CHAPTER 23

Plant Assets and Depreciation

What You’ll Learn

1. Identify plant assets.
2. Explain the need to depreciate plant assets.
3. Calculate annual depreciation of plant assets.
4. Calculate partial-year depreciation of plant assets.
5. Determine the book value of a plant asset.
6. Record depreciation of plant assets.
7. Prepare depreciation schedules.
8. Define the accounting terms introduced in this chapter.

Why It’s Important

The matching principle requires expenses to be matched with revenues.

Before You Read

Predict

1. What does the chapter title tell you?
2. What do you already know about this subject from personal experience?
3. What have you learned about this in the earlier chapters?
4. What gaps exist in your knowledge of this subject?

Exploring the Real World of Business

DEPRECIATING ASSETS

Rush Trucking

If you owned a trucking company, would you get up at 3 a.m. to deliver shipments yourself? Andra Rush did when she started Rush Trucking in 1984. She also worked the phones as dispatcher, made sales calls, and repaired trucks.

Rush started her company with only three trucks purchased with her savings. “I believed that if we could get the business, we would do a good job and that would lead to repeat business and bigger contracts,” Rush said about her business strategy.

Rush Trucking now earns over $125 million annually and operates 2,000 tractors and 3,900 trailers.

Companies like Rush Trucking generate revenue with long-term assets. Depreciation allows them to match the cost of assets to revenue over several accounting periods.

What Do You Think?

What do you think Rush Trucking considers when it matches truck costs to revenue?
All businesses have assets. Some of those assets become less useful because over time they wear out or become obsolete. Examples of these *depreciable* assets are company trucks and computers. You will learn how to identify depreciable assets, how to set up depreciation schedules, and how to make the adjusting entry for depreciation expense in this chapter.

**Personal Connection**
In your workplace are there assets that are wearing out or need to be replaced? What are they?

**Online Connection**
Go to [glencoeaccounting.glencoe.com](http://glencoeaccounting.glencoe.com) and click on Student Center. Click on Working in the Real World and select Chapter 23.
SECTION 1

Plant Assets and Equipment

Businesses own many different types of assets. One category of asset requires special treatment in the accounting records. These assets, such as office equipment and buildings, have two things in common:

- They are expected to produce benefits for the business for more than one year.
- They are purchased for use in operating the business, not for resale.

Rush Trucking owns many assets in this category, including computer equipment, office equipment, and trucks. Let’s explore how businesses account for these types of assets.

Current and Plant Assets

How Do You Match the Cost of Assets to the Revenue They Help Generate?

Throughout this textbook, you have learned about various assets that a business uses in its operation. These assets can be classified as current assets or plant assets.

<table>
<thead>
<tr>
<th>Current Assets</th>
<th>Plant Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets that are either consumed or converted to cash during the normal operating cycle of the business, usually one year. Examples are:</td>
<td>Long-lived assets that are used in the production or sale of other assets or services over several accounting periods. Examples are:</td>
</tr>
<tr>
<td>• cash</td>
<td>• land</td>
</tr>
<tr>
<td>• accounts receivable (cash to be collected from customers within a short period of time)</td>
<td>• buildings</td>
</tr>
<tr>
<td>• merchandise (sold within a short period of time)</td>
<td>• delivery equipment</td>
</tr>
</tbody>
</table>

In Chapter 18, you learned about assets such as supplies and prepaid insurance. As these assets are used, their costs are converted to expenses. This conforms to the matching principle of accounting, which states that during an accounting period, expenses must be matched with the revenue earned. Since current assets are consumed within one accounting period, the costs of current assets can be easily matched to the revenue for the period.
Estimating Depreciation of a Plant Asset

What Four Factors Are Used to Estimate Depreciation?

Plant assets are used over a number of accounting periods. To follow the matching principle, the cost of a plant asset is spread over, or allocated to, the periods in which the asset will be used to produce revenue.

Allocating, or spreading the cost of a plant asset over that asset’s useful life is called depreciation. For accounting purposes businesses depreciate all plant assets except land. The cost of land is not depreciated because land is considered to have an unlimited useful life. In this chapter you will learn how to calculate and record the depreciation of plant assets.

For example, suppose that a plant asset costs $40,000 and has a useful life of 10 years. The cost of the asset is depreciated over 10 years. A portion of the $40,000 is transferred to an expense account each year. At the end of 10 years, the cost of this plant asset will have been recognized as an expense.

It is important to remember that depreciation is an estimate. No one can predict with certainty the useful life or the disposal value of an asset.

Four factors are used to calculate depreciation of a plant asset:

- its cost
- its estimated useful life
- its estimated disposal value
- the depreciation method used

Plant Asset Cost

The cost of a plant asset is the price the business paid to purchase it plus any sales taxes, delivery charges, and installation charges. The total cost is the amount debited to the plant asset account (for example, Delivery Equipment) at the time of purchase.

Estimated Useful Life of a Plant Asset

The estimated useful life of a plant asset is the number of years it is expected to be used before it wears out, becomes outdated, or is no longer needed by the business. The number of years a plant asset can be used varies from one asset to another. A delivery truck might have a useful life of six years. A building, on the other hand, might have a useful life of 30 years.
In estimating useful life, the accountant considers past experiences with the same type of asset. The Internal Revenue Service (IRS) also publishes guidelines on the estimated useful lives for many types of assets.

**Estimated Disposal Value of a Plant Asset**

At some point a plant asset will be replaced or discarded. Usually this occurs while the asset still has some monetary value. For example, if a business buys a new delivery truck, the old delivery truck can often be traded in to reduce the price of the new truck.

The estimated amount that a plant asset will be worth at the time of its replacement is called the **disposal value**. The disposal value assigned to a plant asset is an estimate that is based on previous experience. The IRS also publishes guidelines on disposal values.

**Depreciation Methods**

Several methods for computing depreciation expense are acceptable. In this course you will learn a simple, widely used depreciation method called the **straight-line method**. **Straight-line depreciation** equally distributes the depreciation expense over the asset’s estimated useful life. Other methods of computing depreciation include units-of-production and accelerated methods.

- **Units-of-production method** estimates useful life measured in units of use rather than units of time.
- **Accelerated depreciation methods** are based on the theory that an asset loses more value in the early years of its useful life than in the later years. Two types of accelerated depreciation are the sum-of-the-years’-digits method and the declining-balance method.

**Depreciation for Tax Reporting**

The federal income tax law has rules for deprecimating assets. These rules include the accelerated cost recovery system (ACRS). It is called **accelerated** because it allows the business to recognize depreciation expense over a shorter period of time. The ACRS method does not take disposal value into consideration. Congress modified ACRS in 1986 resulting in MACRS (pronounced makers), the modified accelerated cost recovery system. This system is used for tax accounting purposes only. It is not used for business financial reports. It is intended to be an incentive for businesses to invest in plant assets. The higher depreciation expense results in a lower income tax liability.
Do the Math

You work for Island Tropics, a trendy clothing store. It recently purchased a computer system for $20,000. The computers have an estimated useful life of five years. The $20,000 cost can be depreciated over the useful life of the asset as an expense on the tax return of the business. What is the amount that can be deducted each year as an expense if the computer’s estimated disposal value is $1,000 and the straight-line depreciation method is used?

Problem 23–1 Classifying Asset Accounts

Listed here are the assets of New England Sports Equipment Inc.

<table>
<thead>
<tr>
<th>Accounts Receivable</th>
<th>Office Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building</td>
<td>Office Furniture</td>
</tr>
<tr>
<td>Cash in Bank</td>
<td>Petty Cash Fund</td>
</tr>
<tr>
<td>Change Fund</td>
<td>Prepaid Insurance</td>
</tr>
<tr>
<td>Delivery Equipment</td>
<td>Store Equipment</td>
</tr>
<tr>
<td>Land</td>
<td>Supplies</td>
</tr>
<tr>
<td>Merchandise Inventory</td>
<td></td>
</tr>
</tbody>
</table>

Instructions In your working papers, indicate whether each asset listed is a current asset or a plant asset by placing a check mark in the correct column. The first account is completed as an example.
Calculating Depreciation

On Your Mark Athletic Wear purchased a delivery truck on January 5 for $16,500 cash. The truck has an estimated disposal value of $1,500 and an estimated useful life of five years.

Calculating Depreciation

How Do You Calculate Plant Asset Depreciation?

To calculate depreciation you need to know the cost of the truck, its estimated useful life, and its estimated disposal value.

First calculate the amount to be depreciated:

\[
\text{Original Cost} - \text{Estimated Disposal Value} = \text{Amount to Be Depreciated}
\]

\[
$16,500 - $1,500 = $15,000
\]

The estimated disposal value represents the part of the asset’s cost that the business expects to recover. Therefore, the estimated disposal value should not be treated as an expense.

Straight-Line Depreciation

Calculate the annual depreciation expense using the straight-line method:

\[
\frac{\text{Amount to Be Depreciated}}{\text{Estimated Useful Life}} = \text{Annual Depreciation Expense}
\]

\[
\frac{$15,000}{5} = $3,000
\]

The annual depreciation expense for the delivery truck is $3,000.

For straight-line depreciation, the depreciation rate is 1 divided by the years of useful life. In this example the depreciation rate is 20% per year (1 ÷ 5 years).

Note that the $3,000 depreciation expense is for a full year. Suppose that On Your Mark purchased the delivery truck on April 5 instead of January 5. During the first year, the delivery truck will be used for only nine months. Therefore, the depreciation expense is calculated for nine months.

\[
\frac{\text{Annual Depreciation Expense} \times \text{Fraction of Year}}{\text{Depreciation Expense}} = \text{Partial Year Depreciation Expense}
\]

\[
$3,000 \times \frac{9}{12} = $2,250
\]
Declining-Balance Depreciation

With the declining-balance method, the annual depreciation expense is the asset’s book value multiplied by the declining-balance rate. The declining-balance rate can vary, but it is usually double the straight-line rate. For a five-year asset, the rate is 40% \( (2 \times \frac{1}{5}) \).

Disposal value is not used in the computation. However, after the last year of depreciation, the total depreciation expense “stops” at the asset’s disposal value. The annual depreciation expense for the truck’s first year is $6,600 ($16,500 \times 40\%).

Plant Asset Records

Where Do You Record Plant Asset Values?

Businesses maintain records for each plant asset and the depreciation taken for that asset. The record in Figure 23–1 provides detailed information about the delivery truck, including:

1. the date of purchase
2. the original cost
3. the estimated useful life
4. annual depreciation
5. accumulated depreciation
6. book value at the end of each year

The lower part of the plant asset record contains the depreciation schedule. The amount of depreciation expense accumulates from one year to the next. Accumulated depreciation is the total amount of depreciation for a plant asset that has been recorded up to a specific point in time. The accumulated depreciation at the end of the third year is $9,000.

The far right column of the depreciation schedule shows the book value of the plant asset, the original cost less accumulated depreciation.

At the end of the third year, the book value of the delivery truck is $7,500 ($16,500 – $9,000). Note that the delivery truck’s book value at the end of five years is $1,500. This is the truck’s estimated disposal value. Under the straight-line method, it cannot be depreciated below its estimated disposal value.

### Plant Asset Record

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Delivery Truck</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERIAL NUMBER</td>
<td>2011-50041</td>
</tr>
<tr>
<td>PURCHASED FROM</td>
<td>Winding Creek Auto</td>
</tr>
<tr>
<td>ESTIMATED LIFE</td>
<td>5 years</td>
</tr>
<tr>
<td>DEPRECIATION METHOD</td>
<td>Straight-line</td>
</tr>
<tr>
<td>DEPRECIATION PER YEAR</td>
<td>$3,000.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATE</th>
<th>EXPLANATION</th>
<th>ASSET</th>
<th>ACCUM. DEPRECIATION</th>
<th>BOOK VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DEBIT</td>
<td>CRDT</td>
<td>BALANCE</td>
</tr>
<tr>
<td>1/5/2008</td>
<td>Purchased</td>
<td>16,500</td>
<td></td>
<td>16,500</td>
</tr>
<tr>
<td>12/31/2008</td>
<td></td>
<td></td>
<td>3,000</td>
<td>3,000</td>
</tr>
<tr>
<td>12/31/2009</td>
<td></td>
<td>3,000</td>
<td>6,000</td>
<td>10,500</td>
</tr>
<tr>
<td>12/31/2010</td>
<td></td>
<td>3,000</td>
<td>9,000</td>
<td>7,500</td>
</tr>
<tr>
<td>12/31/2011</td>
<td></td>
<td>3,000</td>
<td>12,000</td>
<td>4,500</td>
</tr>
<tr>
<td>12/31/2012</td>
<td></td>
<td>3,000</td>
<td>15,000</td>
<td>1,500</td>
</tr>
</tbody>
</table>
Assessment

SECTION 2

AFTER YOU READ

Reinforce the Main Idea
Using a diagram like this one, show the step-by-step procedure to record the first year's depreciation using the straight-line method.

Do the Math
Office furniture for Teen Counseling Center is estimated at a total value of $45,000 with a 10% disposal value. The estimated useful life is four years. Calculate the annual depreciation expense for the office furniture using the straight-line method.

Problem 23–2 Calculating Depreciation Expense
Instructions
For each of the following plant assets:
1. calculate the amount to be depreciated,
2. calculate the annual depreciation expense using the straight-line method,
3. calculate the depreciation expense for the first year.
Use the form provided in your working papers.

<table>
<thead>
<tr>
<th>Plant Asset</th>
<th>Months Owned First Year</th>
<th>Original Cost</th>
<th>Estimated Disposal Value</th>
<th>Estimated Useful Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash register</td>
<td>8</td>
<td>$450</td>
<td>$30</td>
<td>7 years</td>
</tr>
<tr>
<td>Computer</td>
<td>2</td>
<td>$6,500</td>
<td>$1,500</td>
<td>5 years</td>
</tr>
<tr>
<td>Conference table</td>
<td>6</td>
<td>$1,900</td>
<td>$100</td>
<td>25 years</td>
</tr>
<tr>
<td>Delivery truck</td>
<td>3</td>
<td>$36,400</td>
<td>$6,400</td>
<td>5 years</td>
</tr>
<tr>
<td>Desk</td>
<td>11</td>
<td>$3,180</td>
<td>$300</td>
<td>20 years</td>
</tr>
</tbody>
</table>

Problem 23–3 Completing a Plant Asset Record
Use the following information to complete the blank asset record found in your working papers. The company uses the straight-line method for depreciating all plant assets. Item Purchased: Xerox Copier—Serial No. X42599757, $12,500, from K&C Office Equipment.
Purchased: 10/1/2011
Estimated Life: 5 years
Location: Executive Offices
Estimated Disposal Value: $1,700

676 Chapter 23 Plant Assets and Depreciation
After depreciation on plant assets has been calculated, adjustments are made to record depreciation for the period. These adjustments bring the general ledger into agreement with the plant asset records.

### Adjusting for Depreciation Expense

**How Do You Adjust for Depreciation Expense?**

When a plant asset is purchased, the accountant sets up a depreciation schedule for the asset like the one in Figure 23–1 on page 675. The amount of depreciation expense for each plant asset is recorded in the accounting records at the end of the year. The information to record the adjustments for depreciation comes from the plant asset records.

Many businesses prepare a summary of depreciation expense for each type of plant asset. For example, a business may have 10 delivery trucks. Each truck has its own plant asset record. At the end of the year, the depreciation expense for all 10 trucks is totaled. This total is entered on a summary form under the name of the asset account, in this case, Delivery Equipment. Figure 23–2 shows On Your Mark’s depreciation summary form for its plant assets.

On Your Mark’s total depreciation expense for the year is $33,000. This amount includes the depreciation expense for all plant assets. The accumulated depreciation for all of On Your Mark’s plant assets is $100,250.

### Making the Depreciation Expense Adjustment

The adjustment for depreciation affects two accounts: Depreciation Expense and Accumulated Depreciation.

**The Depreciation Expense Account.** Depreciation Expense is an expense account. During the year the account has a zero balance because...
the adjustment for depreciation is recorded at the end of the period. Depreciation Expense is reported on the income statement. At the end of the year, Depreciation Expense is closed to Income Summary.

Businesses have a depreciation expense account for each type of plant asset. Some examples are:

- Depreciation Expense—Delivery Equipment (trucks, vans, automobiles)
- Depreciation Expense—Office Furniture (desks, chairs, filing cabinets)

The Accumulated Depreciation Account. The balance of Accumulated Depreciation represents the total amount of depreciation expensed since the business purchased the asset. Each type of plant asset has an accumulated depreciation account. Typical account names are:

- Accumulated Depreciation—Delivery Equipment
- Accumulated Depreciation—Building

Accumulated Depreciation is classified as a contra asset account. Recall that the balance of a contra account reduces the balance of its related account. In the case of an accumulated depreciation account, the related account is a plant asset account. For example, if the asset account is Delivery Equipment, the contra asset account is Accumulated Depreciation—Delivery Equipment.

The debit and credit rules for an accumulated depreciation account are opposite those for an asset account. The balance of an accumulated depreciation account is reported on the balance sheet as a decrease to its related plant asset account.

<table>
<thead>
<tr>
<th>Account Name</th>
<th>Asset</th>
<th>Expense</th>
<th>Contra Asset</th>
</tr>
</thead>
</table>

The Adjustment. Let’s learn how to record depreciation of plant assets. Look at On Your Mark’s depreciation schedule in Figure 23–1 on page 675. The delivery truck annual depreciation expense is $3,000.

Adjustment

On December 31 the accounting clerk for On Your Mark records the depreciation for the delivery truck.

ANALYSIS  Identify

Classify

+/-

1. The accounts affected are Depreciation Expense—Delivery Equipment and Accumulated Depreciation—Delivery Equipment.
2. Depreciation Expense—Delivery Equipment is an expense account. Accumulated Depreciation—Delivery Equipment is a contra asset account.
3. Both Depreciation Expense—Delivery Equipment and Accumulated Depreciation—Delivery Equipment are increased by $3,000.
Accountants make similar adjustments to record depreciation for other plant assets, such as buildings and office equipment.

**Analysis of the Accumulated Depreciation Account.** Suppose this is the end of the third year of the estimated useful life of On Your Mark’s delivery truck. For each year the same adjustment was made to record the depreciation of the delivery truck:

- a debit to *Depreciation Expense*—Delivery Equipment
- a credit to *Accumulated Depreciation*—Delivery Equipment

After the books have been closed each year, the *Depreciation Expense*—Delivery Equipment account has a zero balance. (Remember that expense accounts are closed at the end of each year.) In contrast the *Accumulated Depreciation*—Delivery Equipment account shows the total amount of depreciation expensed since the asset was purchased. At the end of the third year, the total is $9,000.

<table>
<thead>
<tr>
<th>Accumulated Depreciation—Delivery Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debit</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Bal. 9,000</td>
</tr>
</tbody>
</table>

**Recording Depreciation Adjustments on a Work Sheet**

After preparing the adjustment for depreciation, the accountant enters it in the Adjustments section of the work sheet.

Refer to Figure 23–3 on pages 680 and 681. Locate the accumulated depreciation accounts in the Trial Balance Credit column ($6,000 and $5,625). Note that the depreciation expense accounts do not have balances in the Trial Balance section. Adjustments (e) and (f) are entered in the Adjustments section to show the depreciation adjustments for the year. Note that the depreciation expense accounts are debited and the accumulated depreciation accounts are credited. Also note that no adjustments are made to the asset accounts.
Each amount is extended to the other work sheet columns.

### Reporting Depreciation Expense and Accumulated Depreciation on Financial Statements

Figure 23–4 shows placement of the depreciation expense accounts on the partial income statement of On Your Mark.

### Operating Income

**On Your Mark Athletic Wear**

Income Statement

For the Year Ended December 31, 20--

<table>
<thead>
<tr>
<th>Operating Expenses</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Depreciation Expense—Delivery Equip.</td>
<td>300000</td>
</tr>
<tr>
<td>Depreciation Expense—Office Equip.</td>
<td>250000</td>
</tr>
<tr>
<td>Total Operating Expenses</td>
<td>9450100</td>
</tr>
</tbody>
</table>

Operating Income

| 5134200 |
For Delivery Equipment:

- The original cost is entered in the first amount column on the first line ($16,500).
- The accumulated depreciation is entered in the first amount column on the second line ($9,000).
- The difference between cost and accumulated depreciation is entered in the second amount column on the second line ($7,500).

The book value of the delivery equipment is $7,500. The book value of each plant asset reported on the balance sheet should be the same as that shown on the plant asset record.

Adjusting and Closing Entries for Depreciation Expense

What Are the Adjusting and Closing Entries for Depreciation?

After the accountant has completed the work sheet and prepared the financial statements, the adjustments for depreciation expense are recorded in the general journal. The information for the journal entries is taken directly from the Adjustments section of the work sheet.
Adjustment

Record the December 31 adjusting journal entries for depreciation.

1. The accounts affected are Depreciation Expense—Delivery Equipment, Depreciation Expense—Office Equipment, Accumulated Depreciation—Delivery Equipment, and Accumulated Depreciation—Office Equipment.

2. Depreciation Expense—Delivery Equipment and Depreciation Expense—Office Equipment are expense accounts. Accumulated Depreciation—Delivery Equipment and Accumulated Depreciation—Office Equipment are contra asset accounts.

3. Depreciation Expense—Delivery Equipment is increased by $3,000. Depreciation Expense—Office Equipment is increased by $2,500. Accumulated Depreciation—Delivery Equipment is increased by $3,000. Accumulated Depreciation—Office Equipment is increased by $2,500.

4. Increases in expense accounts are recorded as debits. Debit Depreciation Expense—Delivery Equipment for $3,000 and Depreciation Expense—Office Equipment for $2,500.

5. Increases in contra asset accounts are recorded as credits. Credit Accumulated Depreciation—Delivery Equipment for $3,000 and Accumulated Depreciation—Office Equipment for $2,500.

T ACCOUNTS

6. Depression Expense—Delivery Equipment

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ 3,000</td>
<td>-</td>
</tr>
</tbody>
</table>

Accumulated Depreciation—Delivery Equipment

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>+ 3,000</td>
</tr>
</tbody>
</table>

Depreciation Expense—Office Equipment

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ 2,500</td>
<td>-</td>
</tr>
</tbody>
</table>

Accumulated Depreciation—Office Equipment

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>+ 2,500</td>
</tr>
</tbody>
</table>

JOURNAL ENTRY

7. GENERAL JOURNAL

<table>
<thead>
<tr>
<th>DATE</th>
<th>DESCRIPTION</th>
<th>POST. REF.</th>
<th>DEBIT</th>
<th>CREDIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec. 31</td>
<td>Depr. Exp.—Del. Equip.</td>
<td>3 00000</td>
<td>3</td>
<td>00000</td>
</tr>
<tr>
<td></td>
<td>Accum. Depr.—Del. Equip.</td>
<td></td>
<td>3</td>
<td>00000</td>
</tr>
<tr>
<td>Dec. 31</td>
<td>Depr. Exp.—Office Equip.</td>
<td>2 50000</td>
<td>2</td>
<td>50000</td>
</tr>
<tr>
<td></td>
<td>Accum. Depr.—Office Equip.</td>
<td></td>
<td>2</td>
<td>50000</td>
</tr>
</tbody>
</table>
After adjusting entries have been journalized and posted, the next step in the accounting cycle is to close the ledger. In the second closing entry, you'll remember, accounts with debit balances in the Income Statement Debit column of the work sheet are closed to Income Summary. This closing entry includes the depreciation expense accounts.

After this closing entry has been posted to the general ledger, the balances of the depreciation expense accounts are reduced to zero.

**Closing**

**Second Closing Entry—Depreciation accounts only.**

**ANALYSIS**

1. The accounts affected are Depreciation Expense—Delivery Equipment, Depreciation Expense—Office Equipment, and Income Summary.
2. Depreciation Expense—Delivery Equipment and Depreciation Expense—Office Equipment are expense accounts. Income Summary is a temporary capital account.
3. Depreciation Expense—Delivery Equipment is decreased by $3,000 and Depreciation Expense—Office Equipment is decreased by $2,500; the total decrease is $5,500. The $5,500 is transferred to the Income Summary account.

**DEBIT-CREDIT RULE**

4. To transfer the expenses to the Income Summary account, debit Income Summary for $5,500.
5. Decreases in expense accounts are recorded as credits. Credit Depreciation Expense—Delivery Equipment for $3,000 and Depreciation Expense—Office Equipment for $2,500.

**T ACCOUNTS**

6. Income Summary

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,500</td>
<td></td>
</tr>
</tbody>
</table>

Depreciation Expense—Delivery Equipment

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ 3,000</td>
<td>Clos. 3,000</td>
</tr>
</tbody>
</table>

Depreciation Expense—Office Equipment

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ 2,500</td>
<td>Clos. 2,500</td>
</tr>
</tbody>
</table>

**JOURNAL ENTR**

7. **GENERAL JOURNAL**

<table>
<thead>
<tr>
<th>DATE</th>
<th>DESCRIPTION</th>
<th>POST REF.</th>
<th>DEBIT</th>
<th>CREDIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>20--</td>
<td><strong>Income Summary</strong></td>
<td></td>
<td>5,500</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td><strong>Depr. Exp.—Del. Equip.</strong></td>
<td>300000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td><strong>Depr. Exp.—Office Equip.</strong></td>
<td>250000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ON YOUR MARK**

ATHLETIC WEAR
595 Leslie Street, Dallas, TX 75207
Assessment

SECTION 3

AFTER YOU READ

Reinforce the Main Idea

Use a diagram like this one to show the last five steps of the accounting cycle as they relate to depreciation.

<table>
<thead>
<tr>
<th>Step Number</th>
<th>How This Step Relates to Depreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Do the Math

You are preparing a depreciation schedule for a new piece of equipment you purchased for your business, Supreme T-Shirt Outfitters, for $5,000. It has a five-year estimated useful life and a $500 estimated disposal value. Calculate its annual depreciation using the straight-line method. Next calculate the accumulated depreciation and the equipment’s book value at the end of each of the five years. Use a table like this one. Add rows for years 2 through 5.

<table>
<thead>
<tr>
<th>Year</th>
<th>Purchase Price</th>
<th>Depreciation Expense</th>
<th>Accumulated Depreciation</th>
<th>Book Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>5,000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Problem 23–4 Analyzing a Source Document

Instructions

1. Record the purchase in the general journal, page 4.
2. Record the partial depreciation expense for the first year in the general journal, page 7.
   a. Disposal value—$200
   b. Estimated useful life—5 years
   c. Fiscal year end—December 31.
   d. Method—straight-line
3. Record the annual depreciation, one year later, in the general journal, page 13.

Problem 23–5 Preparing a Depreciation Schedule and Journalizing the Depreciation Adjusting Entry

Quade Corporation bought a copy machine on January 7 of the current year for $2,360. It has an estimated useful life of five years and an estimated disposal value of $100.

Instructions

1. Prepare a depreciation schedule for the copy machine using the straight-line method of depreciation. (Use the form provided in your working papers.)
2. Journalize the adjustment for the copy machine’s depreciation at the end of the first year.
3. Journalize the closing entry for the expense account affected by the adjusting entry.
4. What is the book value of the asset after five years? Is this the same as the disposal value?
Accounting Careers in Focus

U.S. OPERATIONS CONTROLLER
Viasystems, Mishawaka, Indiana
Brenda Engel

Q: What does Viasystems do?
A: We provide firms in a variety of industries with components for their manufacturing processes.

Q: How did you get into accounting?
A: I became interested in accounting at a young age when my mom let me help her with the bookkeeping for the family business.

Q: What is most challenging about your job?
A: Managing my time and attending to a variety of tasks. I’m responsible for overseeing the company’s assets, as well as advising and training others in accounting software systems and overall business philosophy.

Q: What skills are needed for your job?
A: Strong analytical skills and patience are critical. It’s equally important to have good communication and people skills. Being able to apply what you’ve learned in school to a work setting is also vital if you want to succeed in your job.

Q: What advice do you have for accounting students just beginning their careers?
A: Work in as many different settings and with as many different people as possible while you’re in high school and college. You’ll not only gain experience in different areas, but also meet other professionals who can guide you on an appropriate and exciting career path. In addition, make sure you learn and master software such as Microsoft Office. Computer skills are indispensable.

CAREER FACTS

Nature of the Work: Prepare and consolidate financial statements; manage all aspects of the general ledger; in some cases, supervise the accounts receivable, accounts payable, and general accounting departments.

Training or Education Needed: A bachelor’s degree in accounting or finance; a master’s degree in business administration; CPA or CMA designation is preferred; at least five years of experience.

Aptitudes, Abilities, and Skills: Strong analytical skills, technology skills, communication skills, and organizational skills.

Salary Range: $45,000 to $115,000 depending on location, level of responsibility, and company revenues.

Career Path: Start by working for a small company to learn a variety of skills, then gradually move into a management position.

Thinking Critically
Why is it important for accounting professionals to have strong communication skills?
Key Concepts

1. The assets of a business can be classified as current assets or plant assets. Recall that current assets are either consumed or converted to cash during the normal operating cycle, usually one year. Examples are
   - cash
   - merchandise that will be sold shortly
   - supplies such as paper, pencils, and printer toner

   Plant assets are long-lived assets used in the production or sale of other assets or services over several accounting periods. Examples are
   - computers
   - copiers
   - cash registers
   - manufacturing equipment
   - office furniture
   - telephone systems
   - vehicles used in the business
   - the buildings that house the business

2. A plant asset is depreciated so that its cost is spread over its useful life. This spreads the cost over the periods that the asset will be used to generate revenue. This allows the business to conform to the matching principle of accounting, which requires that expenses be matched with the revenues the expenses helped to earn.

   Four factors used to calculate the depreciation of an asset are
   - its cost
   - its estimated useful life
   - its estimated disposal value
   - the depreciation method used

   The estimated useful life of a plant asset is the number of years it is expected to be used before it wears out. Depreciation is an estimate because no one can be certain how long an asset will last.

3. To match the cost of an asset with the revenue it is used to generate during a year, annual straight-line depreciation is calculated:

   \[
   \text{Original Cost} - \frac{\text{Estimated Disposal Value}}{\text{Estimated Useful Life}} = \frac{\text{Amount to Be Depreciated}}{\text{Annual Depreciation Expense}}
   \]
4. To calculate depreciation for part of a year:

\[
\text{Annual Depreciation Expense} \times \frac{\text{Fraction of Year}}{\text{Partial Year}} = \text{Depreciation Expense}
\]

5. An asset’s book value is its original cost less its accumulated depreciation. To calculate book value:

\[
\text{Original Cost} - \frac{\text{Accumulated Depreciation}}{\text{Book Value}} = \frac{\text{Book Value}}{\text{Depreciation}}
\]

6. To record depreciation:

<table>
<thead>
<tr>
<th>Description of Asset</th>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depreciation Expense</td>
<td>+ x</td>
<td>-</td>
</tr>
<tr>
<td>Accumulated Depreciation</td>
<td>-</td>
<td>+ xx</td>
</tr>
</tbody>
</table>

7. When a business purchases a plant asset, it sets up a depreciation schedule for the asset. The amount of depreciation expense for each plant asset is recorded at the end of the year. The schedule typically has a column for each of the following:
- the date
- the asset’s cost
- annual depreciation expense
- accumulated depreciation
- book value at the end of each year

**Key Terms**

- accumulated depreciation (p. 675)
- book value (p. 675)
- depreciation (p. 671)
- disposal value (p. 672)
- plant assets (p. 670)
- straight-line depreciation (p. 672)
Check Your Understanding

1. **Plant Assets**
   a. Explain the meaning of the term *plant asset*.
   b. Give four examples of plant assets.

2. **Plant Asset Depreciation**
   a. Depreciation is an application of what accounting principle?
   b. What distinguishes a plant asset from a current asset?

3. **Annual Depreciation**
   a. What four factors affect the depreciation calculation?
   b. How is the annual depreciation expense for a plant asset calculated under the straight-line method?

4. **Partial-Year Depreciation**
   a. Explain how depreciation for part of a year is calculated.
   b. What is meant by “allocating the cost” of a plant asset?

5. **Book Value of Plant Assets**
   a. What is accumulated depreciation?
   b. How is book value calculated?

6. **Record Depreciation**
   a. What is the classification of the *Accumulated Depreciation* account?
   b. Which two accounts are affected by an adjusting entry for depreciation?

7. **Prepare Depreciation Schedule**
   a. What is the purpose of a depreciation schedule?
   b. When is the depreciation of a plant asset recorded?

Apply Key Terms

You have just been hired as the plant accountant for Fast Runner, a large manufacturer of inline skates and skateboards. To do your job well, you must be able to understand and apply accounting procedures for plant assets and depreciation. Your immediate boss is the CEO for Fast Runner, Rob Myers. Rob wants you to define the following terms and give him some examples related to Fast Runner. Pair up with a colleague to discuss each term and find an example. Then write your ideas on a note pad for quick reference during your meeting with Rob. Good luck!
Recording Depreciation

Making the Transition from a Manual to a Computerized System

<table>
<thead>
<tr>
<th>Task</th>
<th>Manual Methods</th>
<th>Computerized Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recording depreciation</td>
<td>• Estimated annual depreciation is calculated when a fixed asset is purchased.</td>
<td>• Estimated annual depreciation is calculated when a fixed asset is purchased.</td>
</tr>
<tr>
<td></td>
<td>• Each accounting period, an adjusting entry is journalized and posted for</td>
<td>• A depreciation journal entry is recorded for the month’s amount. The journal entry</td>
</tr>
<tr>
<td></td>
<td>each plant asset account in the general ledger.</td>
<td>can be automatically posted each month as a recurring entry.</td>
</tr>
<tr>
<td></td>
<td>• Recording depreciation affects two accounts, <strong>Accumulated Depreciation</strong></td>
<td>• Amounts are posted to the <strong>Depreciation Expense</strong> and <strong>Accumulated Depreciation</strong></td>
</tr>
<tr>
<td></td>
<td>and <strong>Depreciation Expense</strong>.</td>
<td>accounts. Their balances are automatically updated.</td>
</tr>
<tr>
<td></td>
<td>• The <strong>Depreciation Expense</strong> account is closed at the end of the fiscal year.</td>
<td></td>
</tr>
</tbody>
</table>

Peachtree® Q & A

**Peachtree Question**

How do I record depreciation for fixed assets in Peachtree?

1. From the *Tasks* menu, select **General Journal Entry**.
2. Enter the transaction to record the depreciation expense for the current period.
3. Select the **Recur** icon.
4. Select the number of times and how often you want this transaction to recur. (Each month? Each quarter? Each year?)
5. Click **OK**.

QuickBooks® Q & A

**QuickBooks Question**

How do I record depreciation for fixed assets in QuickBooks?

1. From the *Company* menu, select **Make General Journal Entries**.
2. Enter the transaction to record the depreciation expense for the current period.
3. Memorize the recurring entry using **Memorize General Journal** from the *Edit* menu.
4. Set the number of times you want the entry to occur and click **OK**.
5. Click **Save & Close**.

For detailed instructions, see your Glencoe Accounting Chapter Study Guides and Working Papers.
CHAPTER 23

Problems

Complete problems using:

\[ \text{Manual Glencoe Working Papers} \quad \text{OR} \quad \text{Peachtree Complete Accounting Software} \quad \text{OR} \quad \text{QuickBooks Templates} \]

Problem 23–6 Opening a Plant Asset Record

On July 10 Sunset Surfwear purchased a scanner from Taunton Equipment for $1,500. Taunton Equipment charged Sunset Surfwear $200 to install the scanner. The scanner has an estimated useful life of four years and an estimated disposal value of $260.

**Instructions**

Prepare a plant asset record, including the depreciation schedule for the new scanner. Use the form provided in your working papers.

- Serial number: TMC46312
- General ledger account: Office Equipment
- Location: Main Street store
- Depreciation method: Straight-line
- Manufacturer: Brothers Company

**Analyze**

Describe how you determined the book value at the end of each period.

Problem 23–7 Recording Adjusting Entries for Depreciation

The following adjustments for depreciation were entered on the work sheet for InBeat CD Shop for the year ended December 31.

<table>
<thead>
<tr>
<th>Adjustments</th>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Store Equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accumulated Depreciation—Store Equipment</td>
<td>(e) 3,800</td>
<td></td>
</tr>
<tr>
<td>Office Equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accumulated Depreciation—Office Equipment</td>
<td>(f) 1,400</td>
<td></td>
</tr>
<tr>
<td>Depreciation Expense—Store Equipment</td>
<td>(e) 3,800</td>
<td></td>
</tr>
<tr>
<td>Depreciation Expense—Office Equipment</td>
<td>(f) 1,400</td>
<td></td>
</tr>
</tbody>
</table>

**Instructions**

Record the adjusting entries on general journal page 11.

**Analyze**

Explain how the adjustment affects the book value of the store equipment.
Problem 23–8 Reporting Depreciation Expense on the Work Sheet and Financial Statements

The trial balance of Shutterbug Cameras appears on the work sheet included in your working papers. All adjustments, except those for depreciation, are already recorded on the work sheet.

Instructions
1. Record the following adjustments for depreciation expense on the work sheet.
   a. Depreciation for office equipment is $2,500.
   b. Depreciation for store equipment is $1,200.
2. Complete the work sheet.

Problem 23–9 Calculating and Recording Depreciation Expense

Cycle Tech Bicycles purchased manufacturing equipment on August 1 for $410,000. The equipment has an estimated useful life of 25 years and an estimated disposal value of $20,000. Cycle Tech uses the straight-line method of depreciation. The partial depreciation schedule found in your working papers is set up for the equipment.

Instructions
1. Calculate annual depreciation, accumulated depreciation, and book value for each of the first two years. The fiscal year ends December 31. Use the form provided in your working papers.
2. Calculate the depreciation adjustment to be entered on the work sheet at the end of the first year. Use T accounts to show the accounts debited and credited.

Analyze
Calculate the total current assets.

Analyze
Determine the balance of the accumulated depreciation account at the end of the first and second years.
Step–by–Step Instructions:
Problem 23–10
1. Select the problem set for River’s Edge Canoe & Kayak (Prob. 23–10).
2. Rename the company and set the system date.
3. Calculate and record the end-of-period adjustments.
4. Print a General Journal report and proof your work.
5. Print an Income Statement and a Balance Sheet.
6. Close the fiscal year.
7. Print a Post-Closing Trial Balance.
8. Complete the Analyze activity.
9. End the session.

Problem 23–10 Calculating and Recording Adjustments

The December 31 trial balance of Rivers Edge Canoe & Kayak is included in your working papers.

Instructions

1. Calculate and record end-of-period adjustments on the work sheet.
   a. Ending Merchandise Inventory is $15,000.
   b. Supplies on hand total $1,450.
   c. The amount of the expired insurance premium is $5,000.
   d. Use the following information to calculate the estimated annual depreciation expense using the straight-line method.

<table>
<thead>
<tr>
<th>Plant Asset</th>
<th>Cost</th>
<th>Estimated Disposal Value</th>
<th>Estimated Useful Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Store Equipment</td>
<td>$13,000</td>
<td>$1,000</td>
<td>10 years</td>
</tr>
<tr>
<td>Delivery Truck</td>
<td>32,000</td>
<td>2,000</td>
<td>10 years</td>
</tr>
<tr>
<td>Building</td>
<td>160,000</td>
<td>10,000</td>
<td>25 years</td>
</tr>
</tbody>
</table>

e. The total federal income tax expense for the year is $4,250.
2. Complete the work sheet.
3. Journalize and post the adjusting entries on page 16 of the general journal.
4. Journalize and post the closing entries on page 16 of the general journal.

Problem 23–11 Examining Depreciation Adjustments

On May 2 Buzz Newsstand purchased a new machine for $2,700. It has an estimated disposal value of $100 and an estimated useful life of eight years. Buzz uses the straight-line method.

On December 31 the adjustment for depreciation for the first year was entered: Accumulated Depreciation—Store Equipment was credited for $325, and Depreciation Expense—Store Equipment was debited for $325.

Instructions

1. What is wrong with the adjustment for depreciation made on December 31? What is the correct entry?
2. One year from now, another adjustment for this machine will be entered on the work sheet. Assume the error from the previous year is not corrected. What amount should be entered in the Adjustments section for annual depreciation expense?

Analyze Determine whether the current period net income will be too high or too low if the original error is not corrected.
Practice your test-taking skills! The questions on this page are reprinted with permission from national organizations:

- Future Business Leaders of America
- Business Professionals of America

Use a separate sheet of paper to record your answers.

**Future Business Leaders of America**

**MULTIPLE CHOICE**

1. A truck used in daily operations of a corporation would be considered a(n)
   - a. long-term asset.
   - b. plant asset.
   - c. intangible asset.
   - d. either A or B.
   - e. none of these answers

2. A method that allocates an equal portion of the total depreciation for a plant asset (cost minus salvage) to each accounting period in its service life is
   - a. accelerated depreciation.
   - b. units-of-production.
   - c. straight-line depreciation.
   - d. sum-of-the-years’-digits depreciation.
   - e. declining-balance depreciation.

3. The Crimson Cartage Company purchased a new truck at a cost of $42,000 on July 1. The truck is estimated to have a useful life of 6 years and a salvage value of $6,000. Using the straight-line method, how much depreciation expense will be recorded for the truck during the first year ended December 31?
   - a. $3,000
   - b. $3,500
   - c. $4,000
   - d. $6,000
   - e. $7,000

4. The adjusting entry for the depreciation of a plant asset such as equipment involves a credit to
   - a. equipment expense.
   - b. accumulated equipment.
   - c. depreciation expense.
   - d. accumulated depreciation.

**Business Professionals of America**

**MULTIPLE CHOICE**

5. The entry to record depreciation for the fax machine at the end of the fiscal period
   - a. Debit Accumulated Depreciation—Maintenance Equipment, credit Depreciation Expense—Maintenance Equipment
   - b. Debit Depreciation Expense—Maintenance Equipment, credit Accumulated Depreciation—Maintenance Equipment
   - c. Debit Accumulated Depreciation—Office Equipment, credit Depreciation Expense—Office Equipment
   - d. Debit Depreciation Expense—Office Equipment, credit Accumulated Depreciation—Office Equipment

Need More Help?
Go to glencoeaccounting.glencoe.com and click on Student Center. Click on Winning Competitive Events and select Chapter 23.
- Practice Questions and Test-Taking Tips
- Concept Capsules and Terminology
**Plant Assets**

1. Name several plant assets that a business might use to sell merchandise.
2. Explain how current assets and plant assets differ.
3. A company purchased plant assets for $100,000. It expects to sell them in 4 years for 20 percent of the cost. What is the depreciation expense?
4. Classify these assets: land, building, cash, accounts receivable, computer equipment, merchandise inventory, supplies, and prepaid insurance into (a) plant assets or (b) current assets. Identify the assets to be depreciated.
5. Set up the formulas for calculating the amount to be depreciated, the annual depreciation expense, the accumulated depreciation, and book value.
6. Justify crediting the *Accumulated Depreciation* account rather than the *Plant Asset* account when recording depreciation expense.

**Merchandising Business: Photography Studio**

Karina Ludmiko is turning her photography hobby into a business called The Photo Studio. She asked you to set up the company’s asset records.

**INSTRUCTIONS**

1. Assume that The Photo Studio’s photography equipment cost $25,000, has a 10-year useful life, and no salvage value. Set up a depreciation schedule.
2. Explain to Karina how depreciation appears on the financial statements.

**Whom Will They Believe?**

After working for a year as payroll clerk for a small publishing company, you believe you have evidence of embezzlement—and suspect the department manager or senior accountant. Whom can you tell? Who would believe you?

**ETHICAL DECISION MAKING**

1. What are the ethical issues?
2. What are the alternatives?
3. Who are the affected parties?
4. How do the alternatives affect the parties?
5. What would you do?

**Communicating Accounting**

As accountant for Playtime Preschool, you want to convince the owner to purchase computers for the children to use. Explain that the company can depreciate the $10,000 investment and deduct the depreciation on its tax return. With a classmate, brainstorm the four factors affecting the depreciation estimate. List your recommendations and practice presenting them to the owner.

**Acquiring and Evaluating Information**

As Westside Wholesale’s newly hired manager, you plan for and control its plant assets. One standard you will be measured by is your budget and the controls you use to stay within that budget. Describe the information you will need to prepare a budget for equipment purchases and maintenance. List internal control procedures to help prevent asset loss and theft. Explain how the budget can be used to evaluate your performance.
Plant Assets
Global companies may use the revaluation model allowed by International Accounting Standard 16 to record plant assets. After initially recording an asset at cost, this model revalues an asset at its fair market value less subsequent depreciation, if fair market value can be measured reliably.

INSTRUCTIONS Define fair market value. How would revaluation affect the income statement?

Your Vehicle
A vehicle is a valuable asset. The vehicle declines in value each year, but if you keep it properly maintained, it will have a higher resale value when you sell it.

PERSONAL FINANCE ACTIVITY Determine the book value of your vehicle. It cost $20,000. Its value declined $6,000 in the first year, $4,000 in the second year, and $2,500 in the third year.

PERSONAL FINANCE ONLINE Log on to glencoeaccounting.glencoe.com and click on Student Center. Click on Making It Personal and select Chapter 23.

Vertical Analysis
Vertical analysis makes it easy to compare financial statements with industry standards, which are average percentages for companies in the same industry. Assume these partial vertical analyses of an income statement and balance sheet are for the pet food and pet supply industry.

**Income Statement Vertical Analysis**
- Net sales 100.0%
- Cost of sales 68.9
- Gross profit 31.1%

**Balance Sheet Vertical Analysis**
- Current assets 34.3%
- Property & equipment 49.3
- All other assets 16.4
- Total assets 100.0%

INSTRUCTIONS Use PETsMART’s financial statements in Appendix F for these tasks.
1. Complete a vertical analysis of PETsMART’s cost of sales and gross profit for the year ended February 1, 2004. Compare them to the industry standards above.
2. Complete a vertical analysis of PETsMART’s assets using the classifications above, as of February 1, 2004. Compare PETsMART’s asset mix with the industry standard.