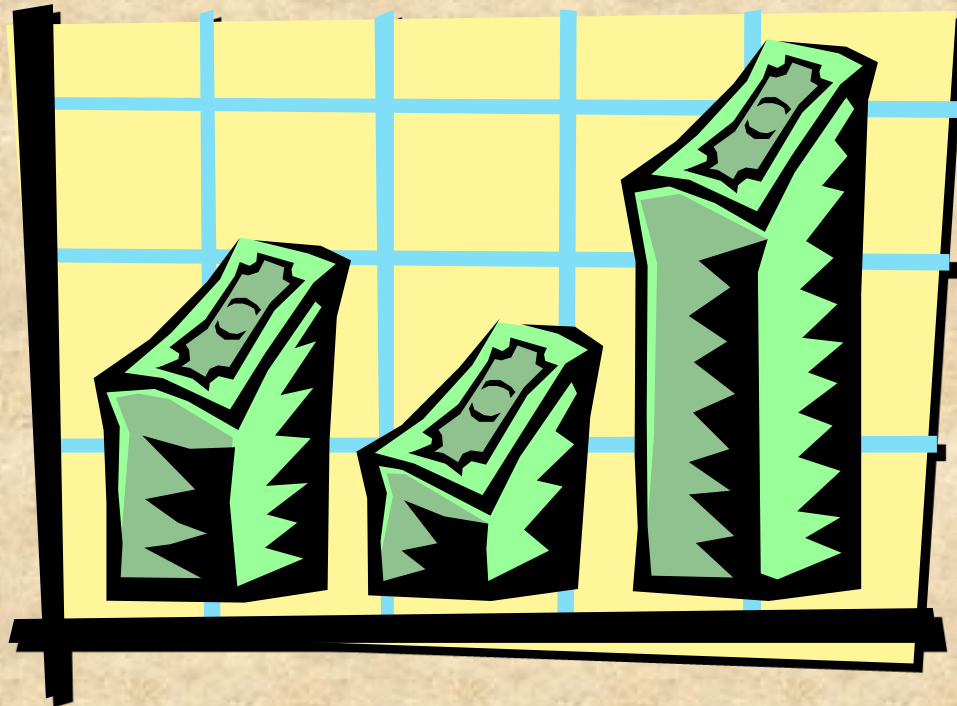


Illustrating the Master Budget

Schedule	Title of Schedule
1	Sales Budget
2	Production Budget
3	Direct-Materials Budget
4	Direct-Labor Budget
5	Manufacturing Overhead Budget
6	Selling, General, and Administrative Expense Budget (SG&A)
7	Cash Receipts Budget
8	Cash Disbursements Budget
9	Cash Budget
10	Budgeted Schedule of Cost of Goods Manufactured and Sold
11	Budgeted Income Statement
12	Budgeted Balance Sheet

The Sales Budget

Detailed schedule showing expected sales for the coming periods expressed in units and dollars.



Sales Budget of Collegiate Apparel

- Collegiate Apparel Company is preparing budgets for the year ending December 31, 20x1.
- Budgeted sales are:

First quarter	– 15,000 units
Second quarter	– 5,000 units
Third quarter	– 10,000 units
Fourth quarter	– 20,000 units
- The selling price is \$12 per unit.

Sales Budget of Collegiate Apparel

Microsoft Excel - SalesBudget.xls

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Schedule 1

Collegiate Apparel Company
Sales Budget
For the Year Ended December 31, 20x1

	Quarter				
	1st	2nd	3rd	4th	Year
Sales in units	15,000	5,000	10,000	20,000	50,000
Unit sales price	\$ 12	\$ 12	\$ 12	\$ 12	\$ 12
Total sales revenue	\$ 180,000	\$ 60,000	\$ 120,000	\$ 240,000	\$ 600,000

Sales Budget RB22 Sheet3

Ready NUM

Production Budget



Plan of resources needed to meet current sales demand and ensure inventory levels are sufficient for future sales.

Forecasting Production

Rearrange the basic inventory formula as follows . . .

$$\begin{array}{|c|} \hline \text{Units in} \\ \text{beginning} \\ \text{inventory} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Required} \\ \text{production} \\ \text{in units} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{Sales} \\ \text{in} \\ \text{Units} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Units in} \\ \text{ending} \\ \text{inventory} \\ \hline \end{array}$$

Now, solve for required production . . .

$$\begin{array}{|c|} \hline \text{Units} \\ \text{to be} \\ \text{Produced} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Sales} \\ \text{in} \\ \text{Units} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Units in} \\ \text{ending} \\ \text{inventory} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{Expected} \\ \text{beginning} \\ \text{inventory} \\ \hline \end{array}$$

The Production Budget

- Collegiate Apparel wants units in ending finished goods inventory to be 10% of the next quarter's expected sales in units.
- At the beginning of the year, 1,500 completed units were on hand.
- During the first quarter of 20x2, 15,000 units are expected to be sold.

Let's prepare the production budget.

The Production Budget

019

	A	B	C	D	E	F	G	H	I	J	K	L
1	Schedule 2											
2	Collegiate Apparel Company											
3	Production Budget											
4	For the Year Ended December 31, 20x1											
5			Quarter									
6			1st	2nd	3rd	4th	Year					
7	Sales in units (Schedule 1)		15,000	5,000	10,000	20,000	50,000					
8	Desired ending inventory		500	1,000	2,000	1,500	1,500					
9	Total units required		15,500	6,000	12,000	21,500	51,500					
10	Expected beginning inventory		1,500	500	1,000	2,000	1,500					
11	Units to be produced		14,000	5,500	11,000	19,500	50,000					
12												

$$5,000 \times 10\% = 500 \text{ units}$$

Direct-Materials Budget

Direct materials needed for the budget period can be determined as follows . . .

$$\begin{array}{|c|} \hline \text{Required} \\ \text{materials} \\ \text{purchases} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Materials} \\ \text{used in} \\ \text{production} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Ending} \\ \text{materials} \\ \text{inventory} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{Beginning} \\ \text{materials} \\ \text{inventory} \\ \hline \end{array}$$



Direct-Materials Budget

- At Collegiate Apparel 1.5 yards of fabric are required per unit of product.
- Management wants fabric on hand at the end of each quarter to be 10% of next quarter's raw materials required. On January 1st, 2,100 yards of fabric are on-hand. During the first quarter of 20x2, Collegiate expects 21,000 yards of fabric to be required.
- Each yard of fabric cost the company \$2.
 - Let's prepare the direct materials budget.

Direct-Materials Budget

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A B C D E F G H I J K L

1 **Schedule 3**

2 **Collegiate Apparel Company**

3 **Direct Materials Budget**

4 **For the Year Ended December 31, 20x1**

5 **Quarter**

	1st	2nd	3rd	4th	Year
Units to be produced (Schedule 2)	14,000	5,500	11,000	19,500	50,000
Fabric required per unit	1.5	1.5	1.5	1.5	1.5
Total units required	21,000	8,250	16,500	29,250	75,000
Expected ending inventory	825	1,650	2,925	2,100	2,100
Raw materials required	21,825	9,900	19,425	31,350	77,100
Expected beginning inventory	2,100	825	1,650	2,925	2,100
Raw materials to be purchased	19,725	9,075	17,775	28,425	75,000
Cost per yard of fabric	\$ 2	\$ 2	\$ 2	\$ 2	\$ 2
	<u>\$39,450</u>	<u>\$18,150</u>	<u>\$35,550</u>	<u>\$56,850</u>	<u>\$150,000</u>

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$$8,250 \times 10\% = 825 \text{ units}$$

Direct-Labor Budget

- At Collegiate Apparel, each unit produced requires 0.20 hour (12 minutes) of direct labor.
- Workers earn a wage rate of \$10 per hour regardless of the hours worked. Collegiate Apparel can hire workers as needed to meet production.

Let's prepare the direct labor budget.

Direct-Labor Budget

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G18 fx

A B C D E F G H I J K L

1 **Schedule 4**

2 **Collegiate Apparel Company**

3 **Direct Labor Budget**

4 **For the Year Ended December 31, 20x1**

5 **Quarter**

	1st	2nd	3rd	4th	Year
Units to be produced (Schedule 2)	14,000	5,500	11,000	19,500	50,000
Direct labor per unit (hours)	0.2	0.2	0.2	0.2	0.2
Direct labor hours required	2,800	1,100	2,200	3,900	10,000
Cost per direct-labor hour	\$ 10	\$ 10	\$ 10	\$ 10	\$ 10
Total direct-labor cost	\$28,000	\$11,000	\$22,000	\$39,000	\$100,000

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Manufacturing-Overhead Budget

Collegiate Apparel uses activity-based budgeting.

- At the unit-level, each unit produced requires \$0.25 of indirect materials and \$0.15 of electricity.
- At the batch-level, the company expects the following production runs:
 - 1st quarter – 28
 - 2nd quarter – 11
 - 3rd quarter – 22
 - 4th quarter – 39
- At the product-level, the company expects two new style designs each quarter with each new T-shirt design costing \$500.
- Details of the facilities-level overhead costs are shown on the manufacturing-overhead budget.

Manufacturing-Overhead Budget

Unit-, Batch-, and Product-level Portions of the Budget

		Quarter					Year
		1st	2nd	3rd	4th	Year	
Unit-level costs							
Units		14,000	5,500	11,000	19,500	50,000	
Indirect material (\$0.25 per unit)		\$ 3,500	\$ 1,375	\$ 2,750	\$ 4,875	\$ 12,500	
Electricity (\$0.15 per unit)		2,100	825	1,650	2,925	7,500	
Total unit-level costs		\$ 5,600	\$ 2,200	\$ 4,400	\$ 7,800	\$ 20,000	
Batch-level costs							
Production runs		28	11	22	39	100	
Setup (\$100 per run)		\$ 2,800	\$ 1,100	\$ 2,200	\$ 3,900	\$ 10,000	
Purchasing (\$120 per run)		3,360	1,320	2,640	4,680	12,000	
Inspection (\$80 per run)		2,240	880	1,760	3,120	8,000	
Total batch-level costs		\$ 8,400	\$ 3,300	\$ 6,600	\$ 11,700	\$ 30,000	
Product-level costs							
New Style designs		2	2	2	2	8	
Design (\$500 per design)		\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 4,000	
Total product-level costs		\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 4,000	

Manufacturing-Overhead Budget

Product-, Facilities-level and Total Overhead Budget

18	Product-level costs					
19	New Style designs	2	2	2	2	8
20	Design (\$500 per design)	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 4,000
21	Total product-level costs	<u>\$ 1,000</u>	<u>\$ 1,000</u>	<u>\$ 1,000</u>	<u>\$ 1,000</u>	<u>\$ 4,000</u>
22	Facilities-level costs	+				
23	Supervisory salaries	\$ 14,000	\$ 14,000	\$ 14,000	\$ 14,000	\$ 56,000
24	Insurance and property taxes	2,400	2,400	2,400	2,400	9,600
25	Maintenance	2,600	2,600	2,600	2,600	10,400
26	Utilities	2,500	2,500	2,500	2,500	10,000
27	Depreciation	15,000	15,000	15,000	15,000	60,000
28	Total facilities-level costs	<u>\$ 36,500</u>	<u>\$ 36,500</u>	<u>\$ 36,500</u>	<u>\$ 36,500</u>	<u>\$ 146,000</u>
29	Total overhead	<u>\$ 51,500</u>	<u>\$ 43,000</u>	<u>\$ 48,500</u>	<u>\$ 57,000</u>	<u>\$ 200,000</u>
30	Less: depreciation	15,000	15,000	15,000	15,000	60,000
31	Total cash disbursement for overhead	<u><u>\$ 36,500</u></u>	<u><u>\$ 28,000</u></u>	<u><u>\$ 33,500</u></u>	<u><u>\$ 42,000</u></u>	<u><u>\$ 140,000</u></u>

$$\$5,600 + \$8,400 + \$1,000 + \$36,500 = \$51,500$$

SG&A Expense Budget

- At Collegiate Apparel, sales commissions and freight-out are unit-level SG&A.
- Customer-level SG&A expenses include licensing fees for use of names and logos.
- Facilities-level SG&A expense include sales salaries, advertising, and clerical wages.

Let's prepare the SG&A Expense Budget.

SG&A Expense Budget

		Quarter				
		1st	2nd	3rd	4th	Year
1	Schedule 6					
2	Collegiate Apparel Company					
3	Selling, General, and Administrative Expense Budget					
4	For the Year Ended December 31, 20x1					
5						
6						
7	Unit-level expenses					
8	Sales commissions	\$ 9,000	\$ 3,000	\$ 6,000	\$ 12,000	\$ 30,000
9	Freight-out	6,000	2,000	4,000	8,000	20,000
10	Total unit-level expenses	\$ 15,000	\$ 5,000	\$ 10,000	\$ 20,000	\$ 50,000
11	Customer-level expenses					
12	Licensing fees	\$ 1,500	\$ 1,500	\$ 1,500	\$ 1,500	\$ 6,000
13	Total customer-level expenses	\$ 1,500	\$ 1,500	\$ 1,500	\$ 1,500	\$ 6,000
14	Facilities-level expenses					
15	Sales salaries	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 8,000
16	Advertising	250	250	250	250	1,000
17	Clerical wages	2,500	2,500	2,500	2,500	10,000
18	Total facilities-level expenses	\$ 4,750	\$ 4,750	\$ 4,750	\$ 4,750	\$ 19,000
19	Total SG&A expenses	\$ 21,250	\$ 11,250	\$ 16,250	26,250	\$ 75,000
20						

Cash Receipts Budget

- At Collegiate Apparel all sales are made on account.
- The company collects 80% of its billings in the quarter of the sale, 18% in the following quarter. The remaining two percent of each quarter's sales are expected to be uncollectible.
- Sales in the last quarter of 20x0 were \$240,000.

Let's prepare the Cash Receipts Budget.

Cash Receipts Budget

	A	B	C	D	E	F	G	H	I	J	K	L
1		Schedule 7										
2		Collegiate Apparel Company										
3		Cash Receipts Budget										
4		For the Year Ended December 31, 20x1										
5			Quarter									
6			<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>	<u>Year</u>					
7		Sales revenue (Schedule 1)	<u>\$ 180,000</u>	<u>\$ 60,000</u>	<u>\$ 120,000</u>	<u>\$ 240,000</u>	<u>\$ 600,000</u>					
8		Collections from sales this quarter	144,000	48,000	96,000	192,000	480,000					
9		Collections from sales last quarter	<u>43,200</u>	<u>32,400</u>	10,800	21,600	108,000					
10		Total cash collections this quarter	<u>\$ 187,200</u>	<u>\$ 80,400</u>	<u>\$ 106,800</u>	<u>\$ 213,600</u>	<u>\$ 588,000</u>					
11												
12		Uncollectible accounts	<u>\$ 3,600</u>	<u>\$ 1,200</u>	<u>\$ 2,400</u>	<u>\$ 4,800</u>	<u>\$ 12,000</u>					
13												

$$\$240,000 \times 18\% = \$43,200$$

$$\$180,000 \times 18\% = \$32,400$$

$$\$180,000 \times 2\% = \$3,600$$

Cash Payments for Direct-Materials

- At Collegiate Apparel all purchases of raw materials are made on account.
- The company pays for 60% of its purchases in the quarter of the purchase and the remaining 40% in the following quarter.
- Purchases in the last quarter of 20x0 were \$56,850.

Let's prepare the Cash Receipts Budget.

Cash Payments for Direct-Materials

	A	B	C	D	E	F	G	H	I	J	K	L		
1		<i>Schedule 8</i>												
2			Collegiate Apparel Company Cash Disbursement Budget For the Year Ended December 31, 20x1											
3														
4														
5			Quarter											
6			1st	2nd	3rd	4th	Year							
7			Cash payments for direct-material purchases											
8			Raw material purchases (Schedule 3)	\$ 39,450	\$ 18,150	\$ 35,550	\$ 56,850	\$ 150,000						
9			Collections from purchases this quarter	23,670	10,890	21,330	34,110	90,000						
10			Collections from purchases last quarter	22,740	15,780	7,260	14,220	60,000						
11			Total cash payments for materials	\$ 46,410	\$ 26,670	\$ 28,590	\$ 48,330	\$ 150,000						
12														

$$\$39,450 \times 40\% = \$15,780$$

$$\$18,150 \times 60\% = \$10,890$$

Other Cash Disbursements

Schedule 8

Collegiate Apparel Company
Cash Disbursement Budget
For the Year Ended December 31, 20x1

	Quarter				Year
	1st	2nd	3rd	4th	
Other Cash Disbursements					
Direct labor (Schedule 4)	\$ 28,000	\$ 11,000	\$ 22,000	\$ 39,000	\$ 100,000
Indirect material (Schedule 5)	3,500	1,375	2,750	4,875	12,500
Electricity (Schedule 5)	2,100	825	1,650	2,925	7,500
Setup (Schedule 5)	2,800	1,100	2,200	3,900	10,000
Purchasing (Schedule 5)	3,360	1,320	2,640	4,680	12,000
Inspection (Schedule 5)	2,240	880	1,760	3,120	8,000
Design (Schedule 5)	1,000	1,000	1,000	1,000	4,000
Supervisory salaries (Schedule 5)	14,000	14,000	14,000	14,000	56,000
Insurance (Schedule 5)	2,400	2,400	2,400	2,400	9,600
Maintenance (Schedule 5)	2,600	2,600	2,600	2,600	10,400
Utilities (Schedule 5)	2,500	2,500	2,500	2,500	10,000
Sales commissions (Schedule 6)	9,000	3,000	6,000	12,000	30,000
Freight-out (Schedule 6)	6,000	2,000	4,000	8,000	20,000
Licensing fees (Schedule 6)	1,500	1,500	1,500	1,500	6,000
Sales salaries (Schedule 6)	2,000	2,000	2,000	2,000	8,000
Advertising (Schedule 6)	250	250	250	250	1,000
Clerical wages (Schedule 6)	2,500	2,500	2,500	2,500	10,000
Total other cash disbursements	<u>\$ 85,750</u>	<u>\$ 50,250</u>	<u>\$ 71,750</u>	<u>\$ 107,250</u>	<u>\$ 315,000</u>
Total cash disbursements	<u><u>\$ 132,160</u></u>	<u><u>\$ 76,920</u></u>	<u><u>\$ 100,340</u></u>	<u><u>\$ 155,580</u></u>	<u><u>\$ 465,000</u></u>

Cash Budget

- Collegiate Apparel started the year with a cash balance of \$10,000, and borrows \$100,000 at the beginning of 20x1 to finance plant expansion.
- The loan is repaid in the amount of \$25,000 at the end of each quarter with interest on the unpaid balance at 10%.
- Payments for the plant expansion were:
 - 1st quarter = \$45,000
 - 2nd quarter = \$15,000
 - 3rd quarter = \$5,000
 - 4th quarter = \$35,000

Let's prepare the Cash Budget.

Cash Budget

	B	C	D	E	F	G	H	I	J	K	L	
1	Schedule 9											
2	Collegiate Apparel Company											
3	Cash Budget											
4	For the Year Ended December 31, 20x1											
5		Quarter										
6		1st	2nd	3rd	4th	Year						
7	Cash receipts (Schedule 7)	\$ 187,200	\$ 80,400	\$ 106,800	\$ 213,600	\$ 588,000						
8	Less: Cash disbursements (Schedule 8)	(132,160)	(76,920)	(100,340)	(155,580)	(465,000)						
9	Cash balance from operations	55,040	3,480	6,460	58,020	123,000						
10	Bank loan 1/2/1x1	100,000	-	-	-	100,000						
11	Plant additions	(45,000)	(15,000)	(5,000)	(35,000)	(100,000)						
12	Repay bank loan at end of quarter	(25,000)	(25,000)	(25,000)	(25,000)	(100,000)						
13	Interest on bank loan at 10%	(2,500)	(1,875)	(1,250)	(625)	(6,250)						
14	Change in cash balance	82,540	(38,395)	(24,790)	(2,605)	16,750						
15	Cash balance, beginning of quarter	10,000	92,540	54,145	29,355	10,000						
16	Cash balance, end of the quarter	\$ 92,540	\$ 54,145	\$ 29,355	\$ 26,750	\$ 26,750						
17												

$$\$100,000 \times 10\% \times \frac{1}{4} = \$2,500$$

Cost of Goods Manufactured and Sold Budget

	A	B	C	D	E	F
1		Schedule 10				
2		Collegiate Apparel Company				
3		Budgeted Schedule of Cost of Goods Manufactured and Sold				
4		For the Year Ended December 31, 20x1				
5		Direct Material (Schedule 3)				
6		Raw-material inventory, January 1	\$ 4,200			
7		Add: Purchases of raw materials	150,000			
8		Raw material available for use	<u>154,200</u>			
9		Deduct: Raw-material inventory, December 31	<u>4,200</u>			
10		Direct material used			\$ 150,000	
11		Direct labor (Schedule 4)			100,000	
12		Manufacturing overhead (Schedule 5)			<u>200,000</u>	
13		Total manufacturing cost			450,000	
14		Add: Work-in-process inventory, January 1			-	
15		Deduct: Work-in-process inventory, December 31			-	
16		Cost of goods manufactured			450,000	
17		Add: Finished-goods inventory, January 1			13,500	
18		Cost of goods available for sale			<u>463,500</u>	
19		Deduct: Finished-goods inventory, December 31			<u>13,500</u>	
20		Cost of goods sold			<u>\$ 450,000</u>	

$$\begin{array}{r} 2,100 \\ \times \$2 \\ \hline \$4,200 \end{array}$$

$$\begin{array}{r} 1,500 \\ \times \$9 \\ \hline \$13,500 \end{array}$$

Budgeted Income Statement

	A	B	C	D	E	F
1	Schedule 11					
2	Collegiate Apparel Company					
3	Budgeted Income Statement					
4	For the Year Ended December 31, 20x1					
5	Sales revenue (Schedule 1)				\$ 600,000	
6	Less: Cost of goods sold (Schedule 10)				450,000	
7	Gross margin				<u>150,000</u>	
8	Other expenses:					
9	SG&A (Schedule 6)		\$ 75,000			
10	Uncollectible accounts expense (Schedule 7)		12,000			
11	Interest expense (Schedule 9)		<u>6,250</u>			
12	Total other expenses				<u>93,250</u>	
13	Net income				<u><u>\$ 56,750</u></u>	
14						

Budgeted Balance Sheet

- The balance in the building account on December 31, 20x0 was \$400,000, and the balance in the equipment account was \$320,000. Total accumulated depreciation was \$240,000. Depreciation expense is recorded at the rate of \$60,000 per year.
- At December 31, 20x1, the company had a long-term, noninterest-bearing note payable of \$200,000. The note is due on December 31, 20x3.
- The balance in the owners' equity account at December 31, 20x0, was \$330,160.
- Supplies on hand at December 31, 20x1 were \$2,000.

Schedule 12

**Collegiate Apparel Company
Budgeted Balance Sheet
For the Year Ended December 31, 20x1**

Assets

Current assets:

Cash (Schedule 9)		\$ 26,750
Accounts receivable		43,200
Inventory		
Raw material (Schedule 10)	\$ 4,200	
Finished goods (Schedule 10)	13,500	
Supplies	2,000	
Total inventory		<u>19,700</u>
Total current assets		<u>89,650</u>

Long-lived assets:

Building	500,000	
Equipment	320,000	
Less: Accumulated depreciation	<u>(300,000)</u>	
Building and equipment, net of depreciation		<u>520,000</u>
Total assets		<u><u>\$ 609,650</u></u>

Liabilities and Owners' Equity

Current liabilities:

Accounts payable		\$ 22,740
Total current liabilities		<u>22,740</u>

Long-term liabilities:

Notes payable, due 12/31/x3		200,000
Total liabilities		<u>222,740</u>

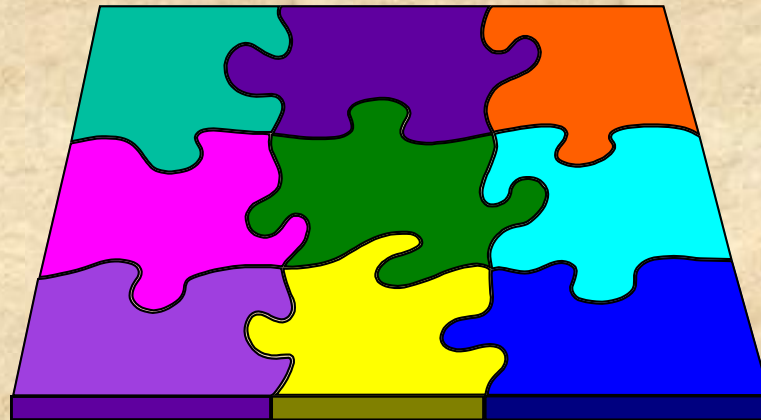
Owners' equity		386,910
Total liabilities and owners' equity		<u><u>\$ 609,650</u></u>

$$\begin{array}{r} \$240,000 \\ \times 18\% \\ \hline \$43,200 \end{array}$$

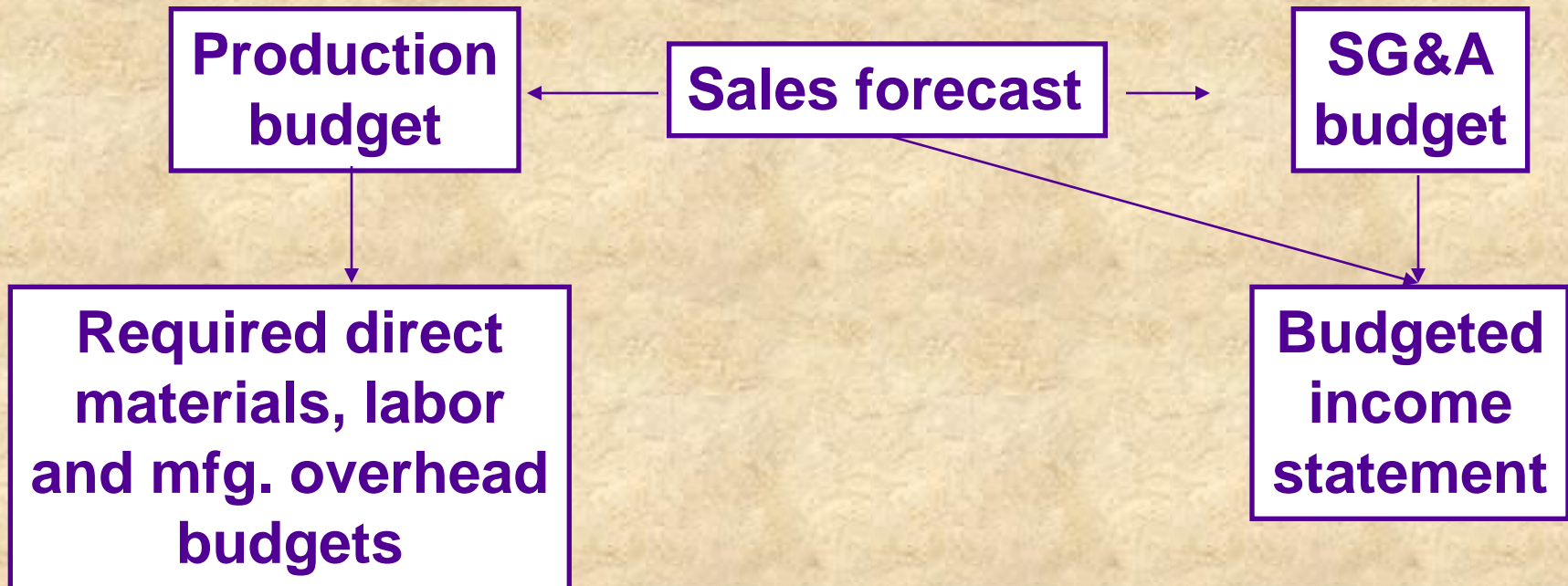
$$\begin{array}{r} \$56,850 \\ \times 40\% \\ \hline \$22,740 \end{array}$$

$$\begin{array}{r} \$330,160 \\ 56,750 \\ \hline \$386,910 \end{array}$$

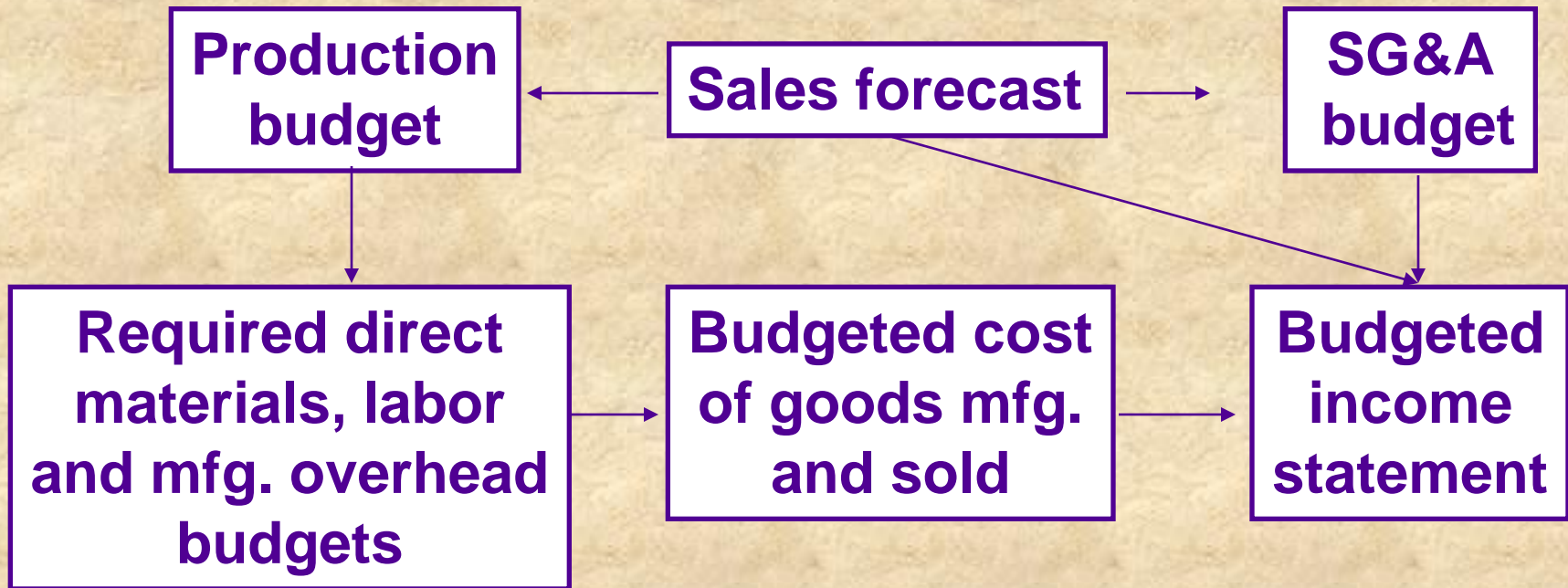
How It All Fits Together



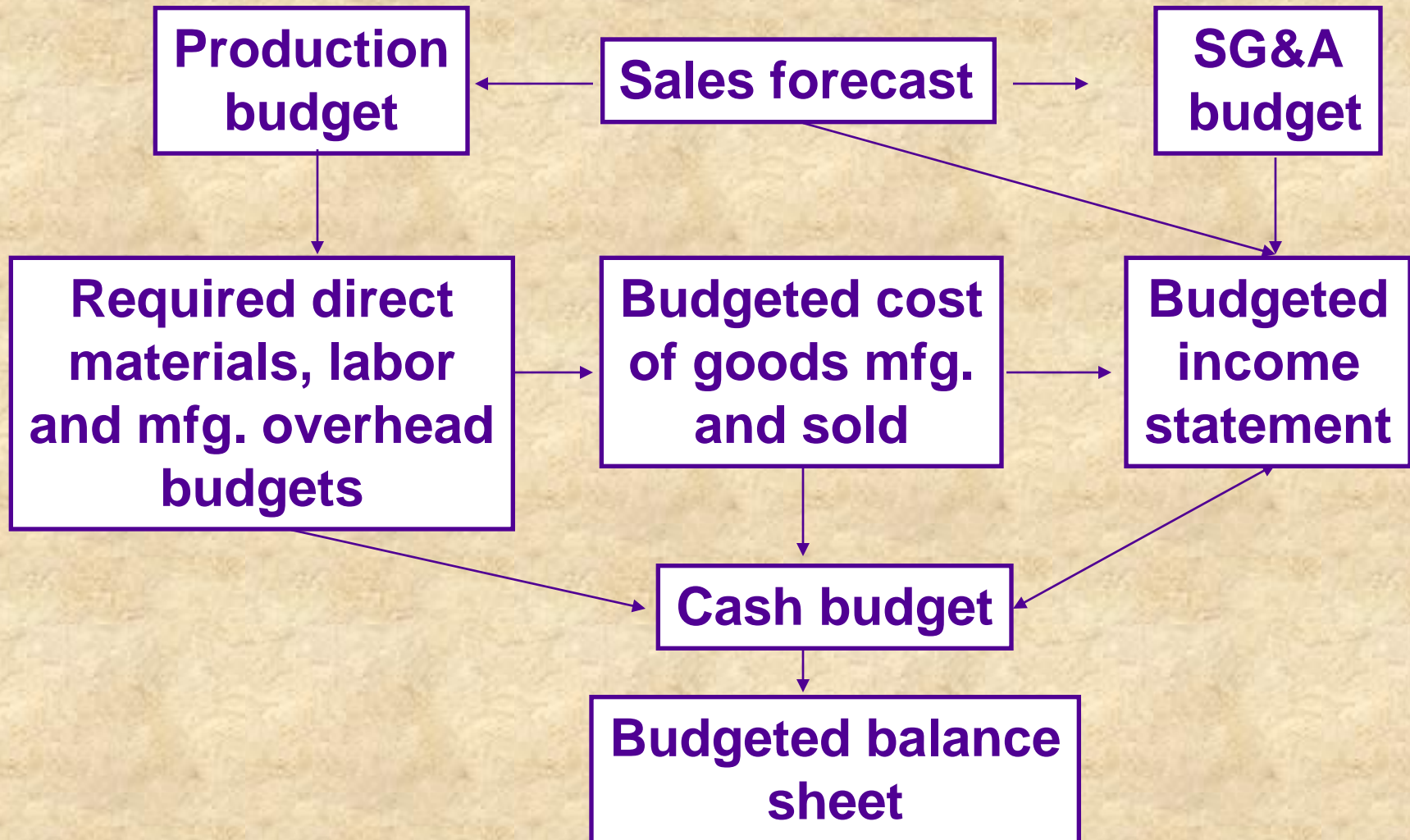
How It All Fits Together



How It All Fits Together



How It All Fits Together



Responsibility for Budget Administration

Budget Committee – Consists of key senior executives who may advise the budget director during the preparation of the budget. The authority to give final approval to the budget usually rests with the board of directors.



Budgetary Slack: Padding the Budget

Padding the budget means intentionally underestimating revenues or overestimating costs.

The difference between the revenue or cost projection that a person provides and a realistic estimate of the revenue or cost is called *budgetary slack*.



Participative Budgeting

Participative Budgeting – the use of input from lower- and middle-management employees.

- The process is time consuming but enhances employee motivation and acceptance of goals.



Ethical Problems in Budgeting

Much of the information for the budget is provided by persons whose performance is then compared with the budget they help develop.

Let's prepare the sales forecast with a 4% increase, so we will really look good!

I think sales will increase by 10% next year.

