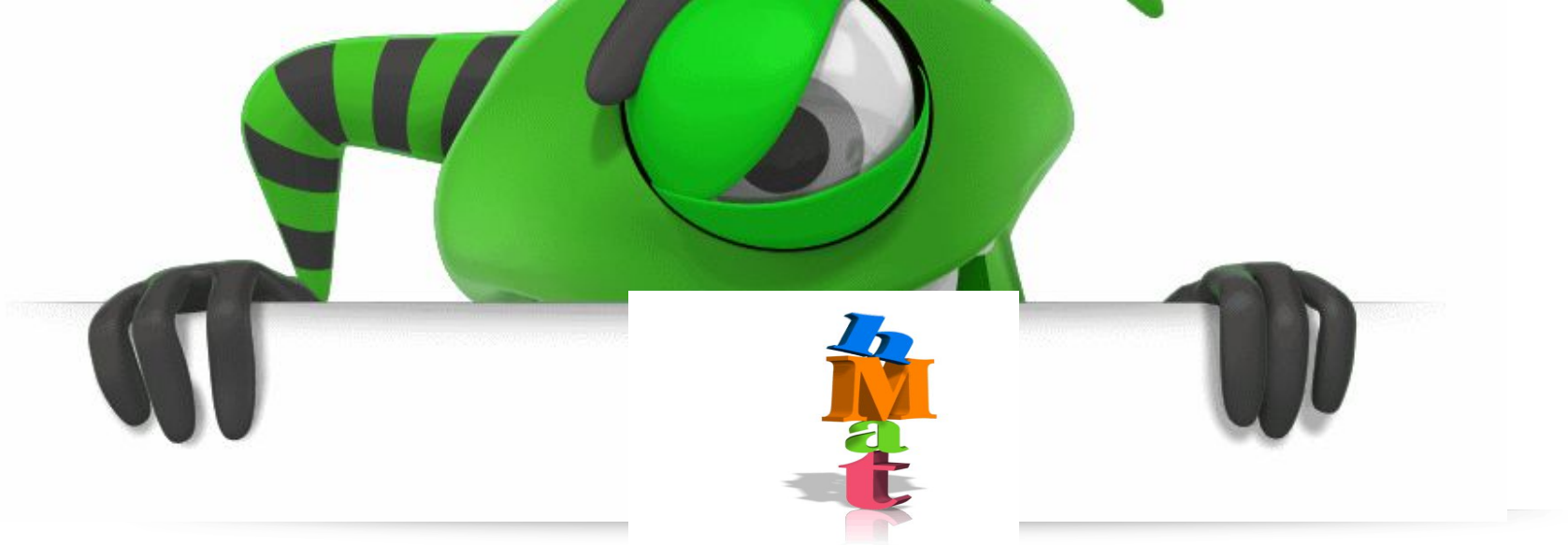


Planning for the New Grade 4 Math (Dec Review, Jan-Feb 2024 planning)

Session 3

Provincial Session

December 4, 2023

Alberta Regional Professional Development Consortia
Dedicated to the provision of professional learning opportunities at the local, regional and provincial levels

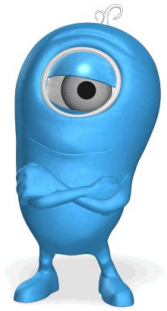
Land Acknowledgment

We respectfully acknowledges that we are situated on Traditional lands across the province of Alberta home to many First Nations, including the Cree, Blackfoot, Métis, Nakota Sioux, Saulteaux, Inuit, and many others whose histories, languages, and cultures continue to influence our vibrant community.

Agenda for Today!

- identifying key skills and concepts in the part of our curriculum
- extending **strategies** for 4N2, 4N3, 4N4 and 5N1 and a start to 5N2; addition and subtraction using money to support the understanding of Place Value - should have strong 100's foundational understanding
- Using money arrays to help support the addition and subtraction of numbers within 10 000
- 12x12 mastery is ongoing
- 4N4 Multiplication and Division of Numbers - provide multiple strategies
- foundational work in fractions - will need to do some bridging - link it money to help make the 'decimal' connections. - link unit fractions to Measurement

Skill	Concept/Knowledge
Model	regrouping by place value for addition and subtraction.
Solve	problems using addition and subtraction, including problems involving money.
Determine	the factors of a number within 100.
Describe	a number as prime or composite.
Determine	the first five multiples of a given number within 100.
Recognize	the greatest common factor (greatest common divisor) of two numbers within 100.
Recall and c	multiplication number facts, with factors to 12, and related division number facts.
Investigate	patterns in multiplication and division of natural numbers by 10, 100, and 1000.
Multiply an	3-digit natural numbers by 1-digit natural numbers using personal strategies.
Examine	standard algorithms for multiplication and division.
Multiply an	3-digit natural numbers by 1-digit natural numbers using standard algorithms.
Divide and	a quotient with or without a remainder.
Investigate	strategies for estimation of products and quotients.
Assess	the reasonableness of a product or quotient using estimation.
Solve	problems using multiplication and division.



What are the Skills?

December 2022 ----------January 2023

December	January	February
Number: Quantity is measured with numbers that enable counting, labelling, comparing and operating.		
4N2 Students add and subtract within 10 000, including decimal numbers to hundredths. • Standard algorithms for addition and subtraction may be used for any decimal numbers (Tie into Financial Literacy) 4N4 Students multiply and divide natural numbers within 10 000.(facts 12 x 12) • Multiplication and division strategies can be chosen based on the nature of the numbers *this should be ongoing throughout the year	4N2 Students add and subtract within 10 000, including decimal numbers to hundredths. • Standard algorithms for addition and subtraction may be used for any decimal numbers (Tie into Financial Literacy) 4N4 Students multiply and divide natural numbers within 10 000.(facts 12 x 12) • Multiplication and division strategies can be chosen based on the nature of the numbers *this should be ongoing throughout the year	4N5.1 Students apply equivalence to the interpretation of fractions • There are infinitely many equivalent fractions that represent the same number. (limit to money with dimes and pennies initially) • Exactly one of infinitely many equivalent fractions is in simplest form. (initially limit to money with pennies and dimes) 4N5.2 Students apply equivalence to the interpretation of fractions. • Decimal numbers that terminate (do not repeat) are fractions with denominators of 10, 100, etc. • Fractions and decimal numbers that represent the same number are associated with the same point on the number line (use this part understanding as your initial conversation) 4N6 Students interpret percentages • Fractions, decimals, and percentages can represent the same part-whole relationship. 4N4 Students multiply and divide natural numbers within 10 000.(facts 12 x 12) • Multiplication and division strategies can be chosen based on the nature of the numbers *this should be ongoing throughout the year

December 2022 ----------January 2023

December	January	February
Algebra: Equations express relationships between quantities.		
4A1.1 Students represent and apply equality in multiple ways • There are infinitely many expressions that represent the same number. • The order in which operations are performed can affect the value of an expression		
Measurement: Attributes such as length, area, volume and angle are quantified by measure.		
	4M2 Students determine and express angles using standard units. • Angles are quantified by measurement and based on the division of a circle. • An angle is measured with equal- sized units that themselves are angles.	4M2 Students determine and express angles using standard units. • Angles are quantified by measurement and based on the division of a circle. • An angle is measured with equal- sized units that themselves are angles.
Time: Duration is described and quantified with time.		
4T1 Students communicate duration with standard units of time • Analog clocks can relate duration to a circle. Ongoing - use for number (skip counting, link to unit fractions, link to angles, fractions, conversions	4T1 Students communicate duration with standard units of time • Analog clocks can relate duration to a circle. Ongoing - use for number (skip counting, link to unit fractions, link to angles, fractions, conversions	4T1 Students communicate duration with standard units of time • Analog clocks can relate duration to a circle. Ongoing - use for number (skip counting, link to unit fractions, link to angles, fractions, conversions

Tie into Unit Fractions

How can understanding of addition and subtraction be extended to decimal numbers? 4N2

Students add and subtract within 10 000, including decimal numbers to hundredths.

Knowledge	Understanding	Skills & Procedures
Standard algorithms for addition and subtraction of decimal numbers are conventional procedures based on place value. Estimation can be used to check the reasonableness of a sum or difference.	Standard algorithms for addition and subtraction may be used for any decimal numbers.	Add and subtract numbers, including decimal numbers, using standard algorithms. Assess the reasonableness of a sum or difference using estimation. Solve problems using addition and subtraction, including problems involving money.

4N2 Students add and subtract within 10 000, including decimal numbers to hundredths.

- Standard algorithms for addition and subtraction may be used for any decimal numbers (Tie into Financial Literacy)

A strong understanding of the money in dollars and cents would help to facilitate both a discussion about what the "decimal" represents (tenths and hundredths) and transfer this real world context to any abstract value.

Skills:
Add
Subtract
Assess Reasonableness
Solve

Adding and Subtracting as "dollars and cents" could precede "tenths and hundredths"

Possible approaches:

How can multiplication and division be interpreted? 4N4

Students multiply and divide natural numbers within 10 000.

Knowledge	Understanding	Skills & Procedures
Recall of multiplication and division number facts facilitates multiplication and division strategies. Standard algorithms facilitate multiplication and division of natural numbers that have multiple digits. Estimation can be used to check the reasonableness of a product or quotient.	Multiplication and division strategies can be chosen based on the nature of the numbers.	Recall and apply multiplication number facts, with factors to 12, and related division number facts. Investigate patterns in multiplication and division of natural numbers by 10, 100, and 1000. Multiply and divide 3-digit natural numbers by 1-digit natural numbers using personal strategies. Examine standard algorithms for multiplication and division. Multiply and divide 3-digit natural numbers by 1-digit natural numbers using standard algorithms. Divide and express a quotient with or without a remainder. Investigate strategies for estimation of products and quotients. Assess the reasonableness of a product or quotient using estimation. Solve problems using multiplication and division.

4N4 Students multiply and divide natural numbers within 10 000. (facts 12 x 12)

- Multiplication and division strategies can be chosen based on the nature of the numbers
  *this should be ongoing throughout the year

Skills:
Recall
Investigate
Examine
Multiply/Divide
Assess reasonableness
Solve

12 x 12 facts

link 10 and 100 to money
number patterns
then introduce 1000

Model 2 digit by 1 digit with correct vocabulary;
offer alternative strategies for multiplication ie. expanded form; box method Examples

What division strategies are you going to use?
Ties into reasonableness

CPAR 4N2

How can fractions be characterized in different ways? 4N5.1

Students apply equivalence to the interpretation of fractions.

Knowledge	Understanding	Skills & Procedures
Equivalent fractions are associated with the same point on the number line. Equivalent fractions can be created by partitioning each equal part of a fraction in the same way. Partitioning a fraction can be interpreted as multiplying the numerator and denominator of a fraction by the same number. A fraction can be simplified to an equivalent form by dividing the numerator and denominator by a common factor. The numerator and denominator of a fraction in simplest form have no common factors. Dividing the numerator and denominator of a fraction by their greatest common factor will achieve simplest form.	There are infinitely many equivalent fractions that represent the same number. Exactly one of infinitely many equivalent fractions is in simplest form.	Model equivalent fractions by partitioning a whole in multiple ways. Determine fractions equivalent to a given fraction. Relate the position of equivalent fractions on the number line. Identify fractions in which the numerator and denominator have a common factor. Simplify a given fraction by dividing the numerator and denominator by a common factor. Express a fraction in simplest form. Compare and order fractions.

4N5.1 Students apply equivalence to the interpretation of fractions

- There are infinitely many equivalent fractions that represent the same number. (limit to money with dimes and pennies initially)
- Exactly one of infinitely many equivalent fractions is in simplest form. (initially limit to money with pennies and dimes)

You may wish to consider focussing on 4N3 (next slide)
Students explain properties of prime and composite numbers using multiplication and division.

Need to revisit Unit Fraction emphasis and understanding from Grade 3 (example with money); explore the patterns for common unit fractions

- cuisenaire rods can show unit fractions and equivalent fractions
- GCF can be shown by cuisenaire rods as well
- unit fractions of money (dimes and pennies) help with the understanding of tenths and hundredths.

Fraction slide deck

Skills:
Model
Determine
Relate
Identify
Simplify
Express
Compare

In what ways can angles be described?		
4M2 Students determine and express angles using standard units.		
Knowledge	Understanding	Skills & Procedures
One degree represents $\frac{1}{360}$ of the rotation of a full circle. Angles can be classified according to their measure: • Acute angles measure less than 90° • Right angles measure 90° • Obtuse angles measure between 90° and 180° • Straight angles measure 180°. A benchmark is a known angle to which another angle can be compared.	Angles are quantified by measurement and based on the division of a circle. An angle is measured with equal-sized units that themselves are angles.	Measure an angle with degrees using a protractor. Describe an angle as acute, right, obtuse, or straight. Relate angles of 90°, 180°, 270°, and 360° to fractions of a circle. Estimate angles by comparing to benchmarks of 45°, 90°, 180°, 270°, and 360°.

Showing 1/360 of a circle

360 Protractor

How can multiplication and division characterize the composition of numbers? **4N3**

Students explain properties of prime and composite numbers using multiplication and division.

Knowledge	Understanding	Skills & Procedures
A factor of a number is a divisor of that number. A number is a multiple of any of its factors. A prime number has factors of only itself and one. A composite number has factors other than one and itself. Zero and one are neither prime nor composite numbers.	Different factors can compose the same product. Different products can share factors. A number divided by one of its factors will result in a remainder of 0.	Determine the factors of a number within 100. Describe a number as prime or composite. Determine the first five multiples of a given number within 100. Recognize the greatest common factor (greatest common divisor) of two numbers within 100.

Skills:
Determine
Describe
Recognize

Would assist in supporting your equivalent fractions/decimal work and understanding.

- Cuisenaire rods for Primes and Composites
- factor trees to help with quick decomposure of a number
- find the primes and composites from there
- math facts of 12x12

Factors and Multiples Resource

Grade 4	4N5.2	
Fractions and decimal numbers can represent the same number. Decimals can be expressed as fractions with a denominator that is equivalent to the place value of the last non-zero digit of the decimal number.	Decimal numbers that terminate (do not repeat) are fractions with denominators of 10, 100, etc. Fractions and decimal numbers that represent the same number are associated with the same point on the number line.	Relate fractions and equivalent decimal numbers to their positions on the number line. Express fractions as decimal numbers and vice versa, limited to tenths and hundredths.

4N5.2 Students apply equivalence to the interpretation of fractions.

- Decimal numbers that terminate (do not repeat) are fractions with denominators of 10, 100, etc.
- Fractions and decimal numbers that represent the same number are associated with the same point on the number line (use this part understanding as your initial conversation)

We will revisit in February

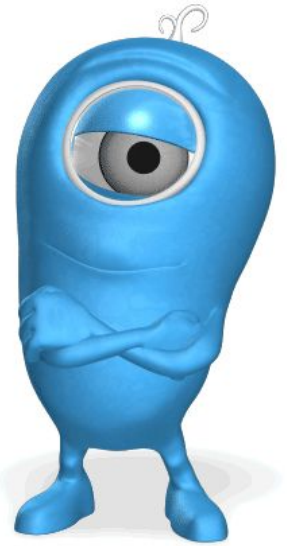
Use the money on a number line to transition to decimal values.

Tenths - Math Hubs

Hundredths - Math Hubs

Equivalence Resource

Money in application to math facts, place value understanding and position on a numberline.



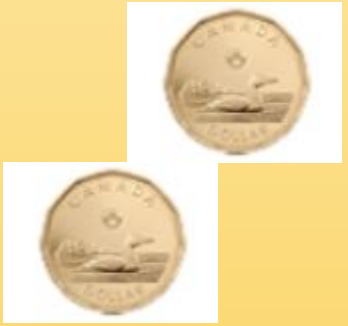
How can we meet these outcomes and leverage money in the process?

TENS

Ones

Answer:

Can you convert and Trade?



How else can we make $68.00

Work on Mastery to 100

Tens

Ones

What number is this?
What number is in the tens place?
How many tens in this number?
How many ones in this number?

What number is this?
What number is in the tens place?
How many tens in this number?
How may ones in this number?

How many tens in...

How many ones?

Work on Mastery to 100

Hundreds

Tens

Ones

What number is this?

What number is in the tens place?

How many tens in this number?

How many ones in this number?

$100

$10

$1

$100	$10	$1
		
4	3	4

Extending the Understanding to Place value

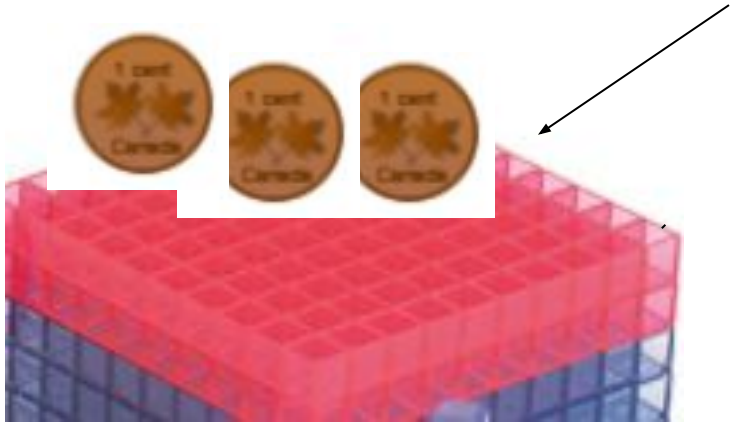
Representing Amounts

Draw or glue coins to represent the amount shown.

103¢	
122¢	
137¢	
155¢	
174¢	
181¢	
196¢	

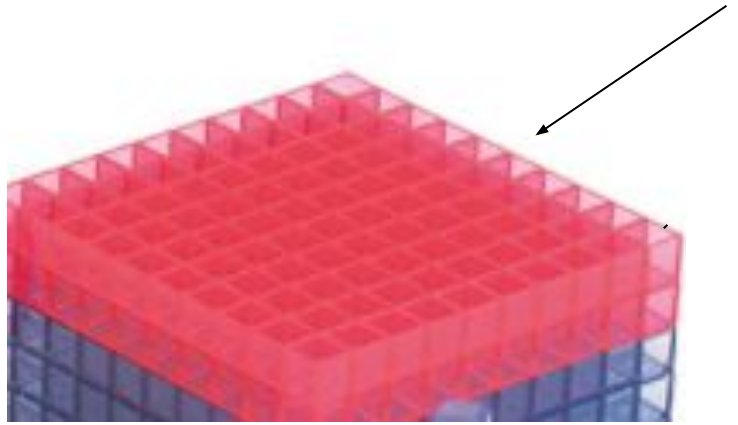
Money APP

Starting Place Value
Show me 103 cents



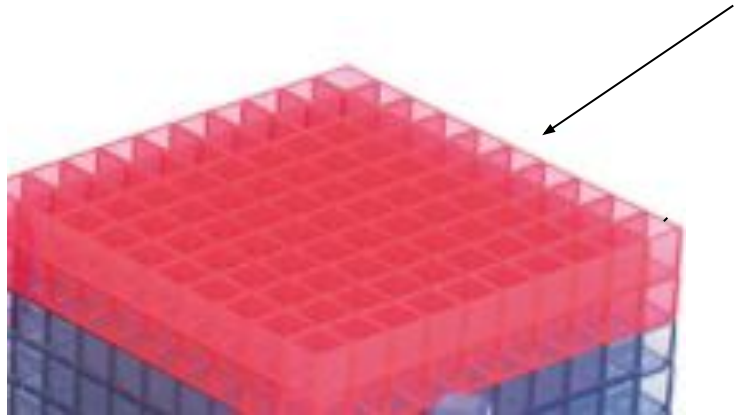
Starting Place Value

Show me $1.26



Starting Place Value

Show me 196 cents or $1.96

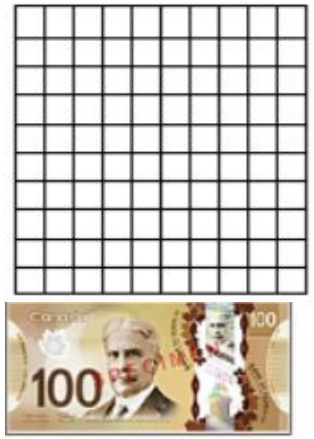
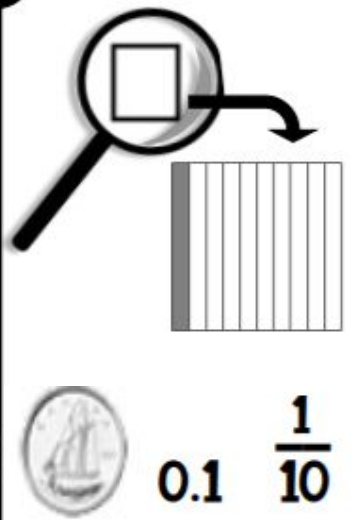
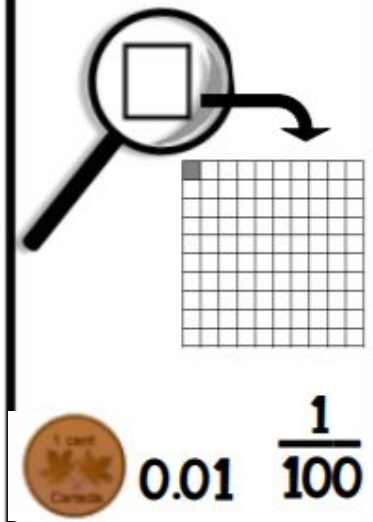


Place Value Chart Beginning with Money (Penny, Dime, Loonie, $10, $100, $1000)

 (not legal tender)					

[Math Mats](#) Look in Money Place Value Mats

As of January 1, 2021, the $1, $2, $25, $500 and $1,000 bills from every Bank of Canada series are no longer legal tender.

Hundreds	Tens	Units	Tenths	Hundredths
 100.00	 10.00	 1.00	 0.1 $\frac{1}{10}$	 0.01 $\frac{1}{100}$

Real World Context

Thank you!

Have a wonderful break! Merry Christmas!

Look on the arpdc.ab.ca site for the recording

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