CHAPTER

18

Income Recognition and Measurement of Net Assets

OBJECTIVES

After careful study of this chapter, you will be able to:

1. Understand the revenue recognition alternatives.

2. Explain revenue recognition at the time of sale, during production, and at time of cash receipt.

3. Explain the conceptual issues regarding revenue recognition alternatives.

4. Describe the alternative revenue recognition methods.

5. Account for revenue recognition prior to the period of sale, including the percentage-of-completion and completed-contract methods.

6. Account for revenue recognition after the period of sale, including the installment and cost recovery methods.

7. Account for revenue recognition delayed until a future event occurs.
Overview of Revenue Recognition Alternatives

1. **Recognition** is the process of formally recording and reporting an item in the financial statements. **Realization** is the process of converting noncash resources into cash or rights to cash. A company usually recognizes revenue in the period of sale, when (a) realization has taken place, and (b) the revenues have been earned. There are, however, three revenue recognition alternatives: (a) advanced recognition (e.g., during the period of production), (b) recognition at the time of sale, and (c) deferred recognition (e.g., upon receipt of cash). Advanced or deferred recognition is used to increase the usefulness of the financial statements.

Examples of Revenue Recognition Alternatives

2. The recognition of expenses is matched against revenues and coincides with the revenue recognition alternative selected when there is a direct "association of cause and effect." For example, depreciation expense on machinery to produce a product is included in the cost of inventory and its recognition is consistent with the recognition of revenue. However, when expenses are recognized on the basis of systematic and rational allocation (depreciation on an office building for administrative purposes) or immediately (administrative salaries), the recognition of expenses is independent of the revenue recognition alternative used.

Conceptual Issues

3. There are three factors to be used when evaluating which revenue recognition method to use:

   (a) The economic substance of the event takes precedence over the legal form of the transaction. Usually a company recognizes revenue at the time of the legal transaction. However, revenue recognition may be advanced or delayed if economic "reality" would otherwise be substantially distorted. An example is the recognition of gross profit on a sales-type lease by the lessor before legal title is passed.

   (b) The risks and benefits of ownership have been transferred to the buyer. If the risks and benefits have been substantially transferred, the buyer must recognize revenue. Under a sales-type lease, the lessor must recognize revenue even though no legal sale has occurred because the risks and benefits of ownership have been transferred.

   (c) The collectibility of the receivable from the sale is reasonably assured. If collectibility is not reasonably assured, revenue has not been realized and the earning process is not complete so recognition is deferred.

Alternative Revenue Recognition Methods

4. **Revenue Recognition in the Period of the Sale** is used when realization has occurred and revenues are earned at the time of the sale. Accrual accounting is used, expenses are matched against revenues, inventory is recorded at cost, and accounts receivable are recorded at net realizable value. This method is used most often.

5. **Revenue Recognition Prior to the Period of the Sale** is used to reflect economic substance over legal form. The percentage-of-completion method of accounting for long-term construction contracts and the proportional performance method of accounting for long-term service contracts are examples.
6. Revenue Recognition at the Completion of Production is used for certain precious metals and farm products, which may have a fixed market price and unit interchangeability. However, this alternative is rarely used.

7. Revenue Recognition After the Period of the Sale is used when the collectibility of receivables is not reasonably assured or cannot be reliably estimated. The installment method and the cost recovery method are both used to defer revenue recognition.

8. Revenue Recognition Delayed Until a Future Event Occurs is used when there has been insignificant transfer of the risks and benefits of ownership. The deposit method of accounting is used until sufficient risks and benefits have been transferred to the buyer. Then revenue recognition may occur.

A summary of alternative revenue recognition methods is presented on page 907 in the text.

Revenue Recognition Prior to the Period of Sale

9. Long-term construction contracts arise when a company agrees to construct an asset (e.g., buildings, ships, bridges) for another entity over an extended period. The buyer may provide advance payments to help finance construction, but the legal sale does not take place until the asset is complete. Three alternative revenue recognition methods are possible: (1) the percentage-of-completion method in which a company recognizes profit each period during the life of the contract in proportion to the amount of the contract completed during the period, and values its inventory at the costs incurred plus the profit recognized to date, less any partial billings; (2) the completed-contract method in which a company recognizes profit only when the contract is complete and records inventory at cost, less any partial billings; and (3) the proportional performance method that is used by companies with long-term service contracts.

10. The AICPA concluded that long-term construction contracts may be considered "continuous sales" and requires that a company use the percentage-of-completion method for long-term contracts when all of the following conditions are met:

(a) The company can make reasonably dependable estimates of the extent of progress toward completion, contract revenues, and contract costs.

(b) The contract clearly specifies the enforceable rights regarding goods or services to be provided and received by both the company and the buyer, the consideration to be exchanged, and the manner and terms of settlement.

(c) The buyer can be expected to satisfy its obligations under the contract.

(d) The company expects the contractor to perform its contractual obligations.

When any of the above conditions are not met, the company must use the completed-contract method. It also uses the completed-contract method for short-term contracts and when the risks of the contract are so great that reasonably dependable estimates cannot be made. A company cannot choose between the two methods but must make a decision based on the specific circumstances.

11. A company can determine the percentage completed by either "input" or "output" measures. The cost-to-cost method and efforts-expended method are two input measures. Using the cost-to-cost method, the company measures the percentage of completion by comparing the cost incurred to date with the expected total costs for the contract. With the efforts-expended method, the company measures the percentage of completion by comparing the work (labor hours, labor dollars, machine hours, material quantities, etc.) performed to date with the total estimated work for the contract. Under either method, once the company determines the percentage of completion it multiplies this
percentage by the total revenue on the contract to compute the revenue to be recognized to date. The revenue to date minus the revenue recognized in previous years is the revenue to recognize in the current year. The expense to be recognized is determined in the same way. Alternatively, the company can use output measures such as units produced, units delivered, value added, or other measures of production to measure the percentage of completion. The results achieved to date compared to the total expected results of the contract are used to measure percentage of completion.

A company computes revenue and expense in the same way as discussed above for the input measures.

12. Under the completed-contract method, no revenue is recognized until the project is complete. The principle advantage of the completed-contract method is that the gross profit is more reliable because it is based on final results rather than on estimates. The principle disadvantage of the completed-contract method is that it is less relevant because net income is a function of the date when contracts are completed and does not reflect current performance. The percentage-of-completion method gives economic substance precedence over legal form and produces a better measure of periodic income. However, the method relies heavily on estimates.

13. Consistent with the conservatism convention, a company must record an estimated loss on long-term contracts in full under both the percentage-of-completion and completed-contract methods at the time it estimates the loss. If there is a loss in the current period, but a profit on the total contract is anticipated, the loss recognized is equal to the difference between the revenue recognized for the year and the construction costs incurred for the year. However, if a company anticipates a loss on the total contract, it must remove the gross profit on the contract to date, in addition to recognizing the loss.

14. There are several additional factors that affect accounting for long-term construction contracts. (a) Contract costs may include general and administrative costs that are identifiable with or allocable to the contract; (b) GAAP requires that a company classify the net amounts of Construction in Progress and Partial Billing as current assets or current liabilities; (c) Offsetting of assets and liabilities is permitted when contracts are closely related; (d) Interest costs associated with the funds used in construction are capitalized and included in the Construction in Progress account; and, (e) Disclosure of the method used to account for long-term construction contracts is required in a note to the financial statements.

15. According to GAAP, a company must recognize revenues for services rendered when the services have been performed and are billable. However, long-term service contracts can be complex, and it may be difficult to determine when "performance" has been completed.

16. When more than one act is required under a long-term service contract, a company recognizes revenue by the proportional performance method. That is, the company recognizes revenue in proportion to performance of each act.

17. Recognition under the proportional performance method depends on the type and number of service acts:

(a) For a specified number of similar acts, an equal amount of revenue is recognized for each act.

(b) For a specified number of defined but not similar acts, revenue recognized for each act is based on the ratio of the direct costs (see below) of the act to the total estimated direct costs under the contract.

(c) For an unspecified number of similar acts, revenue is recognized on a straight-line basis over the performance period.
Reporting and Disclosing Long-Term Construction Contracts

18. Costs under a long-term service contract include (a) initial direct costs, directly associated with negotiating and signing the contract (for example, legal fees), (b) direct costs, directly related to services performed (for example, labor costs), and (c) indirect costs, not included in either of the preceding categories.

19. A company defers initial direct costs and allocates them over the performance period, in proportion to service revenues recognized. Direct costs and indirect costs are expensed as incurred.

Revenue Recognition After the Period of Sale

20. In an installment sale, a customer makes a small down payment and contracts to pay the balance over an extended period. Although the customer typically takes possession of the item, the seller retains title until payment is completed. The seller may recognize revenue at the time of the sale if collectibility is reasonably assured or, if not, recognition may be deferred. If the seller defers recognition, either the installment method or the cost recovery method may be used. It is important to distinguish between an "installment sale" (a type of legal contract) and the "installment method" of revenue recognition. Under the installment method, the seller recognizes some gross profit with each payment received from the customer. The amount recognized is determined by the gross profit ratio in the year of the sale. Under the more conservative and less common cost recovery method, the seller recognizes no gross profit until all of the cost of the merchandise is recovered.

21. GAAP states that the installment and cost recovery methods are acceptable only in exceptional cases. When a customer will make payments over a long period and the collectibility of cash is not reasonably assured, the seller uses the installment method. If collectibility is extremely uncertain, or there is no reasonable basis for estimating the degree of collectibility, the cost recovery method is appropriate. Recently, an increase in complex sales transactions where the recognition of revenue at the time of sale is inappropriate has led to wider use of the two methods. The installment method is also used for income tax reporting under certain circumstances.

22. A company may use the installment method in special credit "sale" situations. In these cases, it may initially record a Deferred Gain at the time of the "sale." Then, as it collects the cash, it reduces the deferred gain and recognizes a gain based on the percentage of the total cash collected.

23. Accounting for installment sales under the cost recovery method is the same as under the installment method except under the cost recovery method, a company recognizes gross profit at the end of each year to the extent that the cash received to date exceeds the cost of the product sold.

Revenue Recognition Delayed Until a Future Event Occurs

24. A company uses the deposit method to postpone the recognition of revenue when a sale occurs, which cannot be recognized for accounting purposes because sufficient risks and benefits of ownership have not been transferred. Until the revenue is recognized in a future period, assets and liabilities that have been transferred are separately classified on the company's balance sheet (e.g., assets of business transferred under contract), depreciation continues to be recorded, and any payments are recorded as a deposit and reported as a liability (Deposit from Purchaser) on the balance sheet. When circumstances have changed and trigger the recognition of a sale, the company recognizes revenue and eliminates the deposit account.
**SELF-EVALUATION EXERCISES**

**True-False Questions**

Determine whether each of the following statements is true or false.

1. Revenue is usually formally recorded and reported in the financial statements when recognition has taken place and the earning process is complete.  
   **Answer: False**  
   Recognition is the process of formally recording and reporting an item in the financial statements; therefore, when recognition has taken place the revenue has already been recorded. To make this statement true, “realization” would be substituted for “recognition.”

2. The recognition of revenue may be deferred or advanced in order to increase the usefulness of the accounting information.  
   **Answer: True**  
   In order to achieve a more relevant portrayal of the nature of its operations without a significant decrease in the reliability of the information, a company will defer or advance the recognition of revenue. This is done to increase the usefulness of the information.

3. The period in which a company recognizes revenue determines the period in which there is a change in the related net asset valuation.  
   **Answer: True**  
   In the period a company recognizes revenue, there will be an increase in assets (cash and/or accounts receivable) by the amount of the sale. There will also be a decrease in assets (inventory) by the cost of the items sold. NOTE: This isn’t true when revenue is recognized under percentage of completion since inventory isn’t decreased. The difference between the sale price and cost of the item is profit and results in an increase in net assets.

4. The recognition of related expenses is dependent on the revenue recognition alternative used when there is not a direct association of cause and effect.  
   **Answer: False**  
   Related expenses for which there is no direct association with the revenue are items such as overhead or depreciation. These items are recognized either in a systematic and rational allocation or through immediate recognition and are not dependent on the revenue recognition method used.

5. The percentage-of-completion method is used to recognize revenue prior to the period of the sale and is an example of economic substance over legal form.  
   **Answer: True**  
   The percentage-of-completion method allows recognition of revenue before the title of the asset is transferred to ensure that the economic reality of the transaction is not distorted.
6. When a company uses the completed-contract method of accounting for long-term construction contracts, it recognizes profit each period during the life of the contract in proportion to the amount of contract completed during the period.

Answer: False
Under the completed contract method, revenue, and therefore profit, are not recognized until the project is completed or substantially completed. Recognizing profit during each period of the life of the contract in proportion to the amount of the contract completed is the percentage-of-completion method.

7. The AICPA recommends the use of the percentage-of-completion method to account for long-term construction contracts in all cases where reasonably dependable estimates can be made of the revenues and expenses associated with the contract, and both the buyer and the contractor can be expected to fulfill their contractual obligations.

Answer: False
The AICPA does not recommend, but instead requires the use of the percentage-of-completion method be used for long-term construction contracts when these conditions are met.

8. The completed-contract method gives economic substance more importance than legal form and produces a better measure of periodic income and current performance.

Answer: False
The principal disadvantage to the completed-contract method is that it is less relevant because the company's net income does not reflect their current performance and places legal form over economic substance.

9. An expected loss on a long-term contract accounted for by the percentage-of-completion method should be recorded based on the percentage of work completed.

Answer: False
GAAP requires that a company recognize the total estimated loss on the entire contract under both the percentage-of-completion and the completed-contract methods. This is consistent with the conservatism constraint of anticipating all foreseeable losses.

10. When using the proportional performance method to account for a long-term service contract, initial direct costs should be charged to expense as incurred, and indirect costs should be deferred and allocated over the performance period in proportion to the service revenues recognized.

Answer: False
Under the proportional performance method, the initial direct costs should be deferred and allocated. Direct costs other than initial direct costs and indirect costs are expensed as incurred.

11. A company may only use the installment method in exceptional circumstances where payments are to be received over a long time period, and where the collectibility of cash is uncertain.

Answer: True
The installment method of recognizing revenue for installment sales is generally unacceptable except when the payments are over an extended period and there is uncertainty regarding the collectibility of the payments.

12. While both the installment method and the cost-recovery method defer recognition of installment-sales revenue, the installment method recognizes some gross profit as each payment is received from the customer while the cost-recovery method waits until all of the cost of the merchandise is recovered.

Answer: True
The installment method recognizes gross profit as cash on the installment sales is collected. The cost-recovery method requires that all costs be recovered before any gross profit is recognized.
Multiple Choice Questions

Select the one best answer for each of the following questions.

1. In 2011, Adam Company started work on a long-term construction project that will take three years to complete. The company will be paid $5,000,000 for the project. At the end of the first year, the accounting records showed the following data:

   Construction costs incurred $1,125,000
   Estimated costs to complete the contract 3,375,000
   Partial billings to customer 900,000
   Collections from customer 800,000

If Adam Company uses the percentage-of-completion method, the amount of gross profit that would be recognized in 2011 would be:
(a) $1,250,000.
(b) $1,125,000.
(c) $125,000.
(d) $112,500.

Answer: (c) $125,000.

The total estimated cost to complete the project is $4,500,000 ($1,125,000 costs incurred + $3,375,000 estimated costs to complete the project); therefore, we have completed 25% of the project ($1,125,000 incurred ÷ $4,500,000 estimated total project cost). Because the project is 25% completed, that would represent $1,250,000 of revenue (25% of the $5,000,000 total revenue for the project). To achieve this revenue of $1,250,000, we have incurred $1,125,000 of costs, resulting in a gross profit of $125,000 ($1,250,000 − $1,125,000).

Answer (a) is incorrect because that is the amount of revenue (25% of $5,000,000), not the amount of gross profit. Answer (b) is incorrect because $1,125,000 is the amount of costs that we have incurred to date. Answer (d) is incorrect because the correct answer is $125,000.

2. Using the data presented above in Question #1, determine the balance in the Construction in Progress account at the end of the first year under both the percentage-of-completion and completed-contract methods.

The construction in progress account captures costs incurred under the complete-contract method, which is $1,125,000. Using the percentage-of-completion method, the construction in progress account also captures the costs incurred ($1,125,000) plus the amount of gross profit recognized ($125,000), for a total of $1,250,000.

Answer (b) is incorrect because it reflects only the costs incurred under both methods and does not reflect gross profit for the percentage-of-completion method. Answer (c) is incorrect because it reflects the costs incurred and the gross profit for both methods. Remember, gross profit is not recognized until the project is complete in the completed-contract method. Answer (d) is incorrect because it does not record the gross profit in the percentage-of-completion method and does not record anything in the completed-contract method.
3. At the end of 2011, the accounting records of Brightwell Construction Company showed the following data relating to a three-year $2,000,000 long-term construction contract:

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction costs</td>
<td>$600,000</td>
<td>$800,000</td>
</tr>
<tr>
<td>incurred</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimated costs to</td>
<td>1,000,000</td>
<td>700,000</td>
</tr>
<tr>
<td>complete the contract</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partial billings to</td>
<td>500,000</td>
<td>600,000</td>
</tr>
<tr>
<td>customer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collections from</td>
<td>400,000</td>
<td>500,000</td>
</tr>
<tr>
<td>customer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Using the completed-contract method, the loss anticipated on the contract at the end of 2011 would
(a) not be recognized until realized at the completion of the contract in 2012.
(b) be recognized in 2011 by debiting Construction Expense and crediting Provision for Loss on Contract each for $100,000.
(c) be recognized in 2011 by debiting Construction Expense for $220,000, which includes the amount of the loss plus the amount needed to reduce the cumulative profit in the Construction in Progress account to zero.
(d) be recognized in 2011 by debiting Construction Expense and crediting Construction in Progress each for $100,000.

Answer: (b) be recognized in 2011 by debiting Construction Expense and crediting Provision for Loss on Contract each for $100,000.

At the end of 2011, the company has incurred costs of $1,400,000 ($600,000 in 2010 and $800,000 in 2011). The estimated costs to complete the contract are $700,000, making the estimated total project cost $2,100,000 (costs incurred to date of $1,400,000 + estimated costs to complete of $700,000). The company estimates a loss of $100,000 on the total project because the contract is for $2,000,000 and the estimated costs are $2,100,000. Under the completed-contract method when a loss on the total project is expected, the amount of the loss ($100,000) is debited to construction expense and credited to provisions for loss on contract.

Answer (a) is incorrect because a loss is recognized when it is estimated, not when realized. Answer (c) is incorrect because under the completed-contract-method, there was not any gross profit recognized from the previous year; therefore, there is no cumulative profit to reduce to zero. Answer (d) is incorrect because construction in progress is not debited under the completed-contract method when a loss is estimated.
4. The Show Time Video Company sells two-year memberships to its video club. For $500 paid in advance, a member is entitled to a specified number of dissimilar services including video, video player, and cam recorder rentals, blank video tapes, and video tape developing. Show Time should recognize revenue on which of the following bases?
(a) Revenue of an equal amount should be recognized for each service provided.
(b) Revenue should be recognized for each service provided based on the ratio of the direct costs of that service to the total estimated direct costs under the contract.
(c) Revenue should be recognized on a straight-line method over the performance period.
(d) Revenue should be recognized at the end of the contract period when the benefits of ownership have been transferred and substantial performance has occurred.

**Answer:** (b) Revenue should be recognized for each service provided based on the ratio of the direct costs of that service to the total estimated direct costs under the contract.

Because this contract is a specified number of defined but dissimilar acts, Show Time should recognize revenue after each service is provided based on the ratio of direct costs for each act to the total estimated direct costs for the entire contract.

Answer (a) is incorrect because the acts are dissimilar. If the acts were similar then Show Time would use this method. Answer (c) is incorrect because straight-line recognition is used when there is an unspecified number of similar acts. In this case, there are not an unspecified number of acts and they are not similar. Answer (d) is incorrect because the performance of Show Time and therefore Show Time's recognition of revenue occurs over a period of time and performance of various acts. The performance of these acts determines when revenue is recognized.

5. Fairway Company uses the installment method to account for installment sales. Fairway began operations on January 1, 2011, and at the end of the year the following accounting data was available:

<table>
<thead>
<tr>
<th>Total credit sales</th>
<th>$800,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installment sales (included in total credit sales)</td>
<td>200,000</td>
</tr>
<tr>
<td>Cost of goods sold on installment sales</td>
<td>120,000</td>
</tr>
<tr>
<td>Cash receipts on installment sales</td>
<td>70,000</td>
</tr>
</tbody>
</table>

The amount of gross profit related to installment sales that Fairway should recognize in 2011 is:
(a) $17,500.
(b) $28,000.
(c) $42,000.
(d) $80,000.

**Answer:** (b) $28,000.

The gross profit on installment sales is $80,000 ($200,000 installment sales − $120,000 cost of goods sold on installment sales); therefore, the gross profit percentage on installment sales is 40% ($80,000 ÷ $200,000). Fairway should recognize gross profit on installment sales equal to the gross profit percentage on the cash collected from the installment sales. Therefore, Fairway should recognize $28,000 of gross profit from installments sales (40% of $70,000 collected).

Answer (a) is incorrect because it represents 25% of the cash collected on installment sales. While the 25% is the percentage of installment sales out of the total credit sales, it is not the gross profit percentage. Answer (c) is incorrect because this amount represents the cost of the goods sold, not the gross profit amount for the cash collected on installment sales. Answer (d) is incorrect because this amount is the total gross profit on all installment sales and not on the sales where cash has been collected.
6. In 2011, Uptown Corporation had installment sales of $180,000, installment sales cost of goods sold of $135,000, and cash receipts on 2011 installment sales of $60,000. In addition, cash receipts on 2010 installment sales of $70,000 were also recorded in 2011. The gross profit rate in 2010 was 30%. Assuming that Uptown uses the installment method, the total gross profit on installment sales recognized in 2011 would be:

(a) $15,000.
(b) $21,000.
(c) $36,000.
(d) $39,000.

**Answer: (c) $36,000.**

Uptown will record gross profit based on cash collected from installment sales using the gross profit percentage for the year the sale was made. In 2011, Uptown collected $70,000 for 2010 installment sales. Of this amount, $21,000 (30% of $70,000) is gross profit that will be recognized in 2011. In addition to the gross profit from the 2010 installment sales, Uptown will recognize the gross profit on cash collected for the 2011 installment sales. In 2011, the gross profit on installment sales was $45,000 ($180,000 sales - $135,000 cost of goods sold); therefore, the gross profit percentage for 2011 is 25% ($45,000 ÷ $180,000). Because $60,000 was collected from the 2011 installment sales, Uptown will recognize $15,000 (25% of $60,000). Therefore, the total amount of gross profit on installment sales recognized in 2011 is $36,000 ($15,000 from 2011 + $21,000 from 2010).

Answer (a) is incorrect because it represents only the gross profit from the collection of 2011 installment sales and does not include the collections of 2010 installment sales.

Answer (b) is incorrect because it represents only the collections from the 2010 installment sales and not the collections from the 2011 sales. Answer (d) is incorrect because while it includes gross profit for both 2010 and 2011 installment sales collected in 2011, it calculates the gross profit on both years using the 30% gross profit rate from 2010 and ignores the fact that the 2011 sales had a different gross profit rate (25%).
7. Adam Company used the cost-recovery method for the first time to account for $60,000 in sales in 2011. Cost of goods sold related to these sales was $48,000. Related cash collections in 2011 were $20,000, in 2012 were $32,000, and in 2013 were $8,000. The amount of gross profit that Adam Company would recognize in 2011, 2012, and 2013, respectively, is:

(a) $4,000; $6,400; $1,600.
(b) -0-; 0-; $12,000.
(c) $4,000; $4,000; $8,000.
(d) -0-; $4,000; $8,000.

Answer: (d) -0-; $4,000; $8,000.

Using the cost-recovery method to recognize gross profit, Adam will not recognize any gross profit until all of the cost of goods sold ($48,000) has been collected. Once the cost of goods sold has been collected, all future collections will be recognized as gross profit. In 2011, all of the $20,000 collected is applied to the cost of goods sold, leaving $28,000 ($48,000 cost of goods sold − $20,000 collected) of the cost of goods sold left to be recovered. Because all of the collections in 2011 went to cover the cost of goods sold, there will be no gross profit recognized in 2011. In 2012, $32,000 was collected. $28,000 of the $32,000 went to cover the balance of the cost of goods sold, leaving $4,000 to be recognized as gross profit in 2012. Because all of the cost of goods sold have been recovered, all of the collections in 2013 ($8,000) will be recognized as gross profit.

Answer (a) is incorrect because it recognizes gross profit in each year based on the gross profit rate. Under the cost recovery method, there is no gross profit recognized until all cost of goods sold has been recovered. Answer (b) is incorrect because it does not recognize any gross profit until all collections have been made. Under the cost-recovery method, once the cost of goods sold has been recovered (which occurs in 2012) all future collections are recognized as gross profit. Answer (c) is incorrect because it recognizes gross profit in a straight-line method based on time, not collections.

8. Which of the following would be considered an initial direct cost involved in a long-term service cost?

(a) depreciation
(b) legal fees
(c) labor costs
(d) all of the above

Answer: (b) legal fees

Initial direct costs are those costs that are directly associated with the negotiating and signing of a long-term service contract cost. A legal fee would be an example of this type of cost.

Answer (a) is incorrect because depreciation is an indirect cost. Answer (c) is incorrect because labor costs are an example of a direct cost. These costs have a clear causal relationship to the services performed. Answer (d) is incorrect because depreciation and labor costs are not examples of initial direct costs.
9. A loss would be recognized immediately when estimated total costs exceed the contract price on a long-term construction contract under which accounting method?
   (a) Completed-contract method
   (b) Percentage-of-completion method
   (c) Both the completed-contract method and the percentage-of-completion method
   (d) A loss would not be recognized under either method until the end of the contract.
   **Answer: (c)** Both the completed-contract method and the percentage of completion method

When total estimated costs exceed the contract price, a loss would be immediately recognized when using either the completed-contract or the percentage-of-completion method. This is in keeping with the conservatism constraint that recognizes losses immediately.

Answers (a) and (b) are incorrect because both methods require immediate recognition of a loss. Answer (d) is incorrect because conservatism dictates that we recognize a loss as soon as it is estimated.

10. Under the installment method, gross profit is recognized:
   (a) after all collections have been made.
   (b) as cash from the sales are collected based on the gross profit percentage.
   (c) when the sales occur.
   (d) once the cost of the items sold has been recovered.
   **Answer: (b)** as cash from the sales are collected based on the gross profit percentage.

The installment method recognizes gross profit in the period when cash collection is made. This is done because the collectibility of the sale is not reasonably assured.

**Problem-Solving Strategies**

Normally, revenue is recognized during the period of sale and this method is focused on in other areas of the text and this study guide. In this chapter, we will focus on the two other places that revenue recognition can take place; before the period of the sale and after the period of sale.

**Revenue Recognition Prior to the Period of Sale**

Each method discussed in this section deals with long-term contracts. The first two, percentage-of-completion and completed-contract are generally used by construction companies. While the completed-contract method is not a method that recognizes revenue prior to the period of sale, it is discussed here to allow you to contrast this method to the percentage-of-completion method, which does recognize revenue prior to the period of sale. The third method (proportional performance) is used by companies with long-term service contracts and it also recognizes revenue prior to the period of sale.

**Percentage-of-Completion Method**

Under the percentage-of-completion method, a company uses the Construction in Progress account to record all costs on the project as well as the gross profit recognized to date. It uses a Partial Billings account to record receipts paid by the buyer during construction. The Partial Billings account is a contra account to Construction in Progress. The company reports a net debit balance in the Construction in Progress account on its balance sheet as an asset and a net credit balance as a liability.

Let’s work through an example to understand what is recorded using the percentage-of-completion method.
Assume that Bobcat Construction has been contracted to build a new headquarters building for Hays National Bank. The following information is for this project:

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs incurred during the year</td>
<td>$180,000</td>
<td>$150,000</td>
<td>$115,000</td>
</tr>
<tr>
<td>Estimated cost to complete</td>
<td>$270,000</td>
<td>$110,000</td>
<td>–</td>
</tr>
<tr>
<td>Partial billings</td>
<td>$150,000</td>
<td>$135,000</td>
<td>$215,000</td>
</tr>
<tr>
<td>Collections from client</td>
<td>$125,000</td>
<td>$130,000</td>
<td>$245,000</td>
</tr>
<tr>
<td>Total contract price</td>
<td>$500,000</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Based on this information, let’s examine the numbers for 2011 in detail and then complete the numbers for 2012 and 2013.

The first step to completing a percentage-of-completion problem is to find out how much of the project was completed to date. To do this we need to know two pieces of information: 1) How much of the costs have been incurred and 2) how much we estimate the total project to cost when completed. In our example for 2011, we have incurred a total of $180,000 to date and still have an estimated $270,000 before the project is complete. Therefore, we have completed 40% of the project ($180,000 costs incurred ÷ $450,000 estimated total project cost ($180,000 already incurred + $270,000 that we estimate will be required to complete the project).

Because we have determined that the project is 40% complete at the end of 2011, we can calculate the amount of revenue Bobcat Construction should recognize for this project for 2011. Because the total contract price is $500,000 and we are 40% completed, we should recognize $200,000 (40% of $500,000) in revenue for 2011.

Once we have determined how much revenue we should recognize for 2011, we subtract the costs incurred during the year to determine the amount of gross profit recognized for 2011 ($200,000 – $180,000 = $20,000).

Now let’s turn our attention to the 2011 journal entries required for this percentage-of-completion problem. The first journal entry is to record construction costs:

<table>
<thead>
<tr>
<th>General Journal</th>
<th>Debit Amount</th>
<th>Credit Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction in Progress</td>
<td>180,000</td>
<td>Cash, accounts payable, inventory, etc. 180,000</td>
</tr>
</tbody>
</table>

**Strategy:** In practice, there would probably not be just a single journal entry to record the payment of costs incurred. In actuality there would be hundreds, if not thousands, of entries to record the payment of expenses as costs are incurred during the year. We are showing one entry to simplify the example.

As the project progresses we will be billing the client. These partial billings (which are a contra account to the construction in progress account) for 2011 would look like this:

<table>
<thead>
<tr>
<th>General Journal</th>
<th>Debit Amount</th>
<th>Credit Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounts Receivable</td>
<td>150,000</td>
<td>Partial Billings 150,000</td>
</tr>
</tbody>
</table>

As cash is received from the client in response to our billings, the entry would be:

<table>
<thead>
<tr>
<th>General Journal</th>
<th>Debit Amount</th>
<th>Credit Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>125,000</td>
<td>Accounts Receivable 125,000</td>
</tr>
</tbody>
</table>
Strategy: The amounts of partial billings that are made to the client, as well as the amount of payments made by the clients are not information that you can calculate. These items will be given in one form or another in the problem.

All that is left now is to record the gross profit for 2011:

\[
\begin{align*}
\text{Construction Expense} & \quad 180,000 \\
\text{Construction in Progress} & \quad 20,000 \\
\text{Construction Revenue} & \quad 200,000
\end{align*}
\]

Strategy: The first part of this entry is to record the costs that we have incurred as construction expense. After this is accomplished, we record as revenue the percentage of the contract price that we have completed. The difference between these two amounts represents the gross profit (revenue - cost) and is plugged into the entry.

Because we have completed the entries for 2011, we now turn our attention to 2012. We need to determine how much of the project has been completed at the end of 2012. Just as before we need to know two pieces of information: 1) How much of the costs have been incurred and 2) how much we estimate the total project to cost when completed. For 2012 we have incurred a total of $330,000 to date ($180,000 from 2011 + $150,000 from 2012). We have estimated that the project will cost another $110,000 to complete. Therefore, we have completed 75% of the project ($330,000 costs incurred ÷ $440,000 estimated total project cost ($330,000 already incurred + $110,000 that we estimate will be required to complete the project).

Because we have determined that the project is 75% complete at the end of 2012, we can calculate the amount of revenue Bobcat Construction should recognize for this project for 2012. Because the total contract price is $500,000 and we are 75% completed, at the end of 2012 we should have recognized a total of $375,000 (75% of $500,000). Because we have already recognized $200,000 of this revenue in 2012, we must recognize $175,000 in 2012 to reach the total to date of $375,000.

After calculating the amount of revenue to recognize for 2012 ($175,000) we need to subtract the costs incurred during 2012 to determine the amount of gross profit to be recognized for 2012 ($175,000 − $150,000 = $25,000).

Returning to our journal entries for 2012, the first entry is to record construction costs:

\[
\begin{align*}
\text{Construction in Progress} & \quad 150,000 \\
\text{Cash, accounts payable, inventory, etc.} & \quad 150,000
\end{align*}
\]

We are again billing the client as time progresses and the entry for this for 2012 would be:

\[
\begin{align*}
\text{Accounts Receivable} & \quad 135,000 \\
\text{Partial Billings} & \quad 135,000
\end{align*}
\]

As cash is received from the client in response to our billings, the entry would be:

\[
\begin{align*}
\text{Cash} & \quad 130,000 \\
\text{Accounts Receivable} & \quad 130,000
\end{align*}
\]
All that is left now is to record the construction expenses and gross profit for 2012:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Expense</td>
<td>150,000</td>
</tr>
<tr>
<td>Construction in Progress</td>
<td>25,000</td>
</tr>
<tr>
<td>Construction Revenue</td>
<td>175,000</td>
</tr>
</tbody>
</table>

**Strategy:** Again, remember that the first part of this entry is to record the costs that we have incurred as construction expense. After this is accomplished, we record as revenue the percentage of the contract price that we have completed. The difference between these two amounts represents the gross profit (revenue − cost) and is plugged into the entry.

The entries for the final year, 2013, are similar to the previous two years. Because we have completed the project we do not need to calculate the percentage of completion because we are now 100% complete. Therefore, for 2013 we should have recognized all $500,000 of the total contract price as revenue. We have already recognized $375,000 of this revenue in 2011 ($200,000) and 2012 ($175,000), so we have the remaining $125,000 to recognize in 2013.

As before, we subtract the costs incurred in 2013 ($115,000) from the revenue recognized ($125,000) to determine the amount of gross profit ($10,000) we recognize in 2013.

The journal entries for 2013 are similar to the previous two years with the exception of a closing entry to complete the project.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction in Progress</td>
<td>115,000</td>
</tr>
<tr>
<td>Cash, accounts payable, inventory, etc.</td>
<td>115,000</td>
</tr>
</tbody>
</table>

The remaining amount of the contract is billed to the client:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounts Receivable</td>
<td>215,000</td>
</tr>
<tr>
<td>Partial Billings</td>
<td>215,000</td>
</tr>
</tbody>
</table>

The client completes the payments:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>245,000</td>
</tr>
<tr>
<td>Accounts Receivable</td>
<td>245,000</td>
</tr>
</tbody>
</table>

We again record the construction expenses and gross profit for 2013:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Expense</td>
<td>115,000</td>
</tr>
<tr>
<td>Construction in Progress</td>
<td>10,000</td>
</tr>
<tr>
<td>Construction Revenue</td>
<td>125,000</td>
</tr>
</tbody>
</table>

The only unique entry is to complete the project. To do this we must close Construction in Progress and its contra account Partial Billings. This is done by reversing the entries to "zero-out" the two accounts. The T-accounts for these two items are shown below:
### Construction in Progress

<table>
<thead>
<tr>
<th>Partial Billings</th>
</tr>
</thead>
<tbody>
<tr>
<td>180,000</td>
</tr>
<tr>
<td>20,000</td>
</tr>
<tr>
<td>150,000</td>
</tr>
<tr>
<td>25,000</td>
</tr>
<tr>
<td>115,000</td>
</tr>
<tr>
<td>10,000</td>
</tr>
<tr>
<td>500,000</td>
</tr>
</tbody>
</table>

Therefore, the entry to close Construction in Progress would be a credit of $500,000 while the entry to close Partial Billings would be a debit of $500,000:

- **Partial Billings**
  - **Construction in Progress**: 500,000

### Completed-Contract Method

The major difference between the completed-contract method and the percentage-of-completion method is that companies do not recognize gross profit under the completed-contract method until the contract is complete. The entries for 2011 under the completed-contract method would be as follows:

- **Construction in Progress**: 180,000
- **Cash, accounts payable, inventory, etc.**: 180,000
- **Accounts Receivable**: 150,000
- **Partial Billings**: 150,000
- **Cash**: 125,000
- **Accounts Receivable**: 125,000

**Strategy:** Notice that these entries are exactly the same as the entries for the percentage-of-completion method, except there is no entry to record revenue or gross profit. This entry will not be made until the project is completed.

The entries for 2012 and 2013 would also be the same for recording costs incurred, partial billings, and cash collected. At the end of the contract the completed-contract method would have the following entries to record the revenue, construction expense, and to close out partial billings and construction in progress:

- **Partial Billings**: 500,000
- **Construction Revenue**: 500,000
- **Construction Expense**: 445,000
- **Construction in Progress**: 445,000

Notice that Bobcat Construction recognizes total construction revenue of $500,000. When total construction expenses of $445,000 are subtracted from revenue, Bobcat will end up recognizing a total of $55,000 of gross profit on the project. This is the same amount of gross profit recognized using the percentage-of-completion method, except it is only recognized when the project is completed under the completed-contract method instead of at the end of each year using the percentage-of-completion method.
Losses on Long-Term Contracts

Consistent with the conservatism convention, a company must record estimated losses on long-term contracts in full under both the percentage-of-completion and completed-contract methods at the time it estimates the losses. There are two types of losses that can occur: 1) a loss in the current period, but there is still estimated to be a profit on the entire contract; and 2) a loss on the overall contract.

Loss in the Current Period

If there is a loss in the current period, but a profit on the total contract is anticipated, the loss recognized is equal to the construction costs incurred for the year minus the revenue recognized for the year. This would only be done in the percentage-of-completion method. Because the completed-contract method does not record profits until the project is complete, and there will be a profit at the end of the contract, this step is unnecessary. However, because we are recognizing gross profit each year in the percentage of-completion method, we must recognize the loss in the current period.

In our example with Bobcat Construction, if the estimated costs to complete the project in 2012 had been $150,000 instead of the $110,000 in the original example, then the calculations would have revealed a loss in the current period (2012), but not for the overall project.

Let’s use the new $150,000 value for the estimated costs to complete the project for 2012. As before, the first step is to find out how much of the project was completed to date. We know that we have incurred a total of $330,000 costs to date ($180,000 in 2011 and $150,000 in 2012). We are estimating to have $150,000 in costs remaining, making the total cost of the project $480,000 ($330,000 costs incurred + $150,000 estimated to be remaining). Therefore, our project is 68.75% complete ($330,000 costs incurred ÷ $480,000 estimated total project cost).

Because we have determined that the project is 68.75% complete at the end of 2012, we can calculate the amount of revenue Bobcat Construction should recognize for this project for 2012. Because the total contract price is $500,000 and we are 68.75% completed, at the end of 2012 we should have recognized a total of $343,750 (68.75% of $500,000). Because we have already recognized $200,000 of this revenue in 2012, we must recognize $143,750 in 2012 to reach the total to date of $343,750. Because the costs incurred in 2012 ($150,000) exceed the revenue recognized in 2012 ($143,750), Bobcat must recognize a loss for 2012 of $6,250 ($150,000 costs − $143,750 revenue). The journal entry to record the 2012 entries in this scenario would be:

\[
\begin{align*}
\text{Construction in Progress} & \quad 150,000 \\
\text{Cash, accounts payable, inventory, etc.} & \quad 150,000
\end{align*}
\]

The remaining amount of the contract is billed to the client:

\[
\begin{align*}
\text{Accounts Receivable} & \quad 135,000 \\
\text{Partial Billings} & \quad 135,000
\end{align*}
\]

The client completes the payments:

\[
\begin{align*}
\text{Cash} & \quad 130,000 \\
\text{Accounts Receivable} & \quad 130,000
\end{align*}
\]
The entry to record the construction expenses and the loss for 2013 would be:

<table>
<thead>
<tr>
<th>Account</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Expense</td>
<td>150,000</td>
</tr>
<tr>
<td>Construction in Progress</td>
<td>6,250</td>
</tr>
<tr>
<td>Construction Revenue</td>
<td>143,750</td>
</tr>
</tbody>
</table>

**Strategy:** Notice that these entries are exactly the same as the entries for a profit except for the last entry to record the loss. This entry is handled the same way as before except the construction expense debit amount is larger than the construction revenue amount and thus requires a credit entry instead of the normal debit entry to construction in progress balance (debits = credits) the equation. This credit entry to construction in progress represents the loss, just as the previous debit amounts in these entries represented the gross profit recognized.

### Overall Loss on the Contract

A much more complicated situation arises if the estimated total costs exceed the contract price and an overall loss is expected on the contract. This complication arises from the need to reverse out previously recognized gross profit.

Let’s go back to our example to show how we handle this situation for the percentage-of-completion method. Assume that at the end of 2012 the estimated cost of completion of our contract is $175,750. Therefore, we expect total costs to be $505,750 ($175,750 estimated + $180,000 incurred in 2011 and $150,000 incurred in 2012). Because the price for the contract is $500,000, this estimate means that at the end of the contract we will have an overall loss of $5,750 ($505,750 estimated costs less $500,000 contract price). Therefore, we need to remove the previously recognized gross profit from 2011 ($20,000) and recognize the loss of $5,750 in 2012.

We would recognize the revenue in the same manner by determining the percentage of completion of the project. In this case the project is 65.25% complete ($330,000 costs incurred to date divided by the total estimated costs of $505,750). Therefore, the revenue that we must recognize to date is $326,250 (65.25% of $500,000). Because we recognized $200,000 of this revenue in 2011, we must recognize $126,250 ($326,250 – $200,000).

In addition to the revenue, Bobcat must also recognize a loss. Because the overall contract is expected to be a loss, they must remove any gross profit already recognized ($20,000 in 2011) as well as recognize the expected overall loss ($5,750). To determine the construction expense for 2012, we will add the revenue ($126,250) to be recognized and the total loss ($5,750) and the previously recognized gross profit from 2011 ($20,000), for a total of $152,000. The 2012 entry to record construction expense and recognize revenue would be:

<table>
<thead>
<tr>
<th>Account</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Expense</td>
<td>152,000</td>
</tr>
<tr>
<td>Construction in Progress</td>
<td>20,000</td>
</tr>
<tr>
<td>Construction Revenue</td>
<td>126,250</td>
</tr>
<tr>
<td>Provision for Loss on Contract</td>
<td>5,750</td>
</tr>
</tbody>
</table>

**Strategy:** Note that the reversal off the previously recognized gross profit is entered as a credit to Construction in Progress. The overall total loss is entered as a Provision for Loss on Contract.
If the costs in 2013 are the $175,750, the company will recognize zero gross profit for 2013. The revenue recognized is the amount remaining on the contract of $173,750 ($500,000 contract price less previously recognized revenue of $326,250 ($200,000 from 2011 and $126,250 from 2012)).

Under the completed contract method, the recognition of the estimated overall loss in 2012 is much simpler. Bobcat would simply debit Construction Expense for the amount of the loss and credit Provision for Loss on Contract:

\[
\begin{align*}
\text{Construction Expense} & \quad 5,750 \\
\text{Provision for Loss on Contract} & \quad 5,750
\end{align*}
\]

**Strategy:** Note that there was no credit to the Construction in Progress account because in the completed-contract method there has been no gross profit added in the previous years.

**Revenue Recognition After the Period of Sale**

There are two general methods of recognizing revenue after the period of sale: 1) the installment method and 2) the cost-recovery method.

**The Installment Method**

In general, according to GAAP, the use of the installment method is not acceptable for revenue recognition except in exceptional cases. Specifically, one of the exceptional cases is when receivables will be collected over extended periods of time and there is uncertainty about the ability to collect the receivables.

**Strategy:** It is easy to get installment sales and the installment method confused. Installment sales are legal contracts between the buyer and the seller. These sales do not require using the installment method, and generally most do not use this method. Remember, the installment method is used when there is uncertainty regarding the collectibility of the receivable.

Assume that Mountaineer Industries has the following sales information for 2011 and 2012:

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total credit sales</td>
<td>$100,000</td>
<td>$125,000</td>
</tr>
<tr>
<td>(including installment method sales)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total cost of goods sold</td>
<td>$65,000</td>
<td>$85,000</td>
</tr>
<tr>
<td>(including installment method sales)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installment method sales</td>
<td>$10,000</td>
<td>$15,000</td>
</tr>
<tr>
<td>Installment method cost of goods sold</td>
<td>$7,000</td>
<td>$9,750</td>
</tr>
<tr>
<td>Cash receipts from installment method sales</td>
<td>$5,000</td>
<td>$4,000</td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash receipts on other sales</td>
<td>$75,000</td>
<td>$102,000</td>
</tr>
</tbody>
</table>
To account for the installm
ent method sales in 2011 we use the following steps:

**Step 1.** During the year total sales, cost of goods sold, and collections are recorded in the normal way.

\[
\begin{align*}
\text{Accounts Receivable} & \quad 100,000 \\
\text{Sales} & \quad 100,000 \\
\text{Cost of Goods Sold} & \quad 65,000 \\
\text{Inventory} & \quad 65,000 \\
\text{Cash} & \quad 80,000 \\
\text{Accounts Receivable} & \quad 80,000
\end{align*}
\]

Note that the collections of $80,000 include both non-installment method sales ($75,000) and installment method sales ($5,000).

**Step 2.** At the end of the year, the sales for which the installment method is to be used are identified. The revenue and related cost of goods sold are identified and reversed and deferred gross profit is recognized. The deferred gross profit will be a “plug” figure that balances the reversing entry.

\[
\begin{align*}
\text{Sales} & \quad 10,000 \\
\text{Cost of Goods Sold} & \quad 7,000 \\
\text{Deferred Gross Profit} & \quad 3,000
\end{align*}
\]

**Step 3.** Calculate the gross profit rate for the sales made on the installment method. This is done by dividing the deferred gross profit (which we determined in step 2) by the related installment method sales for the year. Therefore our gross profit rate in installment sales for 2011 is 30% ($3,000 ÷ $10,000 = 0.30 or 30%).

**Step 4.** A portion of the deferred gross profit is recognized for 2011 by multiplying the cash collected on the installment method sales in 2011 by the gross profit rate we calculated in step 3 ($1,500 = $5,000 x 30%).

\[
\begin{align*}
\text{Deferred Gross Profit, 2011} & \quad 1,500 \\
\text{Gross Profit recognized on installment method sales} & \quad 1,500
\end{align*}
\]

**Step 5.** In 2012 the remaining deferred gross profit is reduced and gross profit is recognized based on the gross profit rate calculated on 2011 installment method sales in step 3 (30%) and the amount of cash collected in 2012 from 2011 installment method sales ($4,000). Therefore the gross profit recognized in 2012 from 2011 installment method sales would be $1,200 ($4,000 x 30%).

| **Strategy:** | You would repeat step 5 until all of the cash is collected from the 2012 installment method sales. |
| **Strategy:** | Each year there will be a different gross profit rate. It is important to realize that you use the same gross profit rate for cash collected from sales on the installment method in the same year, regardless of when the cash is collected. In other words, if we have a 30% gross profit rate for 2011, we will apply that same 30% rate to cash collected in all future years related to installment method sales that were made in 2011. |
The Cost-Recovery Method

Similar to the installment method, the use of the cost-recovery method was found to be unacceptable except in exceptional cases. These exceptional cases are similar to the installment method when the receivables will be collected over extended periods of time and there is uncertainty about the ability to collect the receivables.

Under the cost-recovery method, a company will record sales, cost of goods sold, and collections in the usual manner. However, there is no recognition of gross profit until all of the cost of goods sold has been recovered.

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost recovery method sales</td>
<td>$275,000</td>
</tr>
<tr>
<td>Cost of property sold</td>
<td>$185,000</td>
</tr>
<tr>
<td>Cash receipts</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>$145,000</td>
</tr>
<tr>
<td>2012</td>
<td>$85,000</td>
</tr>
<tr>
<td>2013</td>
<td>$35,000</td>
</tr>
<tr>
<td>2014</td>
<td>$10,000</td>
</tr>
</tbody>
</table>

The entry for 2011 to record the sale would be:

Accounts Receivable 275,000
Property 185,000
Deferred Gross Profit 90,000

To record the cash collected in 2011:

Cash 145,000
Accounts Receivable 145,000

After the collection of cash on the sales in 2011, we still have not recovered the total cost of the property we sold; therefore, we do not recognize any gross profit in 2011.

\[
\begin{align*}
\text{Original property cost} & : \quad 185,000 \\
\text{Cash collected in 2011} & : \quad (145,000) \\
\text{Property cost left to recover} & : \quad 40,000
\end{align*}
\]

To record the cash collected in 2012:

Cash 85,000
Accounts Receivable 85,000

Because we collected more cash in 2012 than we needed to cover our property, we will recognize as gross profit the cash collected in excess of the remaining cost of the property.

\[
\begin{align*}
\text{Property cost left to recover} & : \quad 40,000 \\
\text{Cash collected in 2012} & : \quad (85,000) \\
\text{Gross profit recognized in 2012} & : \quad (45,000) \\
\text{Deferred Gross Profit} & : \quad 45,000 \\
\text{Gross profit recognized on cost-recovery sales} & : \quad 45,000
\end{align*}
\]
Once we have recovered the entire cost of the property sold, we will recognize gross profit for the total amount of cash we collect in future years.

To record the cash collected in 2013:

\[
\begin{align*}
\text{Cash} & \quad 35,000 \\
& \quad \text{Accounts Receivable} \\
\text{Deferred Gross Profit} & \quad 35,000 \\
& \quad \text{Gross profit recognized on cost-recovery sales} \\
\end{align*}
\]

To record the cash collected in 2014:

\[
\begin{align*}
\text{Cash} & \quad 10,000 \\
& \quad \text{Accounts Receivable} \\
\text{Deferred Gross Profit} & \quad 10,000 \\
& \quad \text{Gross profit recognized on cost-recovery sales} \\
\end{align*}
\]
Test Your Knowledge

1. The following information is available for Knorr Company in 2012 at the end of its second year of operations:

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total credit sales</td>
<td>$400,000</td>
<td>$520,000</td>
</tr>
<tr>
<td>Total cost of goods sold</td>
<td>310,000</td>
<td>373,000</td>
</tr>
<tr>
<td>Installment method sales*</td>
<td>100,000</td>
<td>100,800</td>
</tr>
<tr>
<td>Installment method cost of goods sold*</td>
<td>77,500</td>
<td>75,600</td>
</tr>
<tr>
<td>Cash receipts on installment method sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011 sales</td>
<td>70,000</td>
<td>50,000</td>
</tr>
<tr>
<td>2012 sales</td>
<td>60,000</td>
<td></td>
</tr>
</tbody>
</table>

*Included in total credit sales and total cost of goods sold.

(a) Assuming that Knorr Company uses the installment method to account for its installment sales because of exceptional circumstances, prepare the journal entries to record the above events for both years.
(b) Prepare a partial income statement and a partial balance sheet for 2011.

2. The Texas Company has contracted to build a sports complex for $500,000 that is expected to take three years to complete. Information relating to the performance of the contract is summarized below:

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction costs incurred during year</td>
<td>$150,000</td>
<td>$110,000</td>
<td>$80,000</td>
</tr>
<tr>
<td>Estimated cost to complete (at year-end)</td>
<td>150,000</td>
<td>65,000</td>
<td>-0-</td>
</tr>
<tr>
<td>Billings during the year</td>
<td>200,000</td>
<td>100,000</td>
<td>200,000</td>
</tr>
<tr>
<td>Collections during the year</td>
<td>180,000</td>
<td>110,000</td>
<td>210,000</td>
</tr>
</tbody>
</table>

(a) Compute the gross profit or loss for each year of the contract under (1) the percentage-of-completion method and (2) the completed-contract method.
(b) Compute the following as of the end of 2011:

(1) Accounts receivable

(2) Costs and recognized profit not yet billed (percentage-of-completion method)
## Answers to Test Your Knowledge

1. (a) **2011**

<table>
<thead>
<tr>
<th>Account</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounts Receivable</td>
<td>400,000</td>
</tr>
<tr>
<td>Sales</td>
<td>400,000</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>310,000</td>
</tr>
<tr>
<td>Inventory</td>
<td>310,000</td>
</tr>
<tr>
<td>Cash</td>
<td>70,000</td>
</tr>
<tr>
<td>Accounts Receivable</td>
<td>70,000</td>
</tr>
<tr>
<td>Sales</td>
<td>100,000</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>77,500</td>
</tr>
<tr>
<td>Deferred Gross Profit, 2011*</td>
<td>15,750</td>
</tr>
<tr>
<td>Gross Profit Realized on Installment Method Sales</td>
<td>15,750</td>
</tr>
</tbody>
</table>

* Cash receipts on installment sales x Gross profit rate
  Gross profit rate = 22,500/100,000 = 0.225
  $70,000 x 0.225 = $15,750

<table>
<thead>
<tr>
<th>Account</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounts Receivable</td>
<td>520,000</td>
</tr>
<tr>
<td>Sales</td>
<td>520,000</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>373,000</td>
</tr>
<tr>
<td>Inventory</td>
<td>373,000</td>
</tr>
<tr>
<td>Cash</td>
<td>110,000</td>
</tr>
<tr>
<td>Accounts Receivable</td>
<td>110,000</td>
</tr>
<tr>
<td>Sales</td>
<td>100,800</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>75,600</td>
</tr>
<tr>
<td>Deferred Gross Profit, 2012*</td>
<td>25,200</td>
</tr>
<tr>
<td>Gross Profit Realized on Installment Method Sales</td>
<td>26,250</td>
</tr>
</tbody>
</table>

* Cash receipts on installment sales x Gross profit rate
  2011 Gross profit rate = 22,500/100,000 = 0.225
  $50,000 x 0.225 = $11,250
  2012 Gross profit rate = 25,200/100,800 = 0.25
  $60,000 x 0.25 = $15,000

<table>
<thead>
<tr>
<th>Account</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Profit Realized on Installment Method Sales</td>
<td>26,250</td>
</tr>
<tr>
<td>Income Summary</td>
<td>26,250</td>
</tr>
</tbody>
</table>
1. **(b)**

**KNORR COMPANY**  
Partial Income Statement  
For Year Ending December 31, 2011

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$300,000</td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>(232,500)</td>
</tr>
<tr>
<td>Gross profit</td>
<td>$ 67,500</td>
</tr>
<tr>
<td>Gross profit realized on installment method sales</td>
<td>15,750</td>
</tr>
<tr>
<td><strong>Total gross profit</strong></td>
<td><strong>$ 83,250</strong></td>
</tr>
</tbody>
</table>

Partial Balance Sheet  
December 31, 2011

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installment accounts receivable</td>
<td>$30,000</td>
</tr>
<tr>
<td>Less: Deferred gross profit</td>
<td>(6,750)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>23,250</strong></td>
</tr>
</tbody>
</table>

2. **(a) (1)**  

**Percentage-of-completion**

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost incurred to date</th>
<th>Estimated cost to complete</th>
<th>Total estimated costs</th>
<th>% complete</th>
<th>Revenue to date</th>
<th>Construction cost incurred</th>
<th>Gross profit to be recognized</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>$150,000</td>
<td>150,000</td>
<td>$300,000</td>
<td>50%</td>
<td>$250,000</td>
<td>(150,000)</td>
<td><strong>$100,000</strong></td>
</tr>
<tr>
<td>2011</td>
<td>$260,000</td>
<td>65,000</td>
<td>$325,000</td>
<td>80%</td>
<td>$400,000</td>
<td>(110,000)</td>
<td><strong>$ 40,000</strong></td>
</tr>
<tr>
<td>2012</td>
<td>$340,000</td>
<td>-0-</td>
<td>$340,000</td>
<td>100%</td>
<td>$500,000</td>
<td>(80,000)</td>
<td><strong>$ 20,000</strong></td>
</tr>
</tbody>
</table>

**Completed-contract method**

- 2010 - No gross profit recognized
- 2011 - No gross profit recognized
- 2012 - Contract price $500,000  
  Total cost of project $340,000  
  Gross profit recognized in 2012 $160,000

**Accounts receivable billed**

- ($200,000 + $100,000) $300,000
- ($180,000 + $110,000) (290,000)
- 2011 year-end balance $10,000

**Chapter 18 Income Recognition and Measurement of Net Assets**
(2)  
Cost to 2011 year-end $260,000  
Gross profit recognized to 2011 year-end $140,000  $400,000  
Less: Partial billings (300,000)  
Costs and recognized profit not yet billed $100,000