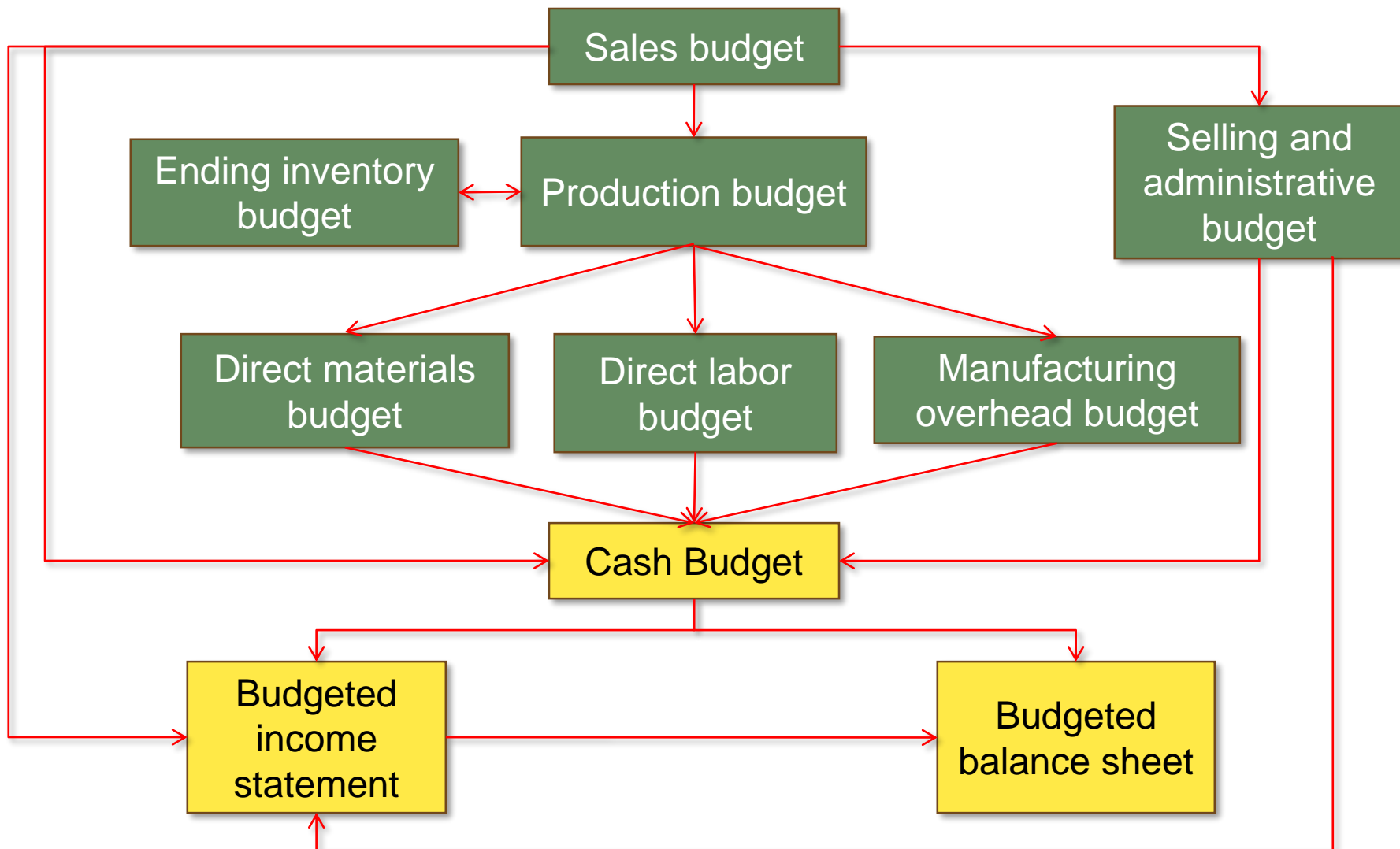


# Master Budgeting

## Chapter 8 – Part II

# The Master Budget – An Overview



# Learning Objective 5

**Prepare a direct labor budget.**

# The Direct Labor Budget

- At Royal, each unit of product requires **0.05 hours** (3 minutes) of direct labor. The labor can be unskilled because the production process is relatively simple and formal training is not required.
- Royal pays its workers at the rate of **\$10 per hour**.

**Let's prepare the direct labor budget.**

# The Direct Labor Budget – Units of Production

	April	May	June	Quarter
Units of production	26,000	46,000	29,000	101,000
Direct labor time per unit				
Labor hours required				
Hourly wage rate				
Total direct labor costs				

From the production budget

# The Direct Labor Budget – Labor Hours Required

	<b>April</b>	<b>May</b>	<b>June</b>	<b>Quarter</b>
Units of production	26,000	46,000	29,000	101,000
Direct labor time per unit	<u>0.05</u>	<u>0.05</u>	<u>0.05</u>	<u>0.05</u>
Labor hours required	1,300	2,300	1,450	5,050
Hourly wage rate				
Total direct labor costs				

# The Direct Labor Budget – Direct Labor Costs

	<b>April</b>	<b>May</b>	<b>June</b>	<b>Quarter</b>
Units of production	26,000	46,000	29,000	101,000
Direct labor time per unit	<u>0.05</u>	<u>0.05</u>	<u>0.05</u>	<u>0.05</u>
Labor hours required	1,300	2,300	1,450	5,050
Hourly wage rate	<u>\$ 10</u>	<u>\$ 10</u>	<u>\$ 10</u>	<u>\$ 10</u>
Total direct labor costs	<u>\$ 13,000</u>	<u>\$ 23,000</u>	<u>\$ 14,000</u>	<u>\$ 50,500</u>

## Quick Check 5

What would be the total direct labor cost for the quarter if the company pays time and one-half ( $\$10 \times 1.5 = \$15$ ) for all hours worked by employees over 2,000 per month?

- a. \$51,700
- b. \$52,000
- c. \$53,250
- d. \$57,000



# Concept Check 5a

What would be the total direct labor cost for the quarter if the company pays time and one-half ( $\$10 \times 1.5 = \$15$ ) for all hours worked by employees over 2,000 per month?

- a. \$51,700
- b. \$52,000**
- c. \$53,250
- d. \$57,000

	<i>April</i>	<i>May</i>	<i>June</i>	<i>Quarter</i>
Labor hours required	1,300	2,300	1,450	
Regular hours paid	<u>1,300</u>	<u>2,000</u>	<u>1,450</u>	4,750
Overtime hours paid	-	300	-	300
Total regular hours	4,750	\$10	\$ 47,500	
Total overtime hours	300	\$15	<u>\$ 4,500</u>	
Total pay			<u>\$ 52,000</u>	

# Learning Objective 6

**Prepare a manufacturing overhead budget.**

# Manufacturing Overhead Budget

- At Royal, manufacturing overhead is applied to units of product on the basis of direct labor hours.
- The **variable** manufacturing overhead rate is **\$20 per direct labor hour**.
- Fixed manufacturing overhead is **\$50,000** per month, which includes **\$20,000 of noncash costs** (primarily depreciation of plant assets).

**Let's prepare the manufacturing overhead budget.**

# Manufacturing Overhead Budget – Direct Labor Hours

	April	May	June	Quarter
Budgeted direct labor hours	1,300	2,300	1,450	5,050
Variable mfg. OH Rate				
Variable mfg. OH costs				
Fixed mfg. OH costs				
Total mfg. OH costs				
Less: noncash costs				
Cash disbursement for mfg. OH				

Direct Labor Budget

# Manufacturing Overhead Budget – Cost per Direct Labor Hour

	April	May	June	Quarter
Budgeted direct labor hours	<b>1,300</b>	<b>2,300</b>	<b>1,450</b>	5,050
Variable mfg. OH Rate	\$ <u>20</u>	\$ <u>20</u>	\$ <u>20</u>	\$ <u>20</u>
Variable mfg. OH costs	\$ 26,000	\$ 46,000	\$ 29,000	\$ 101,000
Fixed mfg. OH costs	<u>50,000</u>	<u>50,000</u>	<u>50,000</u>	<u>150,000</u>
Total mfg. OH costs	76,000	96,000	79,000	251,000

$$\frac{\text{Total mfg. OH for quarter } \$251,000}{\text{Total labor hours required } 5,050} = \$49.70 \text{ per hour} *$$

\* rounded

# Manufacturing Overhead Budget – Noncash Costs (Depreciation)

	April	May	June	Quarter
Budgeted direct labor hours	<b>1,300</b>	<b>2,300</b>	<b>1,450</b>	5,050
Variable mfg. OH Rate	\$ <u>20</u>	\$ <u>20</u>	\$ <u>20</u>	\$ <u>20</u>
Variable mfg. OH costs	\$ 26,000	\$ 46,000	\$ 29,000	\$ 101,000
Fixed mfg. OH costs	<u>50,000</u>	<u>50,000</u>	<u>50,000</u>	<u>150,000</u>
Total mfg. OH costs	76,000	96,000	79,000	251,000
Less: noncash costs	<u>20,000</u>	<u>20,000</u>	<u>20,000</u>	<u>60,000</u>
Cash disbursement for mfg. OH	\$ <u>56,000</u>	\$ <u>76,000</u>	\$ <u>59,000</u>	\$ <u>191,000</u>

Depreciation is a noncash charge.

# Learning Objective 7

**Prepare a selling and administrative expense budget.**

# Selling and Administrative Expense Budget

- At Royal, the selling and administrative expense budget is divided into variable and fixed components.
- The **variable** selling and administrative expenses are \$0.50 per unit sold.
- **Fixed** selling and administrative expenses are \$70,000 per month.
- The fixed selling and administrative expenses include \$10,000 in costs – primarily depreciation – that are not cash outflows of the current month.

**Let's prepare the company's selling and administrative expense budget.**



# Selling and Administrative Expense Budget - Computations

	<b>April</b>	<b>May</b>	<b>June</b>	<b>Quarter</b>
Budgeted sales	20,000	50,000	30,000	100,000
Variable S&A rate	<u>0.50</u>	<u>0.50</u>	<u>0.50</u>	<u>0.50</u>
Variable expenses	\$ 10,000	\$ 25,000	\$ 15,000	\$ 50,000
Fixed S&A expenses	<u>70,000</u>	<u>70,000</u>	<u>70,000</u>	<u>210,000</u>
Total S&A expenses	80,000	95,000	85,000	260,000
Less: noncash expenses	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>30,000</u>
Cash S&A expenses	<u>\$ 70,000</u>	<u>\$ 85,000</u>	<u>\$ 75,000</u>	<u>\$ 230,000</u>

Calculate the selling and administrative cash expenses for the quarter.

# Concept Check 6

What are the total cash disbursements for selling and administrative expenses for the quarter?

- a. \$180,000
- b. \$230,000
- c. \$110,000
- d. \$70,000

# Concept Check 6a

What are the total cash disbursements for selling and administrative expenses for the quarter?

a. \$180,000

**b. \$230,000**

c. \$110,000

d. \$70,000

*See the spreadsheet on the next slide.*

# Administrative Expense Budget

	April	May	June	Quarter
Budgeted sales	20,000	50,000	30,000	100,000
Variable S&A rate	<u>0.50</u>	<u>0.50</u>	<u>0.50</u>	<u>0.50</u>
Variable expenses	\$ 10,000	\$ 25,000	\$ 15,000	\$ 50,000
Fixed S&A expenses	<u>70,000</u>	<u>70,000</u>	<u>70,000</u>	<u>210,000</u>
Total S&A expenses	80,000	95,000	85,000	260,000
Less: noncash expenses	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>30,000</u>
Cash S&A expenses	<u>\$ 70,000</u>	<u>\$ 85,000</u>	<u>\$ 75,000</u>	<u>\$ 230,000</u>

# Exercises

Northeast Products is a wholesale distributor of swim accessories. Peak sales occur in May of each year as shown in the company's sales budget for the second quarter, given below:

	April	May	June	Total
Budgeted sales (all on account)	\$780,000	\$1,010,000	\$850,000	\$2,640,000

From past experience, the company has learned that 25% of a month's sales are collected in the month of sale, another 60% are collected in the month following sale, and the remaining 15% are collected in the second month following sale. Bad debts are negligible and can be ignored. February sales totaled \$660,000, and March sales totaled \$725,000.

**Required:**

1. Prepare a schedule of expected cash collections from sales, by month and in total, for the second quarter.
2. Assume that the company will prepare a budgeted balance sheet as of June 30. Compute the accounts receivable as of that date.

**Requirement 1:** Prepare a schedule of expected cash collections from sales, by month and in total, for the second quarter.

	April	May	June	Total
February sales:				\$
$\$660,000 \times 15\%$	\$ 99,000			99,000
March sales:				
$\$725,000 \times 60\%, 15\%$	435,000	\$ 108,750		543,750
April sales:				
$\$780,000 \times 25\%, 60\%, 15\%$	195,000	468,000	\$ 117,000	780,000
May sales:				
$\$1,010,000 \times 25\%, 60\%$		252,500	606,000	858,500
June sales:				
$\$850,000 \times 25\%$			212,500	212,500
Total cash collections	<u>\$ 729,000</u>	<u>\$ 829,250</u>	<u>\$ 935,500</u>	<u>\$ 2,493,750</u>

**Requirement 2:** Assume that the company will prepare a budgeted balance sheet as of June 30. Compute the accounts receivable as of that date.

From May sales: $\$1,010,000 \times 15\%$	\$ 151,500
From June sales: $\$850,000 \times (60\% + 15\%)$	<u>637,500</u>
Total accounts receivable	<u>\$ 789,000</u>

Diamond Telecom has budgeted the sales of its innovative smartphone over the next four months as follows:

	Sales in Units
January	45,000
February	70,000
March	90,000
April	75,000

The company is now in the process of preparing a production budget for the first quarter. Past experience has shown that end-of-month finished goods inventories must equal 15% of the next month's sales. The inventory at the end of December was 4,500 units.

***Required:***

Prepare a production budget for the first quarter showing the number of units to be produced each month and for the quarter in total.



**Required:** Prepare a production budget for the first quarter showing the number of units to be produced each month and for the quarter in total.

	January	February	March	Quarter
Budgeted sales in units	45,000	70,000	90,000	205,000
Add desired ending inventory	<u>10,500</u>	<u>13,500</u>	<u>11,250</u>	<u>11,250</u>
Total needs	55,500	83,500	101,250	216,250
Less beginning inventory	<u>4,500</u>	<u>10,500</u>	<u>13,500</u>	<u>4,500</u>
Required production	<u>51,000</u>	<u>73,000</u>	<u>87,750</u>	<u>211,750</u>

Mini Products, Inc., has developed a small digital clock. Each clock requires five small batteries that cost \$6 each and are purchased from an overseas supplier. Mini Products has prepared a production budget for the clock by quarters for Year 3 and for the first quarter of Year 4, as shown below:

	Year 3				Year 4
	First	Second	Third	Fourth	First
Required production of clocks	40,000	45,000	55,000	60,000	44,000

The battery used in production of the clock is sometimes hard to get, so it is necessary to carry large inventories as a precaution against stockouts. For this reason, the inventory of batteries at the end of a quarter must equal 25% of the following quarter's production needs. A total of 50,000 batteries will be on hand to start the first quarter of Year 3.

**Required:**

Prepare a direct materials budget for batteries, by quarter and in total, for Year 3. At the bottom of your budget, show the dollar amount of purchases for each quarter and for the year in total.

**Required:** Prepare a direct materials budget for batteries, by quarter and in total, for Year 3. At the bottom of your budget, show the dollar amount of purchases for each quarter and for the year in total.

	Year 3				
	First	Second	Third	Fourth	Year
Required production - clocks	40,000	45,000	55,000	60,000	200,000
Batteries needed per clock	<u>× 5</u>	<u>× 5</u>	<u>× 5</u>	<u>× 5</u>	<u>× 5</u>
Production needs—batteries	200,000	225,000	275,000	300,000	1,000,000
Add desired ending inventory—batteries	<u>56,250</u>	<u>68,750</u>	<u>75,000</u>	<u>55,000</u>	<u>55,000</u>
Total needs—batteries	256,250	293,750	350,000	355,000	1,055,000
Less beginning inventory—batteries	<u>50,000</u>	<u>56,250</u>	<u>68,750</u>	<u>75,000</u>	<u>50,000</u>
Required purchases—batteries	206,250	237,500	281,250	280,000	1,005,000
Cost per battery	<u>× \$6</u>	<u>× \$6</u>	<u>× \$6</u>	<u>× \$6</u>	<u>× \$6</u>
Cost of purchases	<u>\$1,237,500</u>	<u>\$1,425,000</u>	<u>\$1,687,500</u>	<u>\$1,680,000</u>	<u>\$6,030,000</u>