Mathematics: Applied Business Math A
Unit 1: Pay

Essential Understandings	▪ The basic computational operations used in mathematics can be used to calculate different types of pay and taxes. ▪ Knowledge of percents can help one understand commission pay, income taxes, and tips. ▪ Different services in our working communities offer a variety of methods in paying for these services. ▪ Deductions from a paycheck are an essential part of our society. ▪ Federal, state, and city taxes are collected for different purposes. ▪ One must know when a receipt is necessary.
Essential Questions	▪ What is hourly pay? ▪ What is overtime pay? ▪ What is gross pay? ▪ What is a deduction? ▪ What is net pay? ▪ What is an income tax (state and federal)? ▪ What is a quota? ▪ What is commission pay? ▪ What is piece-rate pay? ▪ What is salary pay? ▪ What is a budget? ▪ How do you calculate overtime pay? ▪ How do you calculate commission pay? ▪ How do you calculate average pay? ▪ How do you calculate piece-rate Pay? ▪ How do you calculate graduated commission? ▪ How to calculate income taxes? ▪ How to calculate total deductions? ▪ How do you calculate net pay? ▪ How do plan a budget?
Essential Knowledge	▪ Percents can be used to find the value of a total dollar amount. ▪ Multiplication can be used instead of addition to find a total value. ▪ Addition is used to find the sum of different quantities. ▪ Subtraction is used to find the difference of two quantities. ▪ Addition, subtraction, and multiplication can be combined to find a desired value. ▪ A tax table can be used to find a desired value. ▪ A percentage can be changed to a decimal value. ▪ A spreadsheet is a form of chart.
Vocabulary	▪ <u>Terms</u>: ○ average, commission, double-time pay, graduated commission, gross pay, hourly rate, quota, salary, time-and-a-half pay, adjusted gross income, budgets, cash receipt, deduction, income, employee benefits, exemption, taxable income, withholding allowance, withholding tax

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Essential Skills	▪ Use addition to find the sum of different quantities. ▪ Apply multiplication to find a total value, rather than addition. ▪ Find the percentage value of an amount. ▪ Use subtraction to find the difference of two quantities. ▪ Combine addition, subtraction, and multiplication to find a desired value. ▪ Change a percentage into a decimal value. ▪ Read a tax table. ▪ Read a chart in the form of a spreadsheet.
Related Maine Learning Results	<u>Mathematics</u> A. Number Real Number A1. Students know how to represent and use real numbers. a. Use the concept of nth root. b. Estimate the value(s) of roots and use technology to approximate them. c. Compute using laws of exponents. d. Multiply and divide numbers expressed in scientific notation. e. Understand that some equations do not have real solutions and that there exist other number systems to allow for solutions to these equations.

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Related Maine Learning Results	B. Data Data Analysis B2. Students understand correlation and cause and effect. a. Recognize when correlation has been confused with cause and effect. b. Create and interpret scatter plots and estimate correlation and lines of best fit. c. Recognize positive and negative correlations based on data from a table or scatter plot. d. Estimate the strength of correlation based on a scatter plot. B3. Students understand and know how to describe distributions and find and use descriptive statistics for a set of data. a. Find and apply range, quartiles, mean absolute deviation, and standard deviation (using technology) of a set of data. b. Interpret, give examples of, and describe key differences among different types of distributions: uniform, normal, and skewed. c. For the same mean of normal distributions, use the standard deviation for a group of observations to establish 90%, 95%, or 99% confidence intervals. B4. Students understand that the purpose of random sampling is to reduce bias when creating a representative sample for a set of data. a. Describe and account for the difference between sample statistics and statistics describing the distribution of the entire population. b. Recognize that sample statistics produce estimates for the distribution of an entire population and recognize that larger sample sizes will produce more reliable estimates. c. Apply methods of creating random samples and recognize possible sources of bias in samples.
Sample Lessons And Activities	▪ Students will utilize the A+ learning lab (lesson and assessment). ▪ Students will work in groups to solve word problems using their knowledge of numbers and operations. ▪ Students will utilize a scientific calculator in calculating values.
Sample Classroom Assessment Methods	▪ Students will complete homework assignments on the essential skills from their textbook. ▪ Students will demonstrate understanding through oral responses to group problem solving. ▪ Students will take teacher generated tests and quizzes. ▪ Students will take tests in the A+ learning lab.
Sample Resources	▪ Publications: ○ Business Math - 15th Edition