Educational Activities
about the Upper Mississippi River
Grades 5–6

www.OurMississippi.org

St. Paul District
Rock Island District
St. Louis District

US Army Corps
of Engineers

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Background Information

In September 2004, the U.S. Army Corps of Engineers (Corps) distributed the Final Integrated Feasibility Report and Programmatic Environmental Impact Statement for the Upper Mississippi River-Illinois Waterway System Navigation Feasibility Study.

The report described an integrated plan for modifications and operations changes to the Upper Mississippi River and the Illinois Waterway for navigation efficiency and ecosystem restoration. It also discussed the programmatic actions and the associated beneficial and adverse effects regarding navigation efficiency and ecosystem restoration needs.

To protect the known and unknown significant historic properties affected by the implementation of the navigation improvements, several government agencies signed a Programmatic Memorandum of Agreement. The signers included the Corps; U.S. Fish and Wildlife Service; Illinois, Iowa, Minnesota, Missouri, and Wisconsin Historic Preservation Officers; and the Advisory Council on Historic Preservation. It was decided that documenting the history and significance of the Upper Mississippi River and the Illinois Waterway would address some of these possible effects.

As part of that effort, the Corps held the first meeting of the Navigation and Ecosystem Sustainability Program (NESP) Cultural Resources and Stewardship Mitigation Team in La Crosse, Wisconsin, in June 2006. A second meeting was held in Alton, Illinois, in April 2008. In August 2009, the Corps contracted Formations of Portland, Oregon, to produce “Our Mississippi: Educational Activities about the Upper Mississippi River.”

The production of the various drafts of the Teacher’s Activity Guide was coordinated with the NESP Cultural Resources and Stewardship Mitigation Team through three workshops held between December 14-18, 2009 at Alton, Illinois; Pleasant Valley, Iowa; and St. Paul, Minnesota. All comments and responses were considered in various draft reviews.

Special Thanks to...

This Teacher’s Activity Guide would not have been possible without the assistance and cooperation of many people. We would like to extend an earnest thank you to everyone who helped to develop this book, especially the workshop participants, draft reviewers, and content providers.

We would like to personally thank the following individuals for their extensive support and invaluable contributions: Brad Walker, The Izaak Walton League of America; Jeff Janvrin, Wisconsin Department of Natural Resources; and Paul Rohde, Waterways Council Incorporated.

Development Team

Thank you to the talented group of people with the U.S. Army Corps of Engineers for their assistance: Kimberly Rea, Mindy Cory, Erin Hilligoss-Volkmann, Angie Smith, Ron Deiss, Mark Cornish, and Ken Barr. Also, thank you to the capable and clever design team led by Formations: Corrie Greening, Marie Naughton, and Karen Adams.
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Welcome to Our Mississippi

Educational Activities about the Upper Mississippi River

Introduction
The U.S. Army Corps of Engineers is pleased to present this balanced, comprehensive guidebook to help teachers inform future decision-makers about this important natural resource.

Our Mississippi has been years in the making. In 1986, Congress designated the Upper Mississippi River System as both a nationally significant ecosystem and a nationally significant navigation system. Since then, the Corps has worked with multiple groups and agencies to improve the economic and environmental sustainability of the river.

This guidebook is a result of several different programs and partnerships that included other federal agencies, five states, and a wide variety of environmental, conservation, navigation, and industry groups to strike that ever-crucial balance of human and wildlife interests.

We embrace the Mississippi for different reasons and from different perspectives. It is a national resource shared for different purposes. The river is important to communities and individuals. We may have individual perspectives on the river, but successful management requires an integrated and collective effort.

Educational Approach
The main goal of Our Mississippi is to provide teachers with a mix of classroom, self-directed, and collaborative lessons and activities about the Upper Mississippi River that meet a wide range of national learning standards. They follow a multidisciplinary approach, weaving science, technology, and math with social science, language, and arts collaboratively to address complex, real-life resource management issues and multiple uses of the river.

The lessons and activities chosen for the guidebook focus on concepts that can be investigated or demonstrated. Designed for grades 5 and 6, each unit includes activities or extension ideas for upper and lower grades as well.
National Standards

The lessons and activities in Our Mississippi were developed based on the national educational standards recommended by the National Research Council (for science standards), International Society for Technology in Education, National Council of Teachers of Mathematics, National Council for the Social Studies, National Council of Teachers of English, and the Consortium of National Arts Education Associations.

National and State Standards Correlations

The lessons and activities in this guide are based on national standards. For your convenience, we included a chart in Appendix 7 that correlates the national standards with the state standards for the five states along the Upper Mississippi River: Illinois, Iowa, Minnesota, Missouri, and Wisconsin.
This guidebook was designed to provide teachers with a complete, cross-curricular approach to a wide range of subjects relating to the Upper Mississippi River, including earth science, physical science, social science, language arts, fine arts, and math in five interrelated units organized by subject area. Although each lesson can be used by itself as a stand-alone piece, the strength of this guidebook lies in the sequential manner in which the lessons and activities build on and complement one another.

Unit 1: Upper Mississippi River Watershed

The first unit presents a broad overview of the vast drainage basin of the Mississippi River, preparing students for an in-depth examination of the Upper Mississippi River by first placing it in the spatial context of its entire watershed. It introduces students to the river’s geography, earth science, and physical science using a large wall map of the entire watershed that will serve as the conceptual thread that runs through all the units.

Unit 2: Upper Mississippi River Ecosystems

The second unit builds on the broad overview of the entire watershed to focus on the Upper Mississippi River itself. This unit explores the river’s ecosystems and the life that depends on it through life science. Students investigate what a healthy river system is, how the river’s health is measured and monitored, and what happens to the river—as well as people, plants, and animals—if the river is not healthy.

Unit 3: Upper Mississippi River History and Culture

The skills and knowledge learned in the first two units serve as the background information needed to examine human history, migration, and settlement through social science, language arts, and fine arts. The human history of the Upper Mississippi River is explored from the context of family or community traditions.

Unit 4: The Mississippi River at Work

This unit focuses on the river as a vital lifeline for human commerce. It uses the knowledge and skills presented in previous units to explore how humans rely on the river. Having learned how people used the river for transportation and trade in the past, students compare and contrast those uses with how people use the river today, including recreation and tourism.

Unit 5: A Shared Resource – Our Mississippi River

The knowledge and skills learned in the previous four units are applied in the final unit using higher-level skills, including communication, problem solving, and compromise. In this unit, students synthesize the earth science, physical science, and social science information to debate and problem-solve a variety of solutions for managing and conserving the Upper Mississippi River.

All pages in this guide are perforated and three-hole punched for your convenience. Copies of all lessons and activities can be found on the accompanying CD-ROM and companion website at www.OurMississippi.org. The website also includes additional information, activities, and up-to-date links for computer-based activities and extensions.
Use of Icons
This guidebook includes icons to help you find what you need at a glance among the wealth of information, activities, and extension ideas. They serve as quick reference points for different types of information.

Summary Sidebar
A river otter sits atop the summary sidebar that begins each lesson introduction and lesson to provide you with a quick overview of its purpose and focus.

Activity Instructions
This dragonfly marks all activity instructions.

Summary Sidebar
A river otter sits atop the summary sidebar that begins each lesson introduction and lesson to provide you with a quick overview of its purpose and focus.

Answer Keys
A set of keys identifies the answers to pre- and post-assessments and activities.

Helpful Hints
Post-It notes provide suggestions and tips.

Career Launch
The leaping frog identifies career ideas to share with students.

Standards Correlation
The ruler provides you with a quick summary of the national and state standards addressed in a unit introduction or lesson.

Upper Grade Level Student Activity Worksheet
A pen marks student activity worksheets for grades 7–12 students.

Student Activity Worksheet
A pencil will often show up on student activity worksheets for grades 5–6 students.

Copy Me
This Viceroy butterfly identifies pages that can be reproduced on a copier.

Lower Grade Level Extensions
This duckling identifies extension ideas for grades K–4 students.
**Unit Overview**

Each unit is designed to give you everything you need to explore a given subject area in depth, including activities and extension ideas.

All units begin with a two-page overview that provides a brief summary of the unit and its lessons and activities.

Every unit contains four or five lessons that include one or two activities each.

Each unit includes a pre- and post-assessment designed to evaluate student knowledge before and after each unit. Answer key is included.

To help you choose and plan lessons and activities, we included a chart that provides all the pertinent information you need at a glance. It lists the goals, objectives, page numbers, standards, and activities for all the lessons in this guide in one place. This is located in the appendix section of the guide.
Lesson Overview

Each lesson provides all the information you need to explore a particular subject. Student activities are experiential hands-on activities or experiences. Highly adaptable, most can be used as either individual or small group activities or as classroom demonstrations, depending on the teacher’s goals and resources.

Each lesson contains:

- Background information, key concepts, vocabulary, and/or interesting facts
- Discussion ideas and lesson instructions
- Student activity worksheets
- Related careers and quotes
- Extension ideas

Lesson 4.2

All Aboard the Steamboat Era:
Steam Powers a New Economy

Introduction

In Lesson 4.2, students learn how the steamboat changed life and commerce along the river. They can calculate the cost of a trip and “mark the map” with Samuel Dorsey. A demonstration of the power of steam helps students understand how steam power revolutionized travel on the Mississippi River.

Background

In the 1800s, the Upper Mississippi River was the most important waterway for the movement of bulk cargo. Steamboats created a new economic system based on rapid transportation. Steamboat trips were faster and safer than transportation by land. The river helped the Upper Midwest change from a region of small farms to one where large-scale agriculture became common.

Lesson Objectives

- Introduce the steamboat and its role in transportation
- Demonstrate the operation of a steamboat
- Use maps to navigate the river
- Demonstrate the power of steam

Educational Standards

- Social Studies
- Language Arts
- Fine Arts

What You’ll Need

- Wall map
- Fine pen or marker
- Demonstration or model of a steamboat

How Long Will It Take?

- About 30 minutes
- Activity: 15 min.
- Activity: 15 min.

Fast Facts

- Fast Facts

Need to Know

- Fast Facts

Lesson 4.5

Floods and Drought on the Upper Mississippi River

Discussion (30 minutes)

You’ll Need

- Chart: The River Heritage of St. Louis (see page 246 for more information about the video)
- Wall map

Show students Scene 4, “River Network of the Future.” Tell the students about the flood risk in St. Louis and discuss the goods and products that travel up and down the river. Use forms to discuss how boats can travel from the St. Lawrence River to the Gulf of Mexico.

Lesson 4.6

Hazardous Materials Spills

This unit explains how spills happen and how the Upper Mississippi River is protected from them.

Discussion (30 minutes)

You’ll Need

- Chart: Hazardous Materials Spills
- Wall map
- Map of the Upper Mississippi River

Show students Scene 4, “River Network of the Future.” Tell the students about the flood risk in St. Louis and discuss the goods and products that travel up and down the river. Use forms to discuss how boats can travel from the St. Lawrence River to the Gulf of Mexico.

Lesson 4.7

The History of the Upper Mississippi River

Discussion (30 minutes)

You’ll Need

- Wall map
- Map of the Upper Mississippi River
- Chart: The History of the Upper Mississippi River
- Photographs of significant events

Show students Scene 4, “River Network of the Future.” Tell the students about the flood risk in St. Louis and discuss the goods and products that travel up and down the river. Use forms to discuss how boats can travel from the St. Lawrence River to the Gulf of Mexico.

Lesson 4.8

Checkpoints

Discussion (30 minutes)

You’ll Need

- Chart: The History of the Upper Mississippi River
- Wall map
- Map of the Upper Mississippi River
- Photographs of significant events

Show students Scene 4, “River Network of the Future.” Tell the students about the flood risk in St. Louis and discuss the goods and products that travel up and down the river. Use forms to discuss how boats can travel from the St. Lawrence River to the Gulf of Mexico.

Lesson 4.9

The Future of the Upper Mississippi River

Discussion (30 minutes)

You’ll Need

- Chart: The History of the Upper Mississippi River
- Wall map
- Map of the Upper Mississippi River
- Photographs of significant events

Show students Scene 4, “River Network of the Future.” Tell the students about the flood risk in St. Louis and discuss the goods and products that travel up and down the river. Use forms to discuss how boats can travel from the St. Lawrence River to the Gulf of Mexico.
Each activity marked with a dragonfly lists information on grade level, time required, and materials. Some activities include photos of step-by-step instructions.

Some activities include worksheets that can be copied and given to students to complete.

At the end of each lesson you will find ideas on how to extend the lesson. These provide additional depth to each lesson and include suggestions for outdoor and online activities for a variety of grade levels.