

Title: *What is Technology?* by Susan Ring. NY: Newbridge Educational Publishing, 1999. ISBN 1-58273-119-5

Literature Annotation: Technology is explained and explored in this book. Included are examples of ways that technology is forever changing and improving the way we live. (This book is also published as a big book.)

Grade: 2

Duration: 1-2 class sessions

Economic Concepts: Production, Human Resources, Capital Resources; Technology

Maryland State Voluntary 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.a Identify the natural, capital, and human resources used in the production of a good or service (Grade 2)
- 4.A.3. Examine how technology affects the way people live, work and play. (Grades 2 -3)
- 4.A.3.a Identify examples of technology used by consumers, such as automobiles, cameras, telephones, microwaves, televisions, and computers (Grade 2)
- 4.A.3.b. Analyze why consumers use technology in their daily lives (Grade 2)

Reading Standard: Students will use a variety of strategies to understand what they read (construct meaning).

- 1.D.2 Use strategies to prepare for reading (before reading) (PK-Grade 3)

Objectives: Students will...

- examine how technology affects the way people live, work, and play by identifying an example of technology and explaining how it is used by consumers.
- analyze why consumers use technology in their daily lives by explaining the advantages of new technology to consumers and producers.
- explain how technology is used in the production process by describing how technological improvements have affected the production of goods or services.

Vocabulary

Technology: skills, methods, tools, machines and other things used to perform activities

Economic resources: the natural, human, and capital resources that are used to produce goods and services

Natural Resources: the renewable, and non-renewable gifts of nature that can be used to produce goods and services, including but not limited to land, water, animals, minerals, tress, climate, soil, fire, seeds, grain and fruits

Human Resources: the health, strength, talents, education and skills that humans can use to produce goods and services

Capital Resources: the goods that are manufactured and constructed by people and used to produce other goods and services, including but not limited to factories, warehouses, roads, bridges, machinery, ports, dams, and tools (Money is not a capital resource.)

Producer: an individual or group who combine economic resources to make goods and/or services

Production: the act of creating goods and services by combining economic resources

Consumer: an individual or group who uses resources, goods and services to satisfy economic wants

Goods: physically tangible objects that can be used to satisfy economic wants, including but not limited to food, shoes, cars, houses, books and furniture

Services: physically intangible actions that can be performed to satisfy economic wants, including but not limited to medical care, dental care, haircuts, education, police protection, fire protection and national defense

Additional Vocabulary

improvements
discoveries

invention
breakthrough

phonograph
equipment

Materials

Teacher materials

- Big book or student copies of *What is Technology?* by Susan Ring
- Optional Book: *Corn is Maize* by Alikei. NY: Harper Collins, 1976) ISBN 0-06-445026-0 (pbk)
- Collection of items, or pictures of items that show changes in technology over time.
Suggested items: a quill pen, fountain pen, and a modern pen; 45 and LP records and a CD; an older brownie camera, a disposable camera, and a new digital camera; an old kitchen gadget and a picture of its modern counterpart, a pioneer wagon, old time vehicle, and a modern vehicle; a button up shoe, a tie sneaker and a Velcro sneaker. (A visit to an antique shop, flea market, or yard sale may help you to locate a few "old" items.)
- Optional: dough (1 ½ c. flour, ¾ c. salt, ¾ c. water) or modeling clay
- Optional: juice can and rolling pin
- Transparency of Teacher Resource 1, *Uses of Technology*
- Transparency of Resource Sheet 2, *Resources Used in the Production of a Corn Crop*

For each student

- 1 copy of Resource Sheet 2, *Resources Used in the Production of a Corn Crop*
- 1 copy of Resource Sheet 3, *Interview with a Worker*
- 1 copy of Resource Sheet 4, *How Technology Helps Me*
- 1 prompt from Resource Sheet 5, *Writing Prompt*

Teacher Background

People develop and use technology because consumers and producers want to use the limited economic resources they have in faster and more productive ways. Technology is used by producers to make more efficient use of the natural, capital and human resources available. Consumers use technology because it improves the quality of their lives.

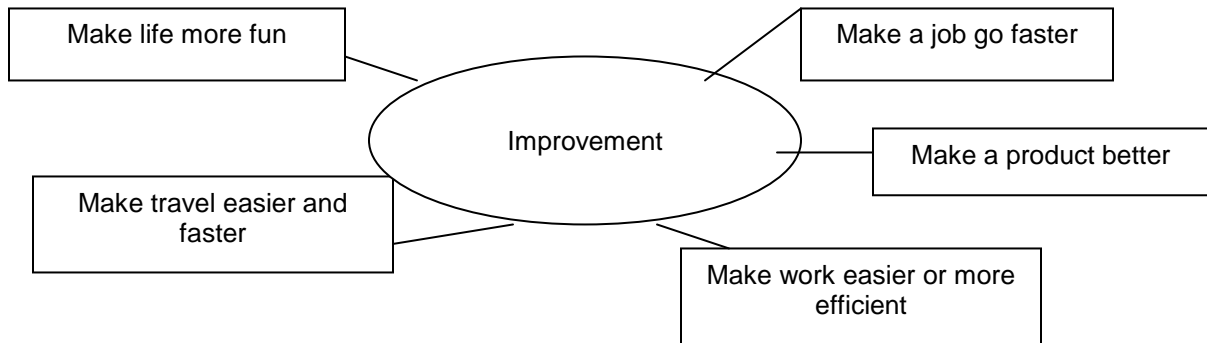
Motivation

Show the students the collection of items and/or pictures that depict changes to goods over time. Choose two items from the display, such as a quill pen, fountain pen, and a modern pen. Discuss the differences between the two items. Have students explain how the original item was used and how the new technology improves the way people live, work, or play.

Development

1. Discuss the definition of *technology*. Explain that the changes in how people live, work or play is created by new technology, and that new technology is the result of people using their *creativity* to *invent* new tools or equipment.

- Write the word *improvement* in the center of a web on the board. Have students create a web that shows why people develop improvements to products we already have or invent new products. The web might look similar to the following example:



- Have students identify some of the improvements to the items in the collection and explain how the changes affected the way people lived, worked, or played. For example, a portable cell phone allows people to call another person from anywhere, and it is small and easy to carry.
- Display the cover photograph of the book *What is Technology?* Have students identify the objects on the cover. Ask students to give examples of jobs that a robotic hand could do in school (e.g., serving lunch, delivering work to the teacher, holding a pencil or crayon, carrying a book bag). Have students think of other ways a robotic hand could help people at work. Tell students that today they will read about other ways that technology has made people’s lives easier, better, or more fun.
- Pre-Reading:** Have the students preview the book for non-fiction text features, such as the table of contents, photo-illustrations, glossary, and index. Discuss how the text features help the reader understand the text.
- Read the book. Have students recall some of the technology mentioned in the text and have them describe how people used that technology. Ask students to give examples of times when they have used similar technology.
- Display a transparency of Teacher Resource 1, *Uses of Technology*. Have students preview the organizer. Look at p. 3 in the book. Discuss the following questions:
 - How are people in the photo-illustrations using technology?*
 - Is the technology being used for transportation, communication, entertainment, or work?*
- Using the answers to the questions above, demonstrate how to complete the organizer. The first one has been done. Continue to complete the organizer by discussing each item on the list. Find the page(s) in the text where the specific technology is mentioned. Have the students identify how the people in the photo-illustrations are using the technology and record the class responses on the transparency of the organizer.
(Optional Activity: Enrich the reading of p. 7 with the “Explore: Roll It Out” activity explained in the Teacher’s Guide that accompanies the big book. In this activity, the students compare the rolling out of dough using a juice can and a rolling pin.)

10. Have the students read pp. 12-18 to identify examples of technology that have changed methods of transportation and communication. (*The invention of the wheel changed transportation. The phonograph changed communication. A portable radio changed communication. Technology allows people to travel underwater. People can travel in space and communicate with people on the Earth. Satellites allow people all over the world to communicate instantly.*) Have students look at the photograph on page 16. Ask the students to explain how technology has helped people with disabilities to improve their lives.
11. Display a transparency of Resource Sheet 2, *Resources Used in the Production of a Corn Crop*, and distribute student copies of the same. Have the students use the text and photographs on pp. 10-11 to identify the natural, human, and capital resources used in the production of corn. Record the answers on the top of the resource sheet in the correct boxes for “Modern Production of Corn”.

Sample responses

Natural resources: corn seed, soil, sunlight, rain

Human resources: farmers, truck drivers, equipment operators

Capital resources: computers, tractors, trucks, harvesting machines, silos, grain elevators

8. Tell the students that Native Americans first grew corn as a crop thousand of years ago. Read the book *Corn is Maize* by Alike to learn about the corn planting methods used by Native Americans long ago (specifically discussed on pp. 13-18 of this book). Discuss how technology has changed the way farmers today raise a corn crop compared to the Native American production process long ago. Have the students complete the bottom section on “Corn Production Long Ago.”

Sample responses

Natural resources: corn seed, soil, sunlight, rain, bean seed, fish

Human resources: cave dweller, Native Americans, farmers, Indian women

Capital resources: hole-digging tool, rake, hoe

9. Distribute copies of Resource Sheet 3, *Interview with a Worker*. Assign students the homework assignment of interviewing a family member or adult friend to determine the technology used in their job. Have students share the information gathered in the interviews.

Assessment:

Option 1: Have the students write a journal entry describing ways that they have used technology to make their jobs as students more efficient and productive. Distribute copies of the graphic organizer on Resource Sheet 4, *How Technology Helps Me*. Have the students complete the graphic organizer as a pre-writing activity. Then have the students write a paragraph to complete the journal entry as an assessment of learning.

Option 2: Give students a copy of the prompt on Resource Sheet 5, *Writing Prompt*. Have students respond to the prompt.

Uses of Technology

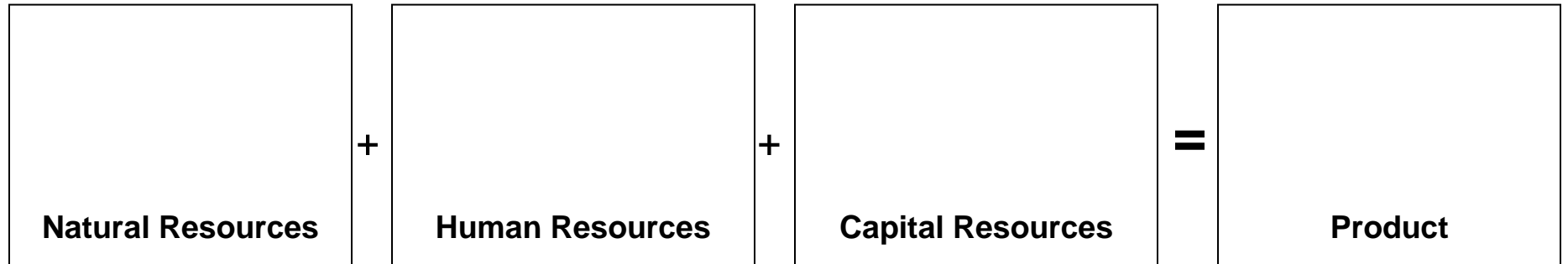
Kind of Technology	Used for Transportation?	Used for Communication?	Used for Entertainment?	Used for Work?
computer		X	X	X
train or monorail				
telephone or walkie-talkie				
bicycle				
rolling pin				
medical equipment				
farm equipment				

Uses of Technology (Sample Responses)

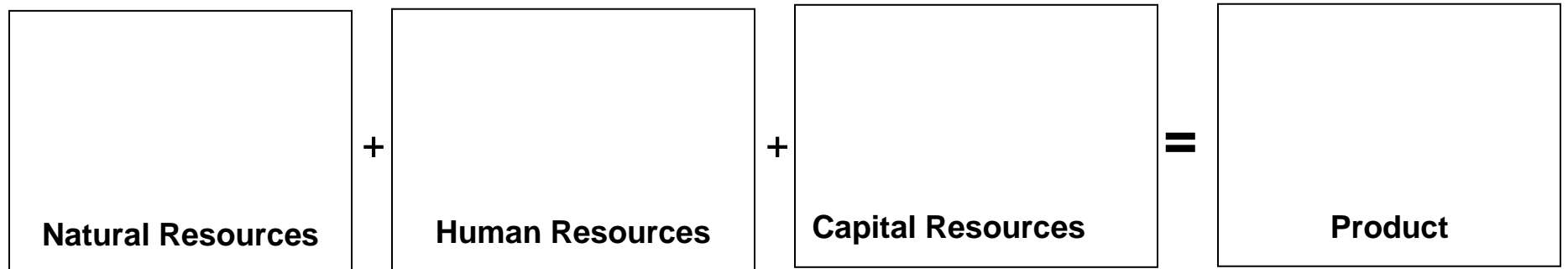
Kind of Technology	Used for Transportation?	Used for Communication?	Used for Entertainment?	Used for Work?
computer		X	X	X
train or monorail	X			X
telephone or walkie-talkie		X	X	X
bicycle	X		X	X
rolling pin				X
medical equipment				X
farm equipment	X	X		X

Resources Used in the Production of a Corn Crop

Modern Production Process



Native American Production Process



Name _____

Interview with a Worker

Directions: Interview a parent or an adult that you know well. Be polite and ask the following questions about being a worker. Record the answers on the lines below.

1. What is your job? _____

2. What are some of the tasks you do in your work?

3. What kinds of technology do you use in your job? Explain how the technology allows you to work faster or makes the work easier to do.

Kind of Technology	How it Helps You in Your Job

4. How does technology help you to conserve (save) economic resources in your job?

Natural resources (gifts of nature) _____

Human resources (people's time and skills) _____

Capital resources (tools & equipment) _____

Name of Worker _____

Name of Student Interviewer _____

How Technology Helps Me

Directions: Think of ways that you have used technology in the past week to help you be more efficient (work faster, with less effort) and more productive (get more work completed). In the boxes on the graphic organizer, write the kinds of technology you used and how the technology helped you.

Kind of Technology	Where I Used the Technology	How the Technology Helped Me
Transportation		
Communication		
Tools or Machinery		

Name _____

Journal Entry

Writing Prompt

You have been learning about ways that technology helps people to work faster, with less effort, and be more productive in their work. You are a worker when you do chores, schoolwork, and homework.

Write a paragraph describing ways they you have used technology in the past week to help you with your work. Explain how the technology helped make your work faster and easier to do.

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