Title: Making a Profit

Objectives	Time frame to Complete
Students will determine the relationship between business costs and profits.	30 minutes

	NRS EFL
	4

Stackable Cert. Documentation	Technology	Study / Life skills	EL-Civics	Career Pathways	Police	Paramedic	Fire Rescue	Medical Asst.	EKG / Cardio	Phlebotomy	Practical Nursing	Healthcare Admin	Pharmacy Tech	IMT	AMT	HVAC	Welding	Other:	Sales		
X																		X			

Standard(s) Addressed in Lesson
Use Math to Solve Problems and Communicate

Benchmark(s) Addressed in Lesson
M.4.25 Solve multi-step problems.
M.4.26 Specify and use various problem solving strategies (picture/graph, table, organized list and working backwards).
M.4.27 Reflect on and analyze problem solutions.
M.4.28 Confirm results with a calculator.
M.4.30 Show a logical progression of thought, orally and in writing.

Materials
- Making a Profit worksheet
- Pencil
- Calculator (optional)

Learner Prior Knowledge
- Addition, subtraction, multiplication, division; solving equations with one variable
- Basic understanding of graphing using coordinates

Activities

Step 1   Briefly discuss how companies make a profit (they charge more for their products than they pay for production). Then, tell the students that they will be determining the relationships between costs and profits of a small business.

Step 2   Distribute Making a Profit worksheet.

Step 3   Students complete the worksheet, seeking help as needed. Once finished, they can check their answers with a calculator (optional) before submitting.

Assessment/Evidence

Completed Making a Profit worksheet – Save this worksheet in the student's portfolio if it is being used as documentation for the Basic Skills Stackable Certificate.

Adaptations for Beginning Students

Beginning students may need to have formulas provided (rather than creating equations) so that they can solve for the answers.

Adaptations for Advanced Students

Advanced students could make the problems more realistic by incorporating 7% sales tax into the equations.

Teacher Reflection/Lesson Evaluation

This lesson was created by Middletown ABLE.

Making a Profit

To make some extra money, you have started a business selling widgets through an online site.

Part One

Each widget costs $1.50 to make, and customers pay $3.50 per widget.

Complete the table:

Number of widgets	Your cost to make	Price
1	$1.50	$3.50
2	$3.00	$7.00
3	$4.50	$10.50
4	$6.00	$14.00
5	$7.50	$17.50
6	$9.00	$21.00
7	$10.50	$24.50
8	$12.00	$28.00
9	$13.50	$31.50
10	$15.00	$35.00

1. Write an equation to determine the price per number of widgets ordered.
   3.5x = Price

2. How much would a customer pay for 25 widgets?
   3.50 x 25 = $87.50

Part 2:

You pay $1 for each small or medium packing box, and you pay $2 for each large packing box. US shipping for the small box is $2.00. The medium box costs $3.75 to ship, and the large box is $5.00 for shipping. The customer pays the shipping charges.

Box	Number of widgets	Cost to you	Shipping charges
Small	1	$1.00	$2.00
Medium	2-3	$1.00	$3.75
Large	7-10	$2.00	$5.00

1a.   How much does one widget cost you to make and pack?
       $1.50 + $1.00 = $2.50
1b.   Customer A purchases one widget. How much will he pay?
       $3.50 + $2.00 = $5.50

1c.   What is your profit? $3.50 - $2.50 = $1.00
       (Customer pays shipping; shipping is not part of your profit.)

2. Customer B purchases five widgets, but he wants to save money. Explain how you would package
    and ship his widgets so that he would pay the smallest fees possible.

    shipping of two medium boxes = 2 x $3.75 = 7.50
    shipping of medium box = $3.75 plus shipping of two small boxes ($4) = $7.75
    It is cheaper to ship using two medium boxes.

3. Consider the same scenario. If you want to maximize your profit, what is the best way to ship the
    widgets? Explain your reasoning.

    Customer pays $17.50; my cost to make is 5 x 1.50 = $7.50
    If I ship in two medium boxes, then my packing cost is $2.
    If I ship in one medium and two small boxes, then my packing cost is $3.
    My profit is larger if I ship in two medium boxes because I save money on packaging.
    My profit will be $17.50-$7.50-$2 = $8.

4. How many widgets would you need to sell to make a profit of $20? Show your work.

    $2 x (number of widgets) – shipping = $20.00
    (number of widgets) - shipping = $10
    13-$3 = $10
    13 widgets

5. Make a graph showing your maximum profit associated with selling up to 15 widgets. (Note: You
    may use graph paper if you prefer.)

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1a.   How much does one widget cost you to make and pack?

1b.   Customer A purchases one widget. How much will he pay?

1c.   What is your profit?

3.   Customer B purchases five widgets, but he wants to save money. Explain how you would package and ship his widgets so that he would pay the smallest fees possible.

5.   Consider the same scenario. If you want to maximize your profit, what is the best way to ship the widgets? Explain your reasoning.

6.   How many widgets would you need to sell to make a profit of $20? Show your work.

6.   Make a graph showing your maximum profit associated with selling up to 15 widgets. (Note: You may use graph paper if you prefer.)