4 - Employment & Retirement

Content Area: **Mathematics**
Course(s):
Time Period: **Marking Period 2**
Length: **25 Days**
Status: **Published**

Summary

Introduction: Unit 4 will focus on employment, taxes/benefits withdrawn from paychecks, and retirement options. Students will compare employment options such as hourly, commission, royalty, and salary pay. Once this understanding is established, students will explore how taxes are deducted both at a state and federal level (as well as city, if applicable), and we will discuss health benefits and life insurance options. Finally, students will learn how social security, pension, and retirement plans fit into their paycheck, as well as how to balance the investments in their future.

Revision Date: June 2023

Essential Questions/Enduring Understandings

Essential Questions:

- How do people in different stages of their careers find employment?
- What do you need to know to make sure each paycheck is correct?
- What jobs base their pay according to the amount produced?
- What are the benefits of a job?
- What are Social Security and Medicare?
- Who pays taxes?
- How can you graph tax schedules?
- Why is your take-home pay lower than your salary?
- How can you save for your retirement?
- How does the government help me finance my retirement?
- What is deferred compensation?
- What are the advantages of purchasing life insurance?

Enduring Understanding:

- Compute periodic salary based on annual contract salary.
- Express classified ad prices as piecewise functions.
- Compute weekly, semimonthly, and biweekly earnings given annual salary.
- Compute hourly pay and overtime pay given hourly rate.
- Compute annual salaries based on annual percentage increases.
- Compute pay based on percent commission and piecework pay.
- Explain advantages and disadvantages of pay based on production.
- Explain and calculate the value of certain employee benefits.
- Compute paycheck deductions for Social Security and Medicare.
- Express tax schedules algebraically, using them to compute federal income taxes.
- Construct income tax graphs using compound equations.
- Interpret and use the information on a pay stub, W-2 form, and 1099 form.
- Calculate future values of retirement investments that are both single deposit and periodic.
- Compare the tax savings by making contributions to pre-tax retirement savings accounts.
- Calculate an employer's matching contribution to a retirement account.
- Explain and compute the benefits paid by Social Security.
- Calculate pension benefits using various formulas, during and after vesting periods.
- State the advantages and disadvantages of different types of life insurance, and calculate the costs.

Objectives

Students will know: (content area knowledge)

- How to compute periodic salary based on annual contract salary, as well as weekly, semimonthly, and biweekly earnings.
- How to set up a piecewise function.
- How to compute hourly pay and overtime based on hourly rate.
- How to discover annual salary based on various salary pay structures.

- How to calculate the value of employee benefits, Social Security, and Medicare.
- How to compute federal income taxes algebraically from tax schedules.
- How to determine future values of retirement investments with various deposit plans.
- How to calculate matching contributions.
- How to formulate pension benefits during and after vesting periods.
- How to find the cost of life insurance plans.

Students will be skilled at: (skills)

- Evaluating and interpreting piecewise functions.
- Compare and contrast types of salary pay structures.
- Explain advantages and disadvantages of pay based on production.
- Explain advantages of employee benefits, Social Security, and Medicare.
- Use compound equations to construct income tax graphs.
- Interpret information on pay stubs, W-2 forms, and 1099 forms.
- Compare how to create tax savings through various retirement accounts.
- Identify the benefits paid by Social Security.
- State the advantages and disadvantages of various life insurance plans.

Learning Plan

- Warm - Up: Students will complete either the warm-up in the textbook for a specific section, or a related problem from the teacher. A timer at the front of the room will maintain timeframes of this activity. When the timer sounds, the students are to hand their work to the teacher for a grade.
- Homework: While the warm-up is being completed, the teacher will walk the room to check homework has been completed. Teacher will check in individually with students who did not fully complete the assignment. Teacher will also take time to ask students with completed assignments if there are specific problems that they would like discussed.
- Discussion: Teacher will go over the warm-up as well as requested homework problems. This will allow time for students to clarify questions on material that has already been covered, and the warm-up gives students a glimpse into the material that will be covered in the new lesson. Teacher will be actively listening during this discussion for signs that students need additional time with previous information before continuing with the next lesson.
- Lesson: Teacher will lead students through discovering how to apply their prior mathematical

knowledge into new content. Students will lead the lesson on how much they remember about the math concept before the application. Once students have a complete knowledge of the concept, teacher will encourage students to apply the concept to the real world situation. Calculations will be completed by students alongside teacher, then within small groups to compare with each other, and finally independently. During the group work time, teacher will circulate the room to listen to each group's discussion of the lesson, monitoring if specific students are struggling and encouraging them. A timer at the front of the room will maintain timeframes of these discussions. During independent work time, teacher will circulate the room to monitor students' progress, especially the aforementioned struggling students.

- Free Work: If time allows, students will be encouraged to spend the rest of the period working on either their homework assignment or progressing on the main project for the unit.

Assessment

Formative Assessments:

- Prior math concept assessments
- Warm-ups

Summative Assessments:

- Chapter assessments
- Unit assessments
- Unit projects

Benchmark Assessments:

- Informal observations
- Small group observations
- Oral and written explanations of reasoning
- Homework completion

Alternative Assessments

- Group discussions
- Performance tasks

Materials

Core Instructional Materials: Core Book List including

- Financial Algebra: Advanced Algebra with Financial Applications
- Authored by Robert Gerver, Richard Sgroi

Supplemental materials:

- Financial Algebra website
- Edia website
- Khan Academy website

Standards

This unit also reflects the goals of the Department of Education and the Amistad Commission including the infusion of the history of Africans and African-Americans into the curriculum in order to provide an accurate, complete, and inclusive history regarding the importance of of African-Americans to the growth and development of American society in a global context.

In accordance with New Jersey's Chapter 32 Diversity and Inclusion Law, this unit includes instructional materials that highlight and promote diversity, including: economic diversity, equity, inclusion, tolerance, and belonging in connection with gender and sexual orientation, race and ethnicity, disabilities, and religious tolerance.

Students will focus on equity, inclusion, and tolerance when analyzing the comparison of various quantities regarding characteristics of people. Equality will also be highlighted which can be associated with both numerical representations and the connection between people. This can be associated with treating people fairly and equality.

LA.L.11-12.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
LA.L.11-12.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
LA.L.11-12.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
LA.W.11-12.6	Use technology, including the Internet, to produce, share, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
LA.W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
MA.N-Q.A.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

MA.N-Q.A.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
MA.S-IC.A.1	Understand statistics as a process for making inferences about population parameters based on a random sample from that population.
MA.S-IC.A.2	Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation.
MA.S-IC.B.4	Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.
MA.S-IC.B.6	Evaluate reports based on data.
MA.S-ID.A.1	Represent data with plots on the real number line (dot plots, histograms, and box plots).
MA.S-ID.A.3	Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
MA.S-ID.C.7	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.
MA.S-ID.C.8	Compute (using technology) and interpret the correlation coefficient of a linear fit.
MA.S-ID.C.9	Distinguish between correlation and causation.
MA.S-MD.B.5	Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.
MA.S-MD.B.7	Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).
MA.A-APR.D.6	Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x)$ + $r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.
MA.A-CED.A.1	Create equations and inequalities in one variable and use them to solve problems.
MA.A-CED.A.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
MA.A-CED.A.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.
MA.A-CED.A.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
MA.A-REI.A.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
MA.A-REI.B.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
MA.A-REI.B.4	Solve quadratic equations in one variable.
MA.A-REI.C.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.
MA.A-REI.D.11	Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation$f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.
WRK.9.2.12.CAP.2	Develop college and career readiness skills by participating in opportunities such as structured learning experiences, apprenticeships, and dual enrollment programs.
WRK.9.2.12.CAP.4	Evaluate different careers and develop various plans (e.g., costs of public, private, training

	schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.
WRK.9.2.12.CAP.6	Identify transferable skills in career choices and design alternative career plans based on those skills.
WRK.9.2.12.CAP.7	Use online resources to examine licensing, certification, and credentialing requirements at the local, state, and national levels to maintain compliance with industry requirements in areas of career interest.
WRK.9.2.12.CAP.11	Demonstrate an understanding of Free Application for Federal Student Aid (FAFSA) requirements to apply for postsecondary education.
WRK.9.2.12.CAP.12	Explain how compulsory government programs (e.g., Social Security, Medicare) provide insurance against some loss of income and benefits to eligible recipients.
WRK.9.2.12.CAP.14	Analyze and critique various sources of income and available resources (e.g., financial assets, property, and transfer payments) and how they may substitute for earned income.
WRK.9.2.12.CAP.15	Demonstrate how exemptions, deductions, and deferred income (e.g., retirement or medical) can reduce taxable income.
WRK.9.2.12.CAP.16	Explain why taxes are withheld from income and the relationship of federal, state, and local taxes (e.g., property, income, excise, and sales) and how the money collected is used by local, county, state, and federal governments.
WRK.9.2.12.CAP.18	Differentiate between taxable and nontaxable income from various forms of employment (e.g., cash business, tips, tax filing and withholding).
WRK.9.2.12.CAP.19	Explain the purpose of payroll deductions and why fees for various benefits (e.g., medical benefits) are taken out of pay, including the cost of employee benefits to employers and self-employment income.
WRK.9.2.12.CAP.20	Analyze a Federal and State Income Tax Return.

Integrated Accommodation and Modifications, Special Education students, English Language Learners, At-Risk students, Gifted and Talented students, Career Education, and those with 504s