

The Gristmill by Bobbie Kalman (Crabtree Publishing Co., New York, New York, 1990)
ISBN 0-86505-486-X (hardbound)

Literature Annotation: Pioneers would travel many miles to visit the gristmill for the essential service of having their wheat or corn stone-ground. As a result, communities in colonial America developed and prospered. In this story students will examine gristmill construction, the process for grinding grain into flour, the resources needed, and the importance of the gristmill to the community.

Grade Level: 4/5

Duration: Two 45-minute class periods

Economic Concepts: Production/Goods and Services/Resources

Maryland Voluntary State Curriculum (VSC)

Economics Standard: 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.

- 4.A.2 Describe how limited economic resources (natural, human, and capital) are used to produce goods and services to satisfy economic wants in Maryland. (Grade 4)
- 4.A.4 Describe regional economic specialization in Maryland and the ways people live and work (Grade 4)
- 4.A.2 Analyze how limited economic resources were used to satisfy economic wants in Colonial America (Grade 5)
- 4.A.4 Analyze the consequences of specialized work on interdependence, trade, and economic growth (Grade 5)

Geography Standard: 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.

- 3.D.1.b Describe ways and reasons people in Maryland and the United States modify the natural environment and the consequences of modifications (Grade 4)
- 3.D.1.b Describe ways that colonists in the New England, Middle and Southern regions adapted to and modified the environment, such as the uses of the grist mill, water wheels and plantation farming (Grade 5)

Reading Standard (Comprehension of Informational Text): Students will read, comprehend, interpret, analyze, and evaluate informational texts.

- 2.A.2 Identify and use text features to facilitate understanding of informational texts (graphic aids: illustrations, diagrams)
- 2.A.4.f Identify and explain relationships between and among ideas
- 2.A.4.g Draw conclusions and inferences and make generalizations and predictions from the text

Objectives:

Students will be able to:

- analyze the production process of grinding wheat to flour.
- describe the natural, capital, and human resources necessary to operate a gristmill.
- explain the importance of the gristmill and miller to the colonial community.
- describe goods and services provided at the gristmill.
- describe the qualities necessary for a good miller.

Vocabulary: producer, production, natural resources, capital resources, human resources, goods, services, economic wants, consumer (see vocabulary list enclosed)

Materials:

Book: The Gristmill by Bobbie Kalman
Scissors, crayons, colored pencils, markers, rulers
Colored 3"X 5" index cards (three per student)
Diagram of the Gristmill with Water Wheel (one per student)
Large sheets of white paper, 12"X18" (one per student)
Transparencies of gristmill and miller (8 enclosed)

Resources:

<http://www.osv.org/education/WaterPower/index.html>

Old Sturbridge Village Website- This contains animated examples of different types of mills and different types of water wheels.

Teacher Background: Knowledge of the production process. Be familiar with the natural, capital, and human resources necessary to operate a gristmill. As you refer to the transparencies of the gristmill and the miller, notice the capital resources involved. The pictures of the miller show him making a new mill stone (*capital resource*) and repairing another by furrowing (*making grooved areas in the stone for grinding grain*). The miller's knowledge and skills are human resources. Refer to the previous lesson for additional information.

Lesson Development

Review/Motivation:

1. Show students transparencies of Wye Grist Mill/Miller, paying close attention to details that show the workings of a typical gristmill. Discuss the capital resources needed to operate the mill. Review how the water (*natural resource*) is used to turn the waterwheel and thus produce power to turn the stones and grind the grain. Ask: Is the waterwheel a natural, capital, or human resource? (*capital*) Ask: What kind of resource is the miller? (*human*) *What about the knowledge the miller needs to operate and repair the mill? (*human*)
2. Ask students to think of three words that remind them of the economics of a gristmill and write a different word on each card in large print, one side only (example enclosed). Collect student cards, shuffle and pass out three different cards to each

student. Direct students to write a descriptive sentence about the word on the back of each card they receive. Share answers in class. You may also want to write, "natural resource," "capital resource," "human resource," and "good/service" on the board or chart paper and adhere index cards (word side up) under proper headings.

3. Tell students that you are going to read a book entitled The Gristmill. Explain that in Colonial America, pioneers traveled many miles to have stone ground flour, which was better than the flour ground at home. Ask: Why do you think stone-ground flour was better? (*softer, finely ground, could be done quicker than at home, better for baking bread*)
4. Instruct the students that, as you read the story, they are to write the topic written on the board on their paper and to take notes (*only words and phrases*). *Topic: Qualities and Responsibilities Necessary for a Good Miller. Answers should include: grind grain for community, buy and sell finished product/flour, knowledge of equipment, friendly, honest, respectful, produced a good (*flour*), brought the villagers up to date on current news (many could not read or write), shared information with the community, hard working, often became wealthy, sometimes elected to public office, etc.
5. Read The Gristmill to the students in chunks and be sure to show pictures. Point out the jobs of a good miller as you read and allow students to write answers on their paper. You may decide for students to work with a partner as they complete this activity.

Activities:

Story Discussion:

Ask the students the following questions and discuss the answers.

1. What was the ideal location for a gristmill? What physical characteristics would be needed? (*Near a water source such as a stream, river, or lake, an area where the water source could be dammed to produce power; fast-flowing, shallow river was ideal; trees available for the construction of the mill and damming the river; trees along the river bank for soaking up moisture to prevent flooding, easy access for the farmer to bring grain to be ground, and an outlet by water to transport and trade goods.*)
2. What important qualities would be necessary for a good miller? (See answer above in number 4) Show pages 12, 13, 20, 21 from The Gristmill. Ask: Why was the miller a man? (*During this period women did not do specialized work such as operating a mill, or work away from home*)
3. Help students name the natural, capital, and human resources necessary in operating a successful gristmill. (*The natural resources included water, trees, grain, stone for creating the millstones. The capital resources included millstones, waterwheel, gears, tools, grain bins, and flour sacks. The human resources*

included the miller with both his thinking skills and milling skills, his assistants, and the farmer who grew the grain to be ground into flour.) **Note:** Use the transparencies of the Wye Mill to help identify the natural, capital, and human resources necessary to operate a gristmill.

4. What were some of the problems at the mill? *(Some problems included damage from pests such as mice, rats, moths, beetles, and other insects. The miller did not have any type of pesticide nor could he have used it around flour being made into bread for human consumption. Flooding was another problem the miller faced. The tremendous force of water could cause the mill to wash away. Accidents were a problem since the miller and his assistants regularly worked on the waterwheel and other pieces of heavy equipment. The biggest danger was fire. Fire could prove to be the miller's major worry since the mill stones rubbing together could cause a spark and ignite the flour. Stones were often oiled to reduce the threat of fire. Even the flame of a candle could cause a fire.*

Note: Important concepts are underlined; you may want to copy the question and list concepts on the board)

5. Would you like to be a miller? Why? *(Answers will vary depending on the students. Use answers from above questions to support your point of view.)*

Human, Natural, Capital Resource Activity:

- Have students use the diagram of the workings of the gristmill to identify at least three natural, capital, and human resources and list them in the appropriate spaces provided (page 7)
- Direct students to write a paragraph that includes at least one natural, one capital, and one human resource and explain any aspect of mill operation. Tell students that they may also draw pictures to further explain/clarify the aspect of mill operation.

Conclusion/Closure:

1. Review the list generated from activity #4 under Review and Motivation and stress why the miller was very important to the community. Discuss: What would be the benefit of attracting a good miller to town? (grind grain, buy and sell products, provide goods and services, help the community to prosper, attract more people to the community, etc.)
2. Review the natural, capital, and human resources necessary for taking the natural resource, wheat, and grinding it to make stone-ground flour. Review why stone-ground flour was considered to be better than that ground at home.
3. Use the transparencies of the Wye Grist Mill to reinforce concepts and show tools (*capital resources*) necessary for mill operation.

Thoughtful Application:

- Explain to students the following: You as a member of the new community "Sunnyville" (pop. 86), and have been asked by a group of townspeople to create an ad/broadside to advertise for a miller to come to town. Since your community is growing and several new farmers have come to settle nearby, there is a need for a gristmill. You have an ideal location by a swiftly moving stream for constructing a mill and the men in the town are all willing to help in the construction.
- Using the 12" X18" sheets of white construction paper, create an ad/broadside with the following information. Choose an appropriate title describing who you are trying to attract. List and illustrate the qualities necessary for a good miller (*qualifications*). Tell whether your community plans to pay the miller to relocate. Explain why your town has an ideal location for a gristmill. Describe the benefits of relocating the miller/family to Sunnyville. Include the natural resources available in your area.
- Remind students: Ads/Broadsides should be colorful, easy to read, and include all necessary information. Check spelling, grammar, and punctuation. Refer to any information you already know about gristmills to complete. See enclosed examples of Ads/Broadsides from the Maryland Historical Society for additional information.

Vocabulary List

Producer - An individual or group of people who combine economic resources (natural, capital, and human) to make goods and/or services.

Production - The act of creating goods and services by combining economic resources.

Natural Resources - Gifts of nature that can be used to produce goods and services.

Capital Resources - Goods made by people and used to produce other goods and services.

Human Resources - People doing physical or mental work to produce goods and services.

Goods - Things that people make or grow to satisfy economic wants.

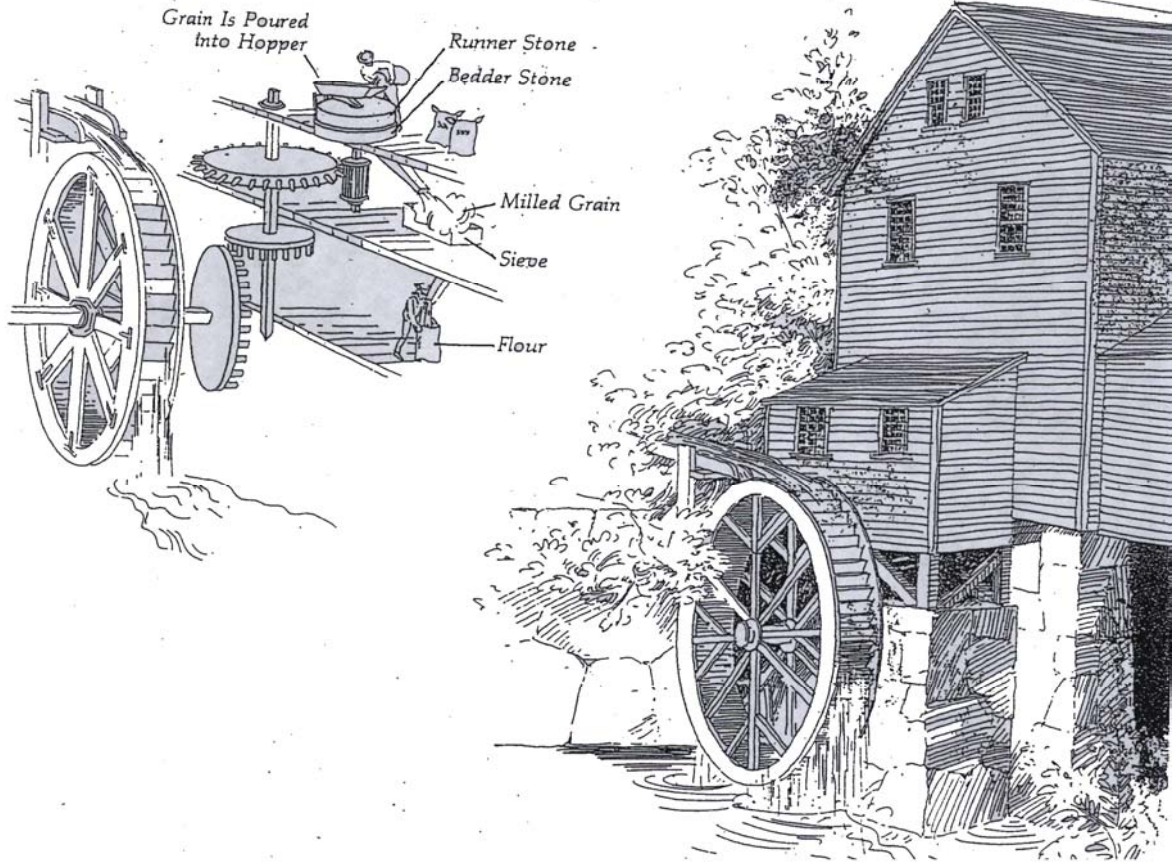
Services - Physically intangible actions that are performed to satisfy economic wants. Actions (jobs) that people do for each other. A service is something you cannot touch or hold.

Economic Wants - Goods and services people would like to have.

Consumer - People who buy and use goods and services to satisfy economic wants.



The Gristmill



Using the picture of the gristmill and what you have already learned, list at least three natural, capital, and human resources needed to operate the mill. Lightly color the mill.

Natural	Capital	Human
_____	_____	_____
_____	_____	_____
_____	_____	_____

Adapted from Adventures in Colonial America: The Village by James E. Knight