

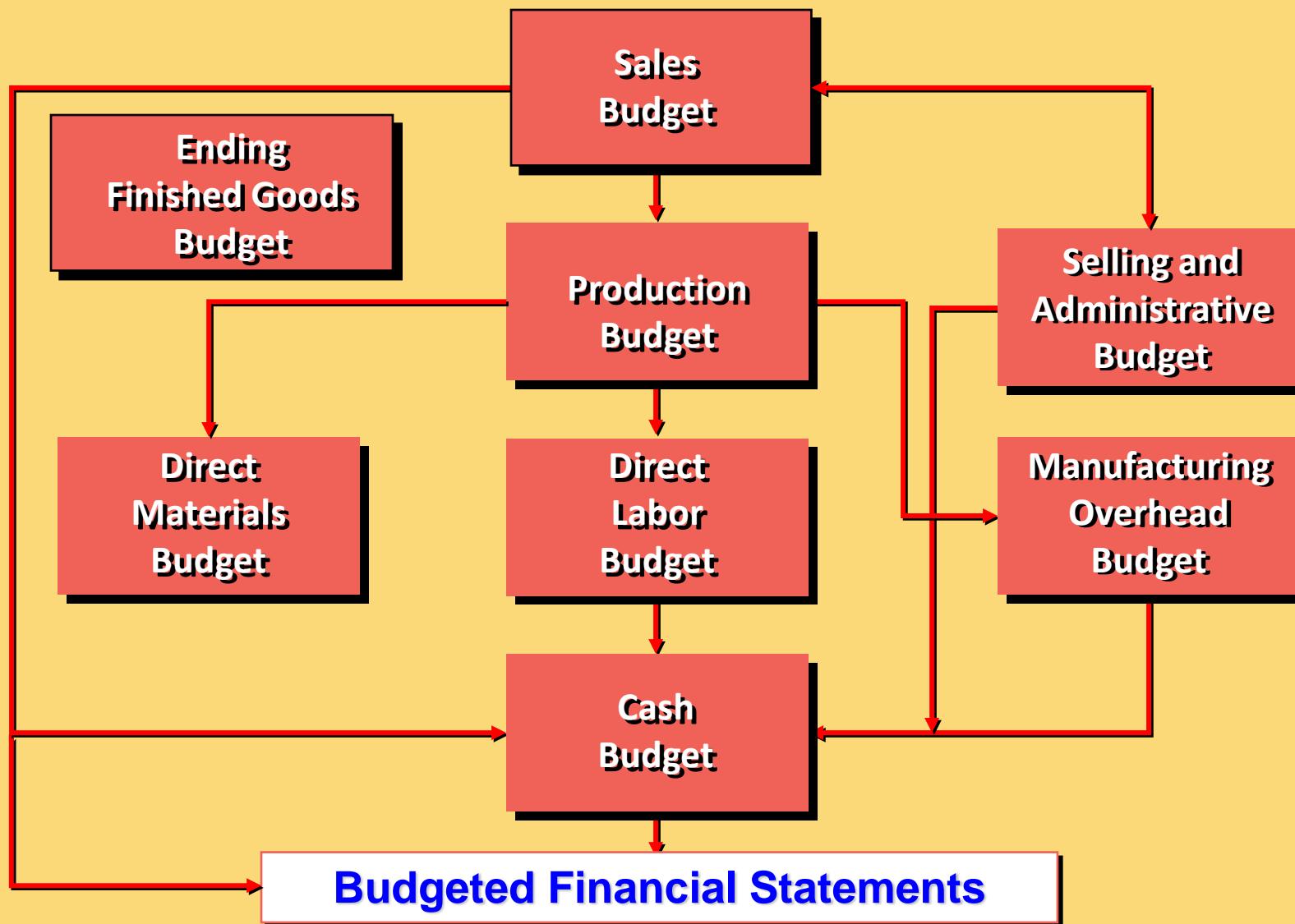
# **Profit Planning**

## **(Master Budgeting)**

---



# The Master Budget: An Overview



# Learning Objective 2

Prepare a sales budget,  
including a schedule of  
expected cash collections.

# Budgeting Example

- ① Royal Company is preparing budgets for the quarter ending June 30.
- ② Budgeted sales for the next five months are:

<input type="checkbox"/> April	20,000 units
<input type="checkbox"/> May	50,000 units
<input type="checkbox"/> June	30,000 units
<input type="checkbox"/> July	25,000 units
<input type="checkbox"/> August	15,000 units.
- ③ The selling price is \$10 per unit.

# The Sales Budget

The individual months of April, May, and June are summed to obtain the total projected sales in units and dollars for the quarter ended June 30<sup>th</sup>

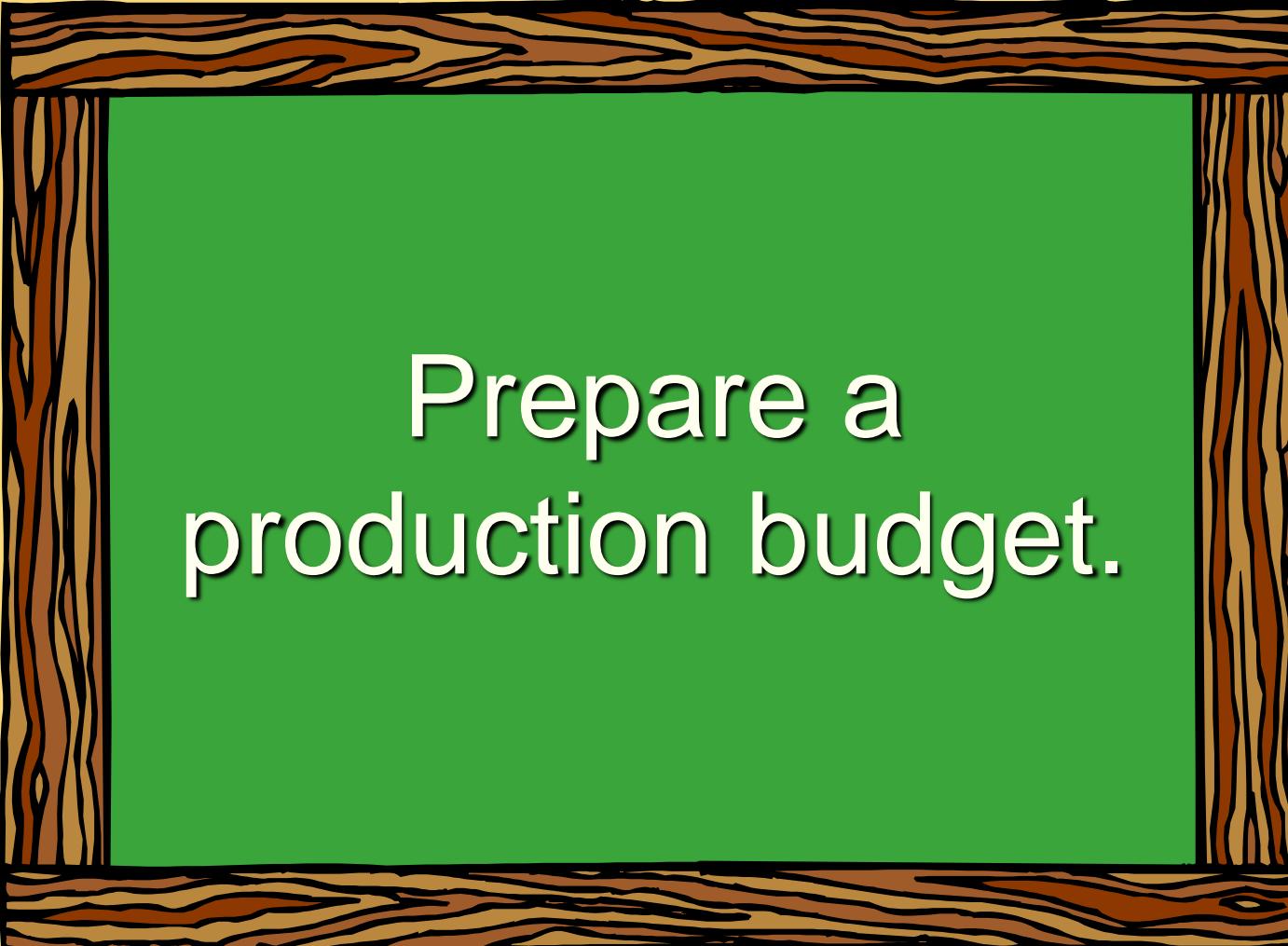
# Expected Cash Collections

- All sales are on account.
- Royal's collection pattern is:
  - 70% collected in the month of sale,
  - 25% collected in the month following sale,
  - 5% uncollectible.
- The March 31 accounts receivable balance of \$30,000 will be collected in full.

# Expected Cash Collections

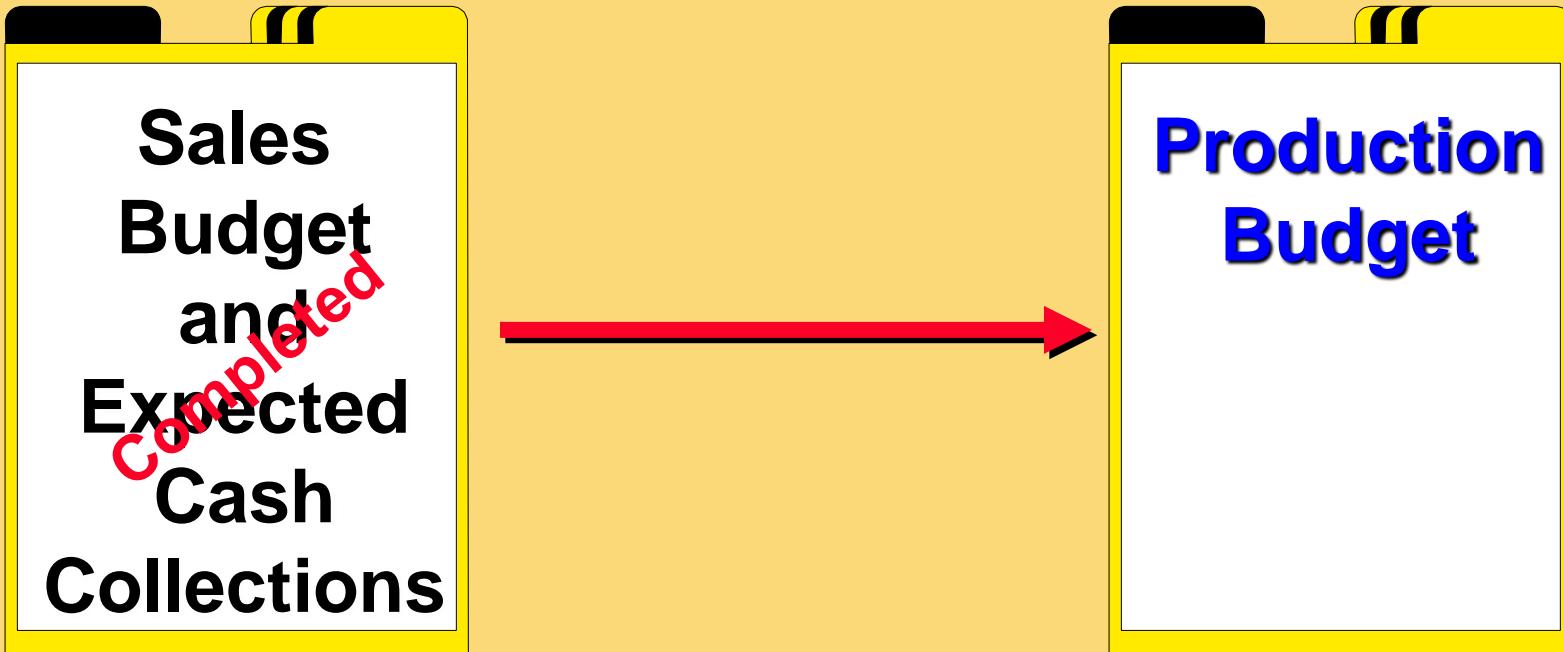
		April	May	June	Quarter
1					
8	Accounts receivable 3/31	\$ 30,000			\$ 30,000
9	April Sales				
10	70% x \$200,000	140,000			140,000
11	25% x \$200,000		50,000		50,000
12	May Sales				
13	70% x \$500,000		350,000		350,000
14	25% x \$500,000			125,000	125,000
15	Jun Sales				
16	70% x \$300,000			210,000	210,000
17	Total cash collections	\$ 170,000	\$ 400,000	\$ 335,000	\$ 905,000
18					
19					

# Learning Objective 3



Prepare a  
production budget.

# The Production Budget



Production must be adequate to meet budgeted sales and provide for sufficient ending inventory.

# The Production Budget

- The management at Royal Company wants ending inventory to be equal to 20% of the following month's budgeted sales in units.
- On March 31, 4,000 units were on hand.

□ Let's prepare the production budget.

# The Production Budget

# The Production Budget

	A	B	C	D	E	F	G	H	I	J
1										
21										
22	<b>Budgeted Sales</b>		20,000		50,000		30,000		100,000	
23	<b>Add: Desired ending inventory</b>		10,000							
24	<b>Total Needs</b>		30,000							
25	<b>Less: Beginning inventory</b>		4,000							
26	<b>Required production</b>		26,000							
27										

March 31  
ending inventory

Budgeted May sales	50,000
Desired ending inventory %	20%
Desired ending inventory	<u>10,000</u>

# The Production Budget

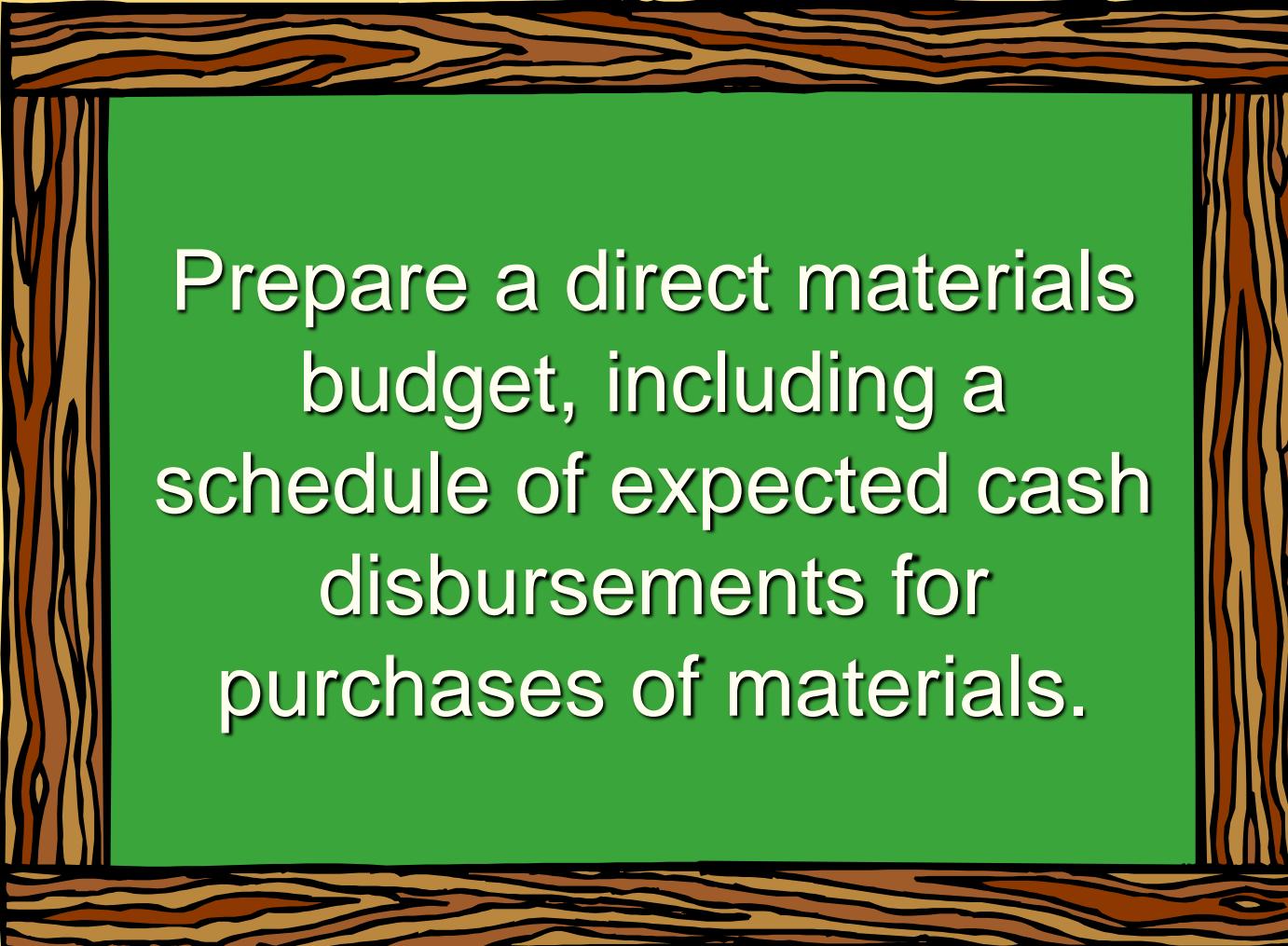
# The Production Budget

A screenshot of a Microsoft Excel spreadsheet titled "The Production Budget". The menu bar includes File, Edit, View, Insert, Format, Tools, Data, Window, Help, and Adobe PDF. The toolbar includes icons for opening, saving, and printing. The formula bar shows "N40" and a formula input field. The spreadsheet has columns labeled A through J and rows numbered 1 through 27. The data starts at row 22:

		April	May	June	Quarter
22	Budgeted Sales	20,000	50,000	30,000	100,000
23	Add: Desired ending inventory	10,000	6,000	5,000	5,000
24	Total Needs	30,000	56,000	35,000	105,000
25	Less: Beginning inventory	4,000	10,000	6,000	4,000
26	Required production	<u>26,000</u>	<u>46,000</u>	<u>29,000</u>	<u>101,000</u>
27					

Assumed ending inventory.

# Learning Objective 4



Prepare a direct materials budget, including a schedule of expected cash disbursements for purchases of materials.

# The Direct Materials Budget

- At Royal Company, *five pounds* of material are required per unit of product.
- Management wants materials on hand at the end of each month equal to *10%* of the following month's production.
- On March 31, 13,000 pounds of material are on hand. Material cost is \$0.40 per pound.

Let's prepare the direct materials budget.

# The Direct Materials Budget

# The Direct Materials Budget

	A	B	C	D	E	F	G	H	I	J
1										
28				<b>April</b>	<b>May</b>	<b>June</b>				
29	<b>Production</b>		26,000		46,000		29,000		101,000	
30	<b>Materials per unit (pounds)</b>		5		5		5		5	
31	<b>Production needs</b>		130,000		230,000		145,000		505,000	
32	<b>Add: Desired ending inventory</b>		23,000							
33	<b>Total needed</b>		153,000							
34	<b>Less: Beginning inventory</b>		13,000							
35	<b>Materials to be purchased</b>		140,000							
36										

10% of following month's production needs.

Calculate the materials to be purchased in May.

# The Direct Materials Budget

	A	B	C	D	E	F	G	H	I	J
27										
28										
29	Production		April		May		June		Quarter	
30	Materials per unit (pounds)		26,000		46,000		29,000		101,000	
31	Production needs		5		5		5		5	
32	Add: Desired ending inventory		130,000		230,000		145,000		505,000	
33			23,000		14,500					
34	Total needed		153,000		244,500					
35	Less: Beginning inventory		13,000		23,000					
36	Materials to be purchased		140,000		221,500					

# The Direct Materials Budget

	A	B	C	D	E	F	G	H	I	J
1	M51	f <sub>x</sub>								
28	Production		April		May		June		Quarter	
29	Materials per unit (pounds)	5	26,000		46,000		29,000		101,000	
30	Production needs		130,000		230,000		145,000		505,000	
31	Add: Desired ending inventory		23,000		14,500		11,500		11,500	
32	Total needed		153,000		244,500		156,500		516,500	
33	Less: Beginning inventory		13,000		23,000		14,500		13,000	
34	Materials to be purchased		140,000		221,500		142,000		503,500	
35										
36										

Assumed ending inventory

## Expected Cash Disbursement for Materials

- Royal pays \$0.40 per pound for its materials.
- One-half of a month's purchases is paid for in the month of purchase; the other half is paid in the following month.
- The March 31 accounts payable balance is \$12,000.



Let's calculate expected cash disbursements.

## Expected Cash Disbursement for Materials

# Expected Cash Disbursement for Materials

	A	B	C	D	E	F	G	H	I	J
1										
28										
37	Accounts payable 3/31		April		May		June		Quarter	
38	April purchases		\$ 12,000						\$ 12,000	
39	50% x \$56,000			28,000					28,000	
40	50% x \$56,000				28,000				28,000	
41	Total cash disbursements									
42										
43										
44										
45										
46										
47										

$$140,000 \text{ lbs.} \times \$0.40/\text{lb.} = \$56,000$$

Compute the expected cash disbursements for materials for the quarter.

# Expected Cash Disbursement for Materials

Screenshot of a Microsoft Excel spreadsheet showing the calculation of expected cash disbursements for materials.

The spreadsheet includes a menu bar with File, Edit, View, Insert, Format, Tools, Data, Window, Help, and Adobe PDF. The toolbar below features various icons for file operations like Open, Save, Print, and Insert.

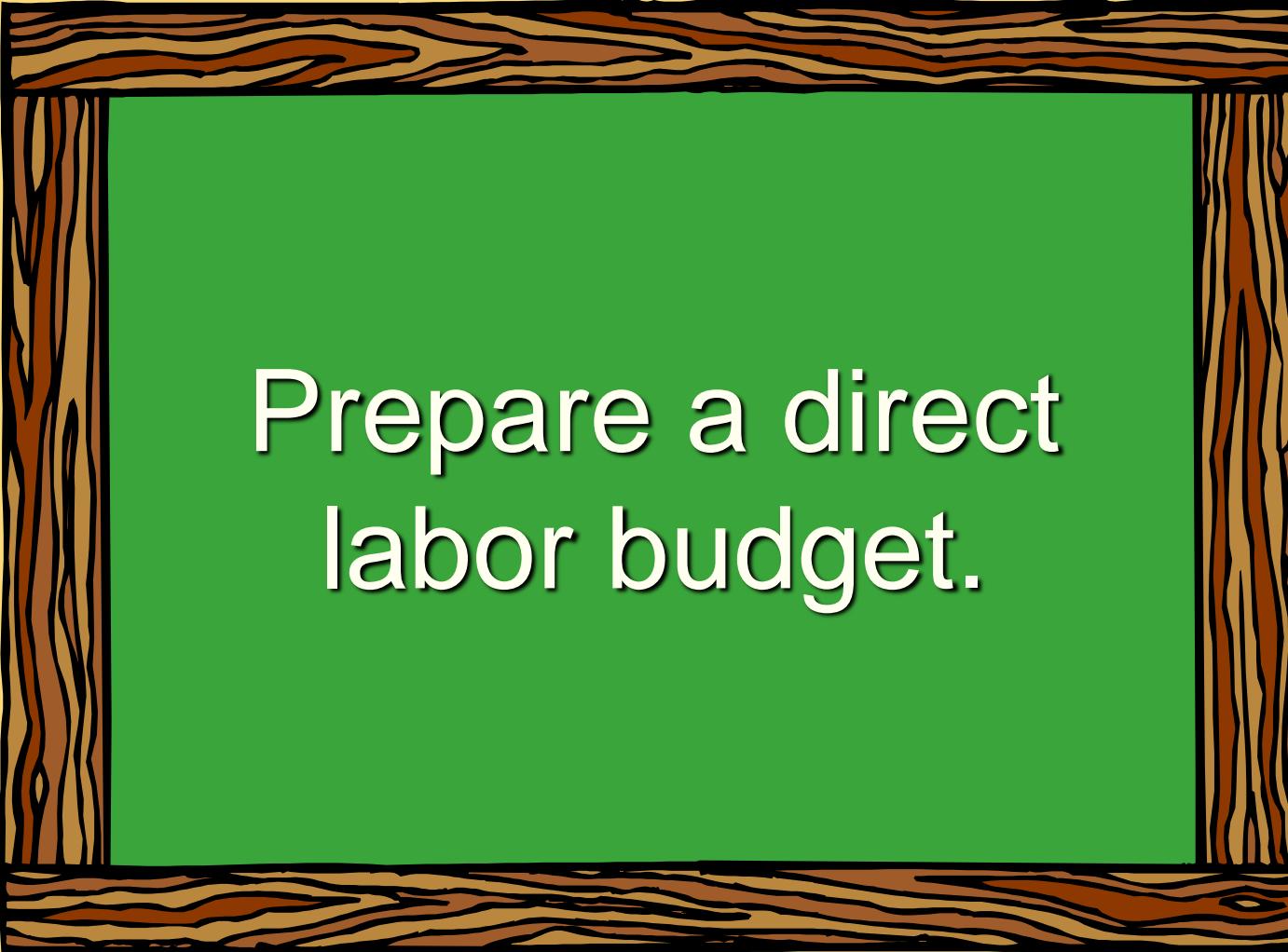
The table displays data across columns A through J and rows 1 through 46. The columns represent time periods: April, May, June, and Quarter. The rows list categories such as Accounts payable 3/31, April purchases, and June purchases, along with their corresponding calculations and totals.

**Calculation Summary:**

	A	B	C	D	E	F	G	H	I	J
Accounts payable 3/31			\$ 12,000					\$ 12,000		
April purchases										
$50\% \times \$56,000$			28,000					28,000		
$50\% \times \$56,000$				28,000				28,000		
May purchases										
$50\% \times \$88,600$				44,300				44,300		
$50\% \times \$88,600$					44,300			44,300		
June purchases										
$50\% \times \$56,800$					28,400			28,400		
<b>Total cash disbursements</b>			<b>\$ 40,000</b>	<b>\$ 72,300</b>	<b>\$ 72,700</b>			<b>\$ 185,000</b>		

The total cash disbursements for the quarter are highlighted in red at \$185,000.

# 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 Company has a “no layoff” policy so all employees will be paid for 40 hours of work each week.
- In exchange for the “no layoff” policy, workers agree to a wage rate of \$10 per hour regardless of the hours worked (no overtime pay).
- For the next three months, the direct labor workforce will be paid for a minimum of 1,500 hours per month.
  - Let's prepare the direct labor budget.

# The Direct Labor Budget

	A	B	C	D	E	F	G	H	I	J
1	A		C	D	E	F	G	H	I	J
28			April	May	June					Quarter
48	<b>Units of production</b>		26,000	46,000	29,000					101,000
49	<b>Direct labor per unit</b>									
50	<b>Labor hours required</b>									
51										
52										
53										
54	<b>Total direct labor costs</b>									
55										

From production budget.

# The Direct Labor Budget

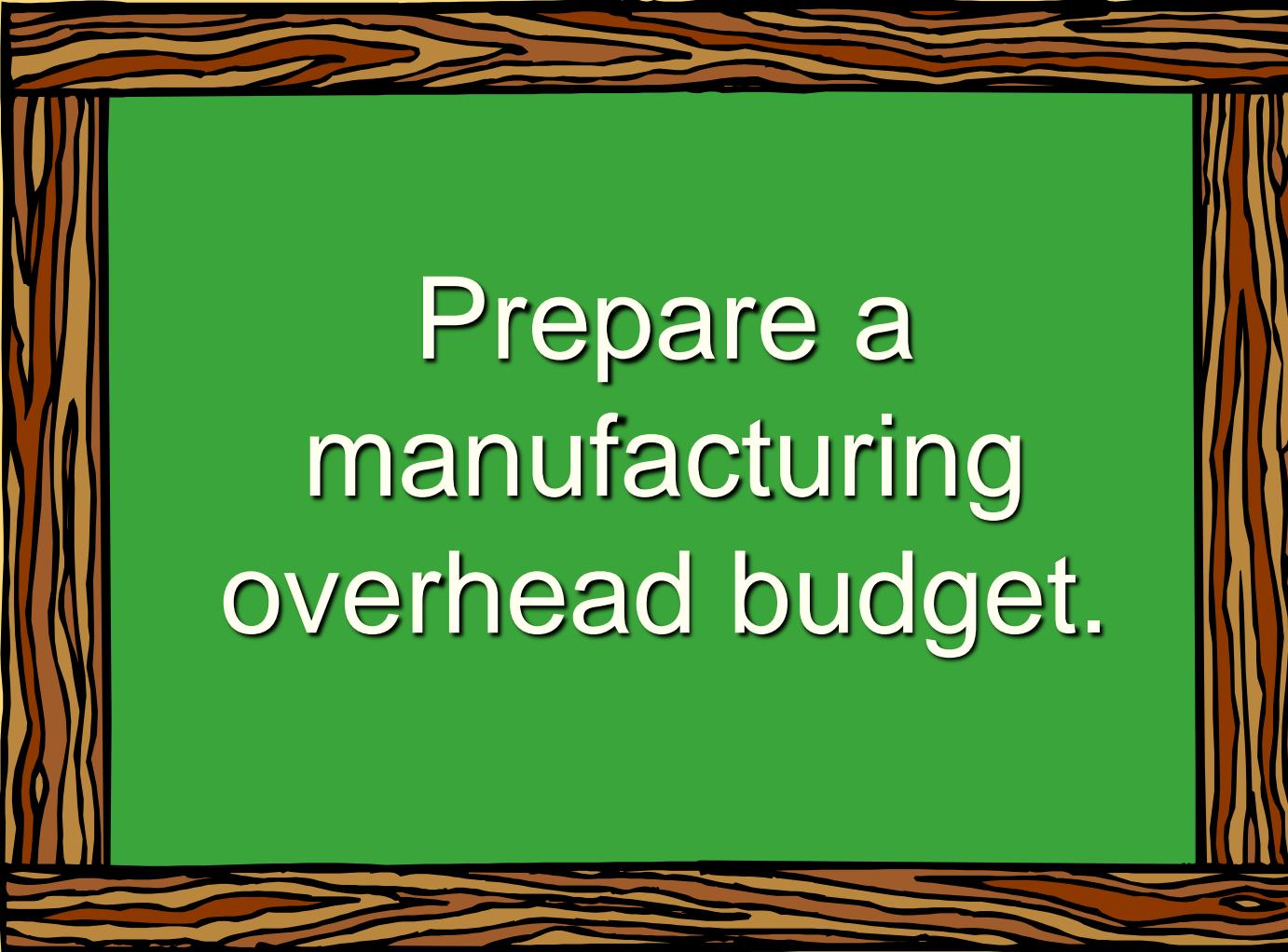
# The Direct Labor Budget

	A	B	C	D	E	F	G	H	I	J
1										
28					<b>April</b>	<b>May</b>	<b>June</b>			
48	<b>Units of production</b>		26,000		46,000		29,000		101,000	
49	<b>Direct labor per unit</b>		0.05		0.05		0.05		0.05	
50	<b>Labor hours required</b>		1,300		2,300		1,450		5,050	
51	<b>Guaranteed labor hours</b>		1,500		1,500		1,500			
52	<b>Labor hours paid</b>		1,500		2,300		1,500		5,300	
53										
54	<b>Total direct labor costs</b>									
55										

Greater of labor hours required  
or labor hours guaranteed.

# The Direct Labor Budget

# 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 and includes \$20,000 of noncash costs (primarily depreciation of plant assets).
- Let's prepare the manufacturing overhead budget.

# Manufacturing Overhead Budget

File Edit View Insert Format Tools Data Window Help Adobe PDF

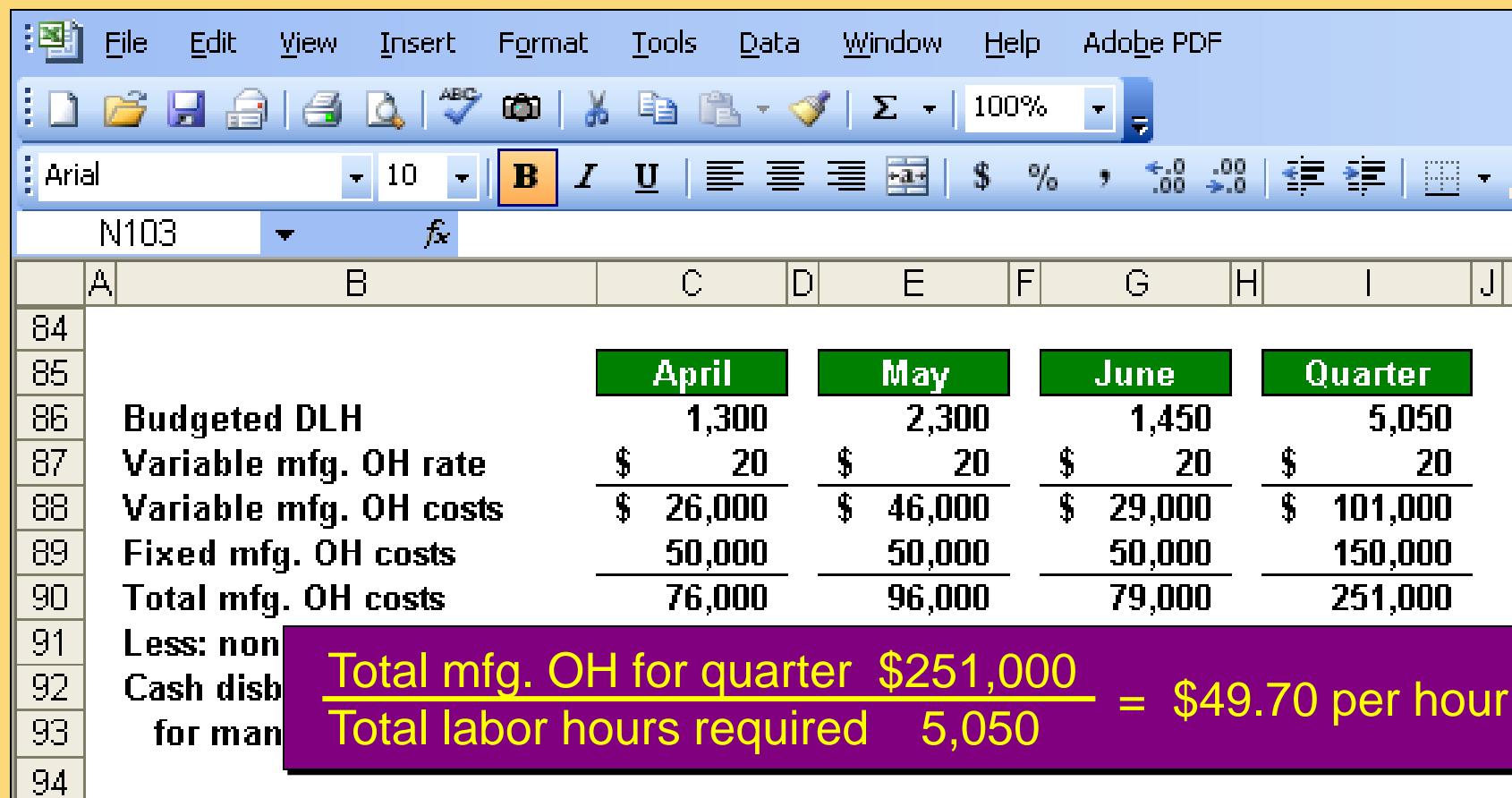
100% Arial 10 B I U

O108

	A	B	C	D	E	F	G	H	I	J
84										
85										
86	<b>Budgeted DLH</b>		<b>April</b>	<b>May</b>	<b>June</b>		<b>Quarter</b>			
87	Variable mfg. OH rate		\$ 20	1,300	2,300	1,450		\$ 20		
88	Variable mfg. OH costs			\$ 26,000	\$ 46,000	\$ 29,000		\$ 101,000		
89	Fixed mfg. OH costs									
90	Total mfg. OH costs									
91	Less: noncash costs									
92	Cash disbursements									
93	for manufacturing OH									
94										

Direct Labor Budget.

# Manufacturing Overhead Budget



The screenshot shows a Microsoft Excel spreadsheet titled "N103" in the title bar. The menu bar includes File, Edit, View, Insert, Format, Tools, Data, Window, Help, and Adobe PDF. The toolbar below has icons for file operations, search, and various tools. The font is set to Arial at 10pt, and the bold button is selected.

The spreadsheet contains the following data:

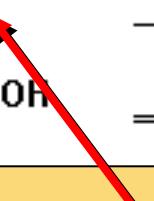
	A	B	C	D	E	F	G	H	I	J
84										
85					April	May	June	Quarter		
86	Budgeted DLH		1,300		2,300		1,450		5,050	
87	Variable mfg. OH rate	\$ 20		\$ 20		\$ 20		\$ 20		
88	Variable mfg. OH costs	\$ 26,000		\$ 46,000		\$ 29,000		\$ 101,000		
89	Fixed mfg. OH costs	<u>\$ 50,000</u>		<u>\$ 50,000</u>		<u>\$ 50,000</u>		<u>\$ 150,000</u>		
90	Total mfg. OH costs	76,000		96,000		79,000		251,000		
91	Less: non cash disb.									
92										
93										
94										

A callout box highlights the calculation for the manufacturing overhead rate per hour:

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

\* rounded

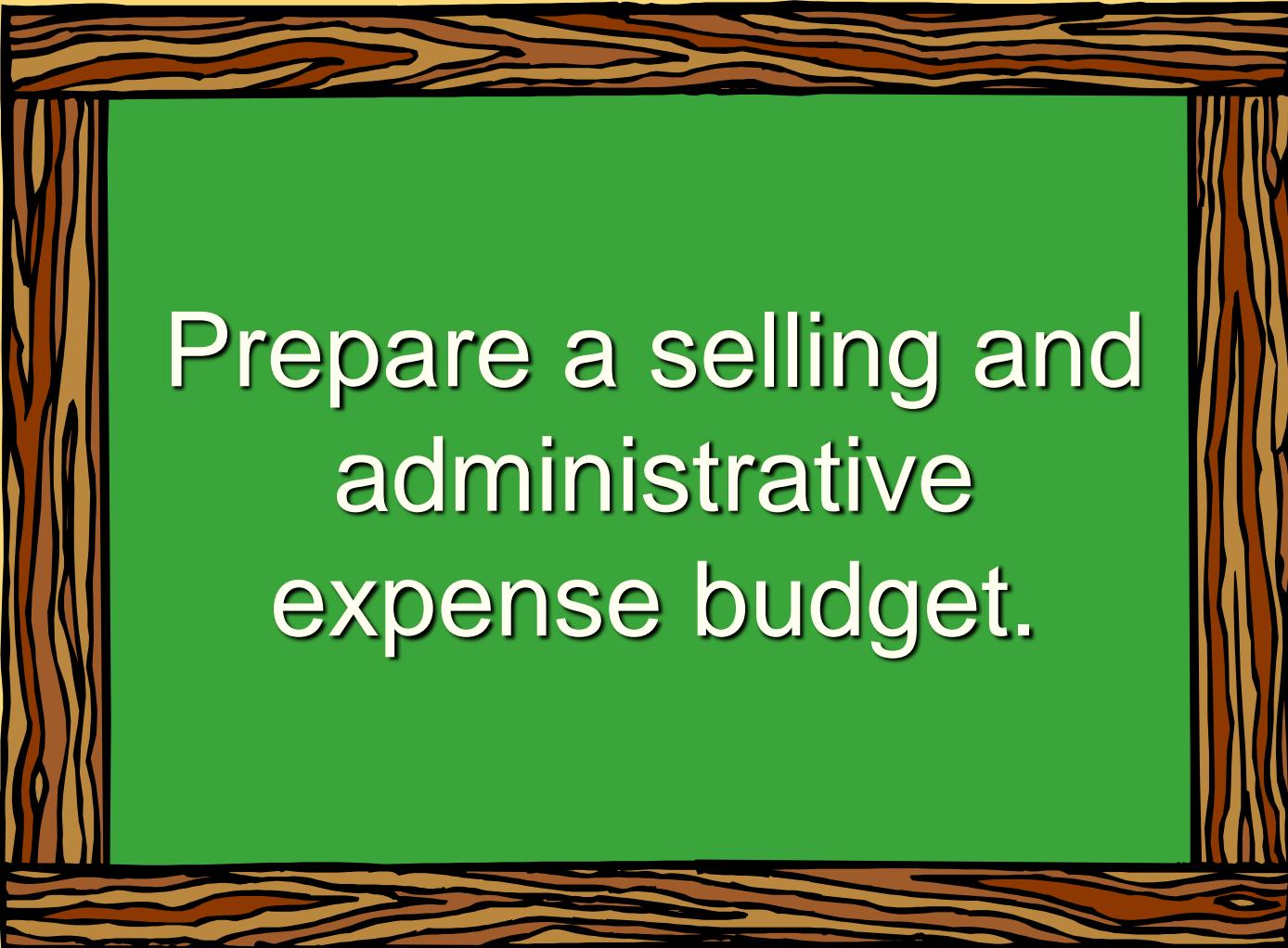
# Manufacturing Overhead Budget



	A	B	C	D	E	F	G	H	I	J
84										
85			April	May	June	Quarter				
86	Budgeted DLH		1,300	2,300	1,450	5,050				
87	Variable mfg. OH rate	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20				
88	Variable mfg. OH costs	\$ 26,000	\$ 46,000	\$ 29,000	\$ 101,000					
89	Fixed mfg. OH costs	50,000	50,000	50,000	150,000					
90	Total mfg. OH costs	76,000	96,000	79,000	251,000					
91	Less: noncash costs	20,000	20,000	20,000	60,000					
92	Cash disbursements for manufacturing OH	\$ 56,000	\$ 76,000	\$ 59,000	\$ 191,000					
93										
94										

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 expenses 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

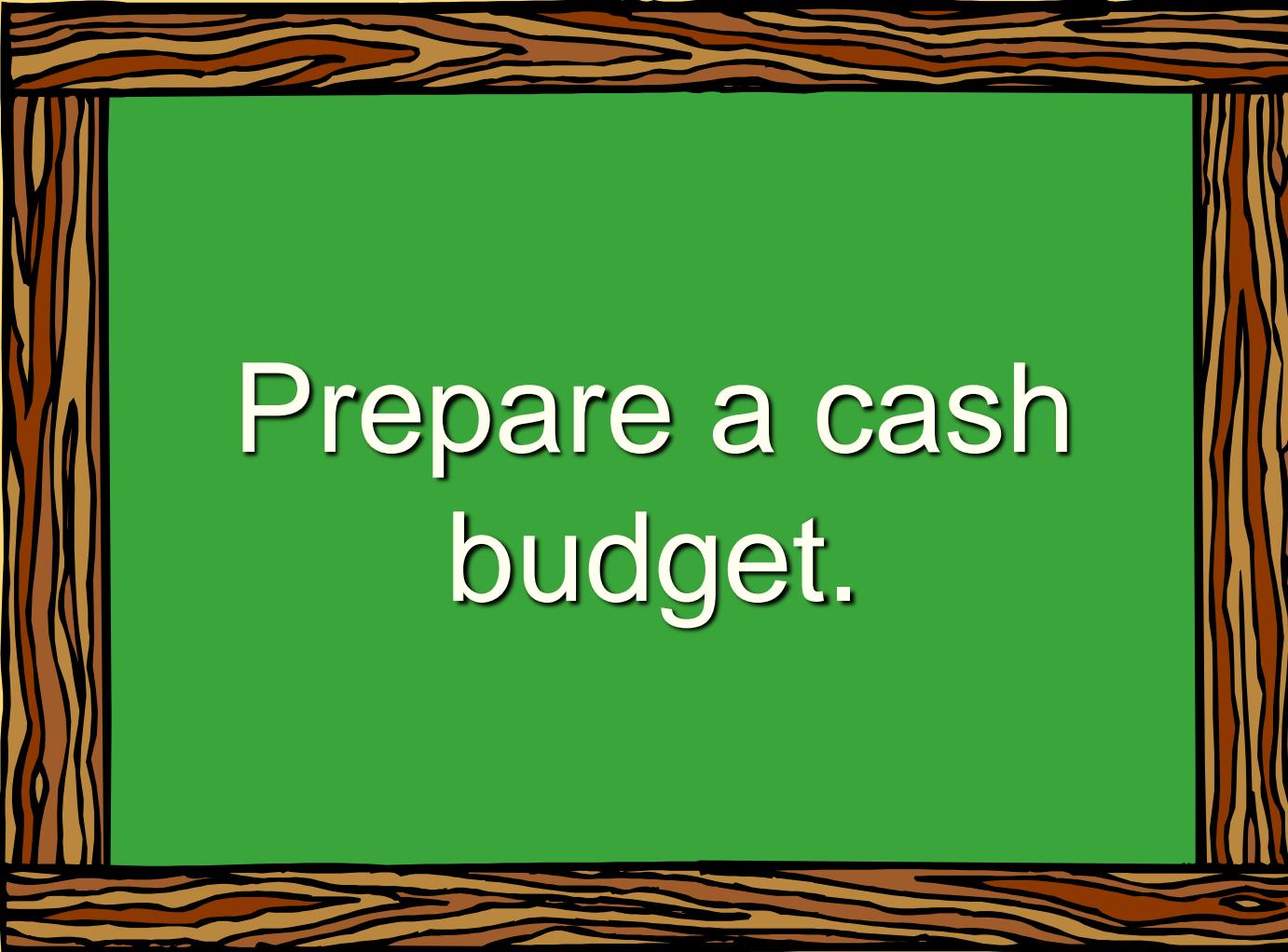
The screenshot shows a Microsoft Excel spreadsheet titled "Selling and Administrative Expense Budget". The menu bar includes File, Edit, View, Insert, Format, Tools, Data, Window, Help, and Adobe PDF. The ribbon shows icons for file operations, followed by a dropdown menu, and then a set of icons including a camera, a file folder, and a magnifying glass. The font is set to Arial, size 10, bold, and the cell A1 is selected.

	A	B	C	D	E	F	G	H	I	J
1										
28				April	May	June				
48	<b>Budgeted sales</b>			<b>20,000</b>						
57	<b>Variable S &amp; A rate</b>			<b>\$ 0.50</b>						
58	<b>Variable expenses</b>			<b>\$ 10,000</b>						
59	<b>Fixed S &amp; A expenses</b>			<b>70,000</b>						
60	<b>Total S &amp; A expenses</b>			<b>80,000</b>						
61	<b>Less: Noncash expenses</b>			<b>10,000</b>						
62	<b>Cash S &amp; A expenses</b>			<b>\$ 70,000</b>						?
63										

Calculate the selling and administrative cash expenses for the quarter.

# Selling and Administrative Expense Budget

# Learning Objective 8



Prepare a cash budget.

# Format of the Cash Budget

The cash budget is divided into four sections:

1. Cash receipts listing all cash inflows excluding borrowing;
2. Cash disbursements listing all payments excluding repayments of principal and interest;
3. Cash excess or deficiency; and
4. The financing section listing all borrowings, repayments and interest.

# The Cash Budget

Royal:

- Maintains a 16% open line of credit for \$75,000
- Maintains a minimum cash balance of \$30,000
- Borrows on the first day of the month and repays loans on the last day of the month
- Pays a cash dividend of \$49,000 in April
- Purchases \$143,700 of equipment in May and \$48,300 in June (both purchases paid in cash)
- Has an April 1 cash balance of \$40,000

# The Cash Budget

M90 Arial 10 B

	A	B	C	D	E	F	G	H	I	J
1										
63										
64	<b>Beginning cash balance</b>		\$ 40,000	<b>April</b>		<b>May</b>		<b>June</b>		<b>Quarter</b>
65	<b>Add: Cash collections</b>		170,000							
66	<b>Total cash available</b>		210,000							
67	<b>Less: Cash disbursements</b>									
68	Materials									
69	Direct labor									
70	Manufacturing overhead									
71	Selling and administrative									
72	Dividend									
73	<b>Total disbursements</b>									
74	<b>Excess (deficiency)</b>									
75	<b>Financing:</b>									
76	Borrowing									
77	Repayments									
78	Interest									
79	<b>Total financing</b>									
80	<b>Ending cash balance</b>									
81										

Schedule of Expected  
Cash Collections.

# The Cash Budget

M88      fx      Arial      10      B

	A	B	C	D	E	F	G	H	I	J
1										
63										
64	<b>Beginning cash balance</b>		\$ 40,000							
65	<b>Add: Cash collections</b>		170,000							
66	<b>Total cash available</b>		<u>210,000</u>							
67	<b>Less: Cash disbursements</b>									
68	Materials		40,000							
69	Direct labor		15,000							
70	Manufacturing overhead		56,000							
71	Selling and administrative		70,000							
72	Equipment purchase		-							
73	Dividend		49,000							
74	<b>Total disbursements</b>		<u>230,000</u>							
75	<b>Excess (deficiency)</b>									
76	<b>Financing:</b>									
77	Borrowing									
78	Repayments									
79	Interest									
80	<b>Total financing</b>									
81	<b>Ending cash balance</b>									
82										

Schedule of Expected  
Cash Disbursements.

Direct Labor  
Budget.

Manufacturing  
Overhead Budget.

Selling and Administrative  
Expense Budget.

# The Cash Budget

M88      fx

	A	B	C	D	E	F	G	H	I	J
			April	May	June					Quarter
63	Beginning cash balance		\$ 40,000							
64	Add: Cash collections		170,000							
65	Total cash available		<u>210,000</u>							
66	Less: Cash disbursements									
67	Materials		40,000							
68	Direct labor		15,000							
69	Manufacturing overhead		56,000							
70	Selling and administrative		70,000							
71	Equipment purchase		-							
72	Dividend		49,000							
73	Total disbursements		<u>230,000</u>							
74	Excess (deficiency)		(20,000)							
75	Financing:									
76	Borrowing									
77	Repayments									
78	Interest									
79	Total financing									
80	Ending cash balance									
81										
82										

Because Royal maintains a cash balance of \$30,000, the company must borrow \$50,000 on its line-of-credit.



# The Cash Budget

A screenshot of a Microsoft Excel spreadsheet titled "The Cash Budget". The spreadsheet has a blue header bar with various icons and a font size dropdown set to 10. The main area shows a cash budget for April, May, June, and a quarter. The columns are labeled A through J. Row 63 shows the beginning cash balance of \$40,000. Row 64 adds cash collections of 170,000, resulting in total cash available of 210,000. Row 67 subtracts cash disbursements of 230,000, leaving an excess deficiency of -20,000. This is financed by borrowing 50,000, resulting in an ending cash balance of \$30,000. A green callout box highlights the text "Ending cash balance for April is the beginning May balance.".

	A	B	C	D	E	F	G	H	I	J
1										
63			April		May		June			
64	Beginning cash balance		\$ 40,000							
65	Add: Cash collections		170,000							
66	Total cash available		210,000							
67	Less: Cash disbursements									
68	Materials		40,000							
69	Direct labor		15,000							
70	Manufacturing overhead		56,000							
71	Selling and administrative		70,000							
72	Equipment purchase		-							
73	Dividend		49,000							
74	Total disbursements		230,000							
75	Excess (deficiency)		(20,000)							
76	Financing:									
77	Borrowing		50,000							
78	Repayments		-							
79	Interest		-							
80	Total financing		50,000							
81	Ending cash balance		\$ 30,000							
82										

Ending cash balance for April  
is the beginning May balance.

# The Cash Budget

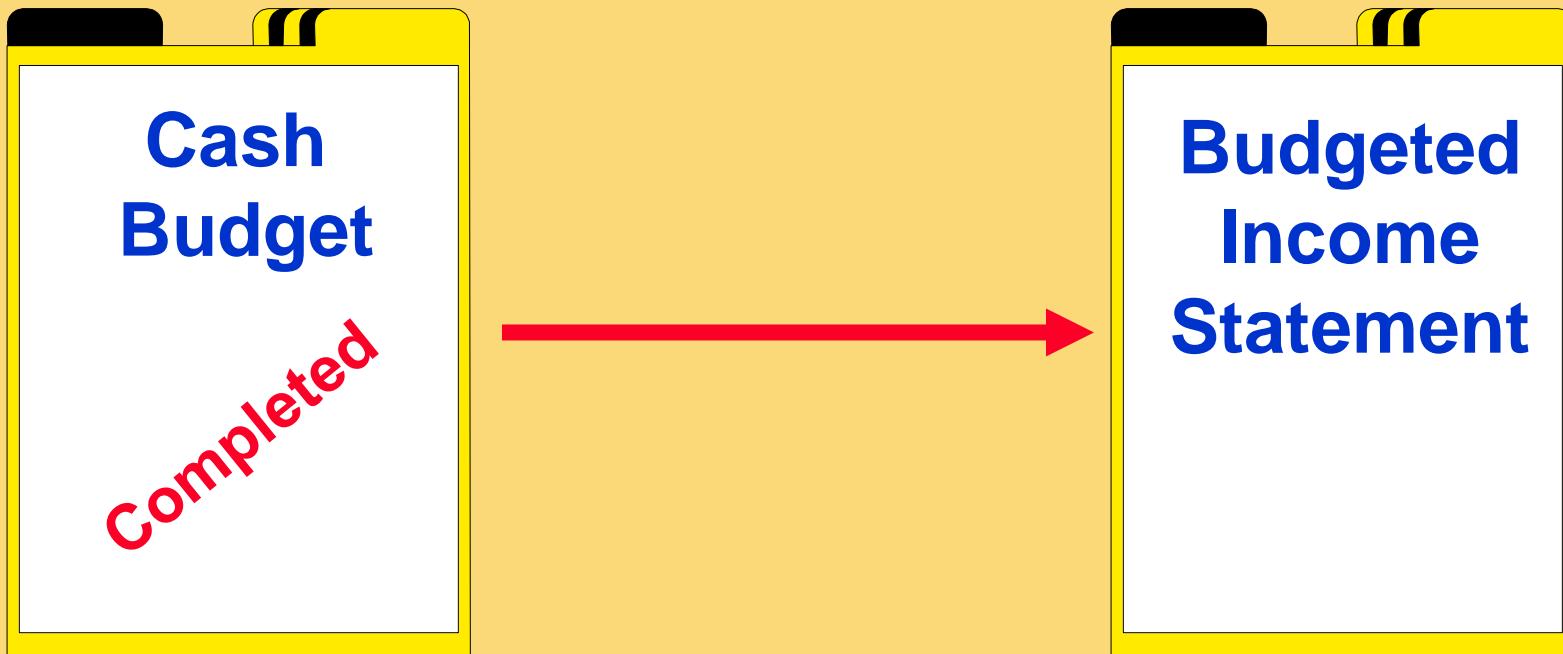
# The Cash Budget

**\$50,000 × 16% × 3/12 = \$2,000**

Borrowings on April 1 and repayment on June 30.

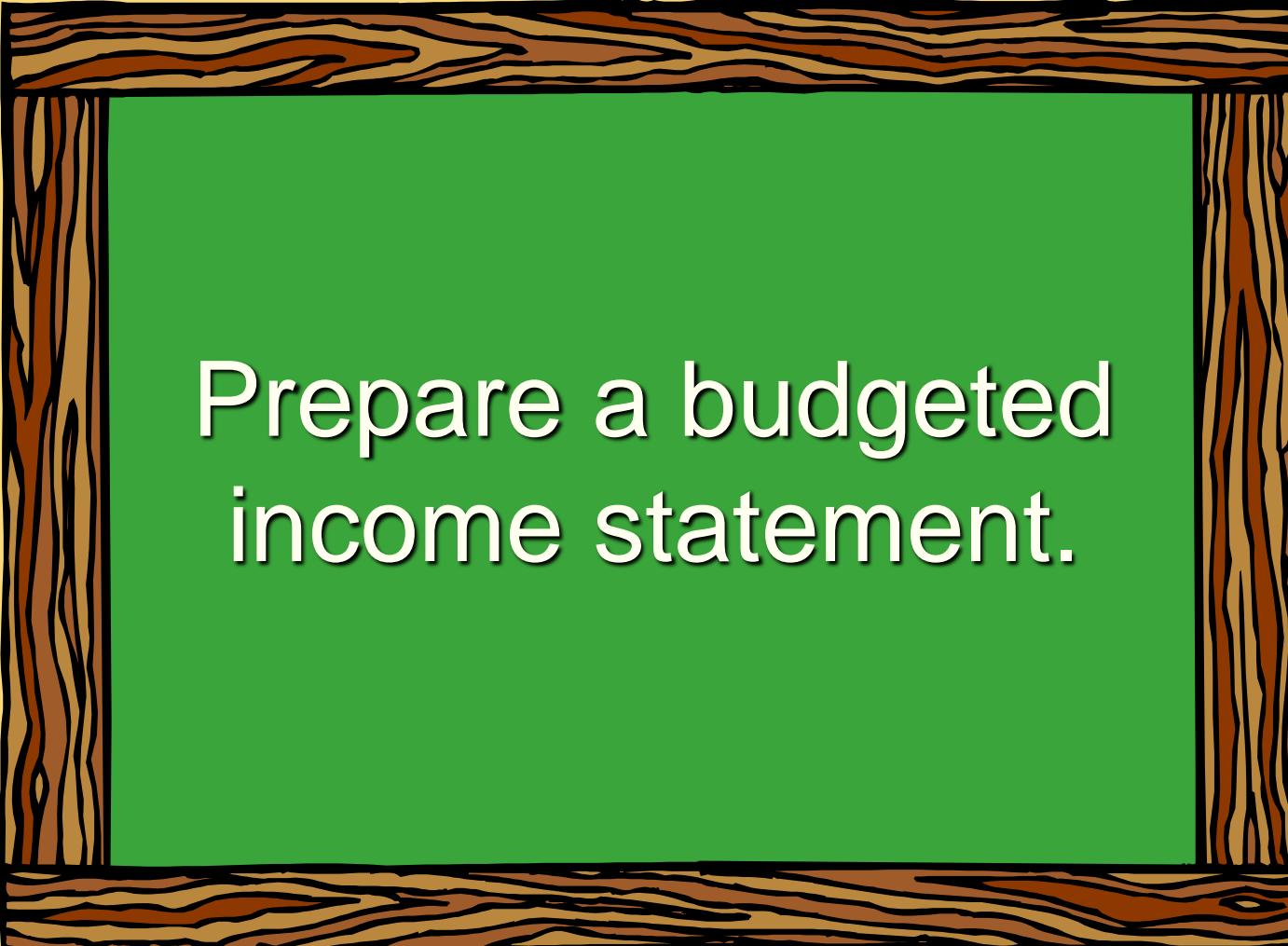
		April	May	June	Quarter
Beginning cash balance	\$ 40,000	\$ 30,000	\$ 30,000	\$ 40,000	
Add: Cash collections	170,000	400,000	335,000	905,000	
Total cash available	210,000	430,000	365,000	945,000	
Less: Cash disbursements					
Dividend	49,000	-	-	-	49,000
Total disbursements	230,000	400,000	270,000	900,000	
Excess (deficiency)	(20,000)	30,000	95,000	45,000	
Financing:					
Borrowing	50,000	-	-	-	50,000
Repayments	-	-	(50,000)	(50,000)	
Interest	-	-	(2,000)	(2,000)	
Total financing	50,000	-	(52,000)	(2,000)	
Ending cash balance	\$ 30,000	\$ 30,000	\$ 43,000	\$ 43,000	

# The Budgeted Income Statement



**After we complete the cash budget,  
we can prepare the budgeted income  
statement for Royal.**

# Learning Objective 9



Prepare a budgeted income statement.

# The Budgeted Income Statement

<b>Royal Company</b> <b>Budgeted Income Statement</b> <b>For the Three Months Ended June 30</b>	
Sales (100,000 units @ \$10)	\$ 1,000,000
Cost of goods sold (100,000 @ \$4.99)	499,000
Gross margin	501,000
Selling and administrative expenses	260,000
Operating income	241,000
Interest expense	2,000
Net income	\$ 239,000

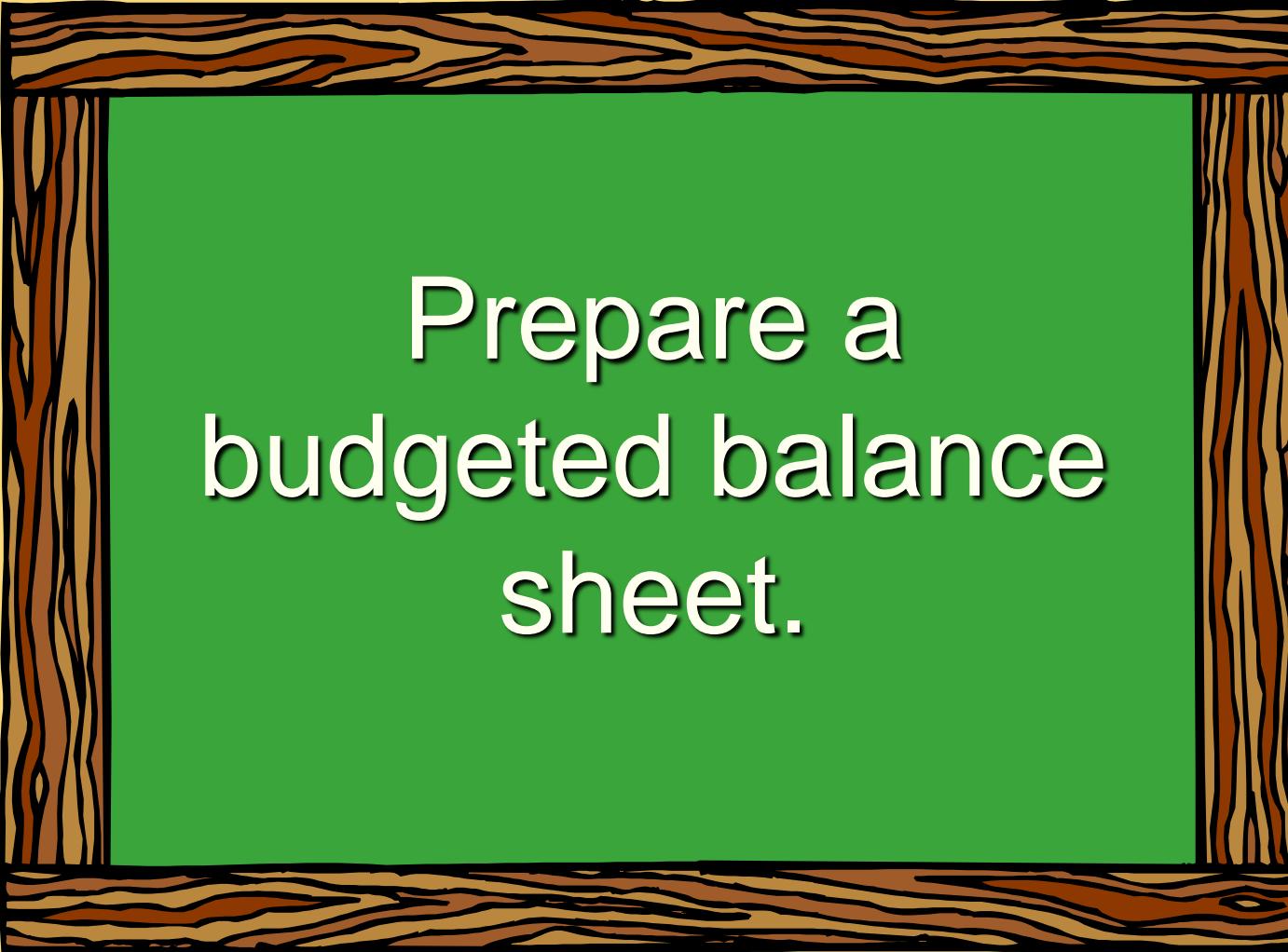
Sales Budget.

Ending Finished Goods Inventory.

Selling and Administrative Expense Budget.

Cash Budget.

# Learning Objective 10



Prepare a  
budgeted balance  
sheet.

# The Budgeted Balance Sheet

Royal reported the following account balances prior to preparing its budgeted financial statements:

- Land - \$50,000
- Common stock - \$200,000
- Retained earnings - \$146,150
- Equipment - \$175,000

**Royal Company**  
**Budgeted Balance Sheet**  
**June 30**

**Current assets****Cash**

\$ 43,000

**Accounts receivable**

75,000

**Raw materials inventory**

4,600

**Finished goods inventory**

24,950

---

147,550**Total current assets**

25% of June sales of \$300,000.

**Property and equipment****Land**

50,000

**Equipment**

---

367,000**Total property and equipment**

---

417,000

11,500 lbs. at \$0.40/lb.

**Total assets**

---

\$ 564,550

5,000 units at \$4.99 each.

**Accounts payable**

\$ 28,400

**Common stock**

200,000

**Retained earnings**

336,150

**Total liabilities and equities**

---

\$ 564,550

50% of June purchases of \$56,800.