CHAPTER 6
MASTER BUDGET AND RESPONSIBILITY ACCOUNTING

6-1 The budgeting cycle includes the following elements:

a. Planning the performance of the company as a whole as well as planning the performance of its subunits. Management agrees on what is expected.

b. Providing a frame of reference, a set of specific expectations against which actual results can be compared.

c. Investigating variations from plans. If necessary, corrective action follows investigation.

d. Planning again, in light of feedback and changed conditions.

6-2 The *master budget* expresses management's operating and financial plans for a specified period (usually a fiscal year) and includes a set of budgeted financial statements. It is the initial plan of what the company intends to accomplish in the period.

6-3 Strategy, plans, and budgets are interrelated and affect one another. Strategy specifies how an organization matches its own capabilities with the opportunities in the marketplace to accomplish its objectives. Strategic analysis underlies both long-run and short-run planning. In turn, these plans lead to the formulation of budgets. Budgets provide feedback to managers about the likely effects of their strategic plans. Managers use this feedback to revise their strategic plans.

6-4 We agree that budgeted performance is a better criterion than past performance for judging managers, because inefficiencies included in past results can be detected and eliminated in budgeting. Also, future conditions may be expected to differ from the past, and these can also be factored into budgets.

6-5 Production and marketing traditionally have operated as relatively independent business functions. Budgets can assist in reducing conflicts between these two functions in two ways. Consider a beverage company such as Coca-Cola or Pepsi-Cola:

- Communication. Marketing could share information about seasonal demand with production.
- Coordination. Production could ensure that output is sufficient to meet, for example, high seasonal demand in the summer.

6-6 In many organizations, budgets impel managers to plan. Without budgets, managers drift from crisis to crisis. Research also shows that budgets can motivate managers to meet targets and improve their performance. Thus, many top managers believe that budgets meet the cost-benefit test.

6-7 A *rolling budget*, also called a *continuous budget*, is a budget or plan that is always available for a specified future period, by continually adding a period (month, quarter, or year) to the period that just ended. A four-quarter rolling budget for 2007 is superseded by a four-quarter rolling budget for April 2007 to March 2008, and so on.

6-8 The steps in preparing an operating budget are as follows:

1. Prepare the revenues budget
2. Prepare the production budget (in units)
3. Prepare the direct material usage budget and direct material purchases budget
4. Prepare the direct manufacturing labor budget
5. Prepare the manufacturing overhead budget
6. Prepare the ending inventories budget
7. Prepare the cost of goods sold budget
8. Prepare the nonmanufacturing costs budget
9. Prepare the budgeted income statement

6-9 The sales forecast is typically the cornerstone for budgeting, because production (and, hence, costs) and inventory levels generally depend on the forecasted level of sales.

6-10 Sensitivity analysis adds an extra dimension to budgeting. It enables managers to examine how budgeted amounts change with changes in the underlying assumptions. This assists managers in monitoring those assumptions that are most critical to a company in attaining its budget and allows them to make timely adjustments to plans when appropriate.

6-11 *Kaizen budgeting* explicitly incorporates continuous improvement anticipated during the budget period into the budget numbers.

6-12 Nonoutput-based cost drivers can be incorporated into budgeting by the use of activity-based budgeting (ABB). ABB focuses on the budgeted cost of activities necessary to produce and sell products and services. Nonoutput-based cost drivers, such as the number of part numbers, number of batches, and number of new products can be used with ABB.

6-13 The choice of the type of responsibility center determines what the manager is accountable for and thereby affects the manager's behavior. For example, if a revenue center is chosen, the manager will focus on revenues, not on costs or investments. The choice of a responsibility center type guides the variables to be included in the budgeting exercise.

6-14 Budgeting in multinational companies may involve budgeting in several different foreign currencies. Further, management accountants must translate operating performance into a single currency for reporting to shareholders, by budgeting for exchange rates. Managers and accountants must understand the factors that impact exchange rates, and where possible, plan financial strategies to limit the downside of unexpected unfavorable moves in currency valuations. In developing budgets for operations in different countries, they must also have good understanding of political, legal and economic issues in those countries.

6-15 No. Cash budgets and operating income budgets must be prepared simultaneously. In preparing their operating income budgets, companies want to avoid unnecessary idle cash and unexpected cash deficiencies. The cash budget, unlike the operating income budget, highlights periods of idle cash and periods of cash shortage, and it allows the accountant to plan cost effective ways of either using excess cash or raising cash from outside to achieve the company's operating income goals.

6-16 (15 min.) **Sales budget, service setting.**

1.

McGrath & Sons	2006 Volume	At 2006 Selling Prices	Expected 2007 Change in Volume	Expected 2007 Volume
Radon Tests	11,000	$250	+5%	11,550
Lead Tests	15,200	$200	-10%	13,680

McGrath & Sons Sales Budget
For the Year Ended December 31, 2007

	Selling Price	Units Sold	Total Revenues
Radon Tests	$250	11,550	$2,887,500
Lead Tests	$200	13,680	2,736,000
			$5,623,500

2.

McGrath & Sons	2006 Volume	Planned 2007 Selling Prices	Expected 2007 Change in Volume	Expected 2007 Volume
Radon Tests	11,000	$250	+5%	11,550
Lead Tests	15,200	$190	-5%	14,440

McGrath & Sons Sales Budget
For the Year Ended December 31, 2007

	Selling Price	Units Sold	Total Revenues
Radon Tests	$250	11,550	$2,887,500
Lead Tests	$190	14,440	2,743,600
			$5,631,100

Expected revenues at the new 2007 prices are $5,631,100, which are greater than the expected 2007 revenues of $5,623,500 if the prices are unchanged. So, if the goal is to maximize sales revenue and if Jim McGrath's forecasts are reliable, the company should lower its price for a lead test in 2007.

6-17 (5 min.) **Sales and production budget.**

Budgeted sales in units	100,000
Add target ending finished goods inventory	11,000
Total requirements	111,000
Deduct beginning finished goods inventory	7,000
Units to be produced	104,000

6-18 (5 min.) **Direct materials purchases budget.**

Direct materials to be used in production (bottles)	1,500,000
Add target ending direct materials inventory (bottles)	50,000
Total requirements (bottles)	1,550,000
Deduct beginning direct materials inventory (bottles)	20,000
Direct materials to be purchased (bottles)	1,530,000

6-19 (10 min.) **Budgeting material purchases.**

Production Budget:

	Finished Goods (units)
Budgeted sales	42,000
Add target ending finished goods inventory	24,000
Total requirements	66,000
Deduct beginning finished goods inventory	22,000
Units to be produced	44,000

Direct Materials Purchases Budget:

	Direct Materials (in gallons)
Direct materials needed for production (44,000 × 3)	132,000
Add target ending direct materials inventory	110,000
Total requirements	242,000
Deduct beginning direct materials inventory	90,000
Direct materials to be purchased	152,000

6-20 (30 min.) **Revenues and production budget**.

1.

	Selling Price	Units Sold	Total Revenues
12-ounce bottles	$0.25	4,800,000[a]	$1,200,000
4-gallon units	1.50	1,200,000[b]	1,800,000
			$3,000,000

[a] 400,000 × 12 months = 4,800,000
[b] 100,000 × 12 months = 1,200,000

2.

Budgeted unit sales (12-ounce bottles)	4,800,000
Add target ending finished goods inventory	600,000
Total requirements	5,400,000
Deduct beginning finished goods inventory	900,000
Units to be produced	4,500,000

3. Beginning inventory = Budgeted sales + Target ending inventory – Budgeted production
= 1,200,000 + 200,000 – 1,300,000
= 100,000 4-gallon units

6-21 (45 min.) **Direct material usage, unit costs, and gross margins (continuation of 6-20).**

1. Direct Materials Usage Budget

	12-ounce Units	4-gallon Units
Physical Units Budget		
To be used in production:		
12-ounce units	4,500,000	
4-gallon units		1,300,000
Cost Budget		
Available from beginning inventory:		
12-ounce units	$ 30,000[a]	
4-gallon units		$ 0
To be used from purchases of this period:		
12-ounce: $0.06 × (4,500,000 – 500,000)	240,000	
4-gallon: $0.30 × (1,300,000 – 0)		390,000
Direct materials to be used	$270,000	$390,000

[a] $0.06 × 500,000 = $30,000

2.

	12-ounce Bottles	4-gallon Units
1. Output units produced	4,500,000	1,300,000
2. Number of ounces	54,000,000[a]	665,600,000[b]
3. Equivalent 8-ounce units (line 2 ÷ 8)	6,750,000	83,200,000
4. Direct manuf. labor cost per 8 ounces	$0.01	$0.01
5. Total direct manuf. labor cost (line 3 × line 4)	$67,500	$832,000

[a] 4,500,000 × 12 ounces per unit = 54,000,000
[b] 1,300,000 × 128 ounces per gallon × 4 gallons per unit = 665,600,000

Total direct manuf. labor cost is:

12-ounce bottles	$ 67,500
4-gallon units	832,000
	$899,500

3.

	12-ounce Bottle			4-gallon Container		
	Cost per Unit of Input	Inputs	Total	Cost per Unit of Input	Inputs	Total
Direct materials						
12-ounce bottles	$0.06	1.0	$0.060			
4-gallon containers				$0.30	1.0	$0.30
Direct manuf. labor (per 8 ounce)	0.01	1.5	0.015	0.01	64.0	0.64
Manuf. overhead	0.15	1.0	0.150	0.15	1.0	0.15
Unit manuf. cost			$0.225			$1.09

4.

	12-ounce Bottles	4-gallon Container
Selling price	$0.250	$1.500
Unit manuf. cost	0.225	1.090
Gross margin	$0.025	$0.410
Gross margin percentage	10%	27.3%

5. The chosen cost allocation base is units of production, with different products (12-ounce bottles and 4-gallon containers) being given the same weight.

A key issue here is whether there is a cause-and-effect relationship between units produced and manufacturing overhead. Alternative allocation bases include direct material costs, direct manufacturing labor costs, direct manufacturing labor hours, and time on the production line.

6-22 (15–20 min.) **Revenues, production, and purchases budget.**

1. 800,000 motorcycles × 400,000 yen = 320,000,000,000 yen

2.

Budgeted sales (motorcycles)	800,000
Add target ending finished goods inventory	100,000
Total requirements	900,000
Deduct beginning finished goods inventory	120,000
Units to be produced	780,000

3.

Direct materials to be used in production, 780,000 × 2 (wheels)	1,560,000
Add target ending direct materials inventory	30,000
Total requirements	1,590,000
Deduct beginning direct materials inventory	20,000
Direct materials to be purchased (wheels)	1,570,000
Cost per wheel in yen	16,000
Direct materials purchase cost in yen	25,120,000,000

Note the relatively small inventory of wheels. In Japan, suppliers tend to be located very close to the major manufacturer. Inventories are controlled by just-in-time and similar systems. Indeed, some direct materials inventories are almost nonexistent.

6-23 (15-25 min.) **Budgets for production and direct manufacturing labor.**

Roletter Company
Budget for Production and Direct Manufacturing Labor
for the Quarter Ended March 31, 2007

	January	February	March	Quarter
Budgeted sales (units)	10,000	12,000	8,000	30,000
Add target ending finished goods inventory[a] (units)	16,000	12,500	13,500	13,500
Total requirements (units)	26,000	24,500	21,500	43,500
Deduct beginning finished goods inventory (units)	16,000	16,000	12,500	16,000
Units to be produced	10,000	8,500	9,000	27,500
Direct manufacturing labor-hours (DMLH) per unit	× 2.0	× 2.0	× 1.5	
Total hours of direct manufacturing labor time needed	20,000	17,000	13,500	50,500
Direct manufacturing labor costs:				
Wages ($10.00 per DMLH)	$200,000	$170,000	$135,000	$505,000
Pension contributions ($0.50 per DMLH)	10,000	8,500	6,750	25,250
Workers' compensation insurance ($0.15 per DMLH)	3,000	2,550	2,025	7,575
Employee medical insurance ($0.40 per DMLH)	8,000	6,800	5,400	20,200
Social Security tax (employer's share) ($10.00 × 0.075 = $0.75 per DMLH)	15,000	12,750	10,125	37,875
Total direct manufacturing labor costs	$236,000	$200,600	$159,300	$595,900

[a]100% of the first following month's sales plus 50% of the second following month's sales.

Note that the employee Social Security tax of 7.5% is irrelevant. Such taxes are withheld from employees' wages and paid to the government by the employer on behalf of the employees; therefore, the 7.5% amounts are not additional costs to the employer.

6-24 (20–30 min.) **Activity-based budgeting.**

1. This question links to the ABC example used in the Problem for Self-Study in Chapter 5 and to Question 5-23 (ABC, retail product-line profitability).

Activity	Cost Hierarchy	Soft Drinks	Fresh Produce	Packaged Food	Total
Ordering					
$90 × 14; 24; 14	Batch-level	$1,260	$ 2,160	$1,260	$ 4,680
Delivery					
$82 × 12; 62; 19	Batch-level	984	5,084	1,558	7,626
Shelf-stocking	Output-unit-level				
$21 × 16; 172; 94		336	3,612	1,974	5,922
Customer support	Output-unit-level				
$0.18 × 4,600; 34,200; 10,750		828	6,156	1,935	8,919
Total budgeted indirect costs		$3,408	$17,012	$6,727	$27,147
Percentage of total indirect costs (subject to rounding)		13%	63%	25%	

2. Refer to the last row of the table in requirement 1. Fresh produce, which probably represents the smallest portion of COGS, is the product category that consumes the largest share (63%) of the indirect resources. Fresh produce demands the highest level of ordering, delivery, shelf-stocking and customer support resources of all three product categories—it has to be ordered, delivered and stocked in small, perishable batches, and supermarket customers often ask for a lot of guidance on fresh produce items.

3. An ABB approach recognizes how different products require different mixes of support activities. The relative percentage of how each product area uses the cost driver at each activity area is:

Activity	Cost Hierarchy	Soft Drinks	Fresh Produce	Packaged Food	Total
Ordering	Batch-level	27%	46%	27%	100%
Delivery	Batch-level	13	67	20	100
Shelf-stocking	Output-unit-level	6	61	33	100
Customer support	Output-unit-level	9	69	22	100

By recognizing these differences, FS managers are better able to budget for different unit sales levels and different mixes of individual product-line items sold. Using a single cost driver (such as COGS) assumes homogeneity in the use of indirect costs (support activities) across product lines which does not occur at FS. Other benefits cited by managers include: (1) better identification of resource needs, (2) clearer linking of costs with staff responsibilities, and (3) identification of budgetary slack.

6-25 (20–30 min.) **Kaizen approach to activity-based budgeting (continuation of 6-24).**

1.

		Budgeted Cost-Driver Rates		
Activity	**Cost Hierarchy**	**January**	**February**	**March**
Ordering	Batch-level	$90.00	$89.82000	$89.64
Delivery	Batch-level	82.00	81.83600	81.67
Shelf-stocking	Output-unit-level	21.00	20.95800	20.92
Customer support	Output-unit-level	0.18	0.17964	0.179

The March 2008 rates can be used to compute the total budgeted cost for each activity area in March 2008:

Activity	**Cost Hierarchy**	**Soft Drinks**	**Fresh Produce**	**Packaged Food**	**Total**
Ordering					
$89.64 ×14; 24; 14	Batch-level	$1,255	$2,151	$1,255	$ 4,661
Delivery					
$81.67 ×12; 62; 19	Batch-level	980	5,064	1,552	7,596
Shelf-stocking					
$20.92 ×16; 172; 94	Output-unit-level	335	3,598	1,966	5,899
Customer support					
$0.179 ×4,600; 34,200; 10,750	Output-unit-level	823	6,122	1,924	8,869
Total		$3,393	$16,935	$6,697	$27,025

2. A kaizen budgeting approach signals management's commitment to systematic cost reduction. Compare the budgeted costs from Question 6-24 and 6-25.

	Ordering	**Delivery**	**Shelf-Stocking**	**Customer Support**
Question 6-24	$4,680	$7,626	$5,922	$8,919
Question 6-25 (Kaizen)	4,661	7,596	5,899	8,869

The kaizen budget number will show unfavorable variances for managers whose activities do not meet the required monthly cost reductions. This likely will put more pressure on managers to creatively seek out cost reductions by working "smarter" within FS or by having "better" interactions with suppliers or customers.

One limitation of kaizen budgeting, as illustrated in this question, is that it assumes small incremental improvements each month. It is possible that some cost improvements arise from large discontinuous changes in operating processes, supplier networks, or customer interactions. Companies need to highlight the importance of seeking these large discontinuous improvements as well as the small incremental improvements.

6-26 (15 min.) **Responsibility and controllability.**

1. (a) Salesman
   (b) VP of Sales
   Permit the salesman to offer a reasonable discount to customers, but require that he clear bigger discounts with the VP. Also, base his bonus/performance evaluation not just on revenues generated, but also on margins (or, ability to meet budget).

2. (a) VP of Sales
   (b) VP of Sales
   VP of Sales should compare budgeted sales with actuals, and ask for an analysis of all the sales during the quarter. Discuss with salespeople why so many discounts are being offered—are they really needed to close each sale. Are our prices too high (i.e., uncompetitive)?

3. (a) Manager, Shipping department
   (b) Manager or Director of Operations (including shipping)
   Shipping department manager must report delays more regularly and request additional capacity in a timely manner. Operations manager should ask for a review of shipping capacity utilization, and consider expanding the department.

4. (a) HR department
   (b) Production supervisor
   The production supervisor should devise his or her own educational standards that all new plant employees are held to before they are allowed to work on the plant floor. Offer remedial in-plant training to those workers who show promise. Be very specific about the types of skills required when using the HR department to hire plant workers. Test the workers periodically for required skills.

5. (a) Production supervisor
   (b) Production supervisor
   Get feedback from the workers, analyze it, and act on it. Get extra coaching and training from experienced mentors.

6. (a) Maintenance department
   (b) Production supervisor
   First, get the requisite maintenance done on the machines. Make sure that the maintenance department head clearly understands the repercussions of poor maintenance. Discuss and establish maintenance standards that must be met (frequency of maintenance and tolerance limits, for example). Test and keep a log of the maintenance work.

6-27 (30 min.) **Cash flow analysis, chapter appendix.**

1. The cash that TabComp, Inc., can expect to collect during April 2006 is calculated below.

April cash receipts:	
April cash sales ($400,000 × .25)	$100,000
April credit card sales ($400,000 × .30 × .96)	115,200
Collections on account:	
March ($480,000 × .45 × .70)	151,200
February ($500,000 × .45 × .28)	63,000
January (uncollectible-not relevant)	0
Total collections	$429,400

2. (a) The projected number of the MZB-33 computer hardware units that TabComp, Inc., will order on January 25, 2006, is calculated as follows.

	MZB-33 Units
March sales	110
Plus: Ending inventory[a]	27
Total needed	137
Less: Beginning inventory[b]	33
Projected purchases in units	104

[a] 0.30 × 90 unit sales in April

[b] 0.30 × 110 unit sales in March

(b)

Selling price = $2,025,000 ÷ 675 units, or for March, $330,000 ÷110 units
= $3,000 per unit

Purchase price per unit, 60% × $3,000	$ 1,800
Projected unit purchases	x 104
Total MZB-33 purchases, $1,800 × 104	$187,200

3. Monthly cash budgets are prepared by companies such as TabComp, Inc., in order to plan for their cash needs. This means identifying when both excess cash and cash shortages may occur. A company needs to know when cash shortages will occur so that prior arrangements can be made with lending institutions in order to have cash available for borrowing when the company needs it. At the same time, a company should be aware of when there is excess cash available for investment or for repaying loans.

6-28 (40 min.) **Budget schedules for a manufacturer.**

a. Revenues Budget

	Executive Line	Chairman Line	Total
Units sold	740	390	
Selling price	$ 1,020	$ 1,600	
Budgeted revenues	$754,800	$624,000	$1,378,800

b. Production Budget in Units

	Executive Line	Chairman Line
Budgeted unit sales	740	390
Add budgeted ending fin. goods inventory	30	15
Total requirements	770	405
Deduct beginning fin. goods. inventory	20	5
Budgeted production	750	400

c. Direct Materials Usage Budget (units)

	Oak	Red Oak	Oak Legs	Red Oak Legs	Total
Executive Line:					
1. Budgeted input per f.g. unit	16	–	4	–	
2. Budgeted production	750	–	750	–	
3. Budgeted usage (1 × 2)	12,000	–	3,000	–	
Chairman Line:					
4. Budgeted input per f.g. unit	–	25	–	4	
5. Budgeted production	–	400	–	400	
6. Budgeted usage (4 × 5)	–	10,000	–	1,600	
7. Total direct materials usage (3 + 6)	12,000	10,000	3,000	1,600	
Direct Materials Cost Budget					
8. Beginning inventory	320	150	100	40	
9. Unit price (FIFO)	$18	$23	$11	$17	
10. Cost of DM used from beginning inventory (8 × 9)	$5,760	$3,450	$1,100	$680	$10,990
11. Materials to be used from purchases (7 – 8)	11,680	9,850	2,900	1,560	
12. Cost of DM in March	$20	$25	$12	$18	
13. Cost of DM purchased and used in March (11 × 12)	$233,600	$246,250	$34,800	$28,080	$542,730
14. Direct materials to be used (10 + 13)	$239,360	$249,700	$35,900	$28,760	$553,720

Direct Materials Purchases Budget

	Oak	Red Oak	Oak Legs	Red Oak Legs	Total
Budgeted usage (from line 7)	12,000	10,000	3,000	1,600	
Add target ending inventory	192	200	80	44	
Total requirements	12,192	10,200	3,080	1,644	
Deduct beginning inventory	320	150	100	40	
Total DM purchases	11,872	10,050	2,980	1,604	
Purchase price (March)	$20	$25	$12	$18	
Total purchases	$237,440	$251,250	$35,760	$28,872	$553,322

d. Direct Manufacturing Labor Budget

	Output Units Produced	Direct Manuf. Labor-Hours per Output Unit	Total Hours	Hourly Rate	Total
Executive Line	750	3	2,250	$30	$ 67,500
Chairman Line	400	5	2,000	$30	60,000
			4,250		$127,500

e. Manufacturing Overhead Budget

Variable manufacturing overhead costs (4,250 × $35)	$148,750
Fixed manufacturing overhead costs	42,500
Total manufacturing overhead costs	$191,250

$$\text{Total manuf. overhead cost per hour} = \frac{\$191,250}{4,250} = \$45 \text{ per direct manufacturing labor-hour}$$

$$\text{Fixed manuf. overhead cost per hour} = \frac{\$42,500}{4,250} = \$10 \text{ per direct manufacturing labor-hour}$$

f. Computation of unit costs of ending inventory of finished goods

	Executive Line	Chairman Line
Direct materials		
Oak top ($20 × 16, 0)	$320	$ 0
Red oak ($25 × 0, 25)	0	625
Oak legs ($12 × 4, 0)	48	0
Red oak legs ($18 × 0, 4)	0	72
Direct manufacturing labor ($30 × 3, 5)	90	150
Manufacturing overhead		
Variable ($35 × 3, 5)	105	175
Fixed ($10 × 3, 5)	30	50
Total manufacturing cost	$593	$1,072

Ending Inventories Budget

	Cost per Unit	Units	Total
Direct Materials			
Oak top	$ 20	192	$ 3,840
Red oak top	25	200	5,000
Oak legs	12	80	960
Red oak legs	18	44	792
			10,592
Finished Goods			
Executive	593	30	17,790
Chairman	1,072	15	16,080
			33,870
Total			$44,462

g. Cost of goods sold budget

Budgeted finished goods inventory, March 1, 2006 ($10,480 + $4,850)		$ 15,330
Direct materials used (from Dir. materials purch. budget)	$553,720	
Direct manufacturing labor (Dir. manuf. labor budget)	127,500	
Manufacturing overhead (Manuf. overhead budget)	191,250	
Cost of goods manufactured		872,470
Cost of goods available for sale		887,800
Deduct ending finished goods inventory, March 31, 2006 (Inventories budget)		33,870
Cost of goods sold		$853,930

2. Areas where continuous improvement might be incorporated into the budgeting process:

(a) Direct materials. Either an improvement in usage or price could be budgeted. For example, the budgeted usage amounts could be related to the maximum improvement (current usage – minimum possible usage) of 1 square foot for either desk:

- Executive: 16 square feet – 15 square feet minimum = 1 square foot
- Chairman: 25 square feet – 24 square feet minimum = 1 square foot

Thus, a 1% reduction target per month could be:

- Executive: 15 square feet + (0.99 × 1) = 15.99
- Chairman: 24 square feet + (0.99 × 1) = 24.99

Some students suggested the 1% be applied to the 16 and 25 square-foot amounts. This can be done so long as after several improvement cycles, the budgeted amount is not less than the minimum desk requirements.

(b) Direct manufacturing labor. The budgeted usage of 3 hours/5 hours could be continuously revised on a monthly basis. Similarly, the manufacturing labor cost per hour of $30 could be continuously revised down. The former appears more feasible than the latter.

(c) Variable manufacturing overhead. By budgeting more efficient use of the allocation base, a signal is given for continuous improvement. A second approach is to budget continuous improvement in the budgeted variable overhead cost per unit of the allocation base.

(d) Fixed manufacturing overhead. The approach here is to budget for reductions in the year-to-year amounts of fixed overhead. If these costs are appropriately classified as fixed, then they are more difficult to adjust down on a monthly basis.

6-29 (45 min.) **Sensitivity analysis, changing budget assumptions, kaizen approach.**

1.

	Chippo	Chokko	Total
Revenues, $3 × 500,000 each	$1,500,000	$1,500,000	$3,000,000
Cost of goods sold			
Chocolate chips ($2 × 250,000[a]; $2 × 125,000[b])	500,000	250,000	750,000
Cookie dough ($1 × 250,000[a]; $1 × 375,000[b])	250,000	375,000	625,000
Direct manufacturing labor ($20 × 2,000; $20 × 3,000)	40,000	60,000	100,000
Indirect manufacturing costs (50% × $160,000; 50% × $160,000)	80,000	80,000	160,000
Cost of goods sold	870,000	765,000	1,635,000
Gross margin	$ 630,000	$ 735,000	$1,365,000

[a] Chippo: 500,000 × 0.50 = 250,000 pounds chocolate chips; 500,000 × 0.50 = 250,000 pounds cookie dough

[b] Chokko: 500,000 × 0.25 = 125,000 pounds chocolate chips; 500,000 × 0.75 = 375,000 pounds cookie dough

2.

	Chippo	Chokko	Total
Revenues, $3 × 500,000 each	$1,500,000	$1,500,000	$3,000,000
Cost of goods sold			
Chocolate chips			
($1.94 × 250,000; $1.94 × 125,000)	485,000	242,500	727,500
Cookie dough			
($0.97 × 250,000; $0.97 × 375,000)	242,500	363,750	606,250
Direct manufacturing labor			
($20 × 2,000; $20 × 3,000)	40,000	60,000	100,000
Indirect manufacturing costs			
(50% × $160,000; 50% × $160,000)	80,000	80,000	160,000
Cost of good sold	847,500	746,250	1,593,750
Gross margin	$ 652,500	$ 753,750	$1,406,250

3.

	Chippo	Chokko	Total
Revenues, $3 × 500,000 each	$1,500,000	$1,500,000	$3,000,000
Cost of goods sold			
Chocolate chips			
($2.10 × 250,000; $2.10 × 125,000)	525,000	262,500	787,500
Cookie dough			
($1.05 × 250,000; $1.05 × 375,000)	262,500	393,750	656,250
Direct manufacturing labor			
($20 × 1,960[c]; $20 × 2,940[d])	39,200	58,800	98,000
Indirect manufacturing costs			
(50% × $156,800[e]; 50% × $156,800[e])	78,400	78,400	156,800
Cost of goods sold	905,100	793,450	1,698,550
Gross margin	$ 594,900	$ 706,550	$1,301,450

[c] 2,000 × (1 – 0.02); [d] 3,000 × (1 – 0.02); [e] $160,000 × (1 – 0.02)

4. On the basis of the gross margin alone, Choco Chips should choose the plan in requirement 2—reduce the cost of the ingredients by 3%. Ingredient costs are the major component of costs and therefore should be the focus of Choco Chips' cost reduction efforts. Of course, Choco Chips should ensure that the reduction in the prices of ingredients is not driven by reduced ingredient quality or uncertain delivery schedules. For example, if product quality falls, Choco Chips may not be able to sell the cookies at $3 per package.

6-30 (30–40 min.) **Revenue and production budgets.**

This is a routine budgeting problem. The key to its solution is to compute the correct *quantities* of finished goods and direct materials. Use the following general formula:

$$\begin{pmatrix}\text{Budgeted}\\ \text{production}\\ \text{or purchases}\end{pmatrix} = \begin{pmatrix}\text{Target}\\ \text{ending}\\ \text{inventory}\end{pmatrix} + \begin{pmatrix}\text{Budgeted}\\ \text{sales or}\\ \text{materials used}\end{pmatrix} - \begin{pmatrix}\text{Beginning}\\ \text{inventory}\end{pmatrix}$$

1.

Scarborough Corporation
Revenue Budget for 2007

	Units	Price	Total
Thingone	60,000	$165	$ 9,900,000
Thingtwo	40,000	250	10,000,000
Budgeted revenues			$19,900,000

2.

Scarborough Corporation
Production Budget (in units) for 2007

	Thingone	Thingtwo
Budgeted sales in units	60,000	40,000
Add target finished goods inventories, December 31, 2007	25,000	9,000
Total requirements	85,000	49,000
Deduct finished goods inventories, January 1, 2007	20,000	8,000
Units to be produced	65,000	41,000

3.

Scarborough Corporation
Direct Materials Purchases Budget (in quantities) for 2007

	Direct Materials		
	A	B	C
Direct materials to be used in production			
• Thingone (budgeted production of 65,000 units times 4 lbs. of A, 2 lbs. of B)	260,000	130,000	--
• Thingtwo (budgeted production of 41,000 units times 5 lbs. of A, 3 lbs. of B, 1 lb. of C)	205,000	123,000	41,000
Total	465,000	253,000	41,000
Add target ending inventories, December 31, 2007	36,000	32,000	7,000
Total requirements in units	501,000	285,000	48,000
Deduct beginning inventories, January 1, 2007	32,000	29,000	6,000
Direct materials to be purchased (units)	469,000	256,000	42,000

4.

Scarborough Corporation
Direct Materials Purchases Budget (in dollars) for 2007

	Budgeted Purchases (Units)	Expected Purchase Price per unit	Total
Direct material A	469,000	$12	$5,628,000
Direct material B	256,000	5	1,280,000
Direct material C	42,000	3	126,000
Budgeted purchases			$7,034,000

5.

Scarborough Corporation
Direct Manufacturing Labor Budget (in dollars) for 2007

	Budgeted Production (Units)	Direct Manufacturing Labor-Hours per Unit	Total Hours	Rate per Hour	Total
Thingone	65,000	2	130,000	$12	$1,560,000
Thingtwo	41,000	3	123,000	16	1,968,000
Total					$3,528,000

6.

Scarborough Corporation
Budgeted Finished Goods Inventory
at December 31, 2007

Thingone:			
Direct materials costs:			
A, 4 pounds × $12	$48		
B, 2 pounds × $5	10	$ 58	
Direct manufacturing labor costs, 2 hours × $12		24	
Manufacturing overhead costs at $20 per direct manufacturing labor-hour (2 hours × $20)		40	
Budgeted manufacturing costs per unit		$122	
Finished goods inventory of Thingone $122 × 25,000 units			$3,050,000
Thingtwo:			
Direct materials costs:			
A, 5 pounds × $12	$60		
B, 3 pounds × $5	15		
C, 1 each × $3	3	$ 78	
Direct manufacturing labor costs, 3 hours × $16		48	
Manufacturing overhead costs at $20 per direct manufacturing labor-hour (3 hours × $20)		60	
Budgeted manufacturing costs per unit		$186	
Finished goods inventory of Thingtwo $186 × 9,000 units			1,674,000
Budgeted finished goods inventory, December 31, 2007			$4,724,000

6-31 (30 min.) **Budgeted income statement.**

Easecom Company
Budgeted Income Statement for 2008
(in thousands)

Revenues		
Equipment ($6,000 × 1.06 × 1.10)	$6,996	
Maintenance contracts ($1,800 × 1.06)	1,908	
Total revenues		$8,904
Cost of goods sold ($4,600 × 1.03 × 1.06)		5,022
Gross margin		3,882
Operating costs:		
Marketing costs ($600 + $250)	850	
Distribution costs ($150 × 1.06)	159	
Customer maintenance costs ($1,000 + $130)	1,130	
Administrative costs	900	
Total operating costs		3,039
Operating income		$ 843

6-32 (15 min.) **Responsibility of purchasing agent.**

The time lost in the plant should be charged to the purchasing department. The plant manager probably should not be asked to underwrite a loss due to failure of delivery over which he had no supervision. Although the purchasing agent may feel that he has done everything he possibly could, he must realize that, in the whole organization, he is *the one* who is in the best position to evaluate the situation. He receives an assignment. He may accept it or reject it. But if he accepts, he must perform. If he fails, the damage is evaluated. Everybody makes mistakes. The important point is to avoid making too many mistakes and also to understand fully that the extensive control reflected in responsibility accounting is the necessary balance to the great freedom of action that individual executives are given.

Discussions of this problem have again and again revealed a tendency among students (and among accountants and managers) to "fix the blame"—as if the variances arising from a responsibility accounting system should pinpoint misbehavior and provide answers. The point is that no accounting system or variances can provide answers. However, variances can lead to questions. In this case, in deciding where the penalty should be assigned, the student might inquire who should be asked—not who should be blamed.

Classroom discussions have also raised the following diverse points:

(a) Is the railroad company liable?

(b) Costs of idle time are usually routinely charged to the production department. Should the information system be fine-tuned to reallocate such costs to the purchasing department?

(c) How will the purchasing managers behave in the future regarding willingness to take risks?

The text emphasizes the following: Beware of overemphasis on controllability. For example, a time-honored theme of management is that responsibility should not be given without accompanying authority. Such a guide is a useful first step, but responsibility accounting is more far-reaching. The basic focus should be on information or knowledge, not on control. The key question is: Who is the best informed? Put another way, "Who is the person who can tell us the most about the specific item, regardless of ability to exert personal control?"

6-33 (30 min.) **Activity-based budgeting.**

1.

a. Machining

Indirect materials [$0 + ($10/hour × 10,000 hours)]	$100,000
Indirect labor [$20,000 + ($15/hour × 10,000 hours)]	170,000
Utilities [$0 + ($5/hour × 10,000 hours)]	50,000
	$320,000

Cost driver rate = $320,000 ÷ 10,000 machine hours = $32 per machine hour

b. Setups and quality assurance

Indirect materials [$0 + $1,000/run × 40 runs]	$ 40,000
Indirect labor [$0 + $1,200/run × 40 runs]	48,000
Inspection [$80,000 + ($2,000/run × 40 runs)]	160,000
	$248,000

Cost driver rate = $248,000 ÷ 40 production runs = $6,200 per production run

c. Procurement

Indirect materials [$0 + ($4/order × 15,000 orders)]	$ 60,000
Indirect labor [$45,000 + $0]	45,000
	$105,000

Cost driver rate = $105,000 ÷ 15,000 purchase orders = $7 per purchase order

d. Design

Engineering hours [$75,000 + ($50/hour × 100 hours)]	$ 80,000

Cost driver rate = $80,000 ÷ 100 engg. hours = $800 per engineering hour

e. Materials handling

Indirect materials [$0 + ($2/sq. ft.× 100,000 sq. ft.)]	$200,000
Indirect labor ($30,000 + $0)	30,000
	$230,000

Cost driver rate = $230,000 ÷ 100,000 sq. ft. = $2.30 per sq. ft.

2.

		Quantity of Cost Driver Used By		Cost Driver	Budgeted Activity Cost	
	Activity (Cost Driver)	SV2	CL9	Rate	SV2	CL9
a	Machining (machine hours)	6,500	3,500	$ 32	$208,000	$112,000
b.	Setups and quality assurance (production runs)	20	20	6,200	124,000	124,000
c.	Procurement (purchase orders)	8,000	7,000	7	56,000	49,000
d.	Design (engineering hours)	25	75	800	20,000	60,000
e.	Materials handling (square feet)	60,000	40,000	2.30	138,000	92,000
	Budgeted indirect costs allocated				$546,000	$437,000
	Divided by number of units produced				÷ 300,000	÷ 100,000
	Budgeted indirect costs allocated per unit				$ 1.82	$ 4.37

3. Since the simple and the complex valve consume the five indirect resources in very different proportions, any single allocation base like COGS will result in the miscosting of both products. For example, SV2 consumes 25% of the total design resources of $80,000 or $20,000 ÷ 300,000 = $0.066 per unit, and CL9 consumes 75% of the total design resources of $80,000 or $60,000 ÷ 100,000 = $0.60 per unit; on the other hand, each unit of SV2 consumes $138,000 ÷ 300,000 = $0.46 of materials handling resources, and each unit of CL9 consumes $92,000 ÷ 100,000 = $0.92 per unit. In the case of design, CL9 consumes about 10 times per unit than SV2; in the case of materials handling, CL9 consumes 2 times per unit than SV2. Using their COGS proportion (a single factor) to allocate both those costs would lead to miscosting. Marketing and operational decisions based on those mis-estimated costs would be misleading for Anderson. Moreover, the activity-based information is helpful in managing costs by reducing the quantity and rate of each activity.

6-34 (60 min.) **Comprehensive operating budget, budgeted balance sheet.**

1. **Schedule 1: Revenues Budget for the Year Ended December 31, 2007**

	Units	Selling Price	Total Revenues
Snowboards	1,000	$450	$450,000

2. **Schedule 2: Production Budget (in Units) for the Year Ended December 31, 2007**

	Snowboards
Budgeted unit sales (Schedule 1)	1,000
Add target ending finished goods inventory	200
Total requirements	1,200
Deduct beginning finished goods inventory	100
Units to be produced	1,100

3. **Schedule 3A: Direct Materials Usage Budget for the Year Ended December 31, 2007**

	Wood	Fiberglass	Total
Physical Units Budget			
Wood: 1,100 × 5.00 b.f.	5,500		
Fiberglass: 1,100 × 6.00 yards		6,600	
To be used in production	5,500	6,600	
Cost Budget			
Available from beginning inventory			
Wood: 2,000 b.f. × $28.00	$ 56,000		
Fiberglass: 1,000 b.f. × $4.80		$ 4,800	
To be used from purchases this period			
Wood: (5,500 – 2,000) × $30.00	105,000		
Fiberglass: (6,600 – 1,000) × $5.00		28,000	
Total cost of direct materials to be used	$161,000	$32,800	$193,800

Schedule 3B: Direct Materials Purchases Budget for the Year Ended December 31, 2007

	Wood	Fiberglass	Total
Physical Units Budget			
Production usage (from Schedule 3A)	5,500	6,600	
Add target ending inventory	1,500	2,000	
Total requirements	7,000	8,600	
Deduct beginning inventory	2,000	1,000	
Purchases	5,000	7,600	
Cost Budget			
Wood: 5,000 × $30.00	$150,000		
Fiberglass: 7,600 × $5.00)		$38,000	
Purchases	$150,000	$38,000	$188,000

4. **Schedule 4: Direct Manufacturing Labor Budget for the Year Ended December 31, 2007**

Labor Category	Cost Driver Units	DML Hours per Driver Unit	Total Hours	Wage Rate	Total
Manufacturing labor	1,100	5.00	5,500	$25.00	$137,500

5. **Schedule 5: Manufacturing Overhead Budget for the Year Ended December 31, 2007**

	At Budgeted Level of 5,500 Direct Manufacturing Labor-Hours
Variable manufacturing overhead costs ($7.00 × 5,500)	$ 38,500
Fixed manufacturing overhead costs	66,000
Total manufacturing overhead costs	$104,500

6. Budgeted manufacturing overhead rate: $\frac{\$104,500}{5,500}$ = $19.00 per hour

7. Budgeted manufacturing overhead cost per output unit: $\frac{\$104,500}{1,100}$ = $95.00 per output unit

8. **Schedule 6A: Computation of Unit Costs of Manufacturing Finished Goods in 2007**

	Cost per Unit of Input[a]	Inputs[b]	Total
Direct materials			
Wood	$30.00	5.00	$150.00
Fiberglass	5.00	6.00	30.00
Direct manufacturing labor	25.00	5.00	125.00
Total manufacturing overhead			95.00
			$400.00

[a]cost is per board foot, yard or per hour
[b]inputs is the amount of each input per board

9. **Schedule 6B: Ending Inventories Budget, December 31, 2007**

	Units	Cost per Unit	Total
Direct materials			
Wood	1,500	$ 30.00	$ 45,000
Fiberglass	2,000	5.00	10,000
Finished goods			
Snowboards	200	400.00	80,000
Total Ending Inventory			$135,000

10. **Schedule 7: Cost of Goods Sold Budget for the Year Ended December 31, 2007**

	From Schedule		Total
Beginning finished goods inventory January 1, 2004, $374.80 × 100	Given		$ 37,480
Direct materials used	3A	$193,800	
Direct manufacturing labor	4	137,500	
Manufacturing overhead	5	104,500	
Cost of goods manufactured			435,800
Cost of goods available for sale			473,280
Deduct ending finished goods inventory, December 31, 2007	6B		80,000
Cost of goods sold			$393,280

11. **Budgeted Income Statement for Slopes for the Year Ended December 31, 2007**

Revenues	Schedule 1		$450,000
Cost of goods sold	Schedule 7		393,280
Gross margin			56,720
Operating costs			
Variable marketing costs ($250 × 30)		$ 7,500	
Fixed nonmanufacturing costs		30,000	37,500
Operating income			$ 19,220

12. **Budgeted Balance Sheet for Slopes as of December 31, 2007**

Cash		$ 10,000
Inventory	Schedule 6B	135,000
Property, plant, and equipment (net)		850,000
Total assets		$995,000
Current liabilities		$ 17,000
Long-term liabilities		178,000
Stockholders' equity		800,000
Total liabilities and stockholders' equity		$995,000

6-35 (30 min.) **Cash budgeting, chapter appendix.**

1. Projected Sales

	May	June	July	August	September	October
Sales in Units	80	120	200	100	60	40
Revenues	$36,000	$54,000	$90,000	$45,000	$27,000	

Collections of Receivables

	May	June	July	August	September	October
From sales in:						
May (30% × $36,000)			$10,800			
June (50%; 30% × $54,000)			27,000	16,200		
July (20%; 50%; 30% × $90,000)			18,000	45,000	27,000	
August (20%; 50% × $45,000)				9,000	22,500	
September (20% × $27,000)					5,400	
Total			$55,800	$70,200	$54,900	

Calculation of Payables

	May	June	July	August	September	October
Material and Labor Use, Units						
Budgeted production		200	100	60	40	
Direct materials						
Wood (board feet)		1,000	500	300	200	
Fiberglass (yards)		1,200	600	360	240	
Direct manuf. labor (hours)		1,000	500	300	200	
Disbursement of Payments						
Direct materials						
Wood						
(1,000; 500; 300 × $30)			$30,000	$15,000	$9,000	
Fiberglass						
(1,200; 600; 360 × $5)			6,000	3,000	1,800	
Direct manuf. labor						
(500; 300; 200 × $25)			12,500	7,500	5,000	
Interest payment						
(6% × $30,000 ÷12)			150	150	150	
Variable OHD Calculation						
Variable OHD rate			$ 7	$ 7	$ 7	
OHD driver			500	300	200	
Variable OHD expense			$ 3,500	$ 2,100	$1,400	

Cash Budget for the months of July, August, September 2007

	July	August	September
Beginning cash balance	$10,000	$ 5,650	$40,100
Add receipts: Collection of receivables	55,800	70,200	54,900
Total cash available	$65,800	$75,850	$95,000
Deduct disbursements:			
Material purchases	$36,000	$18,000	$10,800
Direct manufacturing labor	12,500	7,500	5,000
Variable costs	3,500	2,100	1,400
Fixed costs	8,000	8,000	8,000
Interest payments	150	150	150
Total disbursements	60,150	35,750	25,350
Ending cash balance	$ 5,650	$40,100	$69,650

2. Yes. Slopes has a budgeted cash balance of $69,650 on 10/1/2007 and so it will be in a position to pay off the $30,000 1-year note on October 1, 2007.

3. No. Slopes does not maintain a $10,000 minimum cash balance in July. To maintain a $10,000 cash balance in each of the three months, it could perhaps encourage its customers to pay earlier by offering a discount. Alternatively, Slopes could seek short-term credit from a bank.

6-36 (30 min.) **Cash budget, fill in the blanks, chapter appendix.**

	Quarters				Year as a
	I	II	III	IV	Whole
Cash balance, beginning	$ 15,000	$ 32,000	$ 15,000	$ 50,000	$ 15,000
Add receipts					
Collections from customers	385,000	315,000	295,000	365,000	1,360,000
Total cash available for needs	400,000	347,000	310,000	415,000	1,375,000
Deduct disbursements					
Direct materials	175,000	125,000	110,000	155,000	565,000
Payroll	125,000	110,000	95,000	118,000	448,000
Other costs	50,000	45,000	40,000	49,000	184,000
Machinery purchase	0	85,000	0	0	85,000
Interest costs (bond)	3,000	3,000	3,000	3,000	12,000
Income taxes	15,000	14,000	12,000	20,000	61,000
Total disbursements	368,000	382,000	260,000	345,000	1,355,000
Minimum cash balance desired	15,000	15,000	15,000	15,000	15,000
Total cash needed	383,000	397,000	275,000	360,000	1,370,000
Cash excess (deficiency)	17,000	(50,000)	35,000	55,000	5,000
Financing					
Borrowing (at beginning)	0	50,000	0	0	50,000
Repayment (at end)	0	0	0	(50,000)	(50,000)
Interest (at 12% per annum)	0	0	0	(4,500)	(4,500)
Total effects of financing	0	50,000	0	(54,500)	(4,500)
Cash balance, ending	$ 32,000	$ 15,000	$ 50,000	$ 15,500	$ 15,500

Note that the short-term loan is only repaid when it can be paid in full and after maintaining the minimum balance. The interest on the loan is only paid at the time the loan is repaid.

6-37 (40–50 min.) **Cash budgeting, chapter appendix.**

Itami Wholesale Co.
Statement of Budgeted Cash Receipts and Disbursements
For the Months of December 2007 and January 2008

	December 2007	January 2008
Cash balance, beginning	$ 10,000	$ 2,025
Add receipts:		
Collections of receivables (Schedule 1)	235,900	285,800
(a) Total cash available for needs	245,900	287,825
Deduct disbursements:		
For merchandise purchases (Schedule 2)	$183,875	$141,750
For variable costs (Schedule 3)	50,000	25,000
For fixed costs (Schedule 3)	10,000	10,000
(b) Total disbursements	243,875	176,750
Cash balance, end of month (a – b)	$ 2,025	$111,075

Enough cash should be available for repayment of the note on January 31, 2008.

Schedule 1: Collections of Receivables

Collections in	October	November	December	Total
December	$14,400[a]	$50,000[b] }		
		171,500[c]		$235,900
January		20,000[d]	$ 60,000[e] }	
			205,800[f]	$285,800

[a]0.08 × $180,000 [b]0.20 × $250,000 [c]0.70 × $250,000 × .98
[d]0.08 × $250,000 [e]0.20 × $300,000 [f]0.70 × $300,000 × .98

Schedule 2: Payments for Merchandise

	December	January
Target ending inventory (in units)	875[a]	800[c]
Add units sold (sales ÷ $100)	3,000	1,500
Total requirements	3,875	2,300
Deduct beginning inventory (in units)	1,250[b]	875
Purchases (in units)	2,625	1,425
Purchases in dollars (units × $70)	$183,750	$99,750

	December	January
Cash disbursements:		
For previous month's purchases at 50%	$ 92,000	$ 91,875
For current month's purchases at 50%	91,875	49,875
	$183,875	$141,750

[a]500 units + 0.25 ($150,000 ÷ $100)
[b]$87,500 ÷ $70
[c]500 units + 0.25($120,000 ÷ $100)

Schedule 3: Marketing, Distribution, and Customer-Service Costs

Total annual fixed costs, $150,000, minus $30,000 depreciation	$120,000
Monthly fixed cost requiring cash outlay	$ 10,000

Variable cost ratio to sales = $\frac{\$400,000 - \$150,000}{\$1,500,000} = 1/6$

December variable costs: 1/6 × $300,000 sales	=	$50,000
January variable costs: 1/6 × $150,000 sales	=	$25,000

6-38 (60–75 min.) **Comprehensive budget, fill in schedules.**

1.

Schedule A

Budgeted Monthly Cash Receipts

Item	September	October	November	December
Total sales	$40,000	$48,000	$60,000	$80,000
Credit sales (25% of total sales)	10,000	12,000	15,000	20,000
Cash sales (total sales – credit sales)	$30,000	$36,000	$45,000	$60,000
Receipts:				
Cash sales		$36,000	$45,000	$60,000
Collections on accounts receivable (past month's credit sales)		10,000	12,000	15,000
Total		$46,000	$57,000	$75,000

Schedule B

Budgeted Monthly Cash Disbursements for Purchases

Item	October	November	December	4th Quarter
Purchases (70% of next month's anticipated sales)	$42,000	$56,000	$25,200	$123,200
Deduct 2% cash discount	840	1,120	504	2,464
Disbursements	$41,160	$54,880	$24,696	$120,736

Schedule C

Budgeted Monthly Cash Disbursements for Operations

Item	October	November	December	4th Quarter
Salaries and wages (15% of total monthly sales)	$7,200	$ 9,000	$12,000	$28,200
Rent (5% of total monthly sales)	2,400	3,000	4,000	9,400
Other cash operating costs (4% of total monthly sales)	1,920	2,400	3,200	7,520
Total disbursements for operations	$11,520	$14,400	$19,200	$45,120

Schedule D

Budgeted Total Monthly Cash Disbursements

Item	October	November	December	4th Quarter
Purchases (from Schedule B)	$41,160	$54,880	$24,696	$120,736
Cash operating costs (from Schedule C)	11,520	14,400	19,200	45,120
Light fixtures	600	400	-	1,000
Total disbursements	$53,280	$69,680	$43,896	$66,856

Schedule E
Budgeted Cash Receipts and Disbursements

Item	October	November	December	4th Quarter
Total receipts (from Schedule A)	$ 46,000	$57,000	$75,000	$178,000
Total disbursements (from Schedule D)	53,280	69,680	43,896	166,856
Net cash increase (decrease)	$ (7,280)	$(12,680)	$31,104	$ 11,144

Schedule F
Financing Required

Item	September	October	November	December	4th Quarter
Beginning cash balance (prior month's ending cash balance)		$12,000	$ 8,720	$ 8,040	$12,000
Net cash increase (decrease) (from Schedule E)		(7,280)	(12,680)	31,104	11,144
Cash position before borrowing		4,720	(3,960)	39,144	23,144
Minimum cash balance required		(8,000)	(8,000)	(8,000)	(8,000)
Cash excess (deficiency)		(3,280)	(11,960)	31,144	15,144
Borrowing required (multiples of $1,000)		4,000	12,000	-	16,000
Interest payments				(540)*	(540)
Borrowing repaid				(16,000)	(16,000)
Ending cash balance	$12,000	$ 8,720	$ 8,040	$22,604	$22,604

*Interest computation:

$ 4,000 @ 18% for 3 months	=	$180
$12,000 @ 18% for 2 months	=	360
Total interest expense		$540

2. Short-term, self-liquidating financing is best. The schedules clearly demonstrate the mechanics of a self-liquidating loan. The need for such a loan arises because of the seasonal nature of many businesses. When sales soar, the payroll and suppliers must be paid in cash. The basic source of cash is proceeds from sales. However, the credit extended to customers creates a lag between the sale and the collection of cash. When the cash is collected, it in turn may be used to repay the loan. The amount of the loan and the timing of the repayment are heavily dependent on the credit terms that pertain to both the purchasing and selling functions of the business. In seasonal businesses, the squeeze on cash is often heaviest in the months of peak sales and is lightest in the months of low sales.

3.

Newport Stationery Store
Budgeted Income Statement
for Quarter Ending December 31, 2007

Revenues (Schedule A)		$188,000
Cost of goods sold (70% of revenues)*		131,600
Gross margin		56,400
Operating costs		
Salaries and wages (Schedule C)	$28,200	
Rent (Schedule C)	9,400	
Other cash operating costs (Schedule C)	7,520	
Depreciation ($1,000 × 3 months)	3,000	48,120
Operating income		8,280
Deduct interest expense (Schedule F)		(540)
Add purchase discounts (Schedule B)		2,464
Net income before taxes		$10,204

*Note: Ending inventory and proof of cost of goods sold:

Inventory, September 30	$ 63,600	
Add purchases—Schedule B	123,200	$186,800
Deduct inventory, December 31:		
Basic inventory	30,000	
December purchases—Schedule B	25,200	55,200
Cost of goods sold		$131,600

Newport Stationery Store
Balance Sheet as of December 31, 2007

Assets		
Current assets		
Cash (Schedule F)		$ 22,604
Accounts receivable (December credit sales from Schedule A)		20,000
Inventory (buffer inventory $30,000 + Dec. purchases from Sch. B $25,200)		55,200
Total current assets		97,804
Equipment and fixtures		
Equipment— net		
($100,000 Sept 30 balance – $3,000 depreciation for quarter)	$ 97,000	
Fixtures (Schedule D)	1,000	98,000
Total		$195,804
Liabilities and Owner's Equity		
Liabilities		None
Owners' Equity*		$195,804
		$195,804

*Owners' equity, September 30:

$12,000 + $10,000 + $63,600 + $100,000 (all given)	$185,600
Net income, quarter ended December 31	10,204
Owners' equity, December 31	$195,804

4. All of the transactions have been simplified—for example, no bad debts are considered. Also, many businesses face wide fluctuations of cash flows within a month. For example, perhaps customer receipts lag and are bunched together near the end of a month, and disbursements are due evenly throughout the month, or are bunched near the beginning of the month. Cash needs would then need to be evaluated on a weekly and, perhaps a daily basis, rather than on a monthly basis.

6-39 (15 min.) **Budgetary slack and ethics.**

1. The use of budgetary slack, particularly if it has a detrimental effect on the company, may be unethical. In assessing the situation, the specific "Standards of Ethical Conduct for Management Accountants" described in Exhibit 1-7, and which the management accountant should consider, are listed below.

Competence
Clear reports using relevant and reliable information should be prepared. Reports prepared on the basis of incorrect revenue or cost projections would violate the management accountant's responsibility for competence. Ford and Granger's performances would appear to look better than they actually are because their performances are being compared to understated and unreliable budgets.

Integrity
Any activity that subverts the legitimate goals of the company should be avoided. Incorrect reporting of revenue and cost budgets could be viewed as violating the responsibility for integrity. The Standards of Ethical Conduct require the management accountant to communicate favorable as well as unfavorable information. Atkins will probably regard Ford's and Granger's behavior as unethical because it is attempting to project their results in a favorable light.

Objectivity
The management accountant's Standards of Ethical Conduct require that information should be fairly and objectively communicated and that all relevant information should be disclosed. From a management accountant's standpoint, Ford and Granger are clearly violating both these precepts. For the various reasons cited above, Atkins should take the position that the behavior described by Ford and Granger is unethical.

2. Atkins should first discuss the situation with Ford and Granger, point out that the use of budgetary slack is unethical, and attempt to get them to rectify their forecasts. If necessary, she should take this matter up to her managers and get them to effect change in Norton. If all fails, she should be prepared to resign her position.

6-40 (60 min.) **Comprehensive Review of Budgeting, Cash Budgeting, Chapter Appendix.**

a. **Schedule 1: Revenues Budget for the Year Ended December 31, 2005**

	Units (Lots)	Selling Price	Total Sales
Lemonade	1,080	$9,000	$ 9,720,000
Diet Lemonade	540	8,500	4,590,000
Total			$14,310,000

b. **Schedule 2: Production Budget in Units for the Year Ended December 31, 2005**

	Products	
	Lemonade	Diet Lemonade
Budgeted unit sales (Schedule 1)	1,080	540
Add target ending finished goods inventory	20	10
Total requirements	1,100	550
Deduct beginning finished goods inventory	100	50
Units to be produced	1,000	500

c. **Schedule 3A: Direct Materials Usage Budget in Units and Dollars for the Year Ended December 31, 2005**

	Syrup-Lemon.	Syrup-Diet Lem.	Containers	Packaging	Total
Units of direct materials to be used for production of Lemonade (1,000 lots × 1)	1,000		1,000	1,000	
Units of direct materials to be used for production of Diet Lemonade (500 lots × 1)		500	500	500	
Total direct materials to be used (in units)	1,000	500	1,500	1,500	
Units of direct materials to be used from beginning inventory (under FIFO)	80	70	200	400	
Multiply by cost per unit of beginning inventory	$ 1,100	$ 1,000	$ 950	$ 900	
Cost of direct materials to be used from beginning inventory (a)	$ 88,000	$ 70,000	$ 190,000	$ 360,000	$ 708,000
Units of direct materials to be used from purchases (1,000 – 80; 500 – 70; 1,500 – 200; 1,500 – 400)	920	430	1,300	1,100	
Multiply by cost per unit of purchased materials	$ 1,200	$ 1,100	$ 1,000	$ 800	
Cost of direct materials to be used from purchases (b)	$1,104,000	$473,000	$1,300,000	$ 880,000	3,757,000
Total cost of direct materials to be used (a + b)	$1,192,000	$543,000	$1,490,000	$1,240,000	$4,465,000

d. **Schedule 3B: Direct Materials Purchases Budget in Units and Dollars for the Year Ended December 31, 2005**

	Syrup-Lemon	Syrup-Diet Lem.	Containers	Packaging	Total
Direct materials to be used in production (in units) from Schedule 3A	1,000	500	1,500	1,500	
Add target ending direct materials inventory in units	30	20	100	200	
Total requirements in units	1,030	520	1,600	1,700	
Deduct beginning direct materials inventory in units	80	70	200	400	
Units of direct materials to be purchased	950	450	1,400	1,300	
Multiply by cost/unit of purchased materials	$1,200	$1,100	$1,000	$800	
Direct materials purchase costs	$1,140,000	$495,000	$1,400,000	$1,040,000	$4,075,000

e. **Schedule 4: Direct Manufacturing Labor Budget for the Year Ended December 31, 2005**

	Output Units Produced (Schedule 2)	Direct Manufacturing Labor Hours per Unit	Total Hours	Hourly Rate	Total
Lemonade	1,000	20	20,000	$25	$500,000
Diet Lemonade	500	20	10,000	25	250,000
Total			30,000		$750,000

f. **Schedule 5: Manufacturing Overhead Costs Budget for the Year Ended December 31, 2005**

Variable manufacturing overhead costs:	
Lemonade [$600 × 2 hours per lot × 1,000 lots (Schedule 2)]	$1,200,000
Diet Lemonade [$600 × 2 hours per lot × 500 lots (Schedule 2)]	600,000
Variable manufacturing overhead costs	1,800,000
Fixed manufacturing overhead costs	1,200,000
Total manufacturing overhead costs	$3,000,000

Fixed manufacturing overhead per bottling hour = $1,200,000 ÷ 3,000 = $400. Note that the total number of bottling hours is 3,000 hours: 2,000 hours for Lemonade (2 hours per lot × 1,000 lots) plus 1,000 hours for Diet Lemonade (2 hours per lot × 500 lots).

g. **Schedule 6A: Ending Finished Goods Inventory Budget as of December 31, 2005**

	Units (Lots)	Cost per Unit (Lot)	Total	
Direct materials				
Syrup for lemonade	30	$1,200	$ 36,000	
Syrup for diet lemonade	20	1,100	22,000	
Containers	100	1,000	100,000	
Packaging	200	800	160,000	$318,000
Finished goods				
Lemonade	20	$5,500*	$110,000	
Diet lemonade	10	5,400*	54,000	164,000
Total ending inventory				$482,000

*See Schedule 6B

Schedule 6B: Computation of Unit Costs of Manufacturing Finished Goods For the Year Ended December 31, 2005

	Cost per Unit (Lot) or Hour of Input	Lemonade		Diet Lemonade	
		Inputs in Units (Lots) or Hours	Amount	Inputs in Units (Lots) or Hours	Amount
Syrup			$1,200		$1,100
Containers			1,000		1,000
Packaging			800		800
Direct manufacturing labor	$ 25	20	500	20	500
Variable manufacturing overhead*	600	2	1,200	2	1,200
Fixed manufacturing overhead*	400	2	800	2	800
Total			$5,500		$5,400

*Variable manufacturing overhead varies with bottling hours (2 hours per lot for both Lemonade and Diet Lemonade). Fixed manufacturing overhead is allocated on the basis of bottling hours at the rate of $400 per bottling hour calculated in Schedule 5.

h. **Schedule 7: Cost of Goods Sold Budget for the Year Ended December 31, 2005**

	From Schedule		Total
Beginning finished goods inventory, January 1, 2005	Given*		$ 790,000
Direct materials used	3A	$4,465,000	
Direct manufacturing labor	4	750,000	
Manufacturing overhead	5	3,000,000	
Cost of goods manufactured			8,215,000
Cost of goods available for sale			9,005,000
Deduct ending finished goods inventory, December 31, 2005	6A		164,000
Cost of goods sold			$8,841,000

*Given in description of basic data and requirements (Lemonade, $5,300 × 100; diet Lemonade, $5,200 × 50)

i. **Schedule 8: Marketing Costs Budget for the Year Ended December 31, 2005**
Marketing costs, 12% × Revenues, $14,310,000 $1,717,200

j. **Schedule 9: Distribution Costs Budget for the Year Ended December 31, 2005**
Distribution costs, 8% × Revenues, $14,310,000 $1,144,800

k. **Schedule 10: Administration Costs Budget for the Year Ended December 31, 2005**
Administration costs, 10% × Cost of goods manufactured, $8,215,000 $ 821,500

l. **Budgeted Income Statement for the Year Ended December 31, 2005**

Sales	Schedule 1		$14,310,000
Cost of goods sold	Schedule 7		8,841,000
Gross margin			5,469,000
Operating costs:			
Marketing costs	Schedule 8	$1,717,200	
Distribution costs	Schedule 9	1,144,800	
Administration costs	Schedule 10	821,500	
Total operating costs			3,683,500
Operating income			$ 1,785,500
Income tax expense	Given		625,000
Net income			$ 1,160,500

m. **Schedule 11: Collections from Customers**

Budgeted Revenue for 2005	Schedule 1	$14,310,000
Add collections from beginning accounts receivable balance	Given	550,000
		14,860,000
Deduct ending accounts receivable balance	Given	600,000
Collections from customers		$14,260,000

Schedule 12: Direct Materials Disbursements

Budgeted direct material purchase costs for 2005	Schedule 3B	$ 4,075,000
Add payment for beginning accounts payable balance	Given	300,000
		4,375,000
Deduct ending accounts payable balance	Given	400,000
Disbursements for direct materials		$ 3,975,000

Schedule 13: Variable Manufacturing Overhead Disbursements

Variable Manufacturing Overhead:		
Lemonade (1,000 × $600 × 2)	Schedule 5	$ 1,200,000
Diet Lemonade (500 × $600 × 2)	Schedule 5	600,000
Total		$ 1,800,000

Schedule 14: Fixed Manufacturing Overhead Disbursements

Budgeted fixed manufacturing overhead	Schedule 5	$ 1,200,000
Deduct depreciation	Given	400,000
Cash disbursements for fixed overhead		$ 800,000

Cash Budget
December 31, 2005

Cash balance, beginning	Given	$ 100,000
Add receipts		
Collections from customers	Schedule 11	14,260,000
Total cash available for needs		$14,360,000
Deduct disbursements		
Direct materials	Schedule 12	$ 3,975,000
Direct manufacturing labor	Schedule 4	750,000
Variable manufacturing overhead	Schedule 13	1,800,000
Fixed manufacturing overhead	Schedule 14	800,000
Equipment purchase	Given	1,350,000
Marketing costs	Schedule 8	1,717,200
Distribution costs	Schedule 9	1,144,800
Administration costs	Schedule 10	821,500
Income tax expense	Given	625,000
Total disbursements		$12,983,500
Cash excess (deficiency)		$ 1,376,500
Financing		
Borrowing		0
Repayment		0
Interest		0
Total effects of financing		0
Cash balance ending		$ 1,376,500

Chapter 6 Video Case

The video case can be discussed using the textbook case write-up or the video segment featuring Ritz-Carlton. The videotape may be obtained by contacting your Prentice Hall representative. The case questions challenge students to apply the concepts learned in the chapter to a specific business situation.

RITZ CARLTON HOTEL COMPANY: Budgets and Responsibility Accounting

1. The Ritz-Carlton wants all employees to be more aware of costs as they relate to overall hotel property profit performance, and to take ownership for these costs. For example, in the kitchen, glassware breakage is a problem. Since employees now understand that there is a cost attached to broken items, meaning fewer funds for new uniforms, pay raises, and so on, they are becoming more careful. Managers also want employees to take ownership of the budget, giving them the freedom (and responsibility) to make decisions and control their piece of the overall guest experience as they see fit. Participatory budgeting makes employees feel more responsible for meeting budgeted targets. They are asked for explanations of budget variances, and are encouraged to provide suggestions for future improvement.

Although turnover at the Ritz-Carlton is much lower than industry standards (28% versus 100% for the industry annually), employees who do leave could take valuable, confidential internal information with them to a competitor. There is also the potential problem of employees not understanding the relationship of their personal performance to the bigger picture. While education is provided to employees that want it, some prefer not to know the details. Instead they're interested in coming to work at scheduled times, and leaving the work behind when they go home.

Some elements of operating costs may not be within the control of individual employees, so providing this information may cause some frustration if they're held accountable for costs they cannot manage.

Employees have better information about their individual domains, which can be represented in the budget process, leading to improved planning and control. There remains the question of whether employees will reveal everything they know. This could lead to budgetary slack and suboptimal performance.

2. Factors that might affect the Ritz Carlton's annual sales forecasts for room occupancy, restaurants, and use of meeting rooms and conference facility include

a. Past sales volume.
b. General economic trends, industry conditions, local competition.
c. Pricing policies.
d. Advertising and promotion activities.
e. Quality of sales team/reservations personnel (esp. in group bookings).
f. Seasonality and special events (e.g. Super Bowl XXX in Phoenix).
g. Available capacity.
h. Expansion and pricing policies of competitors.

3. Uncertainty in the budget is handled in several ways.
   a. Performing monthly revision of the coming three months' forecasts and budgets to account for new information.
   b. Asking employees, who are much closer to day-to-day action, for input.
   c. Each hotel is allowed a 5% variance in profitability goals each month.
   d. Local hotel managers meet daily to review performance, and can adjust prices in the reservations system to reflect any changes needed to increase occupancy.

4. a. Reports are generated by corporate headquarters at the individual property level, and all properties receive copies of all other properties' reports so that comparison can be made.
   b. Individual property reports show budgeted versus actual performance in each key area—food and beverage, sundry (gift shop), guest supplies, valet, housekeeping, payroll, and so on.
   c. Other reporting levels include regional, domestic, international, and company-wide.