

Exercises

Exercise 1

Dive Log

Researchers of a coral reef study want to use a worksheet to computerize their scuba diving log.

- Create a new workbook.
- In cell A1, type Dive Log and then select cells A1 through E1. Click Home → Merge & Center to join the selected cells into one larger cell and center the label. Apply the Heading 2 style to the label.
- Enter the data and apply formatting as shown below:

	A	B	C	D	E
1	Dive Log				
2	<i>Date</i>	<i>Depth (m)</i>	<i>Duration (min)</i>	<i>Water Temp (Celsius)</i>	<i>Visibility (m)</i>
3					
4	5/8/2009	10	60	26	10
5	5/10/2009	18	45	25	12
6	5/11/2009	13	50	27	9
7	5/13/2009	27	15	23	10
8	5/14/2009	11	53	28	11

- Save the workbook naming it Dive Log.
- In cell A9, enter the label Average and then format the label as right aligned and italic. Enter formulas that use a function to average the depth and duration of all five dives.
- Modify the average depth and duration formulas to use a function to round the results to 0 decimal places.
- Two dives were not recorded. Insert the new data shown below into the worksheet so that the dates remain in chronological order:

Date	Depth (m)	Duration (min)	Water Temp (Celsius)	Visibility (m)
5/9/2009	15	45	28	11
5/12/2009	20	40	24	9

- In rows 12 and 13, enter formulas that use functions to calculate:
 - the maximum depth of the dives and the maximum duration of the dives
 - the minimum depth of the dives and the minimum duration of the dives

Include appropriate labels and proper formatting.

- Add your name in a header and the current date in a footer. Add gridlines and headings.
- Save the modified Dive Log and print a copy.
- Display the formulas in the cells instead of values. Print a copy.

Exercise 2

Pizza Palace

The owner of Pizza Palace wants to use a worksheet to keep track of expenses.

- Create a new workbook.
- Enter the data and apply formatting using the Aspect theme as shown below:

	A	B	C	D
1	Pizza Palace			
2	Expenses per Pizza			
3				
4	Ingredients	Everything	Vegetarian	Cheese
5				
6	Dough	\$1.25	\$1.25	\$1.25
7	Cheese	\$1.50	\$1.50	\$1.50
8	Sauce	\$0.50	\$0.50	\$0.50
9	Pepperoni	\$0.75	\$0.00	\$0.00
10	Sausage	\$1.00	\$0.00	\$0.00
11	Onion	\$0.15	\$0.15	\$0.00
12	Mushroom	\$0.35	\$0.35	\$0.00
13	Green Pepper	\$0.40	\$0.40	\$0.00
14				

- Save the workbook naming it Pizza Palace.
- In cell A14, enter the label *Cost of Pizza* and then format the label as right aligned and italic. Enter formulas that use a function to calculate the total cost of each pizza type.
- Pepperoni pizza needs to be added to the worksheet between the Vegetarian and Cheese pizza columns. Enter an appropriate column heading and values for the pepperoni pizza. Copy the cost of pizza formula for the pepperoni pizza into cell D14.
- The menu price for each pizza needs to be added to the worksheet in row 15. When the cost of pizza is less than or equal to \$4.00 the price is one and a half (1.5) times the cost, and it is two (2) times the cost when it is greater than \$4.00. Enter formulas that use a function and cell references to calculate the menu price of the pizzas. Include an appropriate label and proper formatting.
- In cell A16, enter the label *Profit* and then format the label as right aligned and italic. Enter formulas that calculate the profit from each pizza type by subtracting the total cost of each type of pizza from the menu price.
- Change the price of Cheese from \$1.50 to \$2.00 for each pizza type and change the price of Dough from \$1.25 to \$1.50. How does this affect the profit?
- Add your name in a header and the current date in a footer. Add gridlines and headings.
- Save the modified Pizza Palace and print a copy.
- Display the formulas in the cells instead of values. Print a copy.

Exercise 3

SCHOOL LOAN

The SCHOOL LOAN workbook contains a loan amortization table. Open SCHOOL LOAN, which is an Excel data file for this text, and answer the following What If? questions:

- a) The tuition and room/board fees for one year at the state university are \$10,250. The loan options are:
 - 6% interest for a three year loan
 - 7% interest for a five year loan
 - 8% interest for a ten year loan

In cells B3, B4, and B5, enter the appropriate data for the three-year loan at 6%.

- b) In cell B7, enter a formula that uses the PMT function with cell references to calculate the periodic payment for the three year loan option.
- c) In cells B9 and B10, enter formulas that calculate the total amount paid and the total interest paid.
- d) In cells C3, C4, and C5, enter the appropriate data for the five-year loan option and then calculate the monthly payment, total amount paid, and total interest paid.
- e) In cells D3, D4, and D5, enter the appropriate data for the ten-year loan option and then calculate the monthly payment, total amount paid, and total interest paid.
- f) Create at least two new styles and apply the new styles to the worksheet.
- g) Add your name in a header and the current date in a footer. Add gridlines and headings.
- h) Save the modified SCHOOL LOAN and print a copy.
- i) Display the formulas in the cells instead of values. Print a copy.

Exercise 4

Car Loan

A loan amortization table can be used for any kind of loan, including car loans. Amortization tables can also be combined with What If? questions to help make decisions when purchasing a new car.

- a) Create a new workbook.
- b) Enter the data and apply formatting using the Apex theme as shown below:

	A	B	C	D	E
1	New Car Loan Amortization Table				
2					
3		3 Year Loan	3 Year Loan	5 Year Loan	5 Year Loan
4					
5	Interest rate =	7%	10%	7%	10%
6	Number of payments =	36	36	60	60
7	Principal =				
8					
9	Monthly payment =				
10					
11	Total paid =				
12	Total interest =				

- c) Save the workbook naming it Car Loan.
- d) Using the Internet or a newspaper, find an advertisement for a new car.
- e) Enter the price of the car in the ad as the principal of the car loan in row 7 of the worksheet.
- f) In row 9, enter formulas that use the PMT function with cell references to calculate the periodic payment for the different loan interest rates and payment periods.
- g) In row 11, enter formulas that use cell references to calculate the total amount paid (number of payments multiplied by the monthly payment).
- h) In row 12, enter formulas that use cell references to calculate the total interest paid (total amount paid minus the principal).
- i) Add your name in a header and the current date in a footer. Add gridlines and headings.
- j) Save the modified Car Loan and print a copy.
- k) Display the formulas in the cells instead of values. Print a copy.

Exercise 5

Credit

A cash advance is borrowing money with a credit card. This is usually an expensive method of borrowing money and is best used for only short periods of time or not at all. Banks typically loan money at rates between 5% and 15%. Cash advances are based on the credit card APR (annual percentage rate), which is typically 15% or higher.

- a) Create a new workbook that stores the amount of money to borrow, the number of months to pay back the borrowed money, and the annual interest rate. Include labels and format cells appropriately.
- b) To compare the cost of borrowing, include columns for annual interest rates ranging from 5% to 25% in increments of 5%.
- c) Add formulas that calculate the monthly payment, total amount paid, and total interest paid for each of the different interest rates.
- d) Add your name in a header and the current date in a footer.
- e) Save the workbook naming it Credit and print a copy.
- f) Add two new scenarios by changing the amount borrowed and the length of time and then create a scenario summary.
- g) Add your name in a header and the current date in a footer to the Scenario Summary sheet.
- h) Save the workbook naming it Credit and print a copy of the Scenario Summary sheet.

Exercise 6 ——— Stock Categories, Diversified Stock Portfolio, Investor Proposal, Portfolio Analysis

An educated investment in the stock market has historically provided the highest rate of return on a long-term investment compared to other investment options, such as a savings account. Stocks give an investor a portion, or *share*, of ownership in publicly held companies. Stocks can provide income as well as a long-term investment, and are categorized as:

- **Income stocks** pay dividends that provide income. *Dividends* are money paid annually to investors and are calculated by multiplying a stock's dividend (the DIV amount on a stock table) by the number of shares owned.
- **Blue-chip stocks** are companies that are considered solid, reliable, and having sustained growth. They provide consistent, reliable growth with regular, but small dividends.
- **Growth stocks** are shares of young, entrepreneurial companies that are experiencing a fast rate of growth. Growth stocks show considerable rise in stock price over a period of several months or years. These stocks normally do not pay dividends. Although sometimes riskier than other types of stock, growth stocks offer more potential for appreciation.
- **Cyclical stocks** are shares of companies that are affected by economic trends. The price of these stocks tend to go down in a recession and up during economic booms.
- **Defensive stocks (non-cyclical)** are shares of companies that are considered recession-resistant. These companies often provide staples, which will be purchased regardless of how the economy doing. These stocks are least affected by economic cycles and typically maintain their value regardless of the economic outlook.

- a) Ask a parent or another adult for input on how the stock from companies they know would be categorized. Discuss at least ten different companies.

Use Word to create a memo to your teacher regarding the information gathered from the adult you met with. Include the name of the adult you met with in the subject line. List the companies discussed and briefly explain how each was categorized and why. Save the memo naming it Stock Categories.

- b) The stock market is sometimes referred to as being either a "bull market" or a "bear market." A *bull market* is when stocks are considered to be generally rising in value. In a *bear market*, stocks are considered to be generally falling in price. When building a stock portfolio, different types of stock should be added. Having a mix of income, blue-chip, and defensive stocks along with growth and cyclical stocks will diversify a portfolio and may help the overall performance of the portfolio during a bear market. *Portfolio* refers to a set of investments owned by an individual.

A company's Web site typically includes a link called "Company" or "Investor Information" that provides the information you will need. Be sure to also check the bottom navigation bar for links to investor information. Many sites can also be searched for investor information.

Create a workbook named Diversified Stock Portfolio to keep track of an investment of 100 shares from ten different companies. Include the company name and the stock symbol (called the *ticker symbol*). Be sure to create a diversified portfolio.

- c) Use Word to create a memo to an investor that includes the Diversified Stock Portfolio worksheet data. Briefly explain to the investor why you feel the selected stocks create a diversified portfolio. In a separate paragraph, explain why the income, blue-chip, and defensive stocks hedge against a downturn in the portfolio value during a bear market. Save the document naming it Investor Proposal and then print a copy.
- d) One investment strategy for choosing stocks is *fundamental analysis*, which uses actual company data to determine the value of a stock and its potential for growth. A company's annual report provides data about its financial situation and all traded companies are required to make it publicly available. The *annual report* includes a balance sheet, which shows assets, liabilities, and net worth for the past year. *Net worth* is also called the stockholder's equity. The figures in the balance sheet can be used to calculate:
- **Current Ratio** Also called Working Capital Ratio. Current Ratio is assets divided by liabilities. This measure determines if a company can meet financial obligations. A value between 1.2 and 2.0 is considered good. Less than 1 means assets cannot cover liabilities. A value greater than 2 means the company may not be reinvesting excess cash or has too much inventory.
 - **Quick Ratio** Also called the Acid Test Ratio. Quick Ratio is assets minus inventories divided by liabilities. This measure determines if a company can meet short-term liability, such as employee salaries. A value greater than 1 is considered good.

Fundamental analysis also includes considering the P/E, which is listed for each stock in a newspaper stock table or by viewing a stock quote on the Internet:

- **P/E** Price to Earnings ratio. P/E is stock price divided by the trailing EPS. *Trailing EPS* is a company's earnings for the last four quarters divided by the number of shares outstanding. P/E can indicate the profitability of a company and is used to value a stock. The P/E is generally between 15 and 25. A lower P/E can mean a stock may be undervalued. However, a single P/E should not be used to value a stock. One way to use the P/E is to compare P/E ratios among companies in the same industry. Values for P/E ratios by industry can be found on the Internet.

Modify the Diversified Stock Portfolio workbook to include a new worksheet named Analysis. Add each of the stocks from Sheet1, grouped by industry where possible. For each stock, create formulas that calculate the Current Ratio and Quick Ratio. Use the Internet to find each company's annual report. Annual reports are usually PDF documents within an Investor link at a company Web site. Look for the Balance Sheet within the report, and then look for total current assets and total current liabilities for calculating the Current Ratio and Quick Ratio. For each stock, list its P/E, which can be found in the annual report or through a stock quote on the Internet.

- e) Use Word to create a letter to an investor that includes the data from the Analysis sheet in the Diversified Stock Portfolio workbook. Explain to the investor what the ratios mean for each stock. Where possible compare the stock P/E ratios. In a separate paragraph, make recommendations to the investor about which stocks to keep and which to sell for a portfolio that represents a long-term investment. Save the document naming it Portfolio Analysis and then print a copy.

Exercise 7

Depreciation Calculator

Businesses must keep track of their assets in order to portray a realistic net worth. Assets are material items with considerable value, such as computers, machinery, and vehicles. Because assets lose value over time, a business must depreciate assets in order to determine net worth. For example, suppose the assets of a small advertising agency include a new computer. The computer was purchased for \$4,000 (the cost). It is expected to meet the company's needs for 3 years (the total life). After 3 years, the agency expects to trade it in for \$350 (the salvage value). When the agency purchased the computer, it used cash (\$4,000) for the purchase. If the business subtracts the cash spent when the asset is acquired, the net worth for that year will go down by \$4,000. However, the computer will be useful for three years. Therefore, the business should determine the depreciation per year for the computer and then subtract that value from the net worth to portray a realistic net worth.

The SLN() function uses the straight-line depreciation method to return the depreciation per period for an item.

- a) Create a new workbook.
- b) Label cells for the initial cost of an item, the salvage value of the item at the end of its useful life, and the total life of the item.
- c) Save the workbook naming it Depreciation Calculator.
- d) The SLN() function returns the depreciation of an asset for a single period. The SLN() function takes the form:

SLN(cost, salvage, life)

The cost is the initial cost of the asset, salvage is the salvage value of the asset at the end of its useful life, and life is the expected period of usefulness for the asset. The life determines the period of depreciation. If life is in months, then SLN() returns the depreciation per month. If life is in years, then SLN() returns depreciation per year.

Label a cell SLN Value and then create a formula that includes the SLN() function to determine the depreciation per year for an item. In the example above, an item that costs \$4,000 with a life of 3 years and worth \$350 when salvaged will have a depreciation of \$1,216.67 per year.

- e) Add your name in a header and the current date in a footer. Add gridlines and headings.
- f) Save and then print the modified Depreciation Calculator with \$3,500 entered for the cost of an item, 4 years for the life of the item, and \$25 for the salvage value of the item.
- g) Display the formulas in the cells instead of the values. Print a copy.