Unit 3: Consumer Math

Content Area: **Mathematics**
Course(s): **Practical Math (as per IEP)**
Time Period: **1 marking period**
Length: **10 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. This unit emphasizes consumer math through the study of credit and loans for major purchases.

Transfer

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

- Calculate simple interest for loans and savings
- Calculate simple and compound interest in various situations
- Compute installment price and finance charge.

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 and taking out a loan.

Essential Questions

Students will keep considering...

- What does the APR mean?
- What is meant by the "term" of a loan?
- What is the difference between simple and compound interest?
- How is the rate of a loan typically described?
- What does it mean to say interest is compounded quarterly? Monthly? Annually?
- What is a finance charge?
- What is the difference between the purchase price of an item and the amount financed?

Application of Knowledge and Skill

Students will know...

Students will know...

- What a quantity is
- How important precision is in measurement
- Choosing appropriate units is important to accuracy
- Understand the parts of a formula or equation
- Understand how mathematical tools, such as tables, can help model real world problems
- Understand the different limitations necessary to solve problems related to money
- The application of percents are a critical life skill and are used in daily life.
- What APR means.
- What is meant by the "term" and "finance charge" of a loan.
- The difference between simple and compound interest.
- What it means to say interest is compounded quarterly, monthly, or annually.
- The difference between the purchase price of an item and the amount financed.

Students will be skilled at...

Students will be skilled at...

- Expressing quantities related to money
- Choosing appropriate units when using a formula with problems involving percent
- Interpreting money as a unit of measurement

- Organizing appropriate quantities using a table
- Determing the reasonableness of an answer.
- Compute an installment price and a finance charge.

Academic Vocabulary

quantities	precision	measurement	unit	formula	table	model	accuracy
limitations	solve	simplify	compare	APR	interest	loan	finance charge
installment plan	sticker price	options	unpaid balance	new balance	monthly payment	secured loan	title
collision	liability	comprehensive	function	arithmetic sequence	geometric sequence	increasing	decreasing
input	output	prediction	variable	budget	options		

Target 3.1b

SWBAT:

Determine appropriate units for a given formula

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.4	Model with mathematics.
MA.N-Q.A	Reason quantitatively and use units to solve problems.
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.K-12.6	Attend to precision.
MA.N-Q.A.2	Define appropriate quantities for the purpose of descriptive modeling.
MA.N-Q.A.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Target 3.1c

SWBAT

Organize quantities into a table and use it to identify solutions to real worl problems

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.4	Model with mathematics.

MA.N-Q.A	Reason quantitatively and use units to solve problems.
MA.K-12.5	Use appropriate tools strategically.
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.2	Define appropriate quantities for the purpose of descriptive modeling.
MA.K-12.6	Attend to precision.
MA.N-Q.A.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
MA.K-12.7	Look for and make use of structure.

Target 3.2a

SWBAT

Identify parts of an expression

MA.A-SSE.A.1	Interpret expressions that represent a quantity in terms of its context.
MA.A-SSE.A.1a	Interpret parts of an expression, such as terms, factors, and coefficients.
MA.K-12.7	Look for and make use of structure.

Target 3.2c

SWBAT

Use equations to model real world problems and interpret their solutions

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.4	Model with mathematics.
MA.K-12.6	Attend to precision.
MA.K-12.7	Look for and make use of structure.
MA.A-REI.B	Solve equations and inequalities in one variable

Learning Goal 3.3

Understand and use functions to model real world problems involving loan payments over time.

Target 3.3a

SWBAT:

Identify and apply arithmetic or geometric sequences to real worl applications pertaining to credit and loans.

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.
MA.K-12.6	Attend to precision.
MA.K-12.7	Look for and make use of structure.
MA.K-12.8	Look for and express regularity in repeated reasoning.
MA.F-BF.A.2	Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.

Target 3.3b

SWBAT:

Use a function to calculate loan payments over time.

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.
MA.K-12.6	Attend to precision.
MA.K-12.7	Look for and make use of structure.
MA.F-BF.A.1	Write a function that describes a relationship between two quantities.

Target 3.3c

SWBAT:

Compare loan options, such as amount of payment, frequency of payments and number of payments based on function components.

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.
MA.K-12.6	Attend to precision.
MA.K-12.7	Look for and make use of structure.
MA.K-12.8	Look for and express regularity in repeated reasoning.
MA.F-BF.A.1	Write a function that describes a relationship between two quantities.
MA.F-BF.A.2	Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.

Summative Assessment

Tests, quizzes, End of Unit Assessment, Projects

21st Century Life and Careers

WORK.9-12.9.1.12.1	The ability to recognize a problem and apply critical thinking and problem-solving skills to solve the problem is a lifelong skill that develops over time.
WORK.9-12.9.1.12.F.2	Demonstrate a positive work ethic in various settings, including the classroom and during structured learning experiences.
WORK.9-12.9.2.12.1	Credit management includes making informed choices about sources of credit and requires an understanding of the cost of credit.
WORK.9-12.9.2.12.B.8	Describe and calculate interest and fees that are applied to various forms of spending, debt, and saving.
WORK.9-12.9.3.12.C.6	Develop job readiness skills by participating in structured learning experiences and employment seeking opportunities.

Formative Assessment and Performance Opportunities

- Class participation
- class/homework
- class closure
- class openers
- group work
- presentations
- projects
- student teacher discussions

Differentiation/Enrichment

- 504 Accomodations
- IEPs
- challenge problems
- heterogeneous grouping
- DoNow activities
- projects
- individualized instruction
- technology

Unit Resources

- Supplementary Textbooks
- Kuta Software
- Examview Software
- BizKid$ DVD Series - Lesson Plans - Vocabulary - Activities

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/
- BizKid$: http://www.bizkids.org
- www.businessdictionary.com
- www.mymoney.gov
- www.jumpstart.org
- www.treasury.gov