

Bertha Tracy – Beardstown High School (9th and 10th grades)
Water, History, and Pollution

Objectives: Students will

1. Describe human, plant, and animal life associated with the Illinois River over a period of time (Choose one or more chapters from “Of Time and the River”;
2. Analyze the cause and effect relationships between events affecting the waterway; and
3. Describe forms of pollution

Students will be introduced to the history of the Illinois River through the watching of “Of Time and The River: 12,000 years of Human Use of the Illinois River.” Students will then research specific time periods using the Internet and libraries and use the information gathered to make a mural of that time period and what it will be in the future.

Background:

Since man first began to enter new areas, waterways have been an available path for exploration, transportation, and convenience for human settlement. When early settlers came into the United States, waterways offered a needed source of water, so settlements were often built along the waterway. As settlements grew into towns and cities so did the use of the waterways grow.

Over time, waterways in the United States have been modified. Early settlements did not have water drainage systems, so when flooding occurred, untreated water eventually made its way to the rivers, lakes, and streams. Pollutants may have included fertilizers, litter, animal waste, and other contaminants. The waterways were being degraded and impacted plant and animal life. The affects to life along the waterways was damaging.

Procedure:

1. Students will view video chapters from “Of Time and the River”. A class discussion will follow in which some of the following questions may be answered:
 - What forms of ancient life populated the region?
 - What was life like for the people who lived in the area?
 - Why did the people settle in this area?
 - What were they looking for?
 - What kinds of vegetation did early settlers find?
 - Are these same life forms still here?
 - How has the waterway changed?
2. Students will work in groups and will chose between the Paleoindian period and the Archaic Period. Each student in the group will choose a topic area (e.g. geology, plants, animals, people and history) to establish a historical perspective. Students may also explore flooding, farming, and fishing.

3. Students must identify the sources they use in their research. Instruct them not to limit their research to just the Internet and the library. Have students brainstorm where else they could find information.
4. Once the research is completed, have the groups create a large mural map of the waterway. Each group will create artwork to illustrate the findings of their research. (You can have the students attach the artwork to the mural so that it can be removed and replaced as needed.)
5. After the mural is completed, have each group of students report their findings to the rest of the class. Have the reports start with the earliest history and finish with the most recent.
6. After reporting, have students to analyze the changes that have occurred in the waterway and its associated life. Have them attempt to identify cause and effect relationships between events and how the events affected the waterway.
7. To focus on changes to the Illinois River, have students discuss how water in their lives is used, where does the water come from, and where does wastewater go after it leaves their homes. You can lead the discussion to the idea of storm drains and their function.
8. Discuss the sources of water that run into the storm sewer system and what the water will carry with it.
9. Have students make mazes that represent their towns' storm pipes that carry away street water. This maze can be made of clay or modeling clay and built on cardboard covered with wax paper and allowed to dry.
10. The maze should have one starting point and two exit points. One exit leads to the sewage treatment plant and the other leads to the waterway.
11. Have students place drops of food coloring, pepper, and oil at different places on the maze. These will represent contaminants.
12. Have the students place a large of water at the starting point and tilt the maze so that the drop flows slowly toward one of the exits.
13. As it moves through the maze the water will pick up pollutants.
14. Have students observe what the water drop looks like as it reaches the exit. Have them record their observations. If the drop ended in the treatment plant it will get cleaned up and reused. If it ended in the exit that leads to the "river" it is not cleaned.

15. Discuss problems associated with non-point source pollution and how such pollution affects the river. Tie this back to the first settlers along the river and have students decide if there was much polluting occurring then. When during the time periods did pollution become an issue?
16. Discuss with students what they can do to stop polluting the waterways.
17. Have the groups go back to the mural and create what it might look like in the future if they do not stop the polluting of the waterway.