

# INFO 7225

## MODULE 2

**Managerial Accounting**  
**(7. Budgeting)**

Professor Shaoming Shi  
College of Engineering  
Northeastern University

1,000



---

# LEARNING OBJECTIVES

**After completing this session, you should be able to**

- Describe how and why managers prepare and use budgets;
- Understand the basic process companies use to create budgets and the general composition of basic budgets that are summed up in a master budget;
- Prepare operating budgets;
- Prepare financial budgets;
- Develop a standard cost;
- Compute and evaluate materials variances.

# Reading Assignments

- Read chapter 7, sections 1 2, and 5
- Think about the following questions as you read chapter 7:
  - What are the advantages to budgeting?
  - What are the differences between top-down and bottom-up approach to budgeting?
  - What are the differences between traditional budgeting process and zero-based budgeting process?
  - What are the differences between a static budget and a flexible budget?
  - How are operating budgets and financial budgets related within a master budget?

# Reading Assignments

- Read chapter 8, sections 1, 2 and 5
- Think about the following questions as you read chapter 8:
  - What two components are needed to determine a standard for materials?
  - What two components are needed to determine a standard for labor?
  - What elements require consideration before establishing an overhead standard?
  - What causes a favorable variance and an unfavorable variance?
  - When might a favorable variance not be a good outcome?
  - When might an unfavorable variance be a good outcome?

# INTRODUCTION

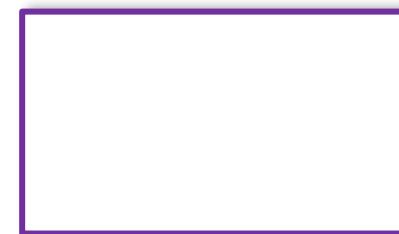
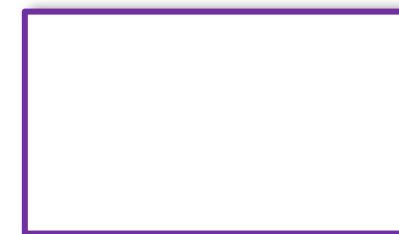
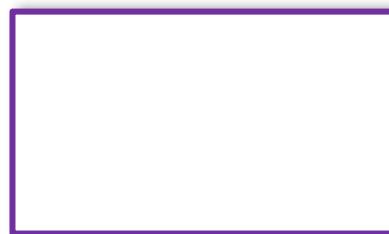
- The master budget has two major categories:
  - 1) The **operating budget** assists in planning and monitoring the day-to-day activities of the organization by informing management of
    - ✓ How many units need to be produced
    - ✓ When and how much material needs to be ordered
    - ✓ How many labor hours need to be scheduled, and
    - ✓ The amount of overhead expected to be incurred
  - 2) The **financial budget** assists with planning and monitoring the financing requirements of the organization

---

# INTRODUCTION

- The operating budget helps plan future revenue and expenses and results in a projected \_\_\_\_\_.
- The financial budget plans the use of assets and liabilities and results in a projected \_\_\_\_\_.
- The operating budget has several subsidiary budgets that all begin with \_\_\_\_\_.

# Operating Budgets, Financial Budgets, and the Relationship between Budgets



# Prepare Operating Budgets

| <b>BIG BAD BIKES</b><br><b>Sales Budget</b><br><b>For the Year Ended December 31, 2019</b> |                  |                  |                  |                  |
|--|------------------|------------------|------------------|------------------|
|  | <b>Quarter 1</b> | <b>Quarter 2</b> | <b>Quarter 3</b> | <b>Quarter 4</b> |
| Expected Sales (Units)   |                  |                  |                  |                  |
| Sales Price per Unit   |                  |                  |                  |                  |
| Total Sales Revenue  |                  |                  |                  |                  |

| <b>BIG BAD BIKES</b><br><b>Production Budget</b><br><b>For the Year Ended December 31, 2019</b> |                  |                  |                  |                  |
|---|------------------|------------------|------------------|------------------|
|   | <b>Quarter 1</b> | <b>Quarter 2</b> | <b>Quarter 3</b> | <b>Quarter 4</b> |
| Expected Sales  |                  |                  |                  |                  |
| Desired Ending Inventory  | <u>300</u>       | <u>450</u>       | <u>750</u>       | <u>1,050</u>     |
| Total Required Units:   |                  |                  |                  |                  |
| - Beginning Inventory   | —                | —                | —                | —                |
| Required Production   |                  |                  |                  |                  |

**BIG BAD BIKES**  
**Direct Materials Budget**  
**For the Year Ended December 31, 2019**

|  | Quarter 1      | Quarter 2      | Quarter 3      | Quarter 4      | Total          |
|--|----------------|----------------|----------------|----------------|----------------|
| Units to be Produced                   |                |                |                |                |                |
| Direct Material per Unit (Pound)       | <u>3.20</u>    | <u>3.20</u>    | <u>3.20</u>    | <u>3.20</u>    | <u> </u>       |
| Total Pounds Needed for Production     |                |                |                |                |                |
| + Desired Ending Inventory             | <u>736</u>     | <u>1,152</u>   | <u>1,792</u>   | <u>2,432</u>   | <u>2,432</u>   |
| Total Material Required                |                |                |                |                |                |
| - Beginning Inventory                  | <u>0</u>       | <u> </u>       | <u> </u>       | <u> </u>       | <u> </u>       |
| Pounds of Direct Material Required     |                |                |                |                |                |
| Cost per Pound                         | \$ <u>1.25</u> |
| Total Cost of Direct Material Purchase |                |                |                |                |                |

**BIG BAD BIKES**  
**Direct Labor Budget**  
**For the Year Ended December 31, 2019**

|                                   | Quarter 1    | Quarter 2    | Quarter 3    | Quarter 4    | Total        |
|-----------------------------------|--------------|--------------|--------------|--------------|--------------|
| Units to be Produced              |              |              |              |              |              |
| Direct Labor Hours per Unit       | <u>00.75</u> | <u>00.75</u> | <u>00.75</u> | <u>00.75</u> | <u>00.75</u> |
| Total Required Direct Labor Hours |              |              |              |              |              |
| Labor Cost per Hour               | \$ <u>20</u> |
| Total Direct Labor Cost           |              |              |              |              |              |

# Manufacturing Overhead

- Costs that support production but are not direct materials or direct labor are considered overhead.
- **Manufacturing overhead** has three components:
  - 1) **Indirect materials** (materials used in production but not traced to specific products because the net informational value from the time and effort to trace the cost to each individual product produced is impossible or inefficient)
  - 2) **Indirect labor** (labor costs of those employees associated with the manufacturing process, but whose contributions are not directly traceable to the final product), and
  - 3) **Overhead** (costs that are necessary for production but not efficient to assign to individual product production. Examples of typical overhead costs are production facility electricity, warehouse rent, and depreciation of equipment.)

# Prepare Operating Budgets: Manufacturing overhead Budget

For Big Bad Bikes to create their MOH budget, they first determine that the appropriate driver for assigning overhead costs to products is direct labor hours (DLH). The overhead allocation rates for the variable overhead costs are:

- Indirect material of \$1.00 per DLH
- Indirect labor of \$1.25 per DLH
- Maintenance of \$0.25 per DLH, and
- Utilities of \$0.50 per DLH

The ***fixed overhead costs*** per quarter are:

- Supervisor salaries of \$15,000
- Fixed maintenance salaries of \$4,000
- Insurance of \$7,000, and
- Depreciation expenses of \$3,000.

| BIG BAD BIKES<br>Direct Labor Budget<br>For the Year Ended December 31, 2019 |           |           |           |           |           |
|--|-----------|-----------|-----------|-----------|-----------|
|  | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Total     |
| Units to be Produced   | 1,300     | 1,150     | 1,800     | 2,800     | 7,050     |
| Direct Labor Hours per Unit  | 00.75     | 00.75     | 00.75     | 00.75     | 00.75     |
| Total Required Direct Labor Hours  | 975       | 862.50    | 1,350     | 2,100     | 5,287.50  |
| Labor Cost per Hour  | \$ 20     | \$ 20     | \$ 20     | \$ 20     | \$ 20     |
| Total Direct Labor Cost  | \$19,500  | \$17,250  | \$27,000  | \$42,000  | \$105,750 |

| BIG BAD BIKES<br>Manufacturing Overhead Budget<br>For the Year Ended December 31, 2019 |           |           |           |           |       |
|--|-----------|-----------|-----------|-----------|-------|
|  | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Total |
| Variable Costs   |           |           |           |           |       |
| Indirect Material  | \$        |           |           |           |       |
| Indirect Labor   |           |           |           |           |       |
| Maintenance  |           |           |           |           |       |
| Utilities  |           |           |           |           |       |
| Total Variable Manufacturing Costs   | \$ —      | \$ —      | \$ —      | \$ —      | \$ —  |
| Fixed Costs  |           |           |           |           |       |
| Supervisory Salaries   |           |           |           |           |       |
| Maintenance Salaries   |           |           |           |           |       |
| Insurance  |           |           |           |           |       |
| Depreciation   |           |           |           |           |       |
| Total Fixed Manufacturing Costs  |           |           |           |           |       |
| Total Manufacturing Overhead   |           |           |           |           |       |

|   | <b>BIG BAD BIKES</b><br><b>Sales and Administrative Expense Budget</b><br><b>For the Year Ended December 31, 2019</b> |                  |                  |                  |              |
|---|---|------------------|------------------|------------------|--------------|
|   | <b>Quarter 1</b>  | <b>Quarter 2</b> | <b>Quarter 3</b> | <b>Quarter 4</b> | <b>Total</b> |
| Budgeted Sales in Units                   | 1,000   | 1,000            | 1,500            | 2,500            | 6,000        |
| Variable Expenses                         |   |                  |                  |                  |              |
| Sales Commissions                         | \$ 2,000  | \$ 2,000         | \$ 3,000         | \$ 5,000         | \$12,000     |
| Transportation                            | 500   | 500              | 750              | 1,250            | 3,000        |
| Total Variable Expenses                   | \$ 2,500  | \$ 2,500         | \$ 3,750         | \$ 6,250         | \$15,000     |
| Fixed Expenses                            |   |                  |                  |                  |              |
| Sales Salaries                            | \$ 5,000  | \$ 5,000         | \$ 5,000         | \$ 5,000         | \$20,000     |
| Administrative Salaries                   | 5,000   | 5,000            | 5,000            | 5,000            | 20,000       |
| Marketing Expenses                        | 5,000   | 5,000            | 5,000            | 5,000            | 20,000       |
| Insurance Expenses                        | 1,000   | 1,000            | 1,000            | 1,000            | 4,000        |
| Depreciation Expenses                     | 2,000   | 2,000            | 2,000            | 2,000            | 8,000        |
| Total Fixed Expenses                      | \$18,000  | \$18,000         | \$18,000         | \$18,000         | \$72,000     |
| Total Selling and Administrative expenses | \$20,500  | \$20,500         | \$21,750         | \$24,250         | \$87,000     |

# **Prepare Budgeted Income Statement**

**BIG BAD BIKES**  
**Budgeted Income Statement**  
**For the Year Ended December 31, 2019**

|                                   |       |
|-----------------------------------|-------|
| Sales                             |       |
| Cost of Goods Sold                | _____ |
| Gross Profit                      |       |
| Sales and Administrative Expenses |       |
| Uncollectible Expense             | _____ |
| Income before Interest            |       |
| Interest Expense                  |       |
| Income Tax                        |       |
| Net Income                        | ===== |

**BIG BAD BIKES**  
**Budgeted Income Statement**  
**For the Year Ended December 31, 2019**

|                                   |       |
|-----------------------------------|-------|
| Sales                             |       |
| Cost of Goods Sold                | _____ |
| Gross Profit                      |       |
| Sales and Administrative Expenses |       |
| Uncollectible Expense             | _____ |
| Income before Interest            | _____ |
| Interest Expense                  |       |
| Income Tax                        |       |
| Net Income                        | ===== |

| <b>BIG BAD BIKES</b><br><b>Sales Budget</b><br><b>For the Year Ended December 31, 2019</b> |                  |                  |                  |                  |              |
|--|------------------|------------------|------------------|------------------|--------------|
|  | <b>Quarter 1</b> | <b>Quarter 2</b> | <b>Quarter 3</b> | <b>Quarter 4</b> | <b>Total</b> |
| Expected Sales (Units)   | 1,000            | 1,000            | 1,500            | 2,500            | 6,000        |
| Sales Price per Unit   | \$ 70            | \$ 70            | \$ 75            | \$ 75            |              |
| Total Sales Revenue  | \$70,000         | \$70,000         | \$112,500        | \$187,500        | \$440,000    |

**BIG BAD BIKES**  
**Budgeted Income Statement**  
**For the Year Ended December 31, 2019**

|                                   |           |
|-----------------------------------|-----------|
| Sales                             | \$440,000 |
| Cost of Goods Sold                | <u>?</u>  |
| Gross Profit                      |           |
| Sales and Administrative Expenses |           |
| Uncollectible Expense             | _____     |
| Income before Interest            |           |
| Interest Expense                  |           |
| Income Tax                        |           |
| Net Income                        | =====     |

**BIG BAD BIKES**  
**Budgeted Income Statement**  
**For the Year Ended December 31, 2019**

|                                   |           |
|-----------------------------------|-----------|
| Sales                             | \$440,000 |
| Cost of Goods Sold                | ?         |
| Gross Profit                      |           |
| Sales and Administrative Expenses |           |
| Uncollectible Expense             | _____     |
| Income before Interest            | _____     |
| Interest Expense                  | _____     |
| Income Tax                        | _____     |
| Net Income                        | _____     |

|                        | <b>Cost of<br/>Goods Sold</b> | <b>Ending<br/>Inventory</b> | <b>Total</b> |
|------------------------|-------------------------------|-----------------------------|--------------|
| Direct Materials       |                               |                             |              |
| Direct Labor           |                               |                             |              |
| Manufacturing Overhead | _____                         | _____                       | _____        |
| Total                  |                               |                             |              |

**BIG BAD BIKES**  
**Budgeted Income Statement**  
**For the Year Ended December 31, 2019**

|                                   |           |
|-----------------------------------|-----------|
| Sales                             | \$440,000 |
| Cost of Goods Sold                | ?         |
| Gross Profit                      |           |
| Sales and Administrative Expenses |           |
| Uncollectible Expense             |           |
| Income before Interest            |           |
| Interest Expense                  |           |
| Income Tax                        |           |
| Net Income                        | =====     |

| <b>BIG BAD BIKES</b><br><b>Sales Budget</b><br><b>For the Year Ended December 31, 2019</b> |           |           |           |           |           |
|--|-----------|-----------|-----------|-----------|-----------|
|  | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Total     |
| Expected Sales (Units)   | 1,000     | 1,000     | 1,500     | 2,500     | 6,000     |
| Sales Price per Unit   | \$ 70     | \$ 70     | \$ 75     | \$ 75     |           |
| Total Sales Revenue  | \$70,000  | \$70,000  | \$112,500 | \$187,500 | \$440,000 |

| <b>BIG BAD BIKES</b><br><b>Direct Materials Budget</b><br><b>For the Year Ended December 31, 2019</b> |           |           |           |           |          |
|---|-----------|-----------|-----------|-----------|----------|
|   | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Total    |
| Units to be Produced  | 1,300     | 1,150     | 1,800     | 2,800     | 7,050    |
| Direct Material per Unit  | 3.20      | 3.20      | 3.20      | 3.20      | 3.20     |
| Total Pounds Needed for Production  | 4,160     | 3,680     | 5,760     | 8,960     | 22,560   |
| + Desired Ending Inventory  | 736       | 1,152     | 1,792     | 2,432     | 2,432    |
| Total Material Required   | 4,896     | 4,832     | 7,552     | 11,392    | 24,992   |
| - Beginning Inventory   | 0         | 736       | 1,152     | 1,792     | 0        |
| Pounds of Direct Material Required  | 4,896     | 4,096     | 6,400     | 9,600     | 24,992   |
| Cost per Pound  | \$ 1.25   | \$ 1.25   | \$ 1.25   | \$ 1.25   | \$ 1.25  |
| Total Cost of Direct Material Purchase  | \$6,120   | \$5,120   | \$8,000   | \$12,000  | \$31,240 |

|                        | <b>Cost of<br/>Goods Sold</b> | <b>Ending<br/>Inventory</b> | <b>Total</b> |
|------------------------|-------------------------------|-----------------------------|--------------|
| Direct Materials       |                               |                             |              |
| Direct Labor           |                               |                             |              |
| Manufacturing Overhead |                               |                             |              |
| Total                  | =====                         | =====                       | =====        |

**BIG BAD BIKES**  
**Budgeted Income Statement**  
**For the Year Ended December 31, 2019**

|                                   |               |
|-----------------------------------|---------------|
| Sales                             | \$440,000     |
| Cost of Goods Sold                | <u>?</u>      |
| Gross Profit                      |               |
| Sales and Administrative Expenses |               |
| Uncollectible Expense             | <u>      </u> |
| Income before Interest            | <u>      </u> |
| Interest Expense                  |               |
| Income Tax                        |               |
| Net Income                        | <u>      </u> |

| <b>BIG BAD BIKES</b><br><b>Direct Labor Budget</b><br><b>For the Year Ended December 31, 2019</b> |           |           |           |           |           |
|---|-----------|-----------|-----------|-----------|-----------|
|   | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Total     |
| Units to be Produced  | 1,300     | 1,150     | 1,800     | 2,800     | 7,050     |
| Direct Labor Hours per Unit   | 00.75     | 00.75     | 00.75     | 00.75     | 00.75     |
| Total Required Direct Labor Hours   | 975       | 862.50    | 1,350     | 2,100     | 5,287.50  |
| Labor Cost per Hour   | \$ 20     | \$ 20     | \$ 20     | \$ 20     | \$ 20     |
| Total Direct Labor Cost   | \$19,500  | \$17,250  | \$27,000  | \$42,000  | \$105,750 |

|                        | <b>Cost of<br/>Goods Sold</b> | <b>Ending<br/>Inventory</b> | <b>Total</b>  |
|------------------------|-------------------------------|-----------------------------|---------------|
| Direct Materials       |                               |                             |               |
| Direct Labor           |                               |                             |               |
| Manufacturing Overhead | <u>      </u>                 | <u>      </u>               | <u>      </u> |
| Total                  |                               |                             |               |

**BIG BAD BIKES**  
**Budgeted Income Statement**  
**For the Year Ended December 31, 2019**

|                                   |           |
|-----------------------------------|-----------|
| Sales                             | \$440,000 |
| Cost of Goods Sold                | ?         |
| Gross Profit                      |           |
| Sales and Administrative Expenses |           |
| Uncollectible Expense             | _____     |
| Income before Interest            | _____     |
| Interest Expense                  | _____     |
| Income Tax                        | _____     |
| Net Income                        | _____     |

| <b>BIG BAD BIKES</b><br><b>Manufacturing Overhead Budget</b><br><b>For the Year Ended December 31, 2019</b> |           |           |           |           |           |
|---|-----------|-----------|-----------|-----------|-----------|
|   | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Total     |
| Variable Costs  |           |           |           |           |           |
| Indirect Material   | \$ 975    | \$ 863    | \$ 1,350  | \$ 2,100  | \$ 5,288  |
| Indirect Labor  | 1,219     | 1,078     | 1,688     | 2,625     | 6,609     |
| Maintenance   | 244       | 216       | 338       | 525       | 1,322     |
| Utilities   | 488       | 431       | 675       | 1,050     | 2,644     |
| Total Variable Manufacturing Costs  | \$ 2,926  | \$ 2,588  | \$ 4,051  | \$ 6,300  | \$ 15,863 |
| Fixed Costs   |           |           |           |           |           |
| Supervisory Salaries  | \$15,000  | \$15,000  | \$15,000  | \$15,000  | \$ 60,000 |
| Maintenance Salaries  | 4,000     | 4,000     | 4,000     | 4,000     | 16,000    |
| Insurance   | 7,000     | 7,000     | 7,000     | 7,000     | 28,000    |
| Depreciation  | 3,000     | 3,000     | 3,000     | 3,000     | 12,000    |
| Total Fixed Manufacturing Costs   | \$29,000  | \$29,000  | \$29,000  | \$29,000  | \$116,000 |
| Total Manufacturing Overhead  | \$31,925  | \$31,588  | \$33,050  | \$35,300  | \$131,863 |

|                        | <b>Cost of<br/>Goods Sold</b> | <b>Ending<br/>Inventory</b> | <b>Total</b> |
|------------------------|-------------------------------|-----------------------------|--------------|
| Direct Materials       | \$ 24,000*                    |                             |              |
| Direct Labor           | 90,000**                      |                             |              |
| Manufacturing Overhead | _____                         | _____                       | _____        |
| Total                  | _____                         | _____                       | _____        |

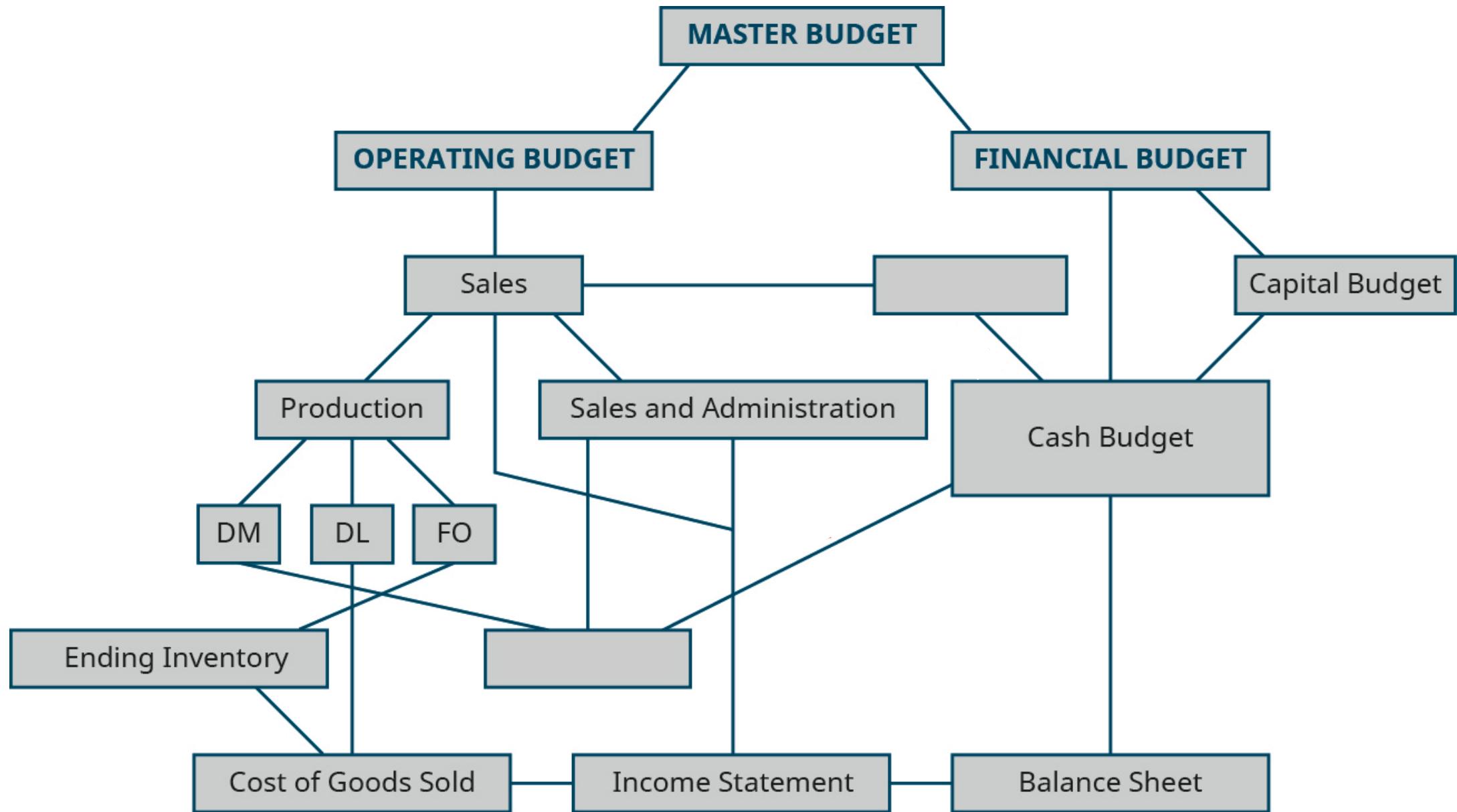
Total MFG OH cost = \$ \_\_\_\_\_  
 # units produced = \_\_\_\_\_  
 MFG OH per unit = \$ \_\_\_\_\_  
 # of units sold = \_\_\_\_\_  
 MFG OH = \$ \_\_\_\_\_ (expensed as part of COGS)  
 # of units unsold (remaining in EI) = \_\_\_\_\_  
 MFG OH for EI = \$ \_\_\_\_\_

**BIG BAD BIKES**  
**Budgeted Income Statement**  
**For the Year Ended December 31, 2019**

|                                   |               |
|-----------------------------------|---------------|
| Sales                             | \$440,000     |
| Cost of Goods Sold                | _____         |
| Gross Profit                      |               |
| Sales and Administrative Expenses |               |
| Uncollectible Expense             | <u>22,000</u> |
| Income before Interest            | _____         |
| Interest Expense                  | 954           |
| Income Tax                        | 4,000         |
| Net Income                        | =====         |

# **Prepare Financial Budgets**

## Relationship between Budgets



## JOB COST SHEET

### General Overview of Cash Budget Components\*

Cash Receipts from Sales

- + Other cash receipts (issuance of stock, borrowing money, receiving interest or dividends, from selling assets such as equipment, etc.)
- Cash Payments for Purchases or Production of Inventory
- Cash Payments for manufacturing expenses\*\*
- Cash Payments for selling and administrative expenses\*\*
- Cash payments for capital asset purchases
- Other cash payments (paying interest, paying loan payments, etc.)
- = Net Cash

\*This is a general overview of the types of cash transactions that might appear in a cash budget and is representative of the components but not of a typical presentation of those components

\*\*Note that depreciation, a non-cash expense, would be excluded from these expenses

|                             | Percentage of Sales Collected |           |           |           |
|-----------------------------|-------------------------------|-----------|-----------|-----------|
|                             | Quarter 1                     | Quarter 2 | Quarter 3 | Quarter 4 |
| Prior year, Quarter 4 Sales | 30%                           |           |           |           |
| Quarter 1 Sales             | 65%                           | 30%       |           |           |
| Quarter 2 Sales             |                               | 65%       | 30%       |           |
| Quarter 3 Sales             |                               |           | 65%       | 30%       |
| Quarter 4 Sales             |                               |           |           | 65%       |

| BIG BAD BIKES<br>Cash Collections Schedule<br>For the Year Ended December 31, 2019 |           |           |           |           |           |           |
|--|-----------|-----------|-----------|-----------|-----------|-----------|
|  | Sales     | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Total     |
| Collections from   |           |           |           |           |           |           |
| prior year Quarter 4   | 0         | 0         |           |           |           |           |
| Quarter 1  | \$ 70,000 | \$45,500  | \$21,000  |           |           | \$ 66,500 |
| Quarter 2  | 70,000    |           | 45,500    | \$21,000  |           | 66,500    |
| Quarter 3  | 112,500   |           |           | 73,125    | \$ 33,750 | 106,875   |
| Quarter 4  | 187,500   |           |           |           | 121,875   | 121,875   |
| Total Collections  | \$440,000 | \$45,500  | \$66,500  | \$94,125  | \$155,625 | \$361,750 |
| Accounts Receivable  | \$ 78,250 |           |           |           |           |           |

| Percentage of Cash Payments for Purchases |           |           |           |           |
|---|-----------|-----------|-----------|-----------|
|   | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 |
| Prior year, Quarter 4 Purchases           | 50%       |           |           |           |
| Quarter 1 Purchases                       | 50%       | 50%       |           |           |
| Quarter 2 Purchases                       |           | 50%       | 50%       |           |
| Quarter 3 Purchases                       |           |           | 50%       | 50%       |
| Quarter 4 Purchases                       |           |           |           | 50%       |

| BIG BAD BIKES<br>Cash Payments Schedule<br>For the Year Ended December 31, 2019 |           |           |           |           |           |          |
|---|-----------|-----------|-----------|-----------|-----------|----------|
| Payments  | Purchases | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Total    |
| Quarter 4, prior year   | \$ 0      | \$ 0      |           |           |           |          |
| Quarter 1   | 6,120     | 3,060     | \$3,060   |           |           | \$ 6,120 |
| Quarter 2   | 5,120     |           | 2,560     | \$2,560   |           | 5,120    |
| Quarter 3   | 8,000     |           |           | 4,000     | \$ 4,000  | 8,000    |
| Quarter 4   | 12,000    |           |           |           | 6,000     | 6,000    |
| Total payments  | \$31,240  | \$3,060   | \$5,620   | \$6,560   | \$10,000  | \$25,240 |
| Accounts Payable  | \$ 6,000  |           |           |           |           |          |

**BIG BAD BIKES**  
**Cash Budget**  
**For the Year Ended December 31, 2019**

|                        | <b>Quarter 1</b> | <b>Quarter 2</b> | <b>Quarter 3</b> | <b>Quarter 4</b> | <b>Total</b> |
|------------------------|------------------|------------------|------------------|------------------|--------------|
| Beginning Cash Balance | \$13,000         | \$10,000         | \$ 10,000        | \$ 10,000        | \$ 13,000    |
| Ending Cash Balance    |                  |                  |                  |                  |              |

| <b>BIG BAD BIKES</b><br><b>Cash Budget</b><br><b>For the Year Ended December 31, 2019</b> |                  |                  |                  |                  |              |
|---|------------------|------------------|------------------|------------------|--------------|
|   | <b>Quarter 1</b> | <b>Quarter 2</b> | <b>Quarter 3</b> | <b>Quarter 4</b> | <b>Total</b> |
| Beginning Cash Balance  | \$13,000         | \$10,000         | \$ 10,000        | \$ 10,000        | \$ 13,000    |
| Collections from Customers<br>(Cash Collections Schedule)                                 | 45,500           | 66,500           | 94,125           | 155,625          | 361,750      |
| Ending Cash Balance   |                  |                  |                  |                  |              |

| <b>BIG BAD BIKES</b><br><b>Cash Budget</b><br><b>For the Year Ended December 31, 2019</b> |                  |                  |                  |                  |              |
|---|------------------|------------------|------------------|------------------|--------------|
|   | <b>Quarter 1</b> | <b>Quarter 2</b> | <b>Quarter 3</b> | <b>Quarter 4</b> | <b>Total</b> |
| Beginning Cash Balance  | \$13,000         | \$10,000         | \$ 10,000        | \$ 10,000        | \$ 13,000    |
| Collections from Customers<br>(Cash Collections Schedule)                                 | 45,500           | 66,500           | 94,125           | 155,625          | 361,750      |
| Issuing of Stock  | 5,000            |                  |                  |                  | 5,000        |
|   |                  |                  |                  |                  |              |
| Ending Cash Balance   |                  |                  |                  |                  |              |

**BIG BAD BIKES**  
**Cash Budget**  
**For the Year Ended December 31, 2019**

|   | <b>Quarter 1</b> | <b>Quarter 2</b> | <b>Quarter 3</b> | <b>Quarter 4</b> | <b>Total</b>     |
|---|------------------|------------------|------------------|------------------|------------------|
| Beginning Cash Balance                                    | \$13,000         | \$10,000         | \$ 10,000        | \$ 10,000        | \$ 13,000        |
| Collections from Customers<br>(Cash Collections Schedule) | 45,500           | 66,500           | 94,125           | 155,625          | 361,750          |
| Issuing of Stock  | <u>5,000</u>     |                  |                  |                  | <u>5,000</u>     |
| Total Cash Collected during the Period                    | <u>\$50,500</u>  | <u>\$66,500</u>  | <u>\$ 94,125</u> | <u>\$155,625</u> | <u>\$366,750</u> |
| Ending Cash Balance                                       |                  |                  |                  |                  |                  |

**BIG BAD BIKES**  
**Cash Budget**  
**For the Year Ended December 31, 2019**

|   | Quarter 1    | Quarter 2 | Quarter 3 | Quarter 4 | Total        |
|---|--------------|-----------|-----------|-----------|--------------|
| Beginning Cash Balance                                    | \$13,000     | \$10,000  | \$ 10,000 | \$ 10,000 | \$ 13,000    |
| Collections from Customers<br>(Cash Collections Schedule) | 45,500       | 66,500    | 94,125    | 155,625   | 361,750      |
| Issuing of Stock  | <u>5,000</u> |           |           |           | <u>5,000</u> |
| Total Cash Collected during the Period                    | \$50,500     | \$66,500  | \$ 94,125 | \$155,625 | \$366,750    |
| Total Available Cash                                      | \$63,500     | \$76,500  | \$104,125 | \$165,625 | \$379,750    |
| Ending Cash Balance                                       |              |           |           |           |              |

| <b>BIG BAD BIKES</b><br><b>Cash Budget</b><br><b>For the Year Ended December 31, 2019</b> |                  |                  |                  |                  |                  |
|---|------------------|------------------|------------------|------------------|------------------|
|   | <b>Quarter 1</b> | <b>Quarter 2</b> | <b>Quarter 3</b> | <b>Quarter 4</b> | <b>Total</b>     |
| Beginning Cash Balance  | \$13,000         | \$10,000         | \$ 10,000        | \$ 10,000        | \$ 13,000        |
| Collections from Customers<br>(Cash Collections Schedule)                                 | 45,500           | 66,500           | 94,125           | 155,625          | 361,750          |
| Issuing of Stock  | <u>5,000</u>     |                  |                  |                  | <u>5,000</u>     |
| Total Cash Collected during the Period  | <u>\$50,500</u>  | <u>\$66,500</u>  | <u>\$ 94,125</u> | <u>\$155,625</u> | <u>\$366,750</u> |
| Total Available Cash  | \$63,500         | \$76,500         | \$104,125        | \$165,625        | \$379,750        |
| - Disbursements   |                  |                  |                  |                  |                  |
| Ending Cash Balance   |                  |                  |                  |                  |                  |

| <b>BIG BAD BIKES</b><br><b>Cash Budget</b><br><b>For the Year Ended December 31, 2019</b> |                  |                  |                  |                  |                  |
|---|------------------|------------------|------------------|------------------|------------------|
|   | <b>Quarter 1</b> | <b>Quarter 2</b> | <b>Quarter 3</b> | <b>Quarter 4</b> | <b>Total</b>     |
| Beginning Cash Balance  | \$13,000         | \$10,000         | \$ 10,000        | \$ 10,000        | \$ 13,000        |
| Collections from Customers<br>(Cash Collections Schedule)                                 | 45,500           | 66,500           | 94,125           | 155,625          | 361,750          |
| Issuing of Stock  | <u>5,000</u>     |                  |                  |                  | <u>5,000</u>     |
| Total Cash Collected during the Period  | <u>\$50,500</u>  | <u>\$66,500</u>  | <u>\$ 94,125</u> | <u>\$155,625</u> | <u>\$366,750</u> |
| Total Available Cash  | \$63,500         | \$76,500         | \$104,125        | \$165,625        | \$379,750        |
| - Disbursements   |                  |                  |                  |                  |                  |
| Direct Materials (Cash Payments Schedule)   | 3,060            | 5,620            | 6,560            | 10,000           | 25,240           |
| Ending Cash Balance   |                  |                  |                  |                  |                  |

| <b>BIG BAD BIKES</b><br><b>Cash Budget</b><br><b>For the Year Ended December 31, 2019</b> |                  |                  |                  |                  |              |
|---|------------------|------------------|------------------|------------------|--------------|
|   | <b>Quarter 1</b> | <b>Quarter 2</b> | <b>Quarter 3</b> | <b>Quarter 4</b> | <b>Total</b> |
| Beginning Cash Balance  | \$13,000         | \$10,000         | \$ 10,000        | \$ 10,000        | \$ 13,000    |
| Collections from Customers<br>(Cash Collections Schedule)                                 | 45,500           | 66,500           | 94,125           | 155,625          | 361,750      |
| Issuing of Stock  | 5,000            |                  |                  |                  | 5,000        |
| Total Cash Collected during the Period  | \$50,500         | \$66,500         | \$ 94,125        | \$155,625        | \$366,750    |
| Total Available Cash  | \$63,500         | \$76,500         | \$104,125        | \$165,625        | \$379,750    |
| - Disbursements   |                  |                  |                  |                  |              |
| Direct Materials (Cash Payments Schedule)   | 3,060            | 5,620            | 6,560            | 10,000           | 25,240       |
| Direct Labor (Direct Labor Budget)  | 19,500           | 17,250           | 27,000           | 42,000           | 105,750      |
| Ending Cash Balance   |                  |                  |                  |                  |              |

| <b>BIG BAD BIKES</b><br><b>Cash Budget</b><br><b>For the Year Ended December 31, 2019</b> |                  |                  |                  |                  |              |
|---|------------------|------------------|------------------|------------------|--------------|
|   | <b>Quarter 1</b> | <b>Quarter 2</b> | <b>Quarter 3</b> | <b>Quarter 4</b> | <b>Total</b> |
| Beginning Cash Balance  | \$13,000         | \$10,000         | \$ 10,000        | \$ 10,000        | \$ 13,000    |
| Collections from Customers<br>(Cash Collections Schedule)                                 | 45,500           | 66,500           | 94,125           | 155,625          | 361,750      |
| Issuing of Stock<br>5,000   | <u>5,000</u>     | <u>5,000</u>     | <u>5,000</u>     | <u>5,000</u>     | <u>5,000</u> |
| Total Cash Collected during the Period  | \$50,500         | \$66,500         | \$ 94,125        | \$155,625        | \$366,750    |
| Total Available Cash  | \$63,500         | \$76,500         | \$104,125        | \$165,625        | \$379,750    |
| - Disbursements   |                  |                  |                  |                  |              |
| Direct Materials (Cash Payments Schedule)   | 3,060            | 5,620            | 6,560            | 10,000           | 25,240       |
| Direct Labor (Direct Labor Budget)  | 19,500           | 17,250           | 27,000           | 42,000           | 105,750      |
| Manufacturing Overhead Less Depreciation<br>(MFG OH Budget)                               | 28,925           | 28,588           | 30,050           | 32,300           | 119,863      |
| Ending Cash Balance   |                  |                  |                  |                  |              |

| <b>BIG BAD BIKES</b><br><b>Cash Budget</b><br><b>For the Year Ended December 31, 2019</b>             |                  |                  |                  |                  |              |
|---|------------------|------------------|------------------|------------------|--------------|
|   | <b>Quarter 1</b> | <b>Quarter 2</b> | <b>Quarter 3</b> | <b>Quarter 4</b> | <b>Total</b> |
| Beginning Cash Balance  | \$13,000         | \$10,000         | \$ 10,000        | \$ 10,000        | \$ 13,000    |
| Collections from Customers<br>(Cash Collections Schedule)   | 45,500           | 66,500           | 94,125           | 155,625          | 361,750      |
| Issuing of Stock<br>5,000   | <u>5,000</u>     | <u>5,000</u>     | <u>5,000</u>     | <u>5,000</u>     | <u>5,000</u> |
| Total Cash Collected during the Period  | \$50,500         | \$66,500         | \$ 94,125        | \$155,625        | \$366,750    |
| Total Available Cash  | \$63,500         | \$76,500         | \$104,125        | \$165,625        | \$379,750    |
| - Disbursements   |                  |                  |                  |                  |              |
| Direct Materials (Cash Payments Schedule)   | 3,060            | 5,620            | 6,560            | 10,000           | 25,240       |
| Direct Labor (Direct Labor Budget)  | 19,500           | 17,250           | 27,000           | 42,000           | 105,750      |
| Manufacturing Overhead Less Depreciation<br>(MFG OH Budget)   | 28,925           | 28,588           | 30,050           | 32,300           | 119,863      |
| Selling and Administrative Expenses Less<br>Depreciation (Sales and Administrative<br>Expense Budget) | 18,500           | 18,500           | 19,750           | 22,250           | 79,000       |
| Ending Cash Balance   |                  |                  |                  |                  |              |

| <b>BIG BAD BIKES</b><br><b>Cash Budget</b><br><b>For the Year Ended December 31, 2019</b>             |                  |                  |                  |                  |              |
|---|------------------|------------------|------------------|------------------|--------------|
|   | <b>Quarter 1</b> | <b>Quarter 2</b> | <b>Quarter 3</b> | <b>Quarter 4</b> | <b>Total</b> |
| Beginning Cash Balance  | \$13,000         | \$10,000         | \$ 10,000        | \$ 10,000        | \$ 13,000    |
| Collections from Customers<br>(Cash Collections Schedule)   | 45,500           | 66,500           | 94,125           | 155,625          | 361,750      |
| Issuing of Stock<br>5,000   | <u>5,000</u>     | <u>5,000</u>     | <u>5,000</u>     | <u>5,000</u>     | <u>5,000</u> |
| Total Cash Collected during the Period  | \$50,500         | \$66,500         | \$ 94,125        | \$155,625        | \$366,750    |
| Total Available Cash  | \$63,500         | \$76,500         | \$104,125        | \$165,625        | \$379,750    |
| - Disbursements   |                  |                  |                  |                  |              |
| Direct Materials (Cash Payments Schedule)   | 3,060            | 5,620            | 6,560            | 10,000           | 25,240       |
| Direct Labor (Direct Labor Budget)  | 19,500           | 17,250           | 27,000           | 42,000           | 105,750      |
| Manufacturing Overhead Less Depreciation<br>(MFG OH Budget)   | 28,925           | 28,588           | 30,050           | 32,300           | 119,863      |
| Selling and Administrative Expenses Less<br>Depreciation (Sales and Administrative<br>Expense Budget) | 18,500           | 18,500           | 19,750           | 22,250           | 79,000       |
| Income Tax Expense  | 1,000            | 1,000            | 1,000            | 1,000            | 4,000        |
| Ending Cash Balance   |                  |                  |                  |                  |              |

| <b>BIG BAD BIKES</b><br><b>Cash Budget</b><br><b>For the Year Ended December 31, 2019</b>             |                  |                  |                  |                  |              |
|---|------------------|------------------|------------------|------------------|--------------|
|   | <b>Quarter 1</b> | <b>Quarter 2</b> | <b>Quarter 3</b> | <b>Quarter 4</b> | <b>Total</b> |
| Beginning Cash Balance  | \$13,000         | \$10,000         | \$ 10,000        | \$ 10,000        | \$ 13,000    |
| Collections from Customers<br>(Cash Collections Schedule)   | 45,500           | 66,500           | 94,125           | 155,625          | 361,750      |
| Issuing of Stock<br>5,000   |                  |                  |                  |                  | 5,000        |
| Total Cash Collected during the Period  | \$50,500         | \$66,500         | \$ 94,125        | \$155,625        | \$366,750    |
| Total Available Cash  | \$63,500         | \$76,500         | \$104,125        | \$165,625        | \$379,750    |
| - Disbursements   |                  |                  |                  |                  |              |
| Direct Materials (Cash Payments Schedule)   | 3,060            | 5,620            | 6,560            | 10,000           | 25,240       |
| Direct Labor (Direct Labor Budget)  | 19,500           | 17,250           | 27,000           | 42,000           | 105,750      |
| Manufacturing Overhead Less Depreciation<br>(MFG OH Budget)   | 28,925           | 28,588           | 30,050           | 32,300           | 119,863      |
| Selling and Administrative Expenses Less<br>Depreciation (Sales and Administrative<br>Expense Budget) | 18,500           | 18,500           | 19,750           | 22,250           | 79,000       |
| Income Tax Expense  | 1,000            | 1,000            | 1,000            | 1,000            | 4,000        |
| Purchase of Copier (Capital Asset Budget)   |                  |                  | 8,500            |                  | 8,500        |
| Ending Cash Balance   |                  |                  |                  |                  |              |

| BIG BAD BIKES<br>Cash Budget<br>For the Year Ended December 31, 2019                                  |           |           |           |           |           |
|---|-----------|-----------|-----------|-----------|-----------|
|   | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Total     |
| Beginning Cash Balance  | \$13,000  | \$10,000  | \$ 10,000 | \$ 10,000 | \$ 13,000 |
| Collections from Customers<br>(Cash Collections Schedule)   | 45,500    | 66,500    | 94,125    | 155,625   | 361,750   |
| Issuing of Stock  | 5,000     |           |           |           | 5,000     |
| Total Cash Collected during the Period  | \$50,500  | \$66,500  | \$ 94,125 | \$155,625 | \$366,750 |
| Total Available Cash  | \$63,500  | \$76,500  | \$104,125 | \$165,625 | \$379,750 |
| - Disbursements   |           |           |           |           |           |
| Direct Materials (Cash Payments Schedule)   | 3,060     | 5,620     | 6,560     | 10,000    | 25,240    |
| Direct Labor (Direct Labor Budget)  | 19,500    | 17,250    | 27,000    | 42,000    | 105,750   |
| Manufacturing Overhead Less Depreciation<br>(MFG OH Budget)   | 28,925    | 28,588    | 30,050    | 32,300    | 119,863   |
| Selling and Administrative Expenses Less<br>Depreciation (Sales and Administrative<br>Expense Budget) | 18,500    | 18,500    | 19,750    | 22,250    | 79,000    |
| Income Tax Expense  | 1,000     | 1,000     | 1,000     | 1,000     | 4,000     |
| Purchase of Copier (Capital Asset Budget)   |           |           | 8,500     |           | 8,500     |
| Total Disbursements   | \$70,985  | \$70,958  | \$ 92,860 | \$107,550 | \$342,353 |
| Ending Cash Balance   |           |           |           |           |           |

| BIG BAD BIKES<br>Cash Budget<br>For the Year Ended December 31, 2019                                  |            |           |           |           |           |
|---|------------|-----------|-----------|-----------|-----------|
|   | Quarter 1  | Quarter 2 | Quarter 3 | Quarter 4 | Total     |
| Beginning Cash Balance  | \$13,000   | \$10,000  | \$ 10,000 | \$ 10,000 | \$ 13,000 |
| Collections from Customers<br>(Cash Collections Schedule)   | 45,500     | 66,500    | 94,125    | 155,625   | 361,750   |
| Issuing of Stock  | 5,000      |           |           |           | 5,000     |
| Total Cash Collected during the Period  | \$50,500   | \$66,500  | \$ 94,125 | \$155,625 | \$366,750 |
| Total Available Cash  | \$63,500   | \$76,500  | \$104,125 | \$165,625 | \$379,750 |
| - Disbursements   |            |           |           |           |           |
| Direct Materials (Cash Payments Schedule)   | 3,060      | 5,620     | 6,560     | 10,000    | 25,240    |
| Direct Labor (Direct Labor Budget)  | 19,500     | 17,250    | 27,000    | 42,000    | 105,750   |
| Manufacturing Overhead Less Depreciation<br>(MFG OH Budget)   | 28,925     | 28,588    | 30,050    | 32,300    | 119,863   |
| Selling and Administrative Expenses Less<br>Depreciation (Sales and Administrative<br>Expense Budget) | 18,500     | 18,500    | 19,750    | 22,250    | 79,000    |
| Income Tax Expense  | 1,000      | 1,000     | 1,000     | 1,000     | 4,000     |
| Purchase of Copier (Capital Asset Budget)   |            |           | 8,500     |           | 8,500     |
| Total Disbursements   | \$70,985   | \$70,958  | \$ 92,860 | \$107,550 | \$342,353 |
| Excess (deficiency) of Available Cash   | (\$ 7,485) | \$ 5,542  | \$ 11,265 | \$ 58,075 | \$ 37,397 |
| Ending Cash Balance   |            |           |           |           |           |

| BIG BAD BIKES<br>Cash Budget<br>For the Year Ended December 31, 2019                                  |            |           |           |           |           |
|---|------------|-----------|-----------|-----------|-----------|
|   | Quarter 1  | Quarter 2 | Quarter 3 | Quarter 4 | Total     |
| Beginning Cash Balance  | \$13,000   | \$10,000  | \$ 10,000 | \$ 10,000 | \$ 13,000 |
| Collections from Customers<br>(Cash Collections Schedule)   | 45,500     | 66,500    | 94,125    | 155,625   | 361,750   |
| Issuing of Stock  | 5,000      |           |           |           | 5,000     |
| Total Cash Collected during the Period  | \$50,500   | \$66,500  | \$ 94,125 | \$155,625 | \$366,750 |
| Total Available Cash  | \$63,500   | \$76,500  | \$104,125 | \$165,625 | \$379,750 |
| - Disbursements   |            |           |           |           |           |
| Direct Materials (Cash Payments Schedule)   | 3,060      | 5,620     | 6,560     | 10,000    | 25,240    |
| Direct Labor (Direct Labor Budget)  | 19,500     | 17,250    | 27,000    | 42,000    | 105,750   |
| Manufacturing Overhead Less Depreciation<br>(MFG OH Budget)   | 28,925     | 28,588    | 30,050    | 32,300    | 119,863   |
| Selling and Administrative Expenses Less<br>Depreciation (Sales and Administrative<br>Expense Budget) | 18,500     | 18,500    | 19,750    | 22,250    | 79,000    |
| Income Tax Expense  | 1,000      | 1,000     | 1,000     | 1,000     | 4,000     |
| Purchase of Copier (Capital Asset Budget)   |            |           | 8,500     |           | 8,500     |
| Total Disbursements   | \$70,985   | \$70,958  | \$ 92,860 | \$107,550 | \$342,353 |
| Excess (deficiency) of Available Cash   | (\$ 7,485) | \$ 5,542  | \$ 11,265 | \$ 58,075 | \$ 37,397 |
| Financing<br>+ Borrowings   |            |           |           |           |           |
| - Repayments Including Interest   |            |           |           |           |           |
| Ending Cash Balance   |            |           |           |           |           |

| BIG BAD BIKES<br>Cash Budget<br>For the Year Ended December 31, 2019                                  |            |           |           |           |           |
|---|------------|-----------|-----------|-----------|-----------|
|   | Quarter 1  | Quarter 2 | Quarter 3 | Quarter 4 | Total     |
| Beginning Cash Balance  | \$13,000   | \$10,000  | \$ 10,000 | \$ 10,000 | \$ 13,000 |
| Collections from Customers<br>(Cash Collections Schedule)   | 45,500     | 66,500    | 94,125    | 155,625   | 361,750   |
| Issuing of Stock  | 5,000      |           |           |           | 5,000     |
| Total Cash Collected during the Period  | \$50,500   | \$66,500  | \$ 94,125 | \$155,625 | \$366,750 |
| Total Available Cash  | \$63,500   | \$76,500  | \$104,125 | \$165,625 | \$379,750 |
| - Disbursements   |            |           |           |           |           |
| Direct Materials (Cash Payments Schedule)   | 3,060      | 5,620     | 6,560     | 10,000    | 25,240    |
| Direct Labor (Direct Labor Budget)  | 19,500     | 17,250    | 27,000    | 42,000    | 105,750   |
| Manufacturing Overhead Less Depreciation<br>(MFG OH Budget)   | 28,925     | 28,588    | 30,050    | 32,300    | 119,863   |
| Selling and Administrative Expenses Less<br>Depreciation (Sales and Administrative<br>Expense Budget) | 18,500     | 18,500    | 19,750    | 22,250    | 79,000    |
| Income Tax Expense  | 1,000      | 1,000     | 1,000     | 1,000     | 4,000     |
| Purchase of Copier (Capital Asset Budget)   |            |           | 8,500     |           | 8,500     |
| Total Disbursements   | \$70,985   | \$70,958  | \$ 92,860 | \$107,550 | \$342,353 |
| Excess (deficiency) of Available Cash   | (\$ 7,485) | \$ 5,542  | \$ 11,265 | \$ 58,075 | \$ 37,397 |
| Financing   |            |           |           |           |           |
| + Borrowings  | 17,485     | 4,458     |           |           | 21,943    |
| - Repayments Including Interest   |            |           |           |           |           |
| Ending Cash Balance   |            |           |           |           |           |

| BIG BAD BIKES<br>Cash Budget<br>For the Year Ended December 31, 2019                                  |            |           |           |           |           |
|---|------------|-----------|-----------|-----------|-----------|
|   | Quarter 1  | Quarter 2 | Quarter 3 | Quarter 4 | Total     |
| Beginning Cash Balance  | \$13,000   | \$10,000  | \$ 10,000 | \$ 10,000 | \$ 13,000 |
| Collections from Customers<br>(Cash Collections Schedule)   | 45,500     | 66,500    | 94,125    | 155,625   | 361,750   |
| Issuing of Stock  | 5,000      |           |           |           | 5,000     |
| Total Cash Collected during the Period  | \$50,500   | \$66,500  | \$ 94,125 | \$155,625 | \$366,750 |
| Total Available Cash  | \$63,500   | \$76,500  | \$104,125 | \$165,625 | \$379,750 |
| - Disbursements   |            |           |           |           |           |
| Direct Materials (Cash Payments Schedule)   | 3,060      | 5,620     | 6,560     | 10,000    | 25,240    |
| Direct Labor (Direct Labor Budget)  | 19,500     | 17,250    | 27,000    | 42,000    | 105,750   |
| Manufacturing Overhead Less Depreciation<br>(MFG OH Budget)   | 28,925     | 28,588    | 30,050    | 32,300    | 119,863   |
| Selling and Administrative Expenses Less<br>Depreciation (Sales and Administrative<br>Expense Budget) | 18,500     | 18,500    | 19,750    | 22,250    | 79,000    |
| Income Tax Expense  | 1,000      | 1,000     | 1,000     | 1,000     | 4,000     |
| Purchase of Copier (Capital Asset Budget)   |            |           | 8,500     |           | 8,500     |
| Total Disbursements   | \$70,985   | \$70,958  | \$ 92,860 | \$107,550 | \$342,353 |
| Excess (deficiency) of Available Cash   | (\$ 7,485) | \$ 5,542  | \$ 11,265 | \$ 58,075 | \$ 37,397 |
| Financing   |            |           |           |           |           |
| + Borrowings  | 17,485     | 4,458     |           |           | 21,943    |
| - Repayments Including Interest   |            |           | (1,265)   | (21,632)  | (22,897)  |
| Ending Cash Balance   |            |           |           |           |           |

| BIG BAD BIKES<br>Cash Budget<br>For the Year Ended December 31, 2019                                  |            |           |           |           |           |
|---|------------|-----------|-----------|-----------|-----------|
|   | Quarter 1  | Quarter 2 | Quarter 3 | Quarter 4 | Total     |
| Beginning Cash Balance  | \$13,000   | \$10,000  | \$ 10,000 | \$ 10,000 | \$ 13,000 |
| Collections from Customers<br>(Cash Collections Schedule)   | 45,500     | 66,500    | 94,125    | 155,625   | 361,750   |
| Issuing of Stock  | 5,000      |           |           |           | 5,000     |
| Total Cash Collected during the Period  | \$50,500   | \$66,500  | \$ 94,125 | \$155,625 | \$366,750 |
| Total Available Cash  | \$63,500   | \$76,500  | \$104,125 | \$165,625 | \$379,750 |
| - Disbursements   |            |           |           |           |           |
| Direct Materials (Cash Payments Schedule)   | 3,060      | 5,620     | 6,560     | 10,000    | 25,240    |
| Direct Labor (Direct Labor Budget)  | 19,500     | 17,250    | 27,000    | 42,000    | 105,750   |
| Manufacturing Overhead Less Depreciation<br>(MFG OH Budget)   | 28,925     | 28,588    | 30,050    | 32,300    | 119,863   |
| Selling and Administrative Expenses Less<br>Depreciation (Sales and Administrative<br>Expense Budget) | 18,500     | 18,500    | 19,750    | 22,250    | 79,000    |
| Income Tax Expense  | 1,000      | 1,000     | 1,000     | 1,000     | 4,000     |
| Purchase of Copier (Capital Asset Budget)   |            |           | 8,500     |           | 8,500     |
| Total Disbursements   | \$70,985   | \$70,958  | \$ 92,860 | \$107,550 | \$342,353 |
| Excess (deficiency) of Available Cash   | (\$ 7,485) | \$ 5,542  | \$ 11,265 | \$ 58,075 | \$ 37,397 |
| Financing   |            |           |           |           |           |
| + Borrowings  | 17,485     | 4,458     |           |           | 21,943    |
| - Repayments Including Interest   |            |           | (1,265)   | (21,632)  | (22,897)  |
| Ending Cash Balance   | \$10,000   | \$10,000  | \$ 10,000 | \$ 36,443 | \$ 36,443 |

### **Common Changes in the Budgeted Balance Sheet**

| <b>Information Source</b>   | <b>Balance Sheet Change</b>   |
|-----------------------------|---|
| Cash balance                | ending cash balance from the cash budget  |
| Accounts Receivable balance | uncollected receivables from the cash collections schedule                            |
| Inventory                   | ending balance in inventory as shown from calculations to create the income statement |
| Machinery & Equipment       | ending balance in the capital asset budget  |
| Accounts Payable            | unpaid purchases from the cash payments schedule                                      |

**BIG BAD BIKES**  
**Budgeted Balance Sheet**  
**December 31, 2019**

|                                    | Jan. 1          | Dec. 31          |
|------------------------------------|-----------------|------------------|
| Cash                               | \$13,000        | \$ 36,443        |
| Accounts Receivable                | 0               | 78,250           |
| - Allowance for Doubtful Accounts  |                 | (22,000)         |
| Inventory                          | 0               | 42,629           |
| Machinery and Equipment            | 15,000          | 23,500           |
| Accumulated Depreciation           | <u>(2,000)</u>  | <u>(22,000)</u>  |
| Total Assets                       | <u>\$26,000</u> | <u>\$136,822</u> |
|                                    |                 |                  |
| Accounts Payable                   | \$ 0            | \$ 6,000         |
| Line of Credit                     |                 |                  |
| Common Stock                       | 15,000          | 20,000           |
| Retained Earnings                  | <u>11,000</u>   | <u>110,822</u>   |
| Total Liability and Owner's Equity | <u>\$26,000</u> | <u>\$136,822</u> |

# Review/Summary

## Prepare Operating Budgets

- The \_\_\_\_\_ budget is the first budget developed, and the estimated sales in turn guide the \_\_\_\_\_ budget.
- The production budget shows the quantity of goods produced for each time period and leads to computing when and how much \_\_\_\_\_ needs to be ordered, when and how much \_\_\_\_\_ needs to be scheduled, and when and how much manufacturing overhead needs to be planned.
- The sales and administrative budget plans for the \_\_\_\_\_ expenses.
- All operating budgets combine to develop the budgeted \_\_\_\_\_ statement.

## Prepare Financial Budgets

- The financial budget include the \_\_\_\_\_ budget and the \_\_\_\_\_ budget.
- The cash \_\_\_\_\_ schedule and cash \_\_\_\_\_ schedule are computed and combined with other budgets to develop the cash budget.
- Information from financial budgets and the budgeted income statement are used to develop the budgeted \_\_\_\_\_.

## Budgets Are Used to Evaluate Goals

- Management's evaluations of \_\_\_\_\_ results versus the estimated \_\_\_\_\_ results help assess performance and plan for the future.

# **INFO 7225**

## **MODULE 2**

**Managerial Accounting**

**(8. Standard Costs & Variance Analysis)**

Professor Shiaoming Shi

College of Engineering

Northeastern University

1,000

Q3

Q4

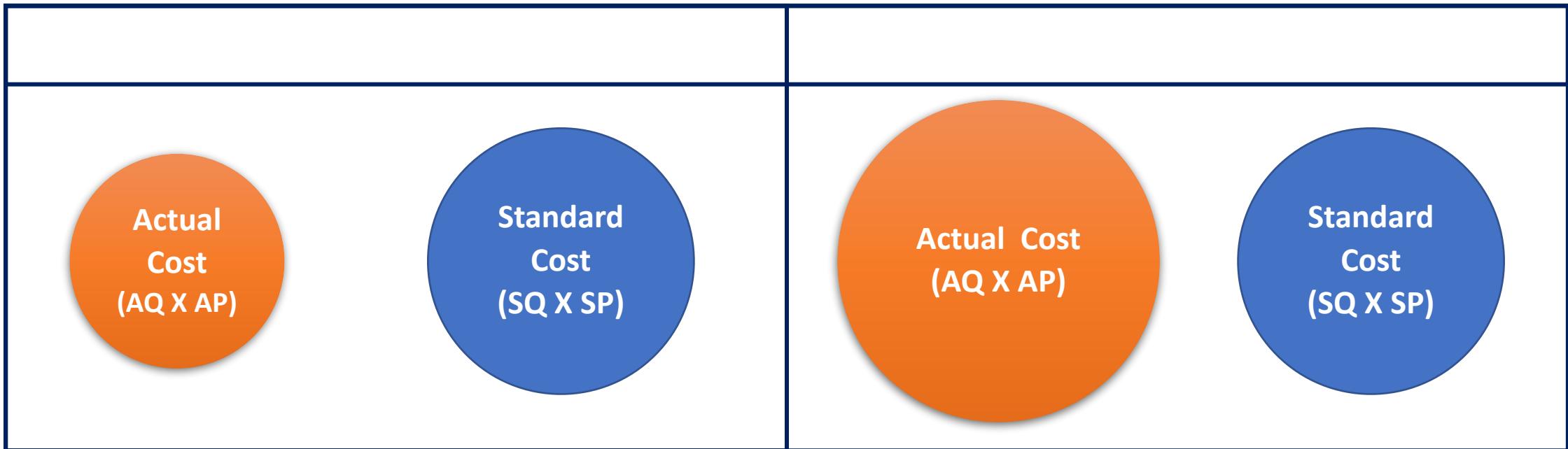


# **Standard Costs and Variance Analysis**

# What is the difference between a budget and a standard?

- A budget usually refers to a company's projections for costs, revenues, and cash flows associated with the \_\_\_\_\_ of the organization, or a subsection of the corporation such as a division.
- A standard usually refers to a company's projected costs for \_\_\_\_\_ of a product or service and includes the expected (or standard) cost for the various cost components of each unit, such as materials, labor, and overhead.
- Standard costs provide information that is useful in performance evaluation. Standard costs are compared to actual costs, and \_\_\_\_\_ between the two are termed **variances**. Favorable variances result when actual costs are \_\_\_\_\_ than standard costs, and vice versa.

# Favorable and Unfavorable Variances



- AQ, “actual quantity” of input used to produce the output
- AP, “actual price” of the input used to produce the output
- SQ and SP refer to the “standard” quantity and price

## Example 1. Developing a Standard Cost Card

Use the information provided to create a standard cost card for production of one deluxe bicycle from Bicycles Unlimited.

To make one bicycle it takes four pounds of material. The material can usually be purchased for \$5.25 per pound. The labor necessary to build a bicycle consists of two types. The first type of labor is assembly, which takes 2.75 hours. These workers are paid \$11.00 per hour. The second type of labor is finishing, which takes 4 hours. These workers are paid \$15.00 per hour. Overhead is applied using labor hours. The variable overhead rate is \$5.00 per labor hour. The fixed overhead rate is \$3.00 per hour.

| STANDARD COST CARD          |                   |                |              |
|-----------------------------|-------------------|----------------|--------------|
| Product:                    |                   |                |              |
| Manufacturing Information   | Standard Quantity | Standard Price | Cost Summary |
| Direct Materials (per unit) |                   |                |              |
| Direct Labor (per unit)     |                   |                |              |
| Manufacturing Overhead      |                   |                |              |
| Variable Overhead           |                   |                |              |
| Fixed Overhead              |                   |                |              |
| Standard Cost per Bicycle   |                   |                |              |

# Variance Analysis

## Direct Materials Variances

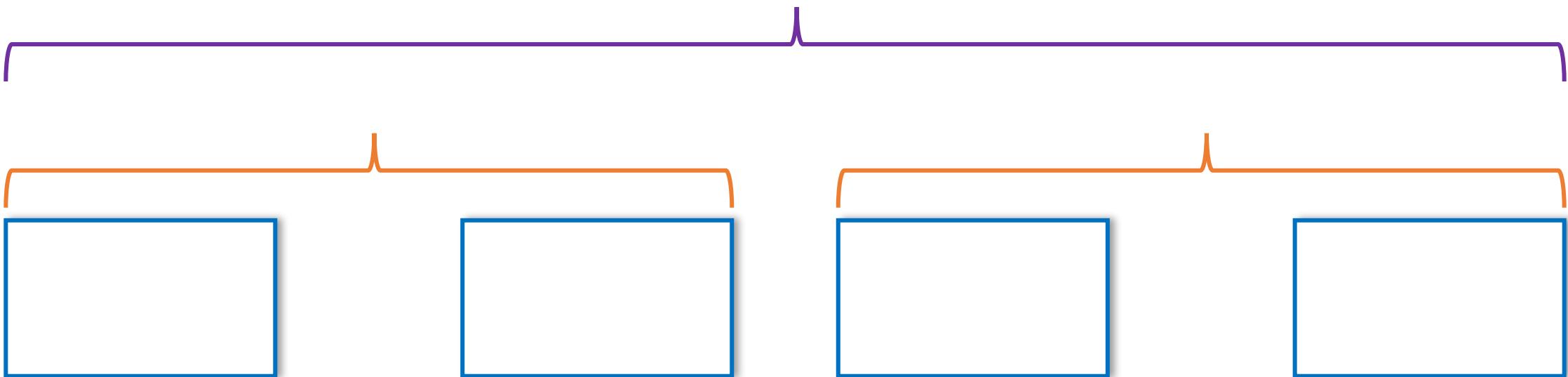
Total Variance =

## Direct Labor Variances

Total Variance =

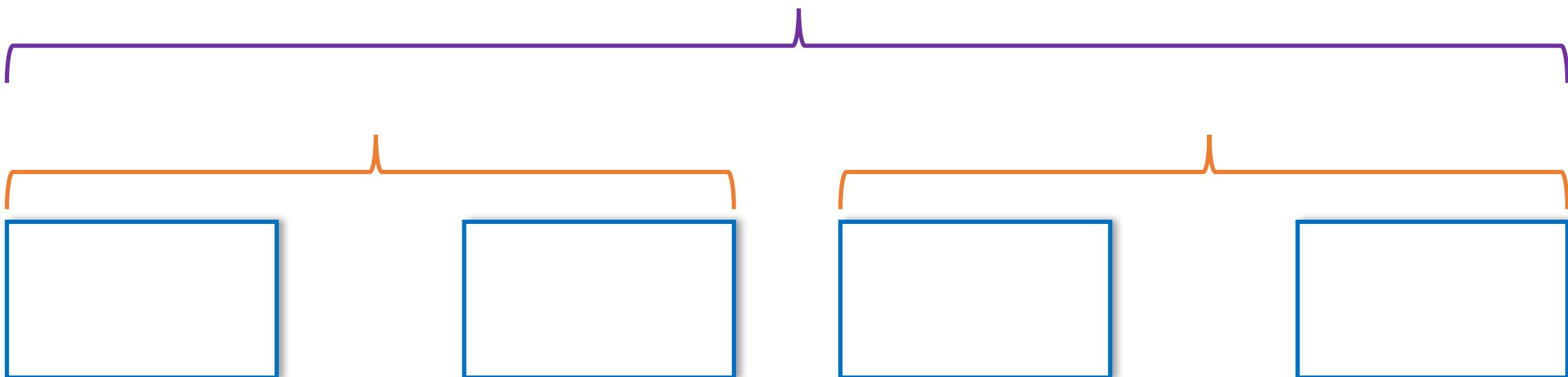
## Example 2. Compute Materials Variances

Biglow Company makes a hair shampoo called Sweet and Fresh. Each bottle has a standard material cost of 8 ounces at \$0.85 per ounce. During May, Biglow manufactured 11,000 bottles. They bought 89,000 ounces of material at a cost of \$74,760. All 89,000 ounces were used to make the 11,000 bottles. Calculate the total variance, material price variance, and the material quantity variance.

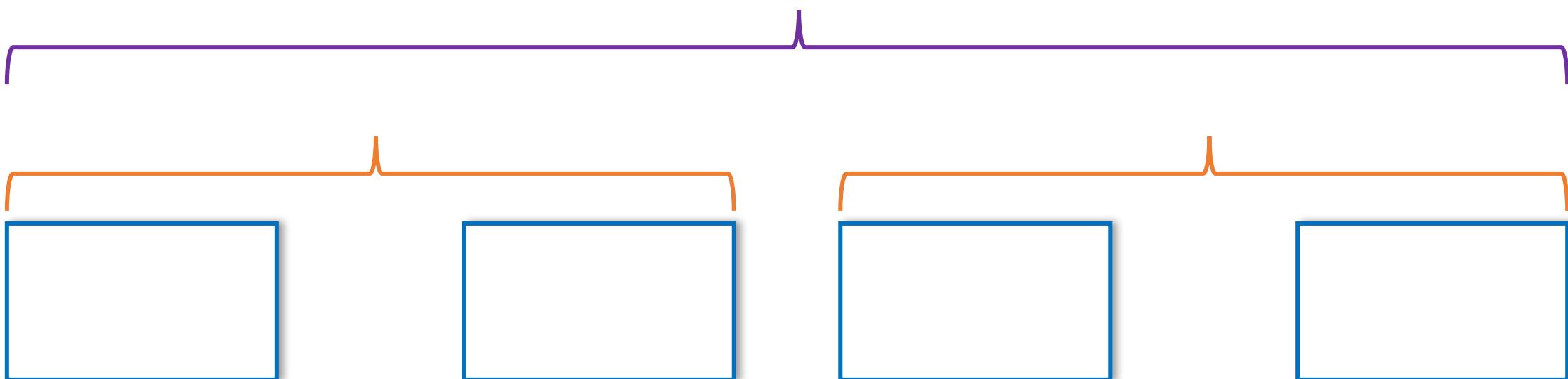


## Example 3a.

| Standard Material Cost  | Actual Material Cost                                    |
|---|---|
| Output - Number of rail sections  | 3,400   |
| Standard quantity of input per rail section- 40' long pieces of pipe        | X 1.25  |
| <b>Standard quantity</b> of input (pipes) to achieve output (rail sections) | <b>4,250</b>  |
| <b>Standard price</b> per unit of input (pipe)                              | X \$80  |
| <b>Standard cost</b> of direct materials                                    | <u><u>\$340,000</u></u>                                 |
|   | Actual quantity of input 4,100                          |
|   | Actual price per unit of input x \$90                   |
|   | Actual cost of direct materials <u><u>\$369,000</u></u> |



## Example 3b.



## Factory (Manufacturing) Overhead Variances

- Overhead has both variable and fixed components (unlike direct labor and direct material that are exclusively variable in nature).
  - The variable components may consist of items like indirect material, indirect labor, and factory supplies.
  - Fixed factory overhead might include rent, depreciation, insurance, maintenance, and so forth.
- Because variable and fixed costs behave in a completely different manner, it stands to reason that proper evaluation of variances between expected and actual overhead costs must take into account the intrinsic cost behavior.
- As a result, variance analysis for overhead is split between variances related to variable overhead and variances related to fixed overhead.

# Variance Analysis

## Variable Overhead (VOH) Variances

Total Variance =

### Example 4a

Budget data:

| <b>Percent of capacity</b> | <b>100%</b> |
|----------------------------|-------------|
| Direct labor hours         | 2,000       |
| Units of output            | 1,000       |
| Variable overhead          | \$ 4,000    |
| Fixed overhead             | \$ 6,000    |
| Total overhead             | \$10,000    |

Std VOH rate =

Actual output information:

| <b>Percent of capacity</b> | <b>100%</b> |
|----------------------------|-------------|
| Direct labor hours         | 2,500       |
| Units of output            | 1,000       |
| Variable overhead          | \$ 7,000    |
| Fixed overhead             | \$ 6,000    |
| Total overhead             | \$13,000    |

Actual VOH rate =



# Summary/Review

## Standard Costs and Variances

- Standards are budgeted unit amounts for price paid and amount used.
- Variances are the difference between actual and standard amounts.
- Variance can be favorable or unfavorable.

## Direct Materials Variances

- Two components: direct materials price variance and direct materials quantity variance.
- The direct materials price variance is caused by paying too much or too little for material.
- The direct materials quantity variance is caused by using too much or too little material.

## Direct Labor Variances

- Two components: direct labor rate variance and direct labor time (efficiency) variance.
  - Rate paid vs. standard rate
  - Actual hours vs. standard/budgeted hours

## Manufacturing/Factory OH Variances

- Two set of OH variances: variable and fixed
- The variable variances are caused by the overhead application rate and the activity level against which the rate was applied.
- There are two fixed overhead variances. One is caused by spending two much or too little on fixed overhead. The other is caused by actual production being above or below the expected production level.

**Thank you!**  
**Questions?**