4th Grade Math Skills Unit

Content Area: **Mathematics**
Course(s): **Generic Course, TAG Mathematics 4**
Time Period: **Generic Time Period**
Length: **Length of unit**
Status: **Published**

Unit Overview

This unit extends students problem solving skills on specific topics in order to make connections to using math in the real world. Students are taught above level math skills and then are asked to create thier own puzzles using those skills. The unit concludes with students using thier puzzles to create a game.

Transfer

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

-What kinds of long term, independent accomplilshments are desired?

-persevere to solve problems.

-have confidence in thier ability to solve problems.

-identify a variety of ways to solve problems

-make connections to the real world in math

Meaning

Understandings

Students will understand that...

-What specifically do you want students to understand?

-What inferences should they make/grasp/realize?

-Apply math skills to real-world situations.

-they can follow a series of steps to solve problems.

-math is in the world around them.

-

Essential Questions

Students will keep considering...

-What thought provoking questions will foster inquiry, meaning making and transfer?

-Where and how do your parents use math?

-Are there easier ways to solve math problems?

-What skills will help you solve math problems?

Application of Knowledge and Skill

Students will know...

Students will know...

What facts and basic concepts should students know and be able to recall?

-the order of operations.

-disibility rules.

-how to use measure angles.

-how to program a computer game.

-how to find percents of money.

-how to create math puzzles.

-how to use money in real-world situations.

Students will be skilled at...

Students will be skilled at...

What discrete skills and processes should students be able to use?

-problem solve

-think outside the box

-relate math to the real world

-work collaboratively

Academic Vocabulary

Multiply
Product
Divide
Quotient
Remainder
Array
Unknown
Equal shares
Factor
Variable
Pattern
Even
Odd
Round
Unit fraction
Equivalent
Whole number
Fraction bar
Numerator
Denominator

Elapsed time
Open number line
Gram
Kilogram
Liter
Scale (of graph)
Unit square
Area
Perimeter
Rhombus
Quadrilaterals
Formula
Estimation
Factor pairs
Multiples
Prime
Composite
Sequence
Area model
Equation
Equivalent fractions
Mixed number
Improper fraction
Decimal
Hundredths
Tenths
Pound
Ounce
Conversion
Table
Line plot
Angle
Ray
Endpoint
Degrees
Protractor
Points
Lines
Line segments
Right angle
Acute angle
Obtuse angle
Perpendicular lines
Parallel lines
Right triangle
Line of symmetry
Parentheses
Brackets
Braces
Numerical expression
Evaluate
Powers of 10

Decimal point
Thousandths
Volume
Origin
formula

Ratio
diagram
Percent
Greatest Common Factor
Least Common Multiple
Distributive Property
Positive Number
Negative Number
Opposite
Inequality
Exponents
Order of operations
Substitution

variable
Median
Mode
Range
Mean

Learning Goal 1

Apply critical thinking and problem-solving skills.

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.3.OA.A	Represent and solve problems involving multiplication and division.
MA.5.OA.A.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.3	Construct viable arguments and critique the reasoning of others.
MA.K-12.4	Model with mathematics.
MA.3.OA.A.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
MA.K-12.5	Use appropriate tools strategically.
MA.3.OA.B	Understand properties of multiplication and the relationship between multiplication and division.
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.2.NBT.A.4	Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.
MA.6.EE.A.1	Write and evaluate numerical expressions involving whole-number exponents.
MA.1.G.A.1	Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
MA.2.G.A.1	Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
MA.2.G.A.2	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
MA.4.MD.A.2	Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
MA.4.MD.C.5	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:
MA.4.MD.C.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
MA.4.MD.C.7	Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

Target 1

Categorize numbers according to divisibility rules.

Target 2

Generate and test equations using the order of operations.

Target 3

Analyze and create code for a computer program.

Target 4

Design a golf course hole using angles.

Target 5

Apply percents to a shopping experience.

Summative Assessment

Escape the Classroom Activity

21st Century Life and Careers

Select all applicable standards from the applicable standards

CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
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.CRP11	Use technology to enhance productivity.
CRP.K-12.CRP12	Work productively in teams while using cultural global competence.

Formative Assessment and Performance Opportunities

Teacher observation

Class Participation

Class Discussion

Classwork

Debate/Defend Work

Partner work

Differentiation/Enrichment

As this is a TAG class, rigor is already increased. Students have the opportunity to participate in:

invention convention

Math night

Noetic Math Compeition

Creating their own math problems

Brainsteasers

Unit Resources