

Supermarket

By Kathleen Krull / ISBN: 0-8234-1546-5

Lesson Author

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Standards and Benchmarks (see page 13)

Lesson Description

After reading a story about a supermarket, students examine the change in supermarket jobs due to the advances in technology. Students observe two demonstrations. One simulates the checkout process at a grocery store using a cash register, and the other simulates scanners that are in stores today. Students conclude which method is faster and more accurate and why.

Grade Level

3-4

Economics Concepts

Human capital
Technological change

Objectives

Students will

- define human capital,
- identify ways that people enhance their human capital,
- identify changes in technology, and
- explain the impact that changes in technology can have on production of a good or service.

Time Required

45-60 minutes

Materials

- *Supermarket* by Kathleen Krull (ISBN: 0-8234-1546-5)
- Handouts 1 and 3, one copy of each for each student
- Handout 2, one copy for the teacher
- Handout 3 Answer Key for the teacher
- A timer or watch with a second hand
- Groceries with bar codes (for scanning) (Examples: 1 can of beans, 1 can of soup, 1 box of cereal, 1 roll of paper towels, 1 box of toothpicks.)
- Groceries with price tags (Examples: 1 can of beans, \$0.79; 1 can of soup, \$1.25; 1 box of cereal, \$2.89; 1 roll of paper towels, \$0.50; 1 box of toothpicks, \$0.59.)
- Two \$5 bills, five \$1 bills, ten pennies, five nickels, five dimes, and three quarters
- Option: The combination of currency and coin stated above for each of four groups
- A small box to replicate a cash drawer
- Calculator
- Drawing paper (8.5" × 11") and markers for each pair of students
- A red, blue, and green crayon for each student

Procedure

1. Introduce the lesson by initiating a discussion based on the following questions:
 - What is your favorite part of a supermarket? (*Answers will vary. Encourage students to think about the deli, bakery, floral, and other supermarket departments and to explain what they like about their favorite area.*)
 - Who likes the checkout area the best? (*Answers will vary. Some students might report that this area is boring, while others may like this area because of the candy located nearby.*)
2. Explain that you will read a book, *Supermarket*, which shows various supermarket departments and provides many facts about supermarkets and food. (Optional: Provide a fun fact from the book, e.g., the average wait in a checkout line is 8 minutes.)
3. Read the book and ask students to listen for the many departments mentioned in the book and how consumers knew how much to pay for the goods they bought.
4. Explain that supermarkets used to operate much differently. Distribute a copy of *Handout 1: The Way Things Used To Be* to each student and instruct students to read and complete the handout.

5. Ask the following questions:
 - Why wasn't it important for a grocery clerk to run fast? (*They mostly stood at the checkout. Running fast was not a requirement.*)
 - Why was it important for a grocery clerk to be able to read prices quickly? (*Customers did not want to spend a long time in the checkout lane.*)
 - Why wasn't it important for a grocery clerk to be able to type business letters quickly and accurately? (*The clerk did not have to write letters in his or her job.*)
 - Why was it important for a grocery clerk to be able to type numbers quickly and accurately? (*Grocery clerks had to type the numbers for the prices into the cash register. At first it was hard to push the buttons because the cash registers were manual, not electronic.*)
 - Why wasn't it important for a grocery clerk to speak to large audiences? (*That was not a job duty for grocery clerks.*)
 - Why was it important for a grocery clerk to know how to add and subtract quickly and accurately? (*Customers wanted to be sure they were getting the correct change, and the supermarket owners wanted to be sure the clerk didn't give customers too much change.*)
6. Explain that grocery clerks in today's supermarkets use electronic cash registers that are connected to computers. A grocery clerk needed different skills back when manual cash registers were used. The clerk had to be skilled at punching the correct numbers on the cash register. Often, the clerks had to memorize the prices of items so that they wouldn't have to read each price.
7. Point to a UPC on one of the products. Explain that UPC stands for Universal Product Code. Another name for the UPC is "bar code." The bar code tells the computer information about the product. It tells the computer the price of the item, what the item is, and who produced the item. When the grocery clerk passes the UPC over the scanner, the computer records all of the information about the product, including the price.
8. Allow a student to demonstrate each checkout method as follows.
Round 1: Scanning Method
 - Place *Handout 2: Scanner* on a table. Place groceries to the right of the scanner.
 - Choose a student to act as the clerk.
 - Choose a student to keep track of the time and give the student the timer or watch.
 - Instruct the timekeeper to time the clerk as he or she checks out the groceries.
 - Instruct the clerk to pass the groceries over the scanner and place them to his or her left.

- Explain that if the item has been scanned successfully, the clerk will hear a “beep.” If there is no beep, the clerk must scan the item again.
 - Each time the clerk scans an item, make a “beep” sound. (Occasionally, do not beep, so that the clerk must turn the item and try again.)
 - When the clerk finishes, record the time it took to scan the groceries.
9. Discuss the following:
- How would the consumer know how much the groceries cost? (*The total of the prices would appear on the electronic cash register.*)
 - How might the consumer pay for the groceries? (*The customer might pay for the groceries with cash or by swiping a debit or credit card in the card reader.*)
 - If the customer paid with cash, how would the clerk know how much change to give? (*The clerk would enter into the electronic cash register the cash amount provided by the customer. The exact amount of change to give the customer would then appear on the computer’s screen.*)
 - Would the clerk need to do any addition or subtraction to figure out the customer’s change? (*No. The computer does it.*)

Round 2: Cash Register Method

- Place two tables or desks perpendicular to each other. Have the clerk stand at the intersection of the tables so that the clerk faces one table, with the other table at his or her left. Place a calculator on the table the clerk is facing. Place the groceries on the table to the clerk’s left. Place the change (or cash drawer) near the calculator.
 - Instruct the timekeeper to time the clerk as he or she checks out the groceries.
 - Instruct the clerk to read the price tag on one item and enter the price into the calculator. Have the clerk continue until all groceries are checked out.
 - When the clerk finishes, record the time it took to add the groceries using the calculator.
 - Ask the clerk for the total from the calculator, and record it on the board.
10. Ask the timekeeper for the number of minutes and/or seconds it took to perform each method of grocery checkout. Ask the following questions:
- Which method took the most amount of time? (*The calculator method usually takes more time.*)
 - Why does scanning take so much less time? (*Scanning is a quick movement that does not require the clerk to stop to enter a price.*)

11. Explain that the scanner allows workers to check out more groceries because it allows the clerks to move the groceries faster.
12. Explain that the scanner may help prevent mistakes, too. Refer to the calculator method and compare the clerk's total with the true total. (*If using the sample goods and prices listed under "Materials," the total should be \$6.02.*)
13. Ask the following questions:
 - Was the clerk's total correct or more than or less than the correct total? (*Answers will vary. It isn't likely that the total was correct.*)
 - If the clerk's total were greater than the correct total, who would be hurt—the customer or the store owner? (*The customer*)
 - If the clerk's total were less than the correct total, who would be hurt—the customer or the store owner? (*The store owner*)
 - If the customer were overcharged, how might she react? (*Answers will vary but the customer might be angry, not come back to the store, or tell all of her friends not to shop at that store.*)
 - If customers were not charged enough because the clerk made mistakes often, what could happen to the store? (*The store could go out of business.*)
 - Which method of checkout is probably more accurate? (*The scanner*)
 - Which method of checkout is quicker? (*The scanner*)
 - Why do you think it was important for the clerks using cash registers to be accurate? (*Answers will vary. Lead students to understand that clerks needed to be very accurate so that people were not overcharged or undercharged and the grocery store received all of the money that was due for the groceries.*)
14. Explain that accuracy and speed were special skills required of grocery clerks. Grocery clerks who use scanners must still be accurate when using the cash register, but they punch in so few prices that they do not have to be as skilled as grocery clerks years ago.
15. Ask students how a grocery clerk obtained skills of speed and accuracy when working a cash register. (*Skills of accuracy and speed were obtained through on-the-job training. Clerks became faster and more accurate as they continued in their job.*)
16. Explain that on-the-job training and practice are two ways that grocery clerks developed their **human capital**. Human capital is the knowledge and skills that people obtain through education, training, and experience. To become a better human resource, people can develop their human capital through a combination of education, training, and practice. Grocery clerks learned to use the cash register quickly and accurately to become better human resources.

17. Return to the clerk and pay for the groceries using a round dollar number. Using this example, pay the clerk \$7.00 and allow the clerk to provide change. (*In this example, \$0.98.*) If the clerk is successful, ask him or her to explain how he or she determined the correct change.

18. Demonstrate how to count back change. In this example, count change back as follows:
 - State the total as \$6.02. Lay three pennies on the “counter” and say \$6.05. Place two dimes with the pennies on the counter and say \$6.25. Add three quarters to the dimes and pennies on the counter and say \$7.00.
 - Explain that grocery clerks also needed to be skilled at counting back change. With the computer equipment used today, the clerk punches in the amount provided by the customer and the computer tells the clerk how much change should be given.

19. Ask the following questions:
 - What is human capital? (*Human capital is the knowledge and skills that people obtain through education, training, and experience.*)
 - What human capital did grocery clerks who used non-scanning cash registers need to develop? (*Answers will vary but may include the following: They needed to use the cash register quickly and accurately and count back change.*)
 - What human capital has a teacher developed? (*Answers will vary but may include the following: Teachers know how to explain things in a way their students understand. Teachers know how to motivate students.*)
 - What human capital has a doctor developed? (*Answers will vary but may include the following: A doctor knows how to figure out what is wrong with a patient. A doctor knows what medicines will make a patient better.*)
 - How did grocery clerks who used non-scanning cash registers learn their skills? (*Grocery clerks learned through on-the-job training and practice.*)
 - How does a teacher learn his or her job? (*Answers will vary but may include the following: Teachers go to college. Teachers receive on-the-job training.*)
 - How does a doctor learn his or her job? (*Answers will vary but may include the following: Doctors go to college and medical school. Doctors receive on-the-job training.*)

20. Explain that **technological change** occurs when a change in technology helps people do their work more quickly—that is, more work can be done in the same amount of time. The computer and scanner are examples of technological change that allowed grocery store clerks to check out groceries more quickly and more accurately.

21. Explain that there have been other technological changes in grocery stores. Read each example and ask students to identify the technological change and how it improved grocery shopping.
- Before computers, the butcher would place the meat on a scale and record the weight. Then, he would multiply the weight times the price of the meat and write the price on the package. Now, a computerized scale weighs the meat, computes the price, prints the price on a sticky label, and provides a bar code so that a scanner can read the price from the package. What is the technological change and how did it improve grocery shopping? (*The technological change is the computerized scale that weighs the meat and calculates the price and then prints a label with a bar code. Now, the butcher can serve many more customers in a given amount of time or use the extra time to create new products, such as side dishes or cooked foods.*)
 - Before computers, customers paid for their groceries with cash and the clerk had to count back change. Now, customers can slide a debit card through a card reader to pay for groceries, and the customer's bank will transfer money from the customer's bank account to the grocery store's bank account. What is the technological change and how did it improve grocery shopping? (*The technological change is the card reader that reads information about the customer and transfers the amount of money owed from the customer's bank to the store's bank. Now, customers can move through the checkout line more quickly or customers can use self-service checkout lanes so that the store can have fewer employees.*)
22. Ask the following questions:
- What technological changes made grocery clerks quicker and more accurate? (*The computer, bar codes, the bar code scanner, and card readers*)
 - What technological change made butchers quicker and more accurate? (*A computerized scale that prints labels*)

Closure

23. Explain that getting groceries from the store to the car has not changed. Customers still have to place the groceries in the cart and wheel the cart through the parking lot to the car. Sometimes the parking lot has dips in the surface, so the cart won't roll straight. Sometimes it's snowy or rainy, so the cart gets stuck or splashes through puddles.
24. Distribute drawing paper to pairs of students and instruct them to develop a new technology that would make it easier and/or quicker to get groceries to cars. Students should include the human resources who will operate the new technology in the picture and, on the back of the picture, list the human capital (skills and education) the human resource would need. Allow students time to make a brief presentation of their picture, stating how their technological change would help solve the problem and explaining the human capital the human resources would need to operate the new technology.

Assessment

25. Distribute a copy of *Handout 3: Assessment* to each student. Instruct them to underline the definition of human capital in green, ways that the people in the story improved their human capital in red, and changes in technology in blue.

Handout 1: The Way Things Used To Be

A grocery clerk's job used to be much different. Before computers, grocery clerks used manual cash registers to add up the prices of the groceries that were purchased. The customer would place his or her groceries on the belt, the same way we do it today. But, instead of having UPC bar codes on groceries, there were price tags. The grocery clerk would read each price tag and punch the numbers into the cash register. Then, when the cash register had added all of the prices, the customer would pay the clerk. If the customer handed the clerk more money than was owed, the clerk counted back change to the customer.

**Circle the skills a grocery clerk needed
before computers and bar codes.**

Run fast

Add and subtract
quickly and accurately

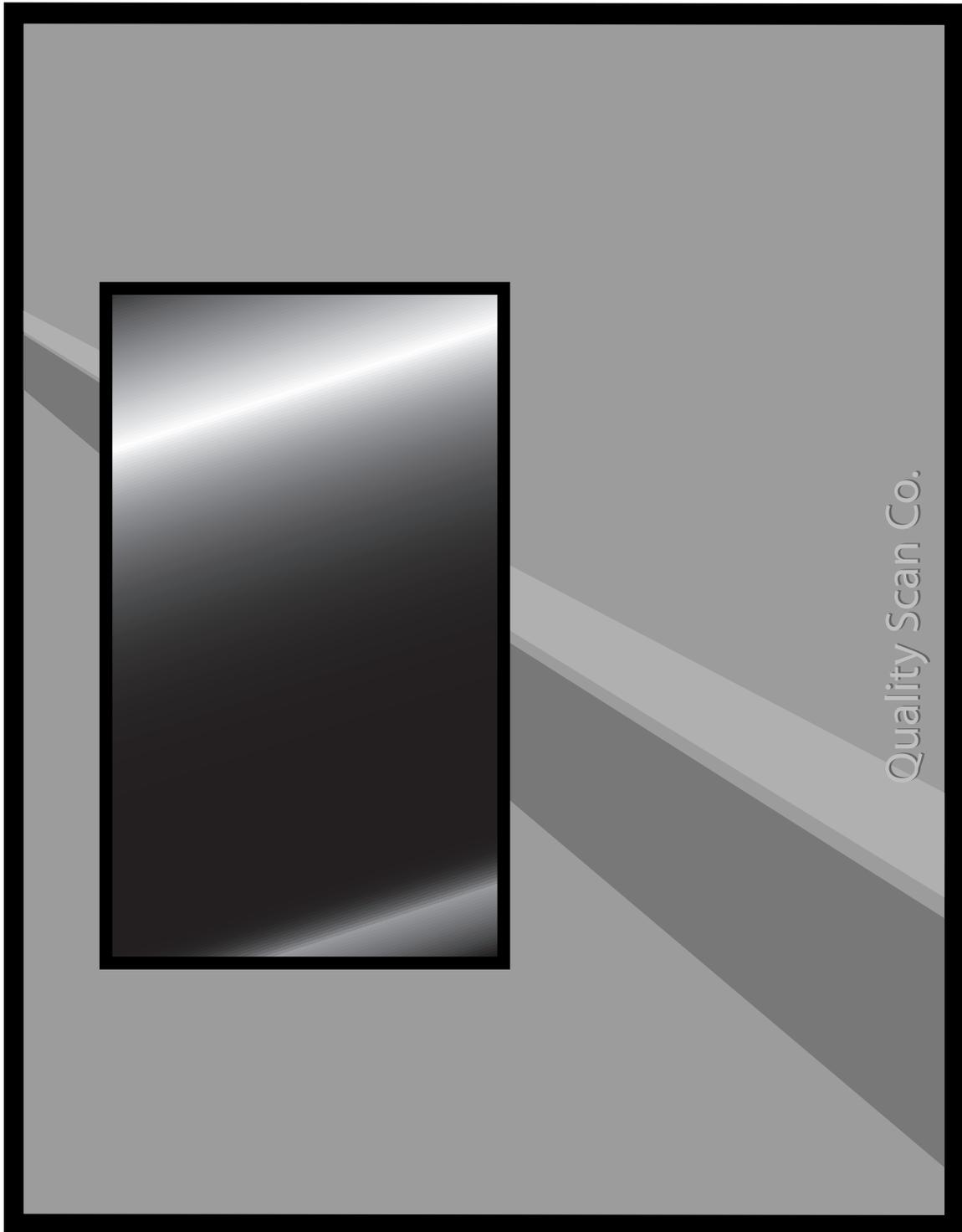
Read prices quickly and accurately

Type numbers
quickly and accurately

Speak to
large audiences

Type business letters
quickly and accurately

Handout 2: Scanner



Handout 3: Assessment

Directions: Underline the definition of human capital in green, ways that the people in the story improved their human capital in red, and changes in technology in blue.

Fill 'er Up!

Ding, ding. Ding, ding. That's the sound your grandparents would hear as they pulled into a gas station many years ago. The bells let the clerks know that a customer was waiting to have gas pumped into his or her car. The clerk would come running up to customer's window asking, "What can I do for you today, sir?" or "How can I help you, ma'am?" The customer would ask for so many dollar's worth of gas. For example, the customer would say, "I'll take \$3 worth." or "Give me \$5 of regular." Sometimes the customer would just say "Fill 'er up!"

The clerk would get started pumping the gas, but that wasn't all he would do. He would also wash the windshield, put air in the tires, check the battery to be sure it had enough water in it, and check the oil. He was trained by the station manager.

Things are different now. New technologies have changed the way gas stations operate. Cars have windshield squirters; so, windshields stay cleaner. Tires are stronger. We still need to check the air in tires, but not as often. Batteries no longer require water. It's still important to check the oil, but cars are made better than in the past. Oil leaks don't happen as frequently, and cars have a light on the dashboard to let the driver know if the oil level is too low. Gas pumps are easier to use than they were years ago. Gas station customers can pay for their gas at the pump using a debit or credit card rather than handing money to a clerk.

Gas stations have changed, and so have gas station employees. Many years ago, a gas station clerk would have to know how to work the pump, check the tires, fill car engines with oil, and fill batteries with water. They often knew much more and could fix a flat tire or a worn-out belt or hose in the engine.

Today's gas station clerks must have a different combination of education, training, and practice than clerks had years ago. Most gas stations no longer fix cars. Instead, they sell things like milk, bread, sodas, and snacks. Gas station clerks are trained to work the pump computers and keep the station stocked with much more merchandise than years ago. Using new technologies has allowed gas station clerks to help many more customers each day.

Handout 3: Assessment—Answer Key

Directions: Underline the definition of human capital in green, ways that the people in the story improved their human capital in red, and changes in technology in blue.

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Key

Boldface (green): human capital

Italics (red): ways people improved their human capital

Underline (blue): changes in technology

Standards and Benchmarks

National Content Standards in Economics

Standard 1: Productive resources are limited. Therefore, people cannot have all the goods and services they want; as a result, they must choose some things and give up others.

- **Benchmark 10, Grade 4:** Human capital refers to the quality of labor resources, which can be improved through investments in education, training, and health.

Standard 15: Investment in factories, machinery, new technology, and the health, education, and training of people stimulates economic growth and can raise future standards of living.

- **Benchmark 1, Grade 4:** When workers learn and practice new skills they improve their productivity by improving their human capital.
- **Benchmark 2, Grade 4:** Workers can improve their productivity by using physical capital such as tools and machinery.

Common Core State Standards: English Language Arts, Grade 3

Reading: Informational Text

- **Key Ideas and Details**

RI.3.1: Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

RI.3.2: Determine the main idea of a text; recount the key details and explain how they support the main idea.

RI.3.3: Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.

- **Craft and Structure**

RI.3.4: Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 3 topic or subject area*.

- **Range of Reading and Level of Text Complexity**

RI.3.10: By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 2–3 text complexity band independently and proficiently.

Speaking & Listening

- **Comprehension and Collaboration**

SL.3.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.

3.1a: Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.

3.1b: Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).

3.1c: Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.

3.1d: Explain their own ideas and understanding in light of the discussion.

SL.3.2: Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.