

Unit 5: Consumer and Career

Content Area: **Mathematics**
Course(s): **College Math I**
Time Period: **May**
Length: **8 weeks**
Status: **Published**

Unit Overview

the focus is on basic math skills used in everyday life with the goal of developing intelligent consumers. The practical applications of math are studied using real world situations. The unit emphasizes personal finances through the study of personal earnings and the elements of business, credit, home ownership and insurance.

Consumer math is a field of mathematics, which shows you how to use your basic math skills to real life situations such as buying a car, budgeting your money, investing, paying taxes, etc. student will also be able to make informed budgetary decisions and understand money management strategies.

Read more : <http://www.ck12.org/About-6512836-consumer-mathematics-course-description.html>
student will also be able to make informed budgetary decisions and understand money management strategies.

Read more : <http://www.ck12.org/About-6512836-consumer-mathematics-course-description.html>

Transfer

Students will be able to independently use their learning to...

- Define the relationships between dollars, time, hourly and salary wages, and commission and for both hourly and salary wages
- Calculate before gross salary, tax and after tax deductions and net paycheck amount post deductions
- Calculate interest earnings, and checking account charges
- Write and record checks and calculate checking balances and identify errors when necessary
- Explain the importance of saving and compare different types of saving.
- Calculate simple interest for loans and savings
- Calculate simple and compound interest in various situations
- Discuss the importance of goal planning and describe various methods of reaching those goals
- Define the relationship between compound interest and exponential growth

For more information, read the following article by Grant Wiggins.

http://www.authenticeducation.org/ae_bigideas/article.lasso?artid=60

Meaning

Understandings

Students will understand that...

Consumer math is a field of mathematics, which shows you how to apply your basic math skills to real life situations such as buying a car, budgeting your money, investing, paying taxes, home ownership, consumer buying and planning for retirement.

Essential Questions

- What does the word "percent" mean?
- What is meant by the "term" of a loan?
- What is the difference between simple and compound interest?
- What is the difference between close-ended credit and open-ended credit?
- What specifically makes a loan a mortgage?
- What is a amortization schedule?
- What is the difference between stocks and bonds?

Application of Knowledge and Skill

Students will know...

Students will know...

- how to be a well-informed consumer.
- The application of percents are a critical life skill and are used in daily life.
- interest is a description of how fees are calculated when money is borrowed or how money grows when saved or invested.
- there are natural advantages and disadvantages to installment buying.
- A mortgage is a long term loan where the lender has the right seize the property purchased if payments are not made.
- Investors often own a combination of stocks and bonds.

Students will be skilled at...

Students will be skilled at...

- Defining the relationships between dollars, time, hourly and salary wages, and commission and for both hourly and salary wages
- Calculating before gross salary, tax and after tax deductions and net paycheck amount post deductions
- Calculating interest earnings, and checking account charges
- Writing and recording checks and calculate checking balances and identify errors when necessary
- Explaining the importance of saving and comparing different types of saving.
- Calculating simple interest for loans and savings
- Calculating simple and compound interest in various situations
- Discussing the importance of goal planning and describe various methods of reaching those goals
- Defining the relationship between compound interest and exponential growth

Academic Vocabulary

Percent	Interest	Principal
Rate	Terms	semiannually
quarterly	annuity	future value
installment buying	down payment	finance charge
APR	mortgage	adjustable rate
fixed rate	amortization schedule	stock
bond	dividend	shareholder
commission	portfolio	mutual fund

==> LEARNING GOAL 5.1 - Consumer Mathematics

apply basic math skills to real life situations such as buying a car, budgeting money, investing, paying taxes, home ownership, consumer buying and planning for retirement.

Objective 5.1.1 (Percents) (level of difficulty: Retrieval)

SWBAT:

(8.1)

- Perform calculations involving percent

- Solve real-world problems involving percents
- Find percent of change
- Evaluate the validity of claims based on percents

In real world problems, the answers are usually not numbers but quantities: numbers with units, which involves measurement. In their work in measurement up through Grade 8, students primarily measure commonly used attributes such as length, area, and volume. In high school, students encounter a wider variety of units in modeling, e.g., acceleration, currency conversions, derived quantities such as person-hours and heating degree days, social science rates such as per-capita income, and rates in everyday life such as points scored per game or batting averages. They also encounter novel situations in which they themselves must conceive the attributes of interest. For example, to find a good measure of overall highway safety, they might propose measures such as fatalities per year, fatalities per year per driver, or fatalities per vehicle-mile traveled. Such a conceptual process is sometimes called quantification. Quantification is important for science, as when surface area suddenly “stands out” as an important variable in evaporation. Quantification is also important for companies, which must conceptualize relevant attributes and create or choose suitable measures for them.

Objective 5.1.2 (Simple Interest) (level of difficulty: Retrieval - executing)

SWBAT:

(8.2)

- Compute simple interest.
- Compute principal, rate or time.

In real world problems, the answers are usually not numbers but quantities: numbers with units, which involves measurement. In their work in measurement up through Grade 8, students primarily measure commonly used attributes such as length, area, and volume. In high school, students encounter a wider variety of units in modeling, e.g., acceleration, currency conversions, derived quantities such as person-hours and heating degree days, social science rates such as per-capita income, and rates in everyday life such as points scored per game or batting averages. They also encounter novel situations in which they themselves must conceive the attributes of interest. For example, to find a good measure of overall highway safety, they might propose measures such as fatalities per year, fatalities per year per driver, or fatalities per vehicle-mile traveled. Such a conceptual process is sometimes called quantification. Quantification is important for science, as when surface area suddenly “stands out” as an important variable in evaporation. Quantification is also important for companies, which must conceptualize relevant attributes and create or choose suitable measures for them.

Objective 5.1.3 (Compound Interest) (level of difficulty: Retrieval - executing)

SWBAT:

(8.3)

- Compute compound interest
- Compute the effective rate of interest of investment(s)
- Compute the periodic payment needed to meet an investment goal

In real world problems, the answers are usually not numbers but quantities: numbers with units, which involves measurement. In their work in measurement up through Grade 8, students primarily measure commonly used attributes such as length, area, and volume. In high school, students encounter a wider variety of units in modeling, e.g., acceleration, currency conversions, derived quantities such as person-hours and heating degree days, social science rates such as per-capita income, and rates in everyday life such as points scored per game or batting averages. They also encounter novel situations in which they themselves must conceive the attributes of interest. For example, to find a good measure of overall highway safety, they might propose measures such as fatalities per year, fatalities per year per driver, or fatalities per vehicle-mile traveled. Such a conceptual process is sometimes called quantification. Quantification is important for science, as when surface area suddenly “stands out” as an important variable in evaporation. Quantification is also important for companies, which must conceptualize relevant attributes and create or choose suitable measures for them.

Objective 5.1.4 (Installment Buying) (level of difficulty: Comprehension)

SWBAT

(8.4)

- Find amount financed, installment price, and finance charge for a fixed installment loan.
- Compute unearned interest and payoff amount for a loan paid off early
- Compute credit card finances charges

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).

Objective 5.1.5 (Home Ownership) (level of difficulty: Comprehension to Analysis)

SWBAT

(8.5)

- Find the total interest on a home loan
- Compare mortgages with different lengths
- Find a monthly mortgage payment using a formula
- Make an amortization schedule for a home loan

MA.A-SSE.B.4

Derive and/or explain the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems.

Objective 5.1.6 (Stocks and Bonds) (level of difficulty: Retrieval - executing)

SWBAT

(8.6)

- Find information from a stock listing
- Compute the P/E ratio for a stock
- Compute the total cost of a stock purchase

- Compute the profit or loss from a stock sale

MA.S-MD.B.6	Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).
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).

Objective 5.1.7 (Car Ownership) (level of difficulty: Knowledge Utilization-investigating)

SWBAT

- Know the definition of, and where to find, the asking price, book value, trade in value, and private party value of a car
- Research vehicle reliability
- Research vehicle prices and purchase options
- Know how to price new cars with options
- Describe automobile insurance
- Explain the difference between liability and full coverage
- Explain coverage limits
- Select an insurance policy based on basic criteria

MA.S-MD.B.5b	Evaluate and compare strategies on the basis of expected values.
--------------	--

Objective 5.1.8 (Job and Income) (level of difficulty: Knowledge Utilization)

SWBAT

- Calculate Wages from various payment types
- Complete a job application
- Practice interviewing strategies

MA.S-IC	Making Inferences and Justifying Conclusions
MA.S-MD	Using Probability to Make Decisions
MA.S-MD.B	Use probability to evaluate outcomes of decisions
MA.S-MD.B.5b	Evaluate and compare strategies on the basis of expected values.

Summative Assessment

Tests, quizzes, End of Unit Assessment, Projects

21st Century Life and Careers

CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP3	Attend to personal health and financial well-being.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP5	Consider the environmental, social and economic impacts of decisions.
CRP.K-12.CRP6	Demonstrate creativity and innovation.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP9	Model integrity, ethical leadership and effective management.
CRP.K-12.CRP10	Plan education and career paths aligned to personal goals.
CRP.K-12.CRP11	Use technology to enhance productivity.
CRP.K-12.CRP12	Work productively in teams while using cultural global competence.
CAEP.9.2.12.C.1	Review career goals and determine steps necessary for attainment.
CAEP.9.2.12.C.2	Modify Personalized Student Learning Plans to support declared career goals.
CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.
CAEP.9.2.12.C.4	Analyze how economic conditions and societal changes influence employment trends and future education.
CAEP.9.2.12.C.6	Investigate entrepreneurship opportunities as options for career planning and identify the knowledge, skills, abilities, and resources required for owning and managing a business.
CAEP.9.2.12.C.7	Examine the professional, legal, and ethical responsibilities for both employers and employees in the global workplace.
CAEP.9.2.12.C.9	Analyze the correlation between personal and financial behavior and employability.

Formative Assessment and Performance Opportunities

Classroom discussion

class/homework

class closure

class openers

group work

presentations

projects

student teacher discussions

Accommodations and Modifications

504 Accommodations

IEPs

challenge problems

heterogeneous grouping

Problems of the week

projects

small group instruction

technology

Unit Resources

- Textbook: Math in Our World, 2nd Edition (McGraw Hill, 2011)
- Kuta Software
- Examview Software

Additional Websites:

- Dan Meyer's 3-Act Math Tasks:
<https://docs.google.com/spreadsheet/pub?key=0AjIqyKM9d7ZYdEhtR3BJMmdBWnM2YWxWYVM1UWowTEE&output=html>
- NCTM Illuminations Website: Resources for Teaching Math:
<http://illuminations.nctm.org/Default.aspx>
- PARCC Educator Resources: <http://www.parcconline.org/for-educators>
- The Geometer's Sketchpad Resource Center: <http://www.dynamicgeometry.com/>
- Khan Academy: <https://www.khanacademy.org/>