transportation provided by the river. The city of Chicago boomed after the I&M canal was built. This canal connected the Chicago River with the Mississippi River and made it possible to move goods from along the Mississippi River through the Great Lakes and to the east coast. Chicago became the transportation hub of the Midwest, carrying goods from the Midwest to the heavily populated east coast.

As the city grew, the Chicago River was increasingly used to dispose of waste from sewers and industries. As the polluted river flowed into Lake Michigan, the city's drinking water supply, thousands of people died annually from cholera, typhoid and other water borne diseases. To reduce disease and death, the city built the Chicago Sanitary and Ship Canal.

Grade Level: 7th – 8th

Duration: One class period

Objectives:

1. Students will gain an appreciation for geologic and historic time
2. Students will gain a general understanding of the development of the Chicago area, with particular attention given to the role of the Chicago River

Materials:

- ◆ Copies of U.S. history and Chicago River timeline events, 1 per student
- ◆ Copies of the Student Directions, 1 per student
- ◆ Copies of the Chicago River History Form, 1 per student
- ◆ String – 2 meters for each student or small group
- ◆ Tape
- ◆ Marker

Standards:

16.A 3b

NGSS:

RH 6-8 7

Connecting the Chicago River to the Des Plaines River, the canal permanently reversed the flow of the Chicago River. The river and the sewage it carried now flowed towards the Mississippi River and away from the Lake and the city's drinking water supply.

1922 marked the first year sewage was treated in the city. Reducing the amount of raw sewage that reached the river, improved the health of the river. However, every time a rainstorm hit the area the sewers would flood into the Chicago River and raw sewage once again reached the river. This happened because the city only has one sewer system which carries both sewage and rain water from street drains. When it rains the sewers and sewage treatment plants are overwhelmed and the water that cannot be treated is discharged directly into the river (or floods people's basements).

In 1972, the Clean Water Act was passed and waste discharges into the river became regulated. Industries cleaned up their effluent. In 1975, the Metropolitan Water Reclamation District, the organization responsible for treating the city's sewage, began the Tunnel and Reservoir Project. Large tunnels and reservoirs were built under the city to store the excess water so that when it rains, sewage would not end up in the Chicago River. The hope was that when it is complete, untreated sewage will no longer reach the Chicago River. However, today, it is believed that additional measures will be necessary to deal with the huge quantity of stormwater and sewage during large rainstorms.

Procedure

Introduction

- ◆ Tell students that today they will be creating a timeline for the Chicago River.
- ◆ Discuss what a timeline is.
- ◆ As a starter have students create a timeline of major events in their life.

Before the Chicago River Classroom Program

Individually, in pairs, or in small groups, students will construct a timeline of U.S. and Chicago history, going back to the glaciers.

- ◆ Pass out materials: string, tape, marker, student directions, *US History Timeline Events*, *Chicago River Timeline Events* and *Chicago River History* forms.
- ◆ Depending on your class, you may want to demonstrate some of the steps in front of the whole class or show students a partially or fully finished timeline. See the student directions sheet for a write-up of the activity.
 - ◆ Note: The first thing students will need to do is to calculate the scale for their timeline. With a 2 meter (200 centimeter) long string and a 20,000 yr long timeline, each centimeter will come out to 100 years. The students will be marking off every 10 centimeters, or every 1,000 years.
 - ◆ Note: The US history events students will be placing on their timeline all have dates which students should use to place them correctly on the timeline. The Chicago River history events do not have any dates associated with them. It is up to students to guess where they go based on their critical thinking about the events. There is a teacher key with all the correct dates at the end of the lesson.

- ◆ After the students have finished their timelines, lead a discussion about the timeline:
 - ◆ How many events are listed during the first 1,000 years of the timeline? How about the last 1,000 years of the timeline? Why do you think this is?
 - ◆ Choose one of the Chicago River events and ask students how they decided where to place it.
 - ◆ Ask students which of the Chicago River events they placed on the timeline were they least sure about? Why?
 - ◆ Ask students which of the Chicago River events they placed on the timeline were they most sure about? Why?

During Chicago River Classroom Program

- ◆ Have students take out their *Chicago River History Form*. As the presentation progresses, have them add dates to the items.

After Chicago River Classroom Program

- ◆ After the Chicago River program presented by Friends of the Chicago River, have students compare the date they guessed with the actual date. Then have them rearrange the items that they misplaced on their timeline.
- ◆ Lead a discussion with your students about the changes they made:
 - ◆ What event surprised them? Did something occur earlier or later than they thought?
 - ◆ Choose several of the events, some from US history and some from Chicago River history and ask students what the connection between the two might be. For instance, because viruses were not discovered until 1917, treating its wastewater was not an option available to Chicago when it was deciding what to do about its sewage water contaminating its drinking water.

Extension

Have students choose one time period and write a short story about what it would be like to have lived then. What would their house be like, where would they live, what would the environment around them be like, how would they make a living, etc.

Getting a Sense of Time

Student Directions

- 1) To make a timeline, you first have to decide on a scale:
 - a) Look at the U.S. History Timeline Events.
 - b) How many years does your time line cover? _____
 - c) How many centimeters long is your string? _____
 - d) Calculate how many years 10 centimeters of string represents? _____
(Hint: to find out how many years one centimeter represents you need to divide the number of years by the length of the string.)
- 2) Mark off every 10 centimeters on your string with a marker. At every 10th mark, which is every 100 centimeters, tape a small piece of paper indicating what year that mark represents.
- 3) Now you are ready to start taping the events on the *U.S. History Timeline Events* form onto your timeline in the correct location. Cut out the U.S. history events. Lay the string down flat and tape the events so that they are all hanging below the string.
- 4) Now it is time to add the Chicago River Timeline Events. Take out the *Chicago River Timeline Events* form. Notice that none of these have dates on them. Think about the events critically. When do you think they occurred? Write your thoughts on the *Chicago River History* form.
- 5) Now take the *Chicago River Timeline Events* form and cut out the events and tape them to the timeline where you think they belong.
- 6) During the Chicago River program by Friends of the Chicago River, you will be recording when the Chicago River events actually occurred on the *Chicago River History* form. Later you will be correcting your timeline to reflect the actual dates.

U.S. History Timeline Events

Directions

- 1) Cut the events out.
- 2) Tape each event in the correct location on your time line.

20,000-14,000 yrs. ago	A 1,200 feet deep sheet of ice – which is as high as the Sears Tower - covered much of the northern portions of the now United States.
14,000 yrs. ago	Lake Michigan, which was then known as Glacial Lake Chicago, first formed. It was deeper and bigger than the Lake Michigan of today. Present day Chicago would have been under water.
13,000-10,000 yrs. ago	Big game hunters settle the area.
10,500 yrs. ago	What is now known as Lake Michigan shrunk in size. Present day Chicago would be miles away from the shores of the lake.
1,700 yrs. ago	Lake Michigan settled into current location and size.
1600s	First United States colonies established.
1776	The United States declares its independence from Britain.
1800s	Westward expansion. Immigrants to the United States start moving west to settle new lands.
1818	Illinois becomes a state.
1837	The city of Chicago is incorporated
1840	Industrialization begins in the United States

1850	30,000 people live in Chicago
1854	The bacteria that causes Cholera, a potentially deadly disease, caused by drinking water contaminated with raw sewage, is first discovered. The discovery is not accepted till the late 1800s.
1861-1865	US Civil War
1871	Chicago Fire
1914-1918	World War One
1917	Viruses first discovered
1930s	Great Depression
1939-1945	World War Two
1954	US Supreme Court rules in Brown vs. Board of Education that segregated schools are unconstitutional
1970	The First Earth Day is celebrated
1972	Clean Water Act passed
2000	2.9 million people live in Chicago

Chicago River Timeline Events

Directions

- 1) Cut the events out.
- 2) Tape each event in the correct location on your time line.

	18 species of fish are found in the Chicago River near the Grand Avenue bridge
	300 Europeans live in Chicago
	6% of the population of Chicago dies from a cholera epidemic caused by drinking polluted water
	90 mile long I&M canal opened after 12 years of work. Canal connected the Mississippi River with Lake Michigan for the first time.
	Chicago River is described as “thick as mud and black as ink...”
	First permanent home built in Chicago by Jean Baptiste Point DuSable
	Friends of the Chicago River established
	Joliet and Marquette explore the Chicago River. They are the first Europeans to set foot in what will become Chicago.
	Native Americans lose the Blackhawk War and sign away their rights to the land which includes present day Chicago.
	No fish are found in the Chicago River near the Grand Avenue bridge

	Sewage treated for the first time in Chicago
	Sewers first installed in Chicago. Prior to this, raw sewage flowed along the streets of the city towards the Chicago River. The sewers took the sewage off the streets, but the sewage still dumped into the Chicago River.
	The Chicago River is reversed and now flows away from Lake Michigan, keeping the city's sewage out of the city's drinking water supply. The completion of the Chicago Sanitary and Ship Canal made this possible.
	The Deep Tunnel Project is begun. Large pipes are dug underground to hold rain and sewage water and prevent raw sewage from entering into the Chicago River.
	Union Stockyards open, pouring their waste into the Chicago River

You could also add these events to your timeline:

	I was born
	My parents were born
	My school was built
	My family first arrived in Chicago

Chicago River History Form

Directions

- 1) Fill in your guess for when each of these events occurred.
- 2) While listening to the Friends of the Chicago River's program, write down the actual year these events occurred.

Historical Event	Year – Your Best Guess	Year – Actual
Joliet and Marquette explore the Chicago River		
First permanent home built in Chicago by Jean Baptiste Point DuSable		
300 Europeans live in Chicago		
Native Americans lose the Blackhawk War and sign away their rights to the land, which includes present day Chicago.		
90 mile long I&M canal opened after 12 years of work. Canal connected the Mississippi River with Lake Michigan for the first time.		
6% of the population of Chicago dies from a cholera epidemic caused by drinking polluted water		
Sewers first installed in Chicago. Prior to this, raw sewage flowed along the streets of the city towards the Chicago River. The sewers took the sewage off the streets, but the sewage still dumped into the Chicago River.		
Chicago River is described as “thick as mud and black as ink...”		

Chicago River History Form (cont.)

Directions

- 3) Fill in your guess for when each of these events occurred.
- 4) While listening to the Friends of the Chicago River’s program, write down the actual year these events occurred.

Historical Event	Year – Your Best Guess	Year – Actual
Union Stockyards open, pouring their waste into the Chicago River		
The Chicago River is reversed and now flows away from Lake Michigan, keeping the city’s sewage out of the city’s drinking water supply. The completion of the Chicago Sanitary and Ship Canal made this possible.		
Sewage treated for first time in Chicago.		
No fish are found in the Chicago River near the Grand Avenue bridge		
The Deep Tunnel Project is begun. Large pipes are dug underground to hold rain and sewage water and prevent raw sewage from entering into the Chicago River.		
Friends of the Chicago River is established.		
18 species of fish are found in the Chicago River near Grand Avenue		

Key for Chicago River Timeline Events

<p>1673 Joliet and Marquette explore the Chicago River and are the first historically documented Europeans to set foot in what will become Chicago.</p>
<p>1784 First permanent home built in Chicago by Jean Baptiste Point DuSable</p>
<p>1837 300 Europeans live in Chicago. The year Chicago became a city.</p>
<p>1832 Native Americans lose the Blackhawk War and sign away their rights to the land which includes present day Chicago.</p>
<p>1848 90 mile long I&M canal opened after 12 years of work. Canal connected the Mississippi River with Lake Michigan for the first time.</p>
<p>1854 6% of the population of Chicago dies from a cholera epidemic caused by drinking polluted water</p>
<p>1856 Sewers first installed in Chicago. Prior to this, raw sewage flowed along the streets of the city towards the Chicago River. The sewers took the sewage off the streets, but the sewage still dumped into the Chicago River.</p>
<p>1863 Chicago River is described as “thick as mud and black as ink....sickening”</p>
<p>1865 Union Stockyards open, pouring their waste into the Chicago River</p>
<p>1900 The Chicago River is reversed and now flows away from Lake Michigan, keeping the city’s sewage out of the city’s drinking water supply. The completion of the Chicago Sanitary and Ship Canal made this possible.</p>
<p>1922 Sewage treated for first time in Chicago</p>
<p>1975 No fish are found in the Chicago River near the Grand Avenue bridge</p>
<p>1985 The first section of the Deep Tunnel Project is opened. As part of the project, large pipes are dug underground to hold rain and sewage water and prevent raw sewage from entering into the Chicago River.</p>
<p>1979 Friends of the Chicago River established</p>
<p>1987 18 species of fish are found in the Chicago River near the Grand Avenue bridge</p>