Shipbuilding on the Chesapeake

Teacher's Guide

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Objectives:

After working with this lesson, students will:

- Explain the importance of log canoes to Native Americans.
- Identify the types of shipbuilding that evolved on Chesapeake Bay through the Age of Sail.
- Identify the reasons for the evolution of several different types of Bay vessels.
- Investigate the role of a shipbuilder.
- Identify natural, capital, and human resources used in the production of different types of vessels.
- Explain how people of Maryland are linked by transportation to other places.

Maryland Learning Outcomes:

Social Studies Skills

Students will demonstrate an understanding of historical and current events using chronological and spatial thinking, develop historical interpretations, and frame questions that include collecting and evaluating information from primary and secondary sources.

- Apply the concept of change over time by organizing turning point events in chronological order and applying chronological terms correctly, including decade, century, and generation.
- Find, interpret, and organize primary and secondary sources of information including pictures, graphics, maps, atlases, artifacts, timelines, political cartoons, videotapes, journals, and government documents.

United States History

Students will examine significant ideas, beliefs, and themes; organize patterns and events; and analyze how individuals and societies have changed over time in Maryland and the United States.

- Analyze the social, economic, and political characteristics of societies native to North America.

Geography:

Students will use geographic concepts and processes to examine the role of culture, technology, and the environment in the location and distribution of human activities and spatial connections throughout time.

- Explain how people in Maryland and the United States are linked by transportation and communication.

Economics:

Students will develop economic reasoning to understand the historical development and current status of economic principles, institutions, and processes needed to be effective citizens, consumers, and workers participating in local communities, the nation, and the world.

- Explain how producers combine resources to provide goods and services to satisfy economic wants.
- Explain how changes in technology (factories, machinery, transportation, communication, new technology) impact Maryland's economy.
- Explain how specialized work results in interdependence, trade, and economic growth.

Worksheet:

- Shipbuilding on the Chesapeake Worksheet (7 pages)

Other Materials Needed:

- Tinfoil
- Pennies
- Rulers
- Paper towels
- Scissors
- Small tub of water

Teacher Background:

This lesson presents a basic overview of the evolution of shipbuilding on Chesapeake Bay from the time of Native Americans through the Age of Sail. This *Maryland Exploration* introduces the three main reasons for industrial evolution:

- Changes in Technology
- Changes in Resources
- Changes in Demands (or needs) of people.

The students then identify which of these changes caused each evolution in early shipbuilding. They also identify the human, natural, and capital resources used in the production of the different types of vessels.

The lesson then offers students the opportunity to investigate the role of shipbuilder through a hands-on activity. This will help them better understand the challenges of industrial change.

Introduction/Motivation:

Before beginning this lesson, introduce the fact that industries change. Discuss why they change. Help the students gain an understanding of the three main reasons for industrial evolution, i.e. changes in Technology, Resources, and Demands (or needs) of people.

Two good examples that you can use to illustrate this point are recorded music and computers. Feel free to add any other relevant examples.

- **Recorded Music:** In recent years, the most common recording medium has evolved through different types of records, to tapes (including the 8-Track), to CDs. See if your students can suggest the next change that might occur.

- **Computers:** The first computer cost hundreds of thousands of dollars, and occupied a large room. A modern calculator could probably do more than the first computer could.

Lesson Development:

This lesson can be completed by students working independently, in small groups, or as a whole class activity. If done independently or in small groups, check for vocabulary that may need to be defined beforehand. Monitor for clarification throughout the lesson.

Activity #1: Evolution of Shipbuilding through the Age of Sail

In this activity, students study six types of vessels that have evolved over time on Chesapeake Bay. On their Worksheet, they identify the proper chronological order of the development of the vessel, identify the reason that it evolved (i.e. changes in Technology, Resources, or Demands), and finally identify the Human, Capital, and Natural resources used in its production. Finally students are directed to cut out an illustration of the vessel found on Page 7 of the Worksheet and paste it on the table to identify that type of vessel. This activity helps students to learn about the different kinds vessels that are an important part of Chesapeake Bay maritime heritage. It also helps them to understand the influence of changing circumstances and the availability of resources on industrial growth.

Activity 2: Building a Ship

This activity should be completed after the Internet portion of the lesson is completed. This is a hands-on activity that will require some set-up. You may choose to have the students complete the activity individually or in pairs. You will need tinfoil, scissors, and a ruler for each individual or pair. You will also need pennies, paper towels, and a tub of water located in a central area.

The students will explore the role of shipbuilder. They are be presented with this problem both in the lesson and on their Worksheet:

> *To complete this task, you will need to think like a shipbuilder. A customer has come to you and asked you to build a ship to transport some cargo. You need to build a ship that can hold the most cargo possible. You are competing with other shipbuilders in the area (your classmates) for the job. The shipbuilder that can build the ship that holds the greatest amount of cargo without sinking will get the job.*
>
> *The ship is to be constructed out of a piece of tinfoil 10 cm x 10 cm. You may alter the square of tinfoil in any way you like, but no other materials may be added (such as tape, glue, etc.). The cargo you will be carrying is pennies.*

Instructions for building the ship:

- *Measure out a square of tinfoil 10 cm x 10 cm.*
- *Cut out the square.*
- *Form it any way you like, but add no other materials.*
- *You may test your ship in the tub of water to see if it floats, but you may not test how much cargo it will carry.*

After students have finished their constructions, they should sketch their ships on their Worksheets, and answer a question.

Testing the Ships:

When everyone has built their ship out of tinfoil, they will test how many pennies each ship will hold before it sinks. At this point, direct your students to take their ships to the tub of water. In turn, have each student place his/her ship in the water. They will then place one penny at a time inside the ship. Make sure you count how many pennies are placed inside. Stop counting when a penny causes the ship to sink. You may choose to record the results on the board. Have the student take the ship and the pennies out of the water and place them on paper towels to dry.

Students are then directed to answer several questions on their Worksheets. The questions will help them analyze and compare their ship with the one that carried the most cargo (pennies).

Thoughtful Application:

As a final activity, students are asked to write a description of the challenges facing the shipbuilders developing one of the types of vessels they have studied. The are asked to include in their description:

· The kind of boat they have chosen.
· The reasons that the boat evolved.
· The challenges they think shipbuilders faced in developing that type of vessel.
· The natural, capital, and human resources used in the production of the boat.

They are asked to explain how the people of Maryland and the US became more interdependent as a result of using this type of boat.

Scoring Tool:

Students will receive:	
3 Points	· Writing is edited for CUPS (Capitalization, Usage, Punctuation, Syntax) · The reasons that the boat evolved are included. · The challenges facing shipbuilders at the time are described. · The natural, capital, and human resources use in the production of the boat are included. · Ways in which people of Maryland and the US became more interdependent as a result of this vessel are included.
2 Points	· If most of the items in the 3 Point answer explained above are included.
1 Point	· If only one or two of the items in the 3 Point answer explained above are included.

Lesson Extensions:

If you would like your students to build on the activities within this lesson, or if you would like to modify the lesson for a higher grade level, here are some activities:

· Have students try being a shipbuilder again, but this time build a sailing vessel. Students will need to think of materials they will need to build a sailing vessel. This will be a whole new challenge.

· Have students research modern shipbuilding on the Chesapeake and chart the changes that caused the evolution of these ships.

· Have students check terms they didn't understand in the lesson in this online nautical dictionary:
BoatTalk: http://www.boatinginformation.com/dictionary/index.htm

· Have students investigate some of the maritime museums and other organizations on the Bay that have web sites to see some of the vessels that have survived from the early days of shipbuilding on the Chesapeake.

  · The Chesapeake Bay Maritime Museum: http://www.cbmm.org/stroll.htm
  · St. Michaels: http://www.internetconnection.com/talbot/stmich.htm
  · Calvert Marine Museum: http://www.calvertmarinemuseum.com/history.htm
  · Skipjacks of the Chesapeake Bay: http://www.globalclassroom.org/ellenw.html

Book References:

- *Chesapeake Bay Schooners*, by Quentin Snediker and Ann Jensen. Tidewater Publishers, Centreville, Maryland, 1992.

- *Old Ironsides: Americans Build a Fighting Ship*, by David Weitzman. Houghton Mifflin Company, Boston, 1997.

- *Pride of Baltimore: The Story of the Baltimore Clippers*, by Thomas C. Gillmer. International Marine, Camden, Maine, 1992.

- *Ships of the Past*, by Charles G. Davis. Bonanza Books, New York, 1929.

- *Tidewater Triumph: The Development and Worldwide Success of the Chesapeake Bay Pilot Schooner*, by Geoffrey M. Footner. Tidewater Publishers, Centreville, Maryland, 1998.