

# Production Profit and Loss

This lesson is adapted from “Creative Toy Production” in *Economics for the Elementary Classroom* by E. Coulson and S. McCorkle.

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## Standards and Benchmarks (see page 11)

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## Lesson Description

In this lesson, students work in small groups to produce a toy that can be sold at a price of \$5.00. Students track the costs of production for the toy. They then demonstrate the toy and take orders from their classmates. Using the number of orders (quantity demanded), students calculate their total revenue and then either their profit or loss.

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## Economic Concepts

Costs of production  
Loss  
Profit  
Total cost  
Total revenue

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## Grade Level

4 to 8

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## Compelling Question

How do businesses determine profit or loss?

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## Objectives

Students will be able to

- explain that producers purchase resources, thereby incurring costs of production;
- define profit as total revenue minus total cost;
- compute profit/loss when given pertinent information;

- define total revenue as the selling price multiplied by the quantity demanded; and
  - explain a loss occurs when total cost exceeds total revenue.
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## Time Required

45 to 60 minutes

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## Materials Required

- Visual 1
  - Handout 1, one copy for each group of four to five students and (if desired) one copy for the teacher to display, customized with your resource list before copying
  - Handout 2, one copy for each student and one copy for the teacher to display
  - Handouts 3 and 4, one copy of each for each student
  - Small bags, one for each group of four to five students
  - Scissors and glue and a variety of craft items to create a toy (yarn, markers, small paper cups, straws, paper clips, cotton balls, fabric, paper plates, and so on), equal kinds and numbers for each group of four to five students
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## Preparation

- Create resource bags: Put scissors and glue and equal kinds and numbers of craft items into each small bag.
- Customize Handout 1: List each craft item and price to create your Resource Price List. See the sample list below for ideas.

### Sample Resource Price List

Resource	Price	Resource	Price
Labor (per worker per toy)	\$0.25	Marker	\$0.50
Rent for work space (per toy)	\$0.50	Paper bag	\$0.25
Scissors	\$0.75	Paper clip	\$0.20
Glue	\$0.50	Paper cup	\$0.25
Aluminum foil (one piece)	\$0.20	Paper plate	\$0.50
Berry box	\$0.50	Pencil	\$0.50
Fabric (one piece)	\$0.25	Rubber band	\$0.25
Fringe ball (one ball)	\$0.20	Straw	\$0.20
Golf tee	\$0.10	Toothpick	\$0.10
Google eyes (two)	\$0.20	Yarn (one piece)	\$0.10

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## Procedure

1. Tell students that today they are going to work in small groups, and each group will operate a toy business and produce a toy prototype.
2. Divide the class into groups of four to five students. Distribute a resource bag to each group.
3. Distribute a copy of *Handout 1: Resource Price List* to each group and display a copy (if desired). Distribute a copy of *Handout 2: Calculating Costs of Production* to each student.
4. Explain that each bag contains resources that the group can use to produce a creative toy prototype. Handout 1 shows the price for each resource and includes labor, work space, and materials.
5. Explain that each group should choose a name for its business. They will have 15-20 minutes to produce a toy prototype they can sell for \$5.00. While producing the toy, they should consider the cost using Handout 1. When the toy is completed, they should calculate its costs of production using Handout 2. Each group should name its toy. Point out that each business should try to keep the costs of production as low as possible while also remembering the toy must be attractive to consumers at a price of \$5.00.
6. Define **costs of production** as the cost of all resources used in producing a good or service.
7. Display Handout 2. Model calculating the costs of production. Remind students that all businesses must pay for labor, which are workers (whether they do physical work, mental work, or physical and mental work). And all businesses must pay rent, which is payment for a place to work.
8. After 15-20 minutes for production and calculating costs, ask each group to show its toy to the rest of the class and to demonstrate how the toy works.
9. Once groups have demonstrated their toys, tell students that they are each now a consumer with only \$5.00 to spend. They must each decide on a single toy to order but may not order the toy they helped to produce.
10. Display *Visual 1: Revenue, Total Cost, and Profit or Loss*. Explain that the quantity demanded (column 2) is the quantity ordered. Complete columns 1 and 2 with the class for each toy. Have students order toys by a show of hands.
11. Distribute a copy of *Handout 3: Calculating Profit or Loss* to each student. Define **total revenue** as the selling price multiplied by the quantity demanded and **total cost** as the toy cost multiplied by the quantity demanded.

12. Explain that a **profit** results when total revenue is greater than total cost; a **loss** results when total revenue is less than total cost. Businesses try to earn the largest profit possible while also trying to produce the best product possible. Discuss the following:
- Why would a business try to produce the best product possible? (*The business wants consumers to purchase its product so that it can earn a profit.*)
  - Why would a business try to earn the largest profit possible? (*Answers will vary. Help students recognize that profit is an incentive for businesses to produce more of the product and provides payment—a monetary reward—to the owners of the business.*)
13. Allow time for students to complete Handout 3, then call on students to provide the information needed to complete columns 3, 4, and 5 on Visual 1.
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## Closure

14. Review the key concepts in the lesson by discussing the following:
- How did your group decide what to produce? (*Answers will vary but may include that they designed a toy that was fun and that people would want.*)
  - Besides what to produce, what else did you have to decide? (*What resources to use*)
  - Why must businesses carefully choose which resources to buy? (*Resources cost money and affect businesses' profits.*)
  - What is profit? (*Total revenue minus total cost*)
  - Why is profit important to the producer? (*Profit determines whether the producer can continue producing, serves as an incentive to produce, and provides payment—a monetary reward—to the owners of the business.*)
  - How are the costs of production passed on to the consumer? (*The selling price includes the costs of production*)
  - Which business made the most profit? Why? (*Answers will vary but may include that the quantity demanded was high or that the costs of production were low.*)
  - Why did some businesses have a loss? (*Answers will vary but may include that the quantity demanded was low or that the costs of production were high.*)
  - If the quantity demanded of a product is low, what does it tell the producer? (*Consumers don't want or like the product—in this case, the toy—at least at the price offered.*)

## Assessment

15. Distribute a copy of *Handout 4: Assessment* to each student. Allow time for students to work. Review their work using the answer key below.

### Handout 4: Assessment—Answer Key

1. Calculate the costs of production per birdhouse.

Wood of various sizes	\$7.00
Staple gun rental, 30 minutes	\$1.00
50 staples	\$0.50
Saw rental, 30 minutes	\$1.50
Paint, two colors	\$1.50
Paint brushes, one per color	\$3.00
Wood glue	\$2.50
Labor, three workers	\$10.50
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Costs of production	\$27.50

2. Use the costs of production to calculate the profit per birdhouse.

(Revenue – Costs of production = Profit)

$$\$30.00 - \$27.50 = \$ 2.50$$





## Handout 2: Calculating Costs of Production

Names of students in the business: \_\_\_\_\_

Business name: \_\_\_\_\_

Product (toy) name: \_\_\_\_\_

Directions: List each resource your business used to produce your toy in column 1. Write how many units of each resource were used in column 2. Using the Resource Price List, write the price for one unit of each resource used in column 3. For each resource, multiply the number in column 3 by the number in column 2 to determine the resource cost and write it in column 4. (Rent is calculated for you.) Add the numbers in column 4 to determine the toy cost (i.e., costs of production) for one toy and write it at the bottom of column 4.

(1) Resource	(2) Number of units used	(3) Resource unit price	(4) Total resource cost
Rent	1	\$0.75	\$0.75
Labor			
<b>Total cost of producing one toy</b>			

### Handout 3: Calculating Profit or Loss

Names of students in the group: \_\_\_\_\_

1. The selling price of your business's toy is \$5.00.
2. How many toys were ordered (quantity demanded)? \_\_\_\_\_
3. To determine your total revenue (sales), use this equation:

$$\text{Selling price} \times \text{Quantity demanded} = \text{Total revenue}$$

Our total revenue is (show your work)

4. To determine your total cost, use this equation:

$$\text{Total cost of producing one toy} \times \text{Quantity demanded} = \text{Total cost}$$

Our total cost is (show your work)

5. If your total revenue is greater than your total cost, use this equation to determine your profit:

$$\text{Total revenue} - \text{Total cost} = \text{Profit}$$

Our profit is (show your work)

6. If your total cost is greater than your total revenue, use this equation to determine your loss:

$$\text{Total cost} - \text{Total revenue} = \text{Loss}$$

Our loss is (show your work)



## Standards and Benchmarks

### Voluntary National Content Standard in Economics

#### Standard 1: Scarcity

- **Grade 4 Benchmarks**

3. People's choices about what goods and services to buy and consume determine how resources will be used.
4. Whenever a choice is made, something is given up because resources are limited.
5. The opportunity cost of an activity is the value of the best alternative that would have been chosen instead. It includes what would have been done with the money spent and the time and other resources used in undertaking the activity.
7. Natural resources, such as land are "gifts of nature"; they are present without human intervention.
8. Human resources are the people who do the mental and physical work to produce goods and services.
9. Capital goods are goods that are produced and used to make other goods and services.

#### Standard 14: Entrepreneurship

- **Benchmarks: Grade 4**

2. Entrepreneurs organize resources to produce goods and services because they expect to earn profits.
3. Entrepreneurs (as well as other sellers) earn profits when the revenues they receive from selling the products they sell are greater than the costs of production.
4. Entrepreneurs (as well as other sellers) incur losses when the revenues they receive from selling the product they sell do not cover the costs of production.