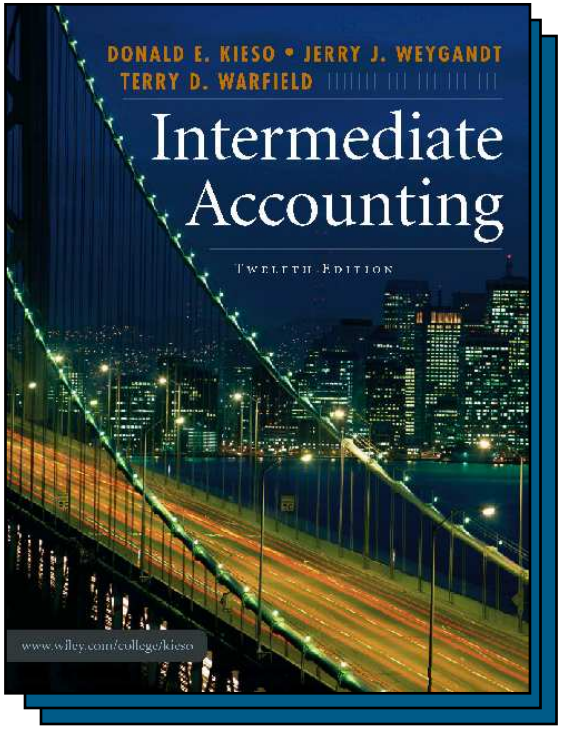
Accounting and Reporting for Inventory: The Basics

Chapter 8

Intermediate Accounting
12th Edition
Kieso, Weygandt, and Warfield

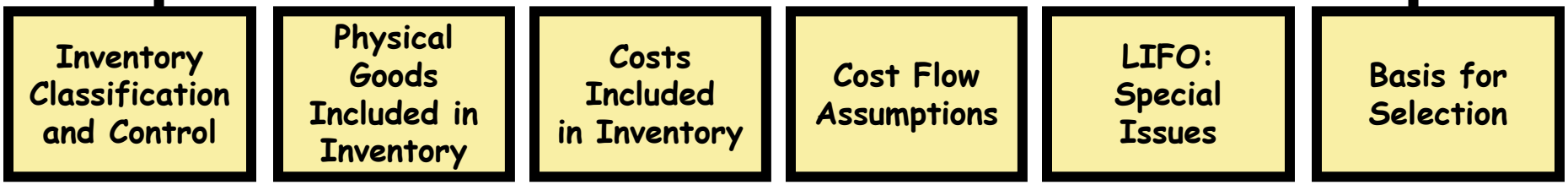


Prepared by Coby Harmon, University of California, Santa Barbara

Learning Objectives

1. Identify major classifications of inventory.
2. Distinguish between perpetual and periodic inventory systems.
3. Identify the effects of inventory errors on the financial statements.
4. Understand the items to include as inventory cost.
5. Describe and compare the cost flow assumptions used to account for inventories.
6. Explain the significance and use of a LIFO reserve.
7. Understand the effect of LIFO liquidations.
8. Explain the dollar-value LIFO method.
9. Identify the major advantages and disadvantages of LIFO.
10. Understand why companies select given inventory methods.

Valuation of Inventories: Cost-basis Approach



- Classification
- Control
- Basic inventory valuation issues

- Goods in transit
- Consigned goods
- Special sales agreements
- Inventory errors

- Product costs
- Period costs
- Purchase discounts

- Specific identification
- Average cost
- FIFO
- LIFO

- LIFO reserve
- LIFO liquidation
- Dollar-value LIFO
- Comparison of LIFO approaches
- Advantages of LIFO
- Disadvantages of LIFO

- Summary of inventory valuation methods

Inventory Classification and Systems

Classification

Inventories are:

- items held for sale, or
- goods to be used in the production of goods to be sold.

Businesses with Inventory:

Merchandiser or **Manufacturer**

LO 1 Identify major classifications of inventory.

Inventory Classification and Systems

Type of Business

Merchandiser

- One inventory account
- Purchase goods ready for sale

Balance Sheet (in thousands)	
Current assets	
Cash	$ 285,000
Marketable securities	530,000
Accounts receivable	149,000
Merchandise inventory	777,000
Prepaids	33,000
Total current assets	1,774,000
Investments:	
Invesment in ABC bonds	321,657
Investment in UC Inc.	253,980
Notes receivable	150,000
Land held for speculation	550,000
Sinking fund	225,000
Pension fund	653,798

LO 1 Identify major classifications of inventory.

Inventory Classification and Systems

Type of Business

Manufacturer

Three accounts

- Raw materials
- Work in process
- Finished goods

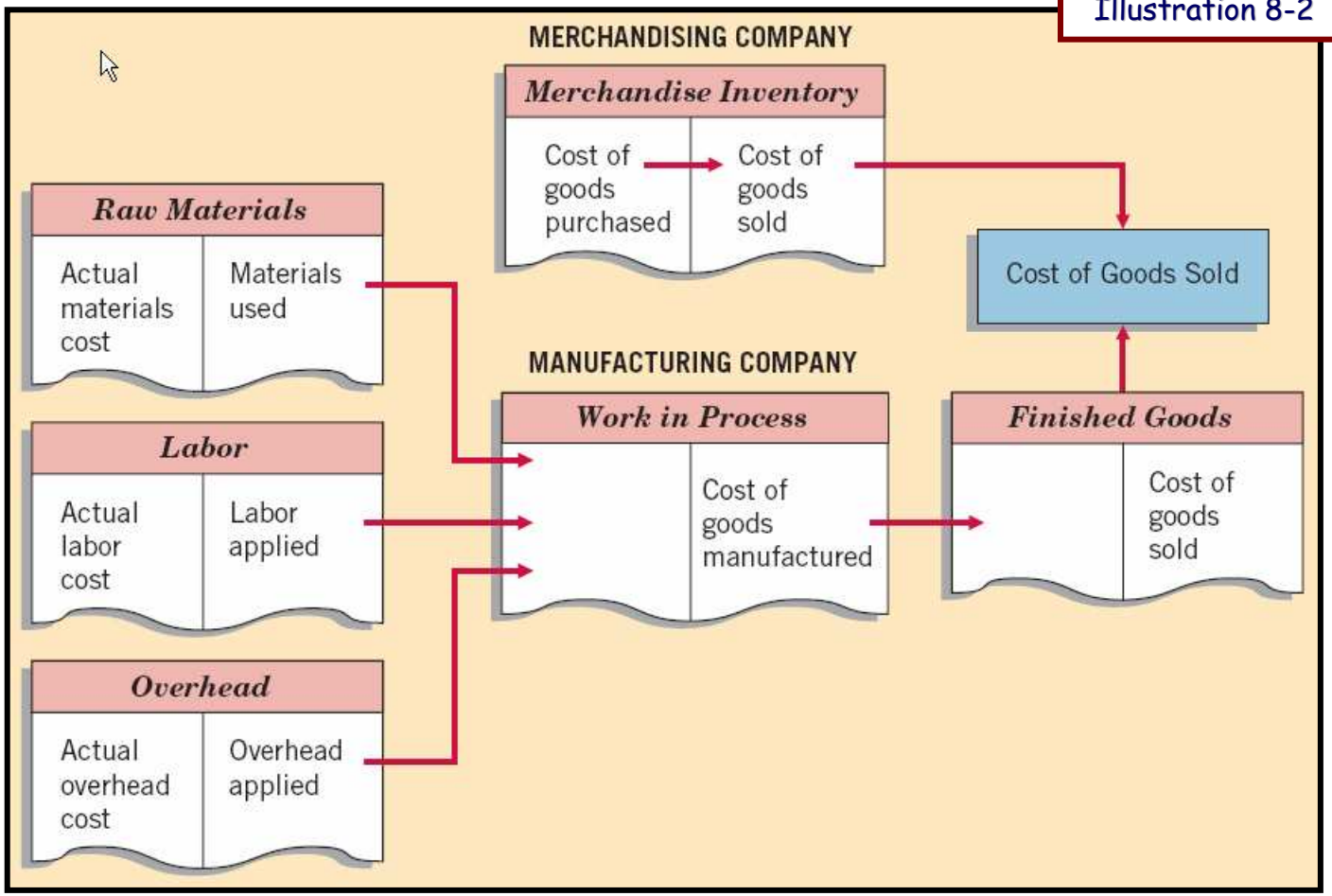
Balance Sheet (in thousands)	
Current assets	
Cash	$285,000
Marketable securities	530,000
Accounts receivable	149,000
Inventory	
Raw materials	210,000
Work in process	417,000
Finished goods	150,000
Total inventory	777,000
Prepaids	33,000
Total current assets	1,774,000
Investments:	
Invesment in ABC bonds	321,657

LO 1 Identify major classifications of inventory.

Inventory Classification and Systems

Flow of Costs

Illustration 8-2



LO 1 Identify major classifications of inventory.

Inventory Classification and Systems

Control

Two systems for maintaining inventory records:

- Perpetual system
- Periodic system

LO 2 Distinguish between perpetual and periodic inventory systems.

Inventory Classification and Systems

Perpetual System

Features:

1. Purchases of merchandise are debited to Inventory.
2. Freight-in, purchase returns and allowances, and purchase discounts are recorded in Inventory.
3. Cost of goods sold is debited and Inventory is credited for each sale.
4. Physical count done to verify Inventory balance.

The perpetual inventory system provides a continuous record of Inventory and Cost of Goods Sold.

LO 2 Distinguish between perpetual and periodic inventory systems.

Inventory Classification and Systems

Periodic System

Features:

1. Purchases of merchandise are debited to Purchases.
2. Ending Inventory determined by physical count.
3. Calculation of Cost of Goods Sold:

Beginning inventory	$ 100,000
Purchases, net	800,000
Goods available for sale	900,000
Ending inventory	125,000
Cost of goods sold	$ 775,000

LO 2 Distinguish between perpetual and periodic inventory systems.

Inventory Classification and Systems

Perpetual System			vs.	Periodic System		
1. Beginning inventory (100 units at $7 = 700)						
2. Purchase 900 units at $7:						
Inventory	6,300			Purchases	6,300	
Accounts payable		6,300		Accounts payable		6,300
3. Sale of 600 untis at $14:						
Accounts receivable	8,400			Accounts receivable	8,400	
Sales		8,400		Sales		8,400
Cost of goods sold	4,200					
Inventory		4,200				
4. Adjusting entries (ending inventory = 400 units @ $7 = $2,800)						
No Entry Necessary				Inventory	2,100	
				Cost of goods sold	4,200	
				Purchases		6,300

LO 2 Distinguish between perpetual and periodic inventory systems.

Basic Issues in Inventory Valuation

Valuation of Inventories

Requires the following:

- The **physical goods** (goods on hand, goods in transit, consigned goods, special sales agreements).
- The **costs to include** (product vs. period costs).
- The **cost flow assumption** (FIFO, LIFO, Average cost, Specific Identification, Retail, etc.).

LO 2 Distinguish between perpetual and periodic inventory systems.

Physical Goods Included in Inventory

Physical Goods

A company should record purchases when it obtains legal title to the goods.

Special Consideration:

- Goods in Transit (FOB shipping point, FOB destination)
- Consigned goods
- Sales with buyback agreement
- Sales with high rates of return
- Sales on installment
- Inventory errors

LO 2 Distinguish between perpetual and periodic inventory systems.

Effect of Inventory Errors

Ending Inventory Understated

Balance Sheet		Income Statement	
Inventory	Understated	Cost of goods sold	Overstated
Retained earnings	Understated		
Working capital (current assets less current liabilities)	Understated	Net income	Understated
Current ratio (current assets divided by current liabilities)	Understated		

Illustration 8-6

The effect of an error on net income in one year (2006) will be counterbalanced in the next (2007), however the income statement will be misstated for both years.

LO 3 Identify the effects of inventory errors on the financial statements.

Effect of Inventory Errors

Purchases and Inventory Understated

Balance Sheet		Income Statement	
Inventory	Understated	Purchases	Understated
Retained earnings	No effect	Cost of goods sold	No effect
Accounts payable	Understated	Net income	No effect
Working capital	No effect	Inventory (ending)	Understated
Current ratio	Overstated		

Illustration 8-8

The understatement does not affect cost of goods sold and net income because the errors offset one another.

LO 3 Identify the effects of inventory errors on the financial statements.

Costs Included in Inventory

- **Product Costs** - costs directly connected with bringing the goods to the buyer's place of business and converting such goods to a salable condition.
- **Period Costs** – generally selling, general, and administrative expenses.
- **Purchase Discounts** – Gross vs. Net Method

LO 4 Understand the items to include as inventory cost.

Treatment of Purchase Discounts

Gross Method			vs.	Net Method		
Purchase cost $20,000, terms 2/10, net 30:						
Purchases	20,000			Purchases	19,600	
Accounts payable		20,000		Accounts payable		19,600
Invoices of $15,000 are paid within discount period:						
Accounts payable	15,000			Accounts payable	14,700	
Purchase discounts		300		Cash		14,700
Cash		14,700				
Invoices of $5,000 are paid after discount period:						
Accounts payable	5,000			Accounts payable	4,900	
Cash		5,000		Purchase discount lost	100	
				Cash		5,000

LO 4 Understand the items to include as inventory cost.

What Cost Flow Assumption to Adopt?

FIFO **LIFO**

Cost Flow Assumption Adopted

does not need to equal

Physical Movement of Goods

Average Cost **Specific Identification**

Answer: Method adopted should be one that most clearly reflects periodic income.

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

Example

Young & Crazy Company makes the following purchases:

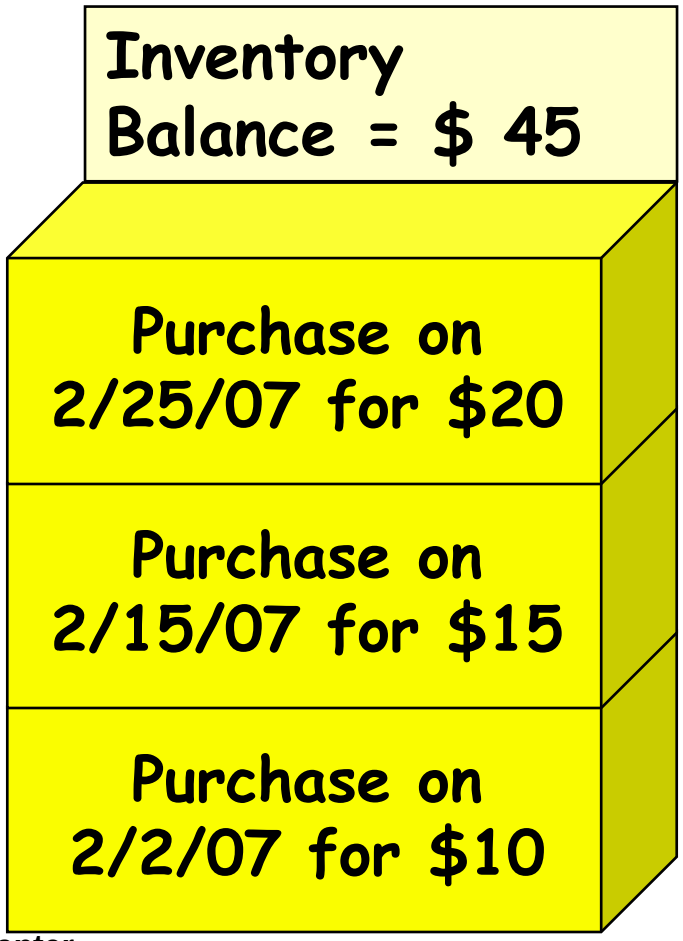
1. One item on 2/2/07 for $10
2. One item on 2/15/07 for $15
3. One item on 2/25/07 for $20

Young & Crazy Company sells one item on 2/28/07 for $90. What would be the balance of ending inventory and cost of goods sold for the month ended Feb. 2007, assuming the company used the **FIFO**, **LIFO**, **Average Cost**, and **Specific Identification** cost flow assumptions? Assume a tax rate of 30%.

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

"First-In-First-Out (FIFO)"



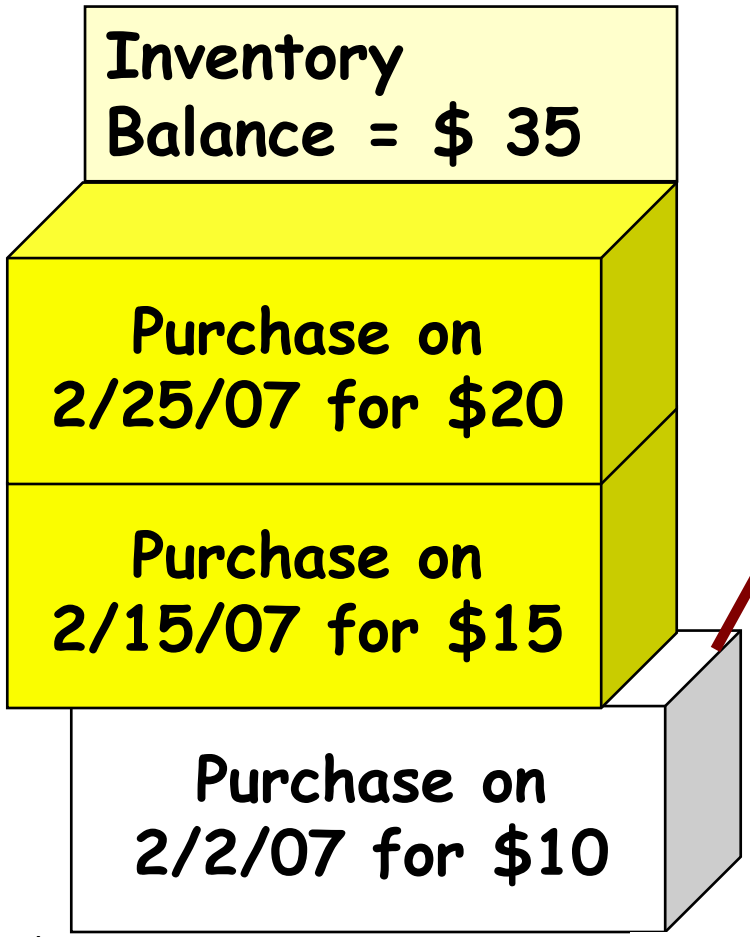
Young & Crazy Company
Income Statement
For the Month of Feb. 2007

Sales	$ 90
Cost of goods sold	0
Gross profit	90
Expenses:	
Administrative	14
Selling	12
Interest	7
Total expenses	33
Income before tax	57
Taxes	17
Net Income	$ 40

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

"First-In-First-Out (FIFO)"



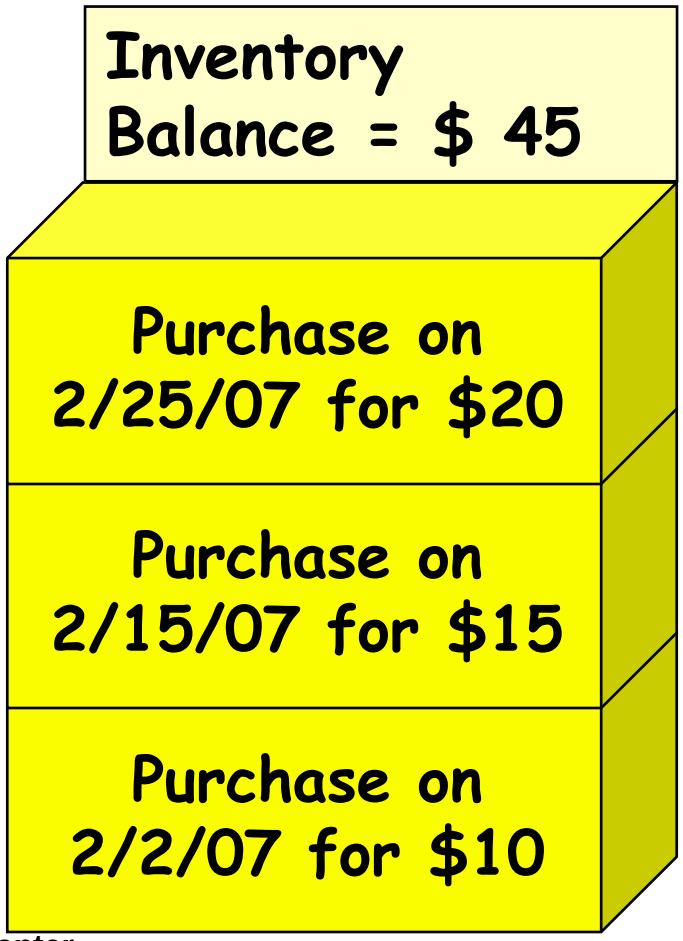
Young & Crazy Company
Income Statement
For the Month of Feb. 2007

Sales	$ 90
Cost of goods sold	10
Gross profit	80
Expenses:	
Administrative	14
Selling	12
Interest	7
Total expenses	33
Income before tax	47
Taxes	14
Net Income	$ 33

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

"Last-In-First-Out (LIFO)"



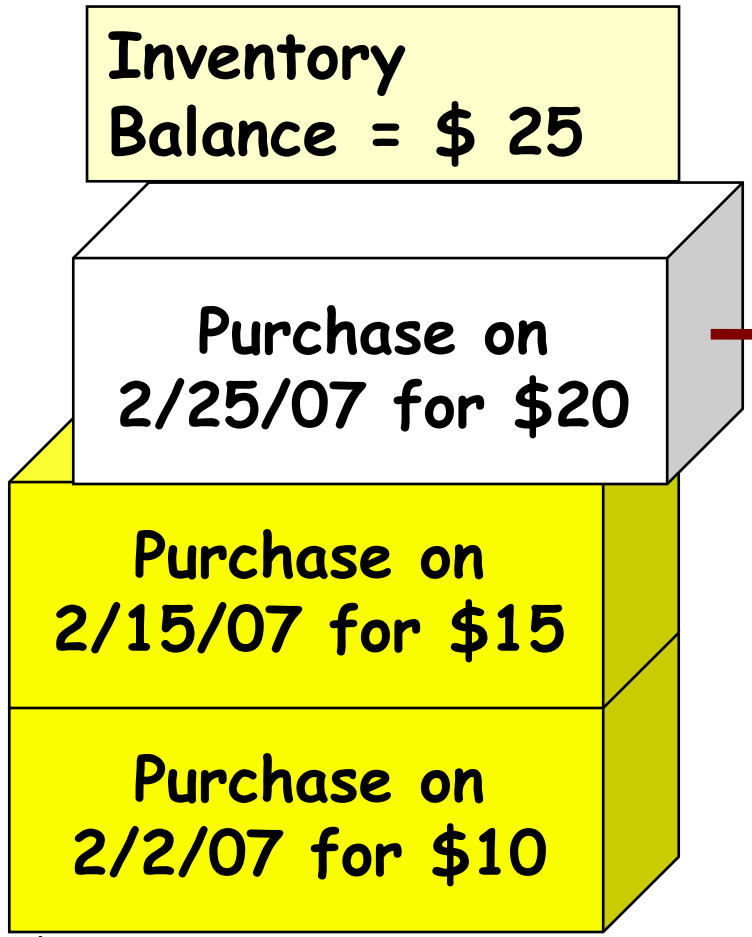
Young & Crazy Company
Income Statement
For the Month of Feb. 2007

Sales	$ 90
Cost of goods sold	0
Gross profit	90
Expenses:	
Administrative	14
Selling	12
Interest	7
Total expenses	33
Income before tax	57
Taxes	17
Net Income	$ 40

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

"Last-In-First-Out (LIFO)"



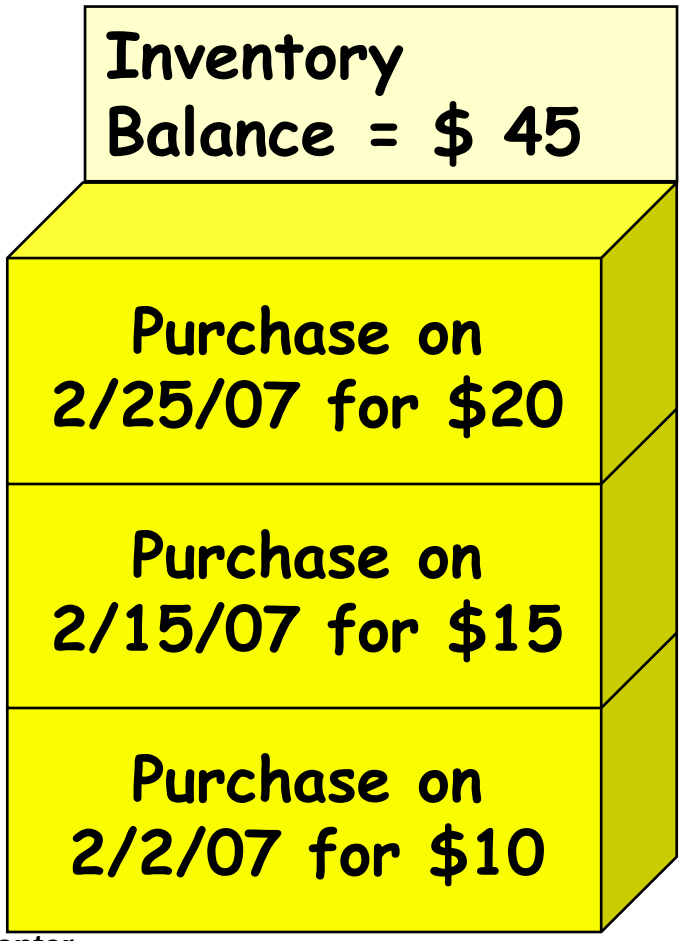
Young & Crazy Company
Income Statement
For the Month of Feb. 2007

Sales	$ 90
Cost of goods sold	20
Gross profit	70
Expenses:	
Administrative	14
Selling	12
Interest	7
Total expenses	33
Income before tax	37
Taxes	11
Net Income	$ 26

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

"Average Cost"



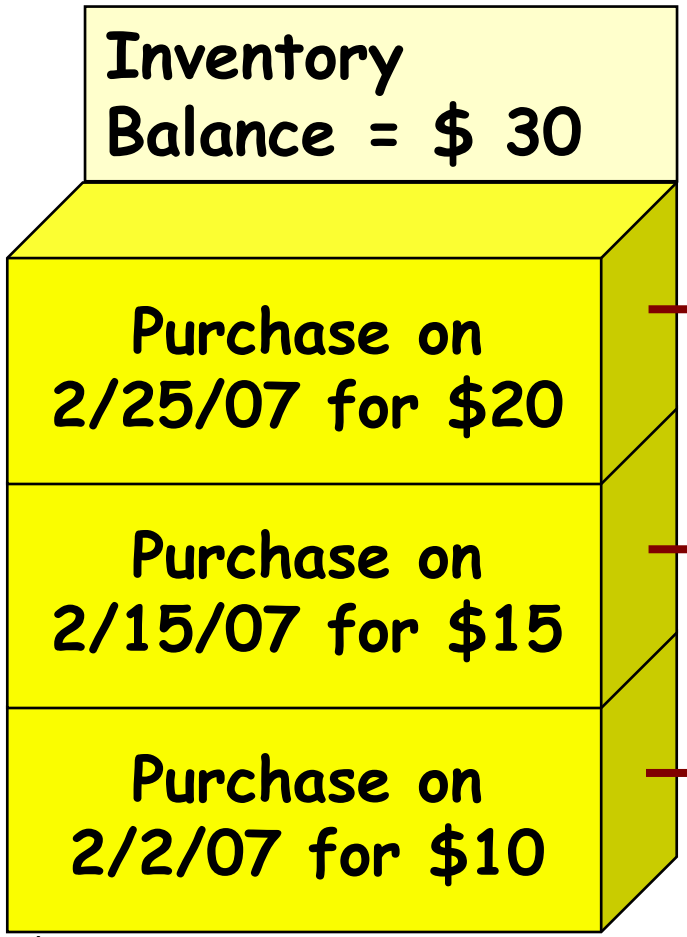
Young & Crazy Company
Income Statement
For the Month of Feb. 2007

Sales	$ 90
Cost of goods sold	0
Gross profit	90
Expenses:	
Administrative	14
Selling	12
Interest	7
Total expenses	33
Income before tax	57
Taxes	17
Net Income	$ 40

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

"Average Cost"



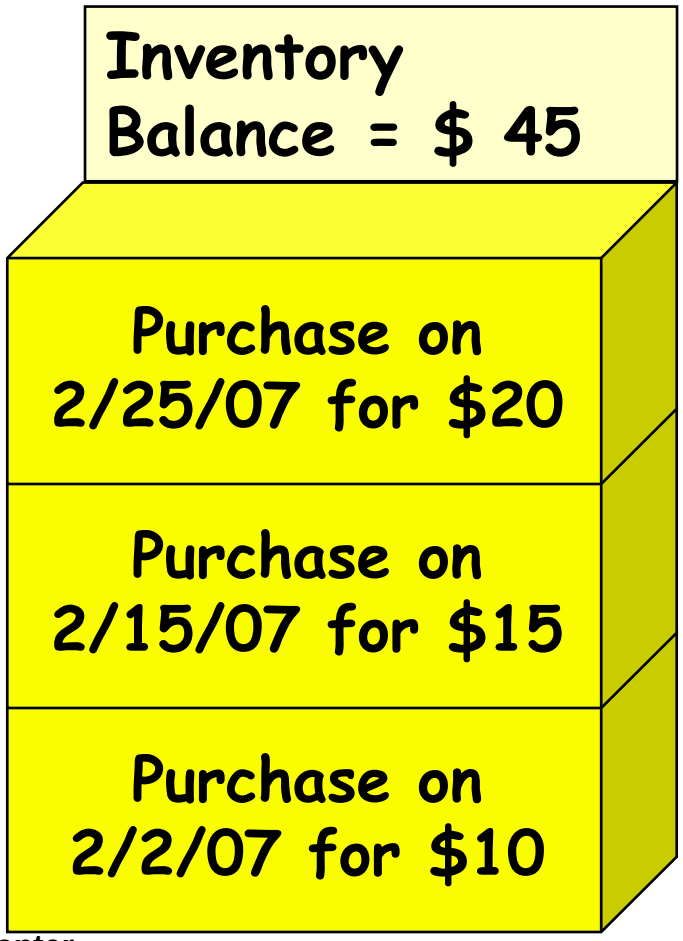
Young & Crazy Company
Income Statement
For the Month of Feb. 2007

Sales	$ 90
Cost of goods sold	15
Gross profit	75
Expenses:	
Administrative	14
Selling	12
Interest	7
Total expenses	33
Income before tax	42
Taxes	12
Net Income	$ 30

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

"Specific Identification"



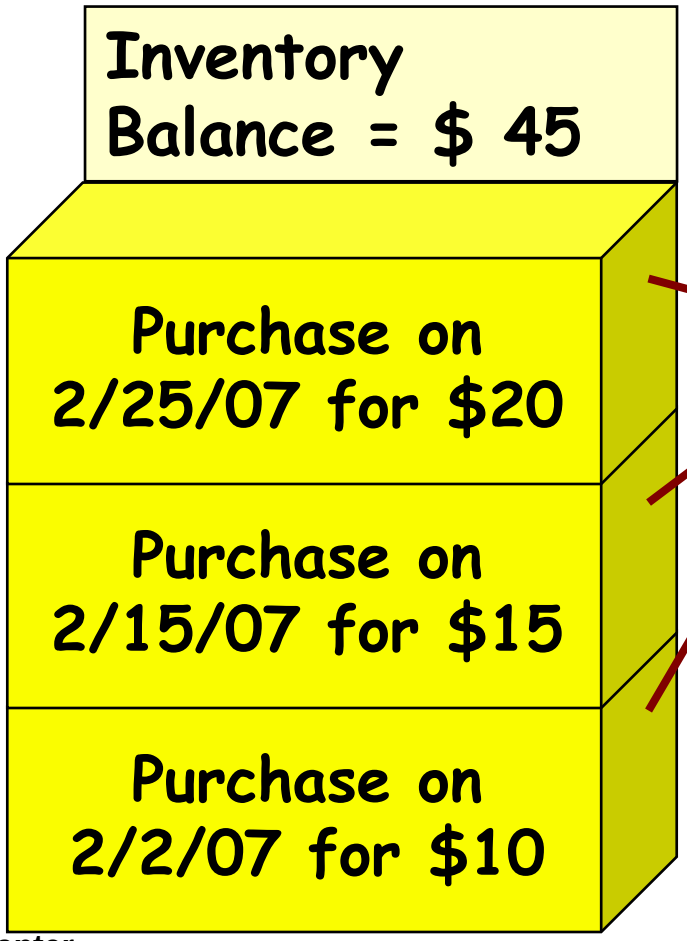
Young & Crazy Company
Income Statement
For the Month of Feb. 2007

Sales	$ 90
Cost of goods sold	0
Gross profit	90
Expenses:	
Administrative	14
Selling	12
Interest	7
Total expenses	33
Income before tax	57
Taxes	17
Net Income	$ 40

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

"Specific Identification"



Young & Crazy Company
Income Statement

Depends which one is sold

Sales	$ 90
Cost of goods sold	0
Gross profit	90
Expenses:	
Administrative	14
Selling	12
Interest	7
Total expenses	33
Income before tax	57
Taxes	17
Net Income	$ 40

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

Financial Statement Summary

	FIFO	LIFO	Average
Sales	$ 90	$ 90	$ 90
Cost of goods sold	10	20	15
Gross profit	80	70	75
Operating expenses:			
Administrative	14	14	14
Selling	12	12	12
Interest	7	7	7
Total expenses	33	33	33
Income before taxes	47	37	42
Income tax expense	14	11	12
Net income	$ 33	$ 26	$ 30
Inventory Balance	35	25	30

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

Example – Perpetual and Periodic Methods

Inventory information for Part 686 for the month of June.

June	1	Beg. Balance	300 units @ $10	=	$ 3,000	Goods Available
	10	Sold	200 units @ $24			
	11	Purchased	800 units @ $12	=	9,600	$19,100
	15	Sold	500 units @ $25			
	20	Purchased	500 units @ $13	=	6,500	
	27	Sold	300 units @ $27			

1. Assuming the Perpetual Inventory Method, compute the Cost of Goods Sold and Ending Inventory under FIFO, LIFO, and Average cost.
2. Assuming the Periodic Inventory Method, compute the Cost of Goods Sold and Ending Inventory under FIFO, LIFO, and Average cost.

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

Perpetual Inventory

+

FIFO Method

FIFO:					
Transactions:		Inventory Balance:			
Date	Units	Layer 1	Layer 2	Layer 3	Total
Jun 1	300	300			
Jun 10	(200)	(200)			
Jun 11	800		800		
Jun 15	(500)	(100)	(400)		
Jun 20	500			500	
Jun 27	(300)		(300)		
		-	100	500	600
Cost		$ 10	$ 12	$ 13	
	600	$ -	$ 1,200	$ 6,500	$ 7,700

Calculation of Cost of Goods Sold:	Units	Dollars
Beg. inventory	300	$ 3,000
Purchases	1,300	16,100
Goods available	1,600	19,100
Ending inventory	(600)	(7,700)
COGS	1,000	$ 11,400

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

Perpetual Inventory

+

LIFO Method

LIFO:					
Transactions:		Inventory Balance:			
Date	Units	Layer 1	Layer 2	Layer 3	Total
Jun 1	300	300			
Jun 10	(200)	(200)			
Jun 11	800		800		
Jun 15	(500)		(500)		
Jun 20	500			500	
Jun 27	(300)			(300)	
		100	300	200	600
Cost		$ 10	$ 12	$ 13	
	600	$ 1,000	$ 3,600	$ 2,600	$ 7,200

Calculation of Cost of Goods Sold:	Units	Dollars
Beg. inventory	300	$ 3,000
Purchases	1,300	16,100
Goods available	1,600	19,100
Ending inventory	(600)	(7,200)
COGS	1,000	$ 11,900

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

Perpetual Inventory + Moving Average

Transactions:				Running Balances		Average
Date	Units	Cost	Total	Units	Cost	Cost
Jun 1	300	$ 10.00	$ 3,000	300	$ 3,000	$ 10.00
Jun 10	(200)	10.00	(2,000)	100	1,000	10.00
Jun 11	800	12.00	9,600	900	10,600	11.78
Jun 15	(500)	11.78	(5,890)	400	4,710	11.78
Jun 20	500	13.00	6,500	900	11,210	12.46
Jun 27	(300)	12.46	(3,738)	600	7,472	12.46
	600		$ 7,472			

Cost of Goods Sold:	Units	Dollars
Beg. inventory	300	$ 3,000
Purchases	1,300	16,100
Goods available	1,600	19,100
Ending inventory	(600)	(7,472)
COGS	1,000	$ 11,628

Cost per unit sold is determined by dividing total inventory $ by total units on hand after each purchase.

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

Perpetual Inventory + Moving Average

Transactions:				Running Balances		Average
Date	Units	Cost	Total	Units	Cost	Cost
Jun 1	300	$ 10.00	$ 3,000	300	$ 3,000	$ 10.00
Jun 10	(200)	10.00	(2,000)	100	1,000	10.00
Jun 11	800	12.00	9,600	900	10,600	11.78
Jun 15	(500)	11.78	(5,890)	400	4,710	11.78
Jun 20	500	13.00	6,500	900	11,210	12.46
Jun 27	(300)	12.46	(3,738)	600	7,472	12.46
	600		$ 7,472			

Cost of Goods Sold:	Units	Dollars
Beg. inventory	300	$ 3,000
Purchases	1,300	16,100
Goods available	1,600	19,100
Ending inventory	(600)	(7,472)
COGS	1,000	$ 11,628

Cost per unit sold is determined by dividing total inventory $ by total units on hand after each purchase.

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

Periodic Inventory

+

FIFO Method

FIFO:					
Transactions:		Inventory Balance:			
Date	Units	Layer 1	Layer 2	Layer 3	Total
Jun 1	300				
Jun 10	(200)				
Jun 11	800		100		
Jun 15	(500)				
Jun 20	500			500	
Jun 27	(300)				
		-	100	500	600
Cost		$ 10	$ 12	$ 13	
	600	$ -	$ 1,200	$ 6,500	$ 7,700

Calculation of Cost of Goods Sold:	Units	Dollars
Beg. inventory	300	$ 3,000
Purchases	1,300	16,100
Goods available	1,600	19,100
Ending inventory	(600)	(7,700)
COGS	1,000	$ 11,400

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

Periodic Inventory

+

LIFO Method

LIFO:					
Transactions:		Inventory Balance:			
Date	Units	Layer 1	Layer 2	Layer 3	Total
Jun 1	300	300			
Jun 10	(200)				
Jun 11	800		300		
Jun 15	(500)				
Jun 20	500				
Jun 27	(300)				
		300	300	-	600
Cost		$ 10	$ 12	$ 13	
	600	$ 3,000	$ 3,600	$ -	$ 6,600

Calculation of Cost of Goods Sold:	Units	Dollars
Beg. inventory	300	$ 3,000
Purchases	1,300	16,100
Goods available	1,600	19,100
Ending inventory	(600)	(6,600)
COGS	1,000	$ 12,500

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Cost Flow Assumptions

Periodic Inventory + Weighted Average

Transactions:			
Date	Units	Cost	Total
Jun 1	300	$ 10.00	$ 3,000
Jun 10			-
Jun 11	800	12.00	9,600
Jun 15			-
Jun 20	500	13.00	6,500
Jun 27			-
	1600		19,100
Divided by units available			1,600
Average cost per unit			11.94
Unit on hand			600
Ending inventory			$ 7,163

Calculation of Cost of Goods Sold:		
	Units	Dollars
Beg. inventory	300	$ 3,000
Purchases	1,300	16,100
Goods available	1,600	19,100
Ending inventory	(600)	(7,163)
COGS	1,000	$ 11,938

LO 5 Describe and compare the cost flow assumptions used to account for inventories.

Special Issues Related to LIFO

LIFO Reserve

Many companies use

- LIFO for tax and external financial reporting purposes
- FIFO, average cost, or standard cost system for internal reporting purposes.

Reasons:

1. Pricing decisions
2. Record keeping easier
3. Profit-sharing or bonus arrangements
4. LIFO troublesome for interim periods

LO 6 Explain the significance and use of a LIFO reserve.

Special Issues Related to LIFO

LIFO Reserve is the difference between the inventory method used for internal reporting purposes and LIFO.

Example:

FIFO value per books	$160,000
LIFO value	145,000
LIFO Reserve	$ 15,000

Journal entry to reduce inventory to LIFO:

Cost of goods sold	15,000	
LIFO reserve		15,000

Companies should disclose either the LIFO reserve or the replacement cost of the inventory.

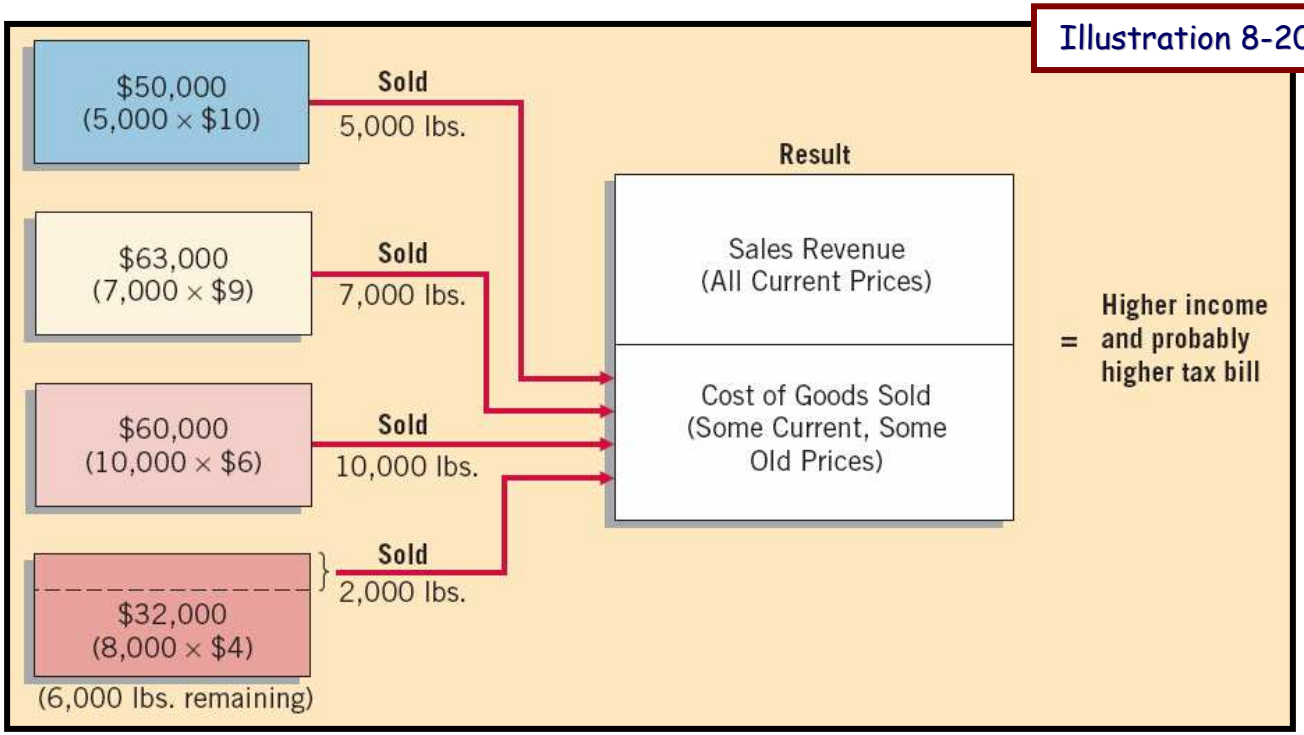
LO 6 Explain the significance and use of a LIFO reserve.

Special Issues Related to LIFO

LIFO Liquidation

Older, low cost inventory is sold resulting in a lower cost of goods sold, higher net income, and higher taxes.

Illustration 8-20



LO 7 Understand the effect of LIFO liquidations.

Special Issues Related to LIFO

Dollar-Value LIFO

- Changes in a pool are measured in terms of total dollar value, not physical quantity.

Advantage:

- Broader range of goods in pool.
- Permits replacement of goods that are similar.
- Helps protect LIFO layers from erosion.

LO 8 Explain the dollar-value LIFO method.

Special Issues Related to LIFO

Dollar-Value LIFO

Exercise 8-26 The following information relates to the Jimmy Johnson Company.

Date	Ending Inventory (End-of-Year Prices)	Price Index
December 31, 2003	$ 70,000	100
December 31, 2004	90,300	105
December 31, 2005	95,120	116

Use the dollar-value LIFO method to compute the ending inventory for 2003 through 2005.

LO 8 Explain the dollar-value LIFO method.

Special Issues Related to LIFO

Exercise 8-26 Solution

	Inventory at End-of-Year		Inventory at Base-Year	Base			$ Value LIFO	LIFO
Year	Prices	Index	Prices	Layers	Index	$ Value LIFO	TOTAL	Reserve
2003	$ 70,000	1.00	$ 70,000	$ 70,000	1.00	$ 70,000	$ 70,000	$ -
2004	90,300	1.05	86,000	70,000	1.00	70,000		
				16,000	1.05	16,800	86,800	3,500
2005	95,120	1.16	82,000	70,000	1.00	70,000		
				12,000	1.05	12,600	82,600	12,520
			Dec. 31	Dec. 31		Dec. 31		
Balance Sheet			2003	2004		2005		
	Inventory		$ 70,000	$ 90,300		$ 95,120		
	LIFO Reserve		-	(3,500)		(12,520)		
			$ 70,000	$ 86,800		$ 82,600		
Journal entry								
	Cost of goods sold			3,500		9,020		
	Lifo reserve			(3,500)		(9,020)		

LO 8 Explain the dollar-value LIFO method.

Special Issues Related to LIFO

Comparison of LIFO Approaches

- Specific-goods LIFO - costing goods on a unit basis is expensive and time consuming.
- Specific-goods Pooled LIFO approach
  - reduces record keeping and clerical costs.
  - more difficult to erode the layers.
  - using quantities as measurement basis can lead to untimely LIFO liquidations.
- Dollar-value LIFO is used by most companies.

LO 8 Explain the dollar-value LIFO method.

Special Issues Related to LIFO

Advantages

- Matching
- Tax Benefits/Improved Cash Flow
- Future Earnings Hedge

Disadvantages

- Reduced earnings
- Inventory understated
- Physical flow
- Involuntary Liquidation / Poor Buying Habits

LO 9 Identify the major advantages and disadvantages of LIFO.

Basis for Selection of Inventory Method

LIFO is generally preferred:

1. if selling prices are increasing faster than costs and
2. if a company has a fairly constant "base stock."

LIFO not appropriate:

1. if prices tend to lag behind costs,
2. if specific identification traditionally used, and
3. when unit costs tend to decrease as production increases.

LO 10 Understand why companies select given inventory methods.

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