

Little House in the Big Woods

By Laura Ingalls Wilder / ISBN: 0-06-058180-8

Lesson by

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Lesson Description

Little House in the Big Woods describes how the Ingalls family produced the goods they needed to survive while living in a log cabin far from their nearest neighbors. In this lesson, students will define the production function as the combination of inputs that results in outputs and will identify the inputs as human resources, capital resources, natural resources, and intermediate goods.

Note: Capital resources and capital goods are both terms that describe things produced by people and used again and again to produce other goods and services. In this lesson we use the term capital resources.

Age Level

9-11 year olds

Content Standards

National Content Standards in Economics

- **Standard 1:** Students will understand that 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 9, Grade 4: Productive resources are the natural resources, human resources, and capital goods available to make goods and services.
 - Benchmark 10, Grade 4: Students will understand that natural resources, such as land, are "gifts of nature"; they are present without human intervention.
 - Benchmark 11, Grade 4: Students will understand that human resources are the quantity and quality of human effort directed toward producing goods and services.
 - Benchmark 12, Grade 4: Students will understand that capital goods (capital resources) are goods produced and used to make other goods and services.

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Concepts

Outputs
Inputs
Production function
Productive resources (natural, human, capital)
Intermediate goods

Objectives

Students will:

1. Define natural resources, human resources, capital resources, and intermediate goods.
 2. Provide examples of productive resources and intermediate goods.
 3. Define and provide examples of inputs and outputs.
 4. Construct a production function.
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Time Required

45 to 60 minutes

Materials

- A copy of *Little House in the Big Woods* by Laura Ingalls Wilder (ISBN: 0-06-058180-8)
- Visual 1
- A copy of Handouts 1, 2, 3, and 4 for each student
- A copy of Handout 2 – Answer Key for the teacher
- A protractor for each student

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Procedures

1. Read the first line of the book to the students and ask them to repeat the phrases that indicate that this is going to be a story about people who lived a long time ago. (*“Once upon a time, sixty years ago,...” and “...a little gray house made of logs.”*)
2. Instruct the students to listen carefully throughout the first chapter for more clues that this book describes the life of a family who lived a long time ago and jot the clues on notepaper. Have the students reserve their notes until you have finished reading the book.
3. After reading the book, ask students to report the clues that this story is about a family who lived a long time ago. (*Answers will vary but may include no roads, wagon track, meat must be salted, Ma wrapped each piece ... and hung them in the attic. Horses and wagons, all they did not eat fresh was salted down in barrels, [vegetables] stored in the cellar, barrels of salted fish, the fire in the cook stove never went out.*)
4. Explain that **outputs** are goods and services we produce. Goods are things we touch and can use. Services are activities people do for us. In *Little House in the Big Woods*, the Ingalls produced many outputs. The outputs they produced were goods. Ask the students for some examples of goods the Ingalls produced. (*headcheese, bullets, smoked meat, dried meat, salted fish, butter, buckets and troughs for maple sap, maple sugar, and cheese*)
5. Explain that **inputs** are the things we use to produce outputs. Review Chapter 7, “The Sugar Snow,” and ask the students to name the inputs Grandpa used to produce maple sugar. (*buckets, troughs, maple sap, barrel, sled, oxen, iron kettle, trees, chains, long-handled wooden ladle, milk pans, Grandpa Ingalls*)
6. Explain that one category of input is **human resources**. Define human resources as the resources provided by people doing physical and mental work. Discuss the following:
 - What are some examples of human resources? (*Answers will vary but may include doctors, teachers, carpenters, plumbers, and nurses.*)
 - What are some examples of human resources in the story? (*Answers will vary but may include Grandpa Ingalls, Pa, Uncle Henry, Mr. Peterson, and Ma.*)

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7. Explain that **capital resources** are another category of input. Define capital resources as goods that have been produced and are used to produce other goods and services. Capital resources are used over and over again. Some examples of capital resources include tools, machines, and factory buildings. Discuss the following:
 - What are some examples of capital resources? (*Answers will vary but may include hammers, computers, office buildings, and factories.*)
 - What are some examples of capital resources in the story? (*Answers will vary but may include long-handled ladle, buckets, washtubs, cook stoves, lantern, iron kettle, and thresher.*)

8. Explain that **natural resources** are a third category of input. Define natural resources as things that occur naturally in and on the earth that are used to produce goods and services. Discuss the following:
 - What are some examples of natural resources? (*Answers will vary but may include oil, water, natural gas, and coal.*)
 - What are some examples of natural resources in the story? (*Answers will vary but may include maple sap, horses, trees, wheat, and bees.*)

9. Explain that all of these resources can be called productive resources. **Productive resources** are the natural resources, human resources, and capital resources available to make goods and services.

10. Explain that a fourth input is **intermediate goods**. Intermediate goods are goods that were previously produced and are used up in the production of another good. Intermediate goods are not used over and over again. Nails in a bookshelf, denim in jeans, and flour in muffins are intermediate goods. Ask the students for examples of intermediate goods used to produce education. (*Answers will vary but may include paper, chalk, glue, tape, folders, and spiral notebooks.*)

11. Review Chapter 10, "Summertime." Distribute *Handout 1: Say Cheese, Please* and a protractor to each student. Read the directions, and instruct students to complete the worksheet. Help students who are unfamiliar with the use of a protractor to divide the circle into 18 equal wedges. (360 degrees/18 wedges = 20 degrees per wedge)

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12. Review answers to the handout. (1. *Wedge inputs – milk, rennet, pans, stove, water, carrot, knife, salt, board, blocks, pail, cheese hoop, round board, Ma Ingalls, heavy rock, cloth, needle, butter*; 2. *Natural resource – milk, water, salt, carrot, or rennet; capital resource – pans, stove, knife, board, blocks, pail, cheese hoop, round board, heavy rock or needle; intermediate good – cloth*)
13. Explain that over time, people combine inputs differently as they find more efficient ways to produce goods and services. Review Chapter 12, "The Wonderful Machine." Display *Visual 1: The Production Function* and explain that the combination of inputs to produce outputs is called a production function. The idea of the **production function** is to find the combination of inputs that will provide the most output. The goal isn't to simply add more inputs to get more output. Resources are scarce, so the goal is to find ways to use resources better.
14. Distribute *Handout 2: Human Resources and Capital Resources*. In the book, begin at the paragraph that introduces the threshing machine, "One frosty morning,..." Direct students to record the human resources and the machines that were necessary to separate the wheat from the straw. When they record a worker, instruct them to also record the worker's task.
15. Instruct the students to record the number of human resources and the number of capital resources necessary to harvest the wheat at the bottom of the handout. Review the answers using the answer key.
16. Distribute *Handout 3: The Wheat Combine* and instruct the students to underline all of the tasks the combine completes. Instruct students to record the production function for this method of wheat harvest at the bottom of the reading. (*Two human resources are needed to harvest the wheat; two capital resources are needed to harvest the wheat; 2 human resources + 2 capital resources = 1 wheat harvest*) Discuss the following:
 - How many workers were required to harvest the wheat in the story? (*seven*)
 - How many machines were required to harvest the wheat in the story? (*two*)
 - How many workers are required to harvest the wheat with the wheat combine? (*two*)
 - How many machines are required to harvest the wheat with the wheat combine? (*two*)
 - What is a production function? (*It is a combination of inputs to produce outputs.*)
 - What is the production function for 1 wheat harvest in the story? (*7 human resources + 2 capital resources + 1 wheat harvest*)

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- What is the production function for 1 wheat harvest using the wheat combine? (*2 human resources + 2 capital resources = 1 wheat harvest*)
 - What jobs did the workers do to harvest wheat in the story? (*hitched horses, cut the bands on the bundles, placed bundles in the separator, drove the horses, trampled straw, built straw into stacks, cut the wheat*)
 - What jobs do workers do today to harvest wheat? (*drive a combine, drive a tractor*)
 - How did the production function for harvesting wheat change over the years? (*Harvesting wheat now requires fewer workers and uses better machines.*)
17. Explain that improving resources or combining resources differently can help producers make more goods or services or make goods and services at lower costs.

Closure

18. Review the important parts of the lesson by asking the following questions.
- What is a human resource? (*people doing physical or mental work*)
 - Name some examples of human resources. (*Answers will vary but may include Grandpa Ingalls, doctors, mechanics, plumbers, dentists, truck drivers, and teachers.*)
 - What is a capital resource? (*a produced good that is used to produce other goods and services*)
 - Name some examples of capital resources at school. (*Answers will vary but may include white boards, computers, desks, school building, playground equipment, and lights.*)
 - What type of resource is a stove? (*capital*)
 - What is a natural resource? (*things that occur naturally in and on the earth that are used to produce goods and services*)
 - Name some examples of natural resources. (*Answers will vary but may include water, land, crude oil, coal, and trees.*)
 - What are intermediate goods? (*a produced good that is used up in the production of or becomes part of another good, such as flour in a cake or a tire on a car*)
 - What are the factors of production? (*human, capital, and natural resources*)
 - What is a production function? (*It is a combination of inputs to produce an output.*)

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Assessment

19. Distribute *Handout 4: Production Function Ups and Downs*.

Handout 4 — Answer Key:

What was the production function for the building's elevator service?

(12 human resources + 6 capital resources = building elevator service)

What is the input? *(12 human resources and six old elevators)*

What is the output? *(building elevator service)*

What did the production function look like after the new elevators were installed?

(0 human resources + 6 capital resources = building elevator service)

What is the input? *(6 automatic elevators)*

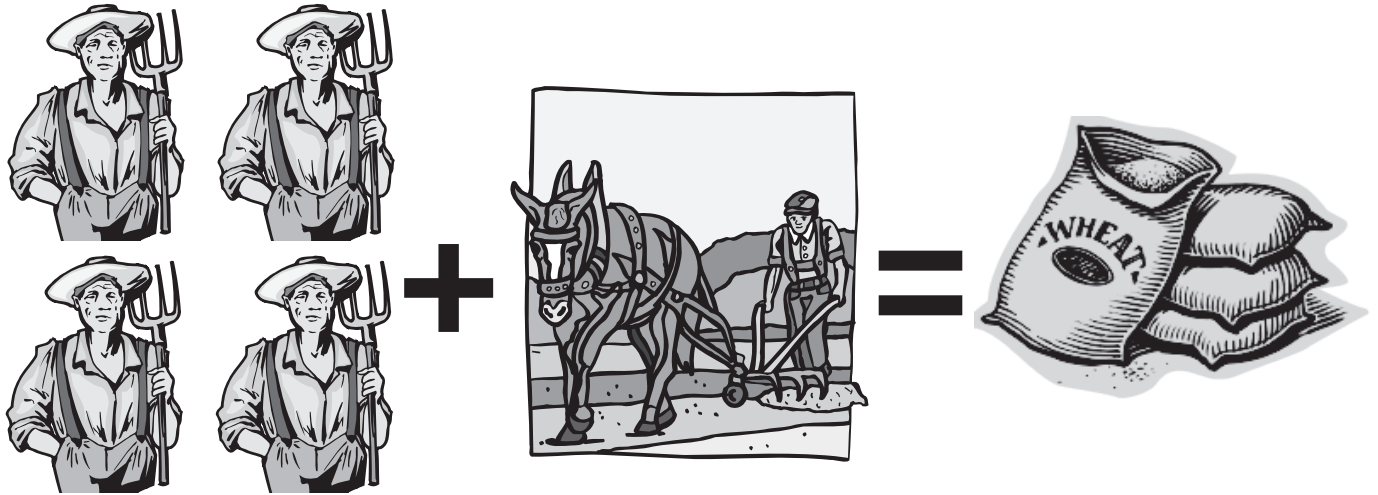
What is the output? *(building elevator service)*

Why did the building owner think that using elevators that required no operators was a good idea?

(The owner could save money over time by installing the elevators and no longer paying wages to the operators.)

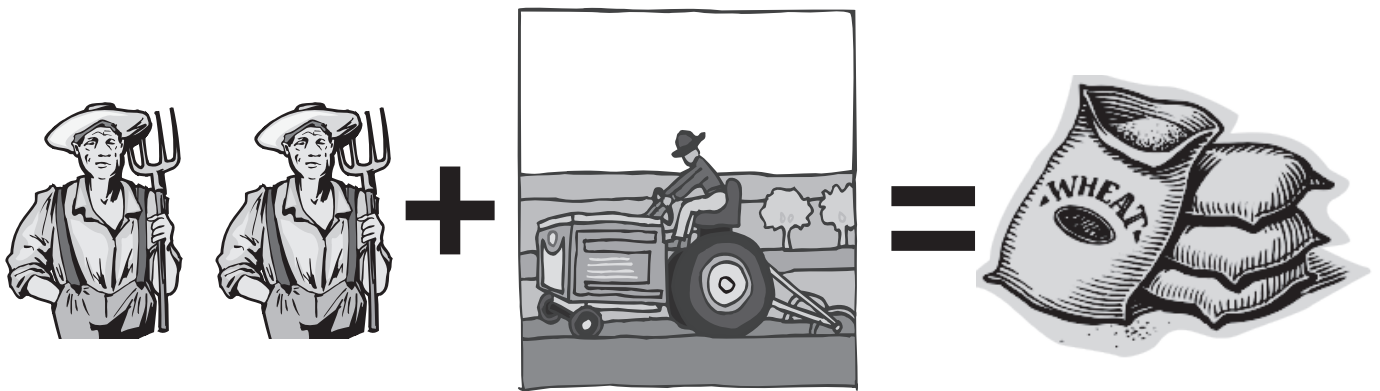
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Visual 1: The Production Function



Human Resources (workers) + Capital Resources (machines) = Output

One way to improve a production function is to use better machines to make production cheaper.



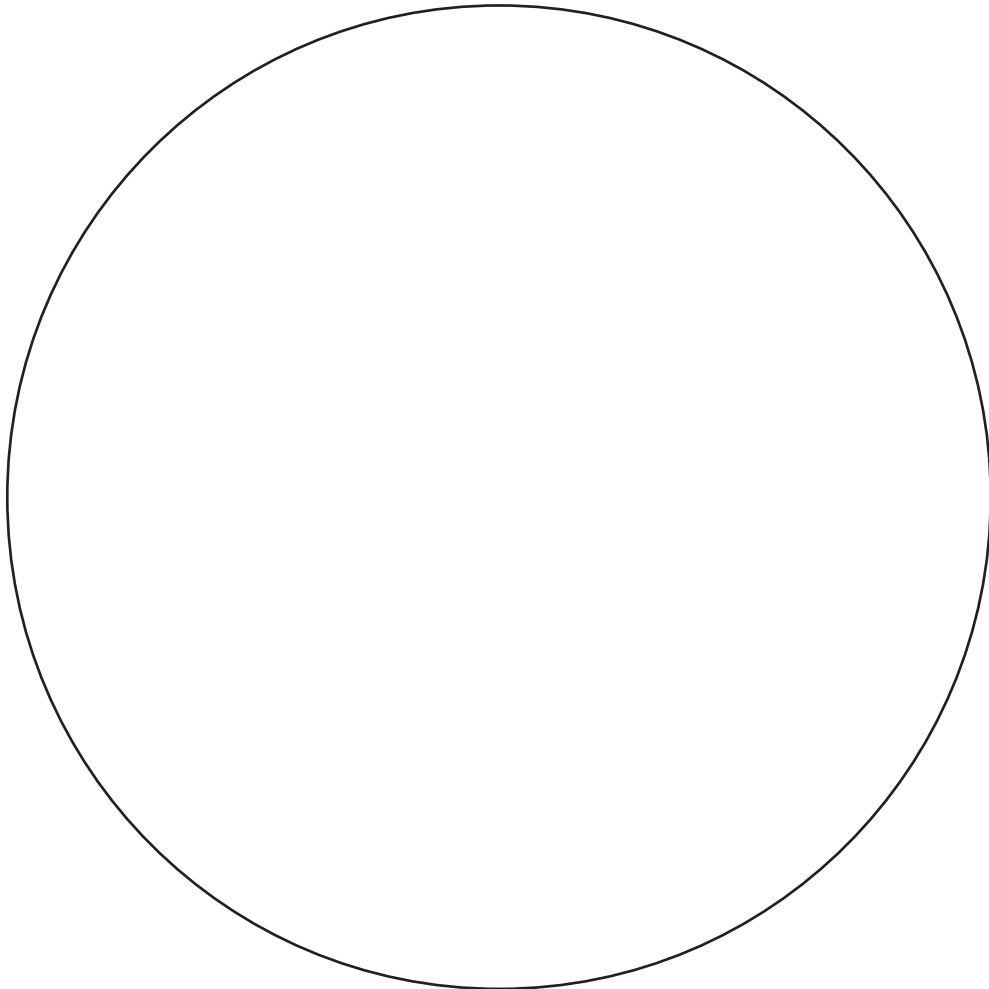
Human Resources (workers) + Capital Resources (machines) = Output

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Handout 1: Say Cheese, Please

Name: _____

1. Use a protractor to divide the circle below into 18 equal parts (wedges), just like a cheese wheel. In each wedge, list an input in cheese-making. When all of the wedges are complete, the output, a cheese wheel, is complete.



2. Name one input from the cheese wheel that is a natural resource, one that is a capital resource, and one that is an intermediate good.

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Handout 2: Human Resources and Capital Resources

Record the human and capital resources and the tasks done by the resources. If a resource had more than one task, record all of the tasks. The first task completed by Pa and Uncle Henry are already shown.

Resource	Task
Pa	Hitched the horses to the smaller machine
Uncle Henry	Hitched the horses to the smaller machine

How many human resources were needed to harvest the wheat? _____

How many capital resources were needed to harvest the wheat? _____

What is the production function for 1 wheat harvest?

_____ human resources + _____ capital resources = 1 wheat harvest

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Handout 2: Human Resources and Capital Resources— Answer Key

Record the human and capital resources and the tasks done by the resources. If a resource had more than one task, record all of the tasks. The first task completed by Pa and Uncle Henry are already shown.

Resource	Task
Pa	Hitched the horses to the smaller machine <i>Pitched bundles onto a board</i>
Uncle Henry	Hitched the horses to the smaller machine <i>Pitched bundles onto a board</i>
<i>Big machine</i>	<i>Separator</i>
<i>Little machine</i>	<i>Horsepower</i>
<i>Man</i>	<i>Sitting on the horsepower to drive the horses</i>
<i>Man</i>	<i>Cut the bands on the bundles and placed the bundles in the separator</i>
<i>Man</i>	<i>Trampling the straw and building it into a stack</i>
<i>Man</i>	<i>Trampling the straw and building it into a stack</i>
<i>Man</i>	<i>Sacking the grain</i>

How many human resources were needed to harvest the wheat? 7

How many capital resources were needed to harvest the wheat? 2

What is the production function for 1 wheat harvest?

7 human resources + 2 capital resources = 1 wheat harvest

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Handout 3: The Wheat Combine

Directions: Underline all of the tasks the combine completes. Answer the questions that follow the reading.

This machine has the perfect name! The wheat combine "combines" machines to complete many tasks at once.

In the story, Pa and Uncle Henry pitched bundles of wheat onto the machine. That means that before they could pitch the wheat onto the machine, it had to be bundled. And, before it was bundled, it had to be cut and gathered. Imagine all of the hours it took Pa and Uncle Henry to cut all of the wheat in the field and put it in bundles. The **wheat combine** cuts the straw from the ground and feeds it into a separator.

In the story, one man is trampling the straw coming out of the separator and putting it into haystacks. The **wheat combine** chops up the straw and blows it onto the field. In the story, one man is collecting the wheat into sacks. The **wheat combine** blows the wheat into a giant bucket pulled by a worker driving a tractor. In the story, one man sits on the horse-power and drives the horses. The **wheat combine** has one worker who drives and operates the combine. The **wheat combine** cuts the wheat from the ground, separates the wheat from the straw, blows the straw onto the field, and collects the grain in very large buckets. It does everything!

Answer the questions below to describe how wheat farming changed after the invention of the wheat combine.

How many human resources are needed to harvest the wheat? _____

How many capital resources are needed to harvest the wheat? _____

What is the production function for 1 wheat harvest?

_____ human resources + _____ capital resources = 1 wheat harvest

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Handout 4: Production Function Ups and Downs

In 1955, Susan got her first full-time job in a tall building downtown. She knew everyone who worked in the building. She saw many of them first thing in the morning, as they arrived for work, and she saw just as many of them again at lunchtime. Susan operated one of the six elevators in the building. She worked the early shift, beginning at 5:00 a.m. Leonard would relieve her at 2:00 p.m. and work until 11:00 p.m. Susan didn't mind her early hours because she could shop downtown after leaving work at 2:00 p.m. She was paid well, and the work was not difficult.

Susan wore a black skirt and jacket, with a white blouse. She sat on a little stool near the elevator controls. When she stopped at the floor to pick up a passenger, she would pull a lever that would open the cage door. It was called a cage because it looked like one. The elevator door was a metal gate that the operator could pull to the side of the elevator car to let people on. Then, there were the doors to the floor, which were solid. The operator could pull them back because they slid on tracks.

People would climb aboard the elevator and give Susan their floor number. Susan would move a hand crank that would start the elevator on its way. As she approached the floor, she would move the hand crank back slowly to its "stop" position. Susan's job was to start and stop the elevator, all day long. However, she was also a building ambassador, greeting the building tenants each day with a smile.

As the years went by, Susan would hear disturbing stories from the other operators in town. Newly constructed buildings were equipped with automatic elevators. Passengers could walk into the elevator and press a button to get to their floor. No operators were needed in these buildings. Some of the older buildings' elevators were being replaced with the automatic elevators. Building owners said this new technology was getting less expensive, while it was getting more expensive to pay the elevator operators.

By 1975, Susan was out of a job, along with all 12 of the operators in her building. Instead, the building had six, shiny new automatic elevators. The building owner knew he had made a good financial decision.

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Handout 4: Production Function Ups and Downs—cont.

What was the production function for the building's elevator service?

_____ human resources + _____ capital resources = building elevator service

What is the input?

What is the output?

What did the production function look like after the new elevators were installed?

_____ human resources + _____ capital resources = building elevator service

What is the input?

What is the output?

Why did the building owner think that using elevators that required no operators was a good idea?