

Curriculum Planning & Assessment Resource

Mathematics Grade 3



The Consortium

Alberta Professional Learning Consortium



Curriculum Planning & Assessment Resource

Mathematics

Grade 3 - Number 3

About This Document

This Curriculum Planning & Assessment Resource is intended to be a collection of sample activities, assessments, and resources that teachers may wish to use as they develop their unit plans. This document is not intended to be a sequential list of activities. Rather, the intent is that teachers choose from this resource what is appropriate for their context, and sequence it in their planning.

The sample activities, assessments and resources included in this document have undergone an initial review to determine appropriateness and alignment to the curriculum. However, it is expected that teachers use their professional judgment in selecting activities, assessments and resources that are appropriate for their context.

While every attempt has been made to provide credit and receive permissions, some errors or omissions may have occurred. Please contact info@aplc.ab.ca to report any error or omissions.

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Acknowledgements

Thank you to all the teachers, numeracy specialists, and technical expertise from Alberta school divisions and APLC who collaborated to develop, review, and revise these planning and assessment documents to support curriculum implementation.

Grade 3 - Number 3

Organizing Idea

Number: Quantity is measured with numbers that enable counting, labeling, comparing, and operating

Guiding Question

How can multiplication and division provide new perspectives of Number?

Learning Outcome

3N3 Students analyze and apply strategies for multiplication and division within 100.

Summative Assessment(s) - Transfer *(In Progress)*

Summative assessments can include the following.

- *Understanding/making sense of a novel context from the real world using one or more concepts (eg. "How are place value and money related?").*
- *Understanding/making sense of a novel context using one or more understandings (eg. Students use money to model the conversion of base 10 values and relate them to base 10 block').*
- *Being able to describe why (linking concepts) something is true, a result, or what might be an extension using learned concepts and understandings.*
- *Apply learning (create products; undertake projects; taking action such as creating a campaign) in a novel context or taking action using the understanding(s).*
- *Construct arguments by taking a position and verifying/proving it with known understandings.*

Transfer/Summative Samples [\[understanding surface vs deep vs transfer\]](#)

[Baking Cookies](#)

[Des Biscuits Partout!/Cookies Cookies Everywhere](#)

[Multiplication and Division](#)



Click to jump!

[KUSP 3N3.1](#)

[KUSP 3N3.2](#)

[KUSP 3N3.3](#)

[Literature Connections](#)

KUSP 3N3.1

Assumable Curriculum / Prerequisite Knowledge / Vocabulary

Decompose & compose numbers within 100; Skip count by 5s & 10s to 100; Skip count by 2s to 20; Equal (meaning & symbol); Equality; Unequal (meaning & symbol); Addition (meaning & symbol); Subtraction (meaning & symbol)

Student Language | Essential vocabulary & concepts

- **Compose:** to put together from smaller parts
- **Decompose:** to break down into smaller parts
- **Division:** equal sharing/grouping of a quantity
- **Multiplication:** combining equal groups
- **Product:** what is produced when two or more factors are multiplied
- **Quotient:** what is produced by dividing one quantity by another
- **Array:** a set of objects arranged in equal rows and equal columns

Pre-Assessments

Nelson Pre-Assessments 3: Finding Each Students Pathway

- Putting Together Equal Groups - p.16
- Sharing Equally - p.17
- Equal Groups - p.18

Nelson Leaps and Bounds pages will be referenced in the Assessments to follow up for emerging learners.

Learning Recovery

- Review vocabulary including “repeated” “addition” “Subtraction”
- vocabulary of division is new

I Know Statements | Metacognition

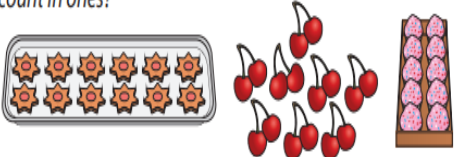
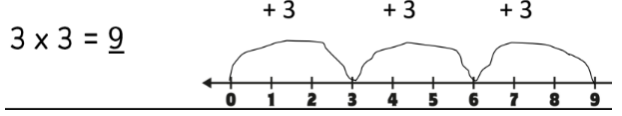
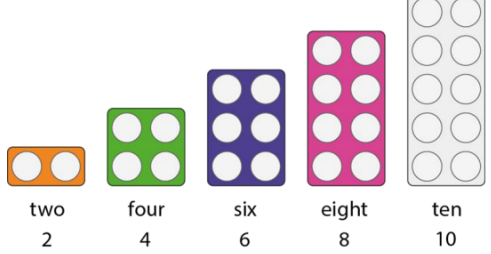

- I know multiplication and division are inverse operations.
- I know multiplication is repeated addition.
- I know multiplication consists of equal groups.
- I know arrays can represent a multiplication equation.
- I know multiplying by 1 gives the same number.
- I know the order in which two numbers are multiplied doesn't matter.
- I know the order in which two numbers are divided matters.
- I know division is repeated subtraction.
- I know division consists of equal sharing and equal grouping.

I Can Statements | Skills

- I can compose a product using equal groups of objects.
- I can relate multiplication to repeated addition.
- I can relate multiplication to skip counting.
- I can relate multiplication to an area covered.
- I can use arrays to model products and quotients.
- I can relate division to repeated subtraction.
- I can compose a quotient using equal groups of objects.
- I can write division and multiplication sentences.
- I can separate a whole into equal groups with and without remainders.
- I can recognize when to use multiplication and division in various situations.

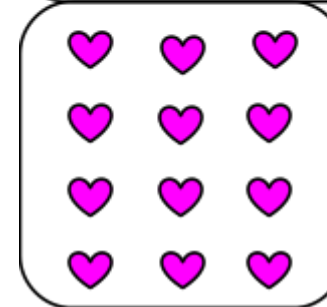
Enhancement

- Solve multiplication and division story problems in a variety of ways.

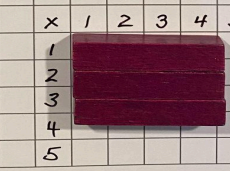
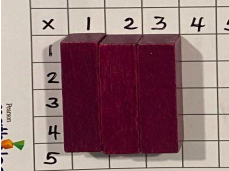
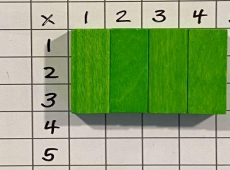
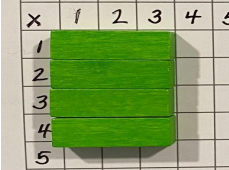
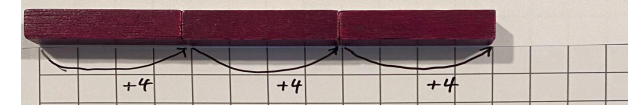
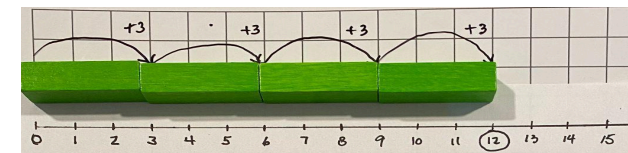
3N3.1 Students analyze and apply strategies for multiplication and division within 100.						
Learning Outcome	Knowledge	Understanding	Skills & Procedures	Achievement Indicators	Illustrative Examples	Formative Assessments (Explainer)
<p>Multiplication and division are inverse mathematical operations.</p> <p>Multiplication can represent repeated addition.</p> <p>Multiplication can be interpreted in various ways according to context, such as</p> <ul style="list-style-type: none"> • equal groups • an array • an area <p>Division can be interpreted in various ways according to context, such as</p> <ul style="list-style-type: none"> • equal sharing • equal grouping • repeated subtraction <p>The order in which two quantities are multiplied does not affect the product (commutative property).</p> <p>The order in which two numbers are divided affects the quotient.</p> <p>Multiplication or division by 1 results in the same number (identity property).</p>		<p>Quantities can be composed and decomposed through multiplication and division.</p>	<p>Compose a product using equal groups of objects.</p>	<p>Given a group size/package size (e.g., packages of cookies, gum, 6 pack of coke, etc.) compose a given number</p>	<p>Show pupils pictures or groups of objects like the examples below. Ask questions such as 'How many biscuits are there altogether?' 'How many cherries are there altogether?' Observe how pupils count the objects. Do they count in twos, fives etc. or do they count in ones?</p>  <p>Pose the following problem: what are all the design possibilities for boxes that will hold 6, 9, 12, 18 and 24 candies? Have students find the possibilities using their tiles, then make and cut out the design using the grid paper. Students can present their findings in a class discussion once this investigation is complete.</p>	<p>Composing a Design - Surface</p> <p>Product Design - Deep</p>
			<p>Relate multiplication to skip counting</p>	<p>Relate multiplication to repeated addition and skip counting.</p>	<p>$3 \times 3 = 9$</p>   <p>two 2 four 4 six 6 eight 8 ten 10</p> <p>How many shoes are there? Count in groups of two</p> 	<p>Multiplication with Skip Counting - Surface and Deep</p> <p>Money and Math Facts - Surface</p> <p>Money and Math Facts (français) - Surface</p> <p>Planting - Deep</p>

Relate multiplication to repeated addition

$$3 + 3 + 3 + 3$$



$$4 \times 3$$



There are 3 groups of 2 ducks. To find the total number of ducks you can write...
 $2+2+2=6$
Or $2 \times 3=6$

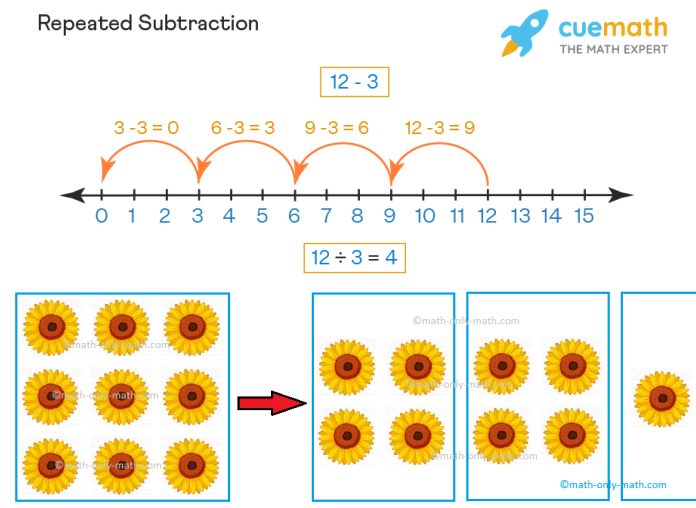
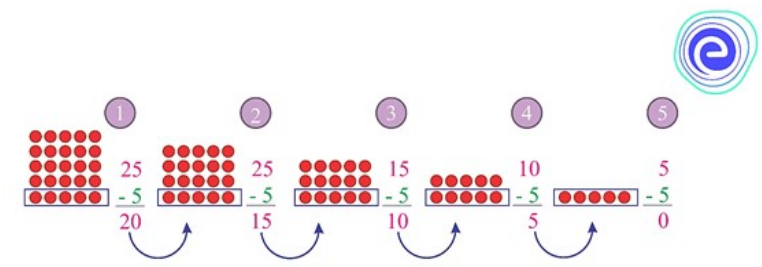
[Repeated Addition - Surface/Deep](#)

[Money and Repeated Addition - Deep](#)

[Money and repeated Addition \(français\) - Deep](#)

Model a quotient by partitioning a quantity into equal groups or groups of a certain size, with or without remainders.

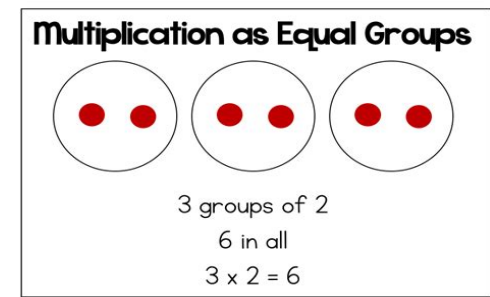
Create equal groups by partitioning a given number and explain if any are left over. Relate to repeated subtraction.



[Model Quotients](#) - Surface and Deep

[Arrays](#) - Exit Ticket - Surface

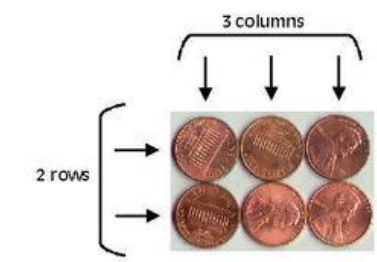
Model equal sharing and equal grouping using concrete and visual representations and record the process symbolically.



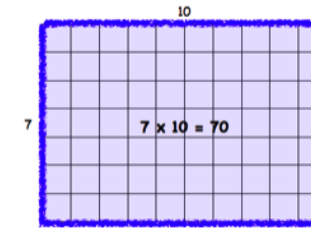
Also shows division of 6 into equal groups

Visualize and model products and quotients as arrays (and area model).

Compose arrays to find products and partition arrays to find quotients



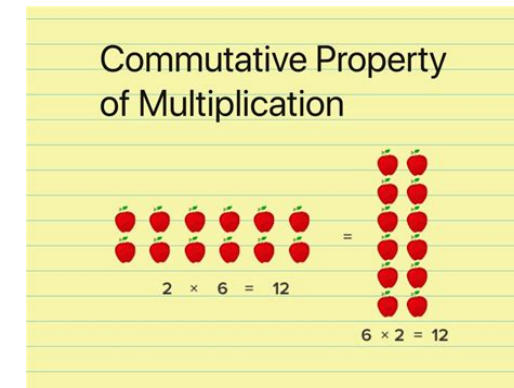
[Area Model](#) - Surface and Deep



<http://ntimages.weebly.com/> (Number Talks for Arrays)

(Knowledge) The order in which two quantities are multiplied does not affect the product (commutative property).

Understand commutative property (the order in which factors are multiplied does not affect the product) using counters/arrays/area



On the multiplication table, demonstrate the commutative property, and the related division facts

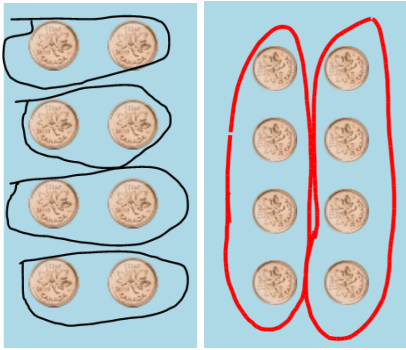

x	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
3	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45
4	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
5	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
6	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90
7	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105
8	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120
9	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135
10	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
11	11	22	33	44	55	66	77	88	99	110	121	132	143	154	165
12	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
13	13	26	39	52	65	78	91	104	117	130	143	156	169	182	195
14	14	28	42	56	70	84	98	112	126	140	154	168	182	196	210
15	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225


$6 \times 8 = 48$
 $8 \times 6 = 48$
 $48 \div 6 = 8$
 $48 \div 8 = 6$

[Flip Flop Commutative Property](#) - Surface and Deep

[Block It Game](#)
Source: [OK Math and Reading Lady](#). Cindy Efkins, Educational Consultant.

[Multiplication and the value of Money](#) - Deep

		<p>(Knowledge) The order in which two numbers are divided affects the quotient.</p>	<p>Demonstrate an understanding that the order in which two numbers are divided affects the quotient using counters.</p>	<p>The number we obtain when we divide one number by another is the quotient. For example, in $8 \div 4 = 2$; here, the result of the division is 2, so it is the quotient. 8 is the dividend and 4 is the divisor.</p>  <p style="text-align: center;">$8 \div 4 = 2$ $8 \div 2 = 4$</p>	<p>Division Exit Ticket - Surface</p> <p>Fewer Might Be Better - Deep</p>
		<p>Recognize interpretations of multiplication and division in various contexts.</p>	<p>Demonstrate when to use multiplication and division in various contexts.</p>	<p>Which of the following problem(s) can be solved by the calculation $8 \div 2$</p> <ul style="list-style-type: none"> • There are 2 bags of bread rolls that have 8 rolls in each bag. How many total rolls? • A car holds 2 people. How many cars are needed for 8 people? • I have 8 pens and give 2 pens to each person. How many people receive pens? • I have 8 pencils and give 2 away. How many do I have left? <p>Sam is planting onions in the vegetable plot in his garden. He arranges the onions into rows of 4 and has two left over. He then arranges them into rows of 3 and has none left over. How many onions might he have had?</p> <p>Explain your reasoning.</p> <p>NCETM page 18</p>	<p>Multiplication and Division Word Problems - Deep</p>
		<p>Investigate multiplication by 0.</p>	<p>Investigate multiplication by 0.</p>	 <p>4 jars with zero cookies each. 4 groups of zero cookies 0 total cookies</p> <p>Multiplication property of zero Multiplying a number by zero, the product is always zero. The zero can come before or after the number. Ex. $3 \times 0 = 0$ and $0 \times 3 = 0$</p>	<p>Zero - Exit Ticket</p> <p>Which is true? - Exit Ticket</p>

		Knowledge: Identity property		Multiplication or division by 1 results in the same number  4 jars with 1 cookie each. 4 groups of 1 cookie 4 total cookies	
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Resources

Mathology

[APLC Math Little Books for Alberta Curriculum](#)
[Mathology Free Resources on New Learn Alberta](#)

Mathology Little Books

Mathology Little Book: [Sports Camp](#)
 Mathology Little Book: [Planting Seeds](#)
 Mathology Little Book: [Calla's Jingle Dress](#)

Links to Other Grades

Mathology Little Book: [Array's Bakery](#)
 Mathology Little Book: [Marbles, Alleys, Mibs, and Guli!](#)

Mathology Activities

Mathology Grade 3: Number Unit 6, Multiplication and Division: Activities 27, 28, 30 (Ontario)

Links to Other Grades

Mathology Grade 2: Number Cluster 8, Early Multiplicative Thinking: Activities 40-42
 Mathology Grade 4: Number Unit 5, Fluency with Multiplication and Division Facts: Activities 24, 26

Mathology Interactive Tools

- [Counters](#)
- [Multiplication Chart](#)
- [Money](#)
- [Build a Number Line](#)
- [Arrays](#)

Math UP

Representing Multiplication and Division

- Lesson 1: Representing Multiplication Using Sets and Arrays
- Lesson 2: Representing Multiplication on a Number Line
- Lesson 3: Representing Division as Sharing
- Lesson 4: Creating Groups of a Given Size

Existing Textbooks

Math Focus 3 - Chapters 8 and 9
Math Focus 4 - Chapter 6

Math Makes Sense 3 - Unit 8
Math Makes Sense 4 - Unit 3

Websites/Other

[MMMathMania](#)
[Math Games | CoolMath4Kids](#) (multiplication games with facts: Tractor Tug, Meteor Multiplication, Swimming Otters)
[Math Flips Google Drive](#) from <https://mathvisuals.wordpress.com/math-flips/>

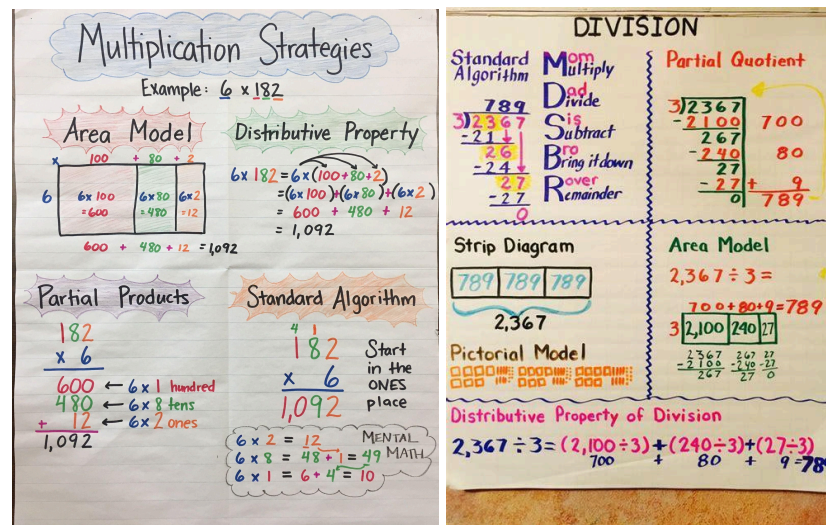
[CEMC Web Resources - Problem of the Week](#) (University of Waterloo)

[NRICH Multiplication and Division Tasks](#) (rich multiplication/division tasks, U of Cambridge)
[NRICH Multiplication and Division Tasks KS2](#) (rich multiplication/division tasks, U of Cambridge)

[3-Act Tasks | Questioning My Metacognition](#) (Graham Fletchy)
[3 Act Math Tasks By Kyle Pearce, Dan Meyer and Others](#)

[Writing Numberless Word Problems | Teaching to the Beat of a Different Drummer](#)
[Multiplication, Division – Math Visuals](#) (multiplication and division talks)
[Number Talk Images](#) (Number Talks for Arrays)

[SubtractionStrategiesCHEATSHEET-1.pdf](#) Subtraction strategies anchor chart
[AdditionStrategiesforSecondGrade.pdf](#) Addition Strategies Anchor Chart



All Hands on Deck (Box Car and One-Eyed Jacks)

Multiplication Games from pages 59-81
Minor Remainders page 129
Division With a Twist page 130

[Kentucky Intervention Guide KNP](#) - provides great lessons and activities (outcomes based) for Teachers K-3

NCETM (teacher guides and resources)

[NCETM - Structures: multiplication representing equal groups](#)
(Spine 2; Year 2; 2.2)
[NCETM - Times tables: groups of 2 and commutativity \(part 1\)](#)
(Spine 2; Year 2; 2.3)
[NCETM- Times tables: groups of 10 and of 5, and factors of 0 and 1](#)
(Spine 2; Year 2; 2.4)
[NCETM - Commutativity \(part 2\), doubling and halving](#)
(Spine 2; Year 2; 2.5)
[NCETM - Structures: quotative and partitive division](#)
(Spine 2; Year 2; 2.6)
[NCETM - Times tables: 2, 4, and 8, and the relationship between them](#)
(Spine 2; Year 3; 2.7)
[NCETM - Times tables: 3, 6, and 9, and the relationship between them](#)
(Spine 2 ; Year 3 ; 2.8)
[NCETM - Time tables: 7 and patterns within/across times tables](#)
(Spine 2 ; Year 3 ; 2.9)
[NCETM - Connecting multiplication and division, and the distributive law](#)
(Spine 2 ; Year 4 ; 2.10)
[NCETM - Division with remainders](#)
(Spine 2 ; Year 4 ; 2.12)
[NCETM - Calculation: multiplying and dividing by 10 or 100](#)
(Spine 2 ; Year 4 ; 2.13)
[NCETM - Multiplication: partitioning leading to short multiplication](#)
(Spine 2 ; Year 4 ; 2.14)
[NCETM - Division: partitioning leading to short division](#)
(Spine 2 ; Year 4 ; 2.15)

Websites and Resources to Support Planning

Inclusion - An [inclusive](#) approach to maths teaching

Inclusion - [Good Practices](#) on Inclusive Curricula in Mathematics Sciences

Differentiation: Preview vocabulary and pre teach to students. Use various forms of media to present vocabulary including simplified explanations, visuals in the form of diagrams to label and connect concepts.

<p>Gizmos</p> <p>New Learn Alberta (Teacher Login Required) Critter Count (Modeling Multiplication) Chocomatic (multiplication, arrays and area) No Alien Left Behind (Division with Remainders) Perimeters and Areas of Similar Figures</p> <p>ExploreLearning Gizmos Site: Factor Trees (Factoring Numbers)</p> <p>For access to additional resources, request a Gizmos account alberta@explorellearning.com</p>	<p>Resources Developed by School Divisions/Educational Institutions</p> <p>Edmonton Catholic Pacing Guides Edmonton Catholic Curriculum Crates LearnAlberta Curriculum APLC Curriculum Professional Learning Resources Alberta Teachers Association Library General Mathematics Resources Mathematics and Numeracy - Curriculum Implementation Toolkit, Grades 4-6</p>
<p>Indigenous Lesson Plans and Resources</p> <p>Indigenous Culture Based Learning in Alberta Curriculum</p>	<p>Problem Solving</p> <p>NRICH Multiplication and Division Tasks (rich multiplication/division tasks, U of Cambridge) NRICH Multiplication and Division Tasks KS2 (rich multiplication/division tasks, U of Cambridge)</p>



Click to jump!

[KUSP 3N3.1](#)

[KUSP 3N3.2](#)

[KUSP 3N3.3](#)

[Literature Connections](#)

KUSP 3N3.2

Assumable Curriculum / Prerequisite Knowledge / Vocabulary

Decompose & compose numbers within 100; Skip count by 5s & 10s to 100; Skip count by 2s to 20; Equal (meaning & symbol); Equality; Unequal (meaning & symbol); Addition (meaning & symbol); Subtraction (meaning & symbol)

Student Language | Essential vocabulary & concepts

- **Division:** equal sharing/grouping of a quantity
- **Multiplication:** combining equal groups
- **Product:** what is produced when two or more factors are multiplied
- **Quotient:** what is produced by dividing one quantity by another
- **Remainder:** an amount left over
- **Inverse:** opposite in effect; the reverse of

I Know Statements | Metacognition

- I know the remainder is the amount left over after dividing.
- I know addition and subtraction will help me multiply and divide.
- I know multiplication can be used to perform division.

Pre-Assessments

Pre-Assessments 3: Finding Each Students Pathway

- Putting Together Equal Groups - p.16
- Sharing Equally - p.17
- Equal Groups - p.18

Leaps and Bounds Pages will be referenced in the Assessments to follow up for emerging learners

I Can Statements | Skills

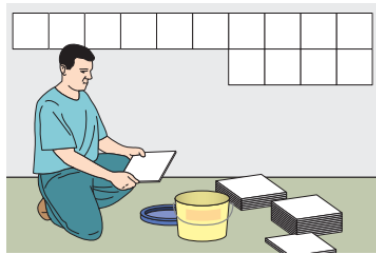
- I can use personal strategies to multiply and divide.
- I can use sharing and grouping to show multiplication and division.
- I can use repeated addition to solve multiplication problems.
- I can use multiplying in parts to solve multiplication problems.
- I can use compensation to solve multiplication problems.
- I can use repeated subtraction to solve division problems.
- I can use partitioning to solve division problems.
- I can solve division problems that involve remainders.
- I can use multiplication to solve a division equation.

Learning Recovery

-

Enhancement

- Identify events from experience that can be described using multiplication or division.

Learning Outcome		Students analyze and apply strategies for multiplication and division within 100.			
Knowledge	Understanding	Skills & Procedures	Achievement Indicators	Illustrated Examples	Assessments (Explainer)
<p>Numbers can be multiplied or divided in parts (distributive property).</p> <p>Multiplication strategies include</p> <ul style="list-style-type: none"> repeated addition multiplying in parts compensation <p>Division strategies include</p> <ul style="list-style-type: none"> repeated subtraction partitioning the dividend <p>Products can be expressed symbolically using the multiplication sign, \times, factors, and the equal sign.</p> <p>Quotients can be expressed symbolically using the division sign, \div, dividend, divisor, and the equal sign.</p> <p>A missing quantity in a product or quotient can be represented in different ways, including</p> <ul style="list-style-type: none"> $a \times b = \square$ $a \times \square = c$ $\square \times b = c$ $e \div f = \square$ $e \div \square = g$ $\square \div f = g$ <p>A remainder is the quantity left over after division.</p>	<p>Sharing and grouping situations can be interpreted as multiplication or division.</p> <p>Multiplication and division strategies can be supported by addition and subtraction.</p>	<p>Solve problems using multiplication and division in sharing or grouping situations.</p>	<p>Demonstrate an understanding of multiplication by creating and solving problems in context.</p>	 <p>NCETM page 17</p> <p>Make up a problem for 13×4 and solve it. Write a story for $18 \div 3$.</p> <p>Two friends share 12 sweets equally between them. How many do they each get? Write this as a division number sentence.</p> <p>Make up two more sharing stories like this one.</p> <p>Chocolate biscuits come in packs (groups) of 5. Sally wants to buy 20 biscuits in total. How many packs will she need to buy? Write this as a division number sentence.</p> <p>Make up two more grouping stories like this one.</p> <p>NCETM page 18</p>	<p>3N3.2 Sharing - Surface and Deep</p> <p>3N3.2 Solving Problems - Deep (could also be used at the end of this outcome)</p>
		<p>Multiply numbers up to a product of 100 and divide numbers with a maximum dividend of 100.</p>	<p>Two friends want to buy some candies and then share them out equally between them. They could buy a bag of 25 candies, a bag of 28 candies or a bag of 29 candies. What size bag should they buy so that they can share them equally? What other numbers of candies could be shared equally? Explain your reasoning.</p> <p>Once you determine the amount of candies each, can you write a multiplication and division sentence?</p>	<p>Inverse - 3N3.2 Multiplication and Division - Surface</p>	
		<p>Determine a missing quantity in a product or quotient in a variety of ways.</p>	<ul style="list-style-type: none"> $a \times b = \square$ $a \times \square = c$ $\square \times b = c$ $e \div f = \square$ $e \div \square = g$ $\square \div f = g$ 	<p>3N3.2 Missing Quantity - Deep</p>	

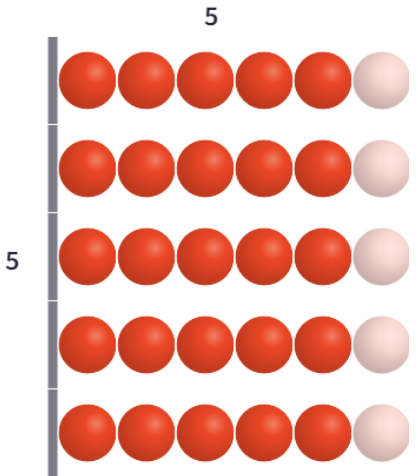
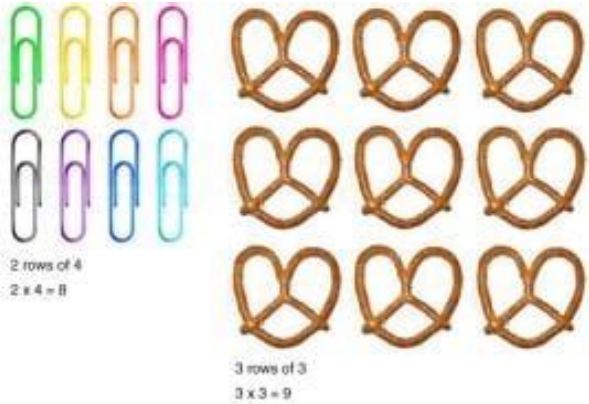
Express multiplication and division symbolically.

Write corresponding multiplication and division sentences symbolically for an array or equal groups.



Write the multiplication and division sentences for this array.

$3 \times 5 = 15$
 $5 \times 3 = 15$
 $15 \div 5 = 3$
 $15 \div 3 = 5$



$5 \times 6 =$
 $25 + 5 = 30$

[3N3.2 Symbolic Arrays and Cuisenaire Rods - Surface](#)

Game [3N3.2 Grouping Sea Creatures - Deep](#)
Source [KNP](#) (Kentucky Numeracy Project)

Investigate
multiplication and
division strategies.

Represent a given
multiplication expression
using compensation.

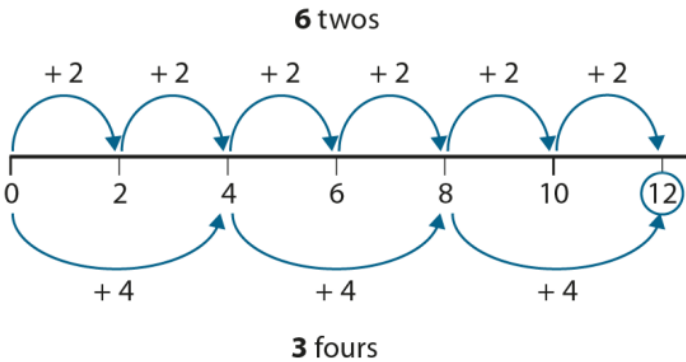
Compensation for Multiplication (within curriculum objects of multiply
and divide within 100)

5 x 9 = could also be seen as 5 x 10 minus 5
2 x 3 = could also be seen as 2 x 2 + 2
6 x 7 = could be seen as 5 x 7 + 7
7 x 8 = could be seen as 7 x 10 - 14

[3N3.2 Multiplication and Division
Strategies - Deep](#)

Solve a given division
expression through
repeated subtraction.

Given a multiplication
statement (e.g. 6 x 2, 3 x
4), use repeated addition to
determine the product and
vice versa.



Numbers can be multiplied
or divided in parts
(distributive property).

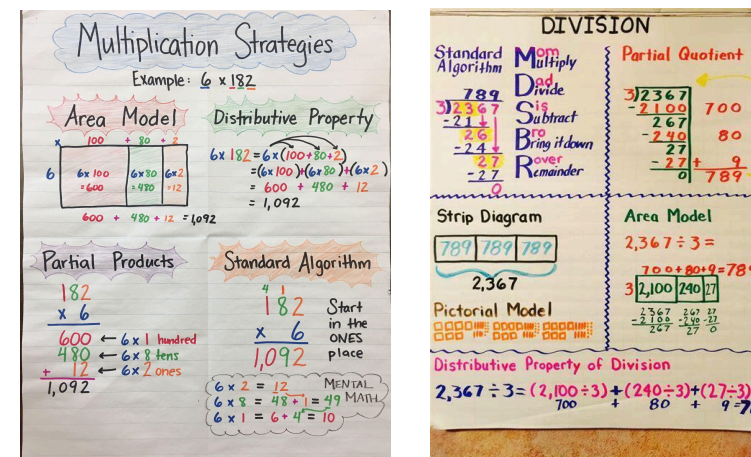
	0	1	2	3	4	5	6	7	Factors
0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8
2	0	2	4	6	8	10	12	14	16
3	0	3	6	9	12	15	18	21	24
4	0	4	8	12	16	20	24	28	product
5	0	5	10	15	20	25	30	35	40
6	0	6	12	18	24	30	36	42	48
7	0	7	14	21	28	35	42	49	56
8	0	8	16	24	32	40	48	56	64
9	0	9	18	27	36	45	54	63	72
Factors	0	9	18	27	36	45	54	63	72

$4 \times 7 = 28$
 Using the distributive property,
 $4 \times (2 + 5)$
 $4 \times 2 = 8$
 $4 \times 5 = 20$
 $20 + 8 = \underline{28}$

	0	1	2	3	4	5	6	7	8	9
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1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

A blue arrow labeled "Divisor" points to the row for 4. A red arrow labeled "Dividend" points to the column for 5. The intersection cell containing 20 is circled in red. A red arrow labeled "Quotient" points to the column for 5.

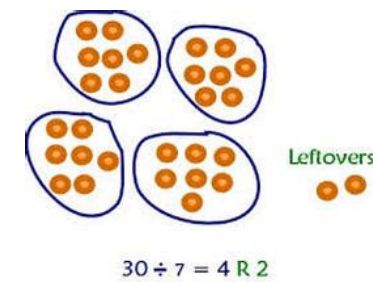
<https://nrich.maths.org/8956> (Rich Multiplication and Division Tasks)



All Hands on Deck (Box Car and One Eyed Jacks)
 Multiplication Games from pages 59-81
 Minor Remainders page 129
 Division With a Twist page 130

Explain the meaning of the remainder in various situations.

Solve division problems with a remainder, using arrays or Base 10 materials and connect this process to the symbolic representation.



Jerome has 30 candies, can he share them equally, if his 4 friends get 7 candies each?

3N3.2 Remainders - Deep - student strategies

Resources

Mathology

[APLC Math Little Books for Alberta Curriculum](#)
[Mathology Free Resources on New Learn Alberta](#)

Mathology Little Books

Mathology Little Book: [Sports Camp](#)

Mathology Little Books: Calla's Jingle Dress (Lots of activities on adding/subtracting/multiplying/dividing)

Mathology Activities

Mathology Grade 3: Number Unit 6, Multiplication and Division: Activities 29-32

Mathology Interactive Tools:

- [Counters](#)
- [Multiplication Chart](#)
- [Money](#)
- [Build a Number Line](#)
- [Arrays](#)

Existing Textbooks

- **Math Focus 4** - Chapter 6
- **Math Makes Sense 4** - Unit 3

Websites/Other

Websites:

[Kentucky Intervention Guide KNP](#) - provides great lessons and activities (outcomes based) for Teachers K-3

	Quotient									
Divisor	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

Indigenous Lesson Plans and Resources

See Mathology Teacher Resource for Calla's Jingle Dress.
[Indigenous Culture Based Learning in Alberta Curriculum](#)

Math UP

Representing Multiplication and Division

- o Lesson 1: Representing Multiplication Using Sets and Arrays
- o Lesson 2: Representing Multiplication on a Number Line
- o Lesson 3: Representing Division as Sharing
- o Lesson 4: Creating Groups of a Given Size

Multiplying and Dividing

- o Lesson 1: Multiplying in Parts
- o Lesson 2: Multiplying by Special Numbers
- o Lesson 3: Dividing in Parts
- o Lesson 4: Solving Problems With Multiplication and Division

NCETM (teacher guides and resources)

- [See NCETM Resources above](#)

Websites and Resources to Support *Planning*

- **Inclusion** - An [inclusive](#) approach to maths teaching
- **Inclusion** - [Good Practices](#) on Inclusive Curricula in Mathematics Sciences
- **Differentiation**: Preview vocabulary and pre teach to students. Use various forms of media to present vocabulary including simplified explanations, visuals in the form of diagrams to label and connect concepts.

Resources Developed by School Divisions/Educational Institutions

[Edmonton Catholic Pacing Guides](#)

[Edmonton Catholic Curriculum Crates](#)

[LearnAlberta Curriculum](#)

APLC [Curriculum Professional Learning Resources](#)

Alberta Teachers Association Library [General Mathematics Resources](#)

Mathematics and Numeracy - [Curriculum Implementation Toolkit, Grades 4-6](#)

Gizmos

New Learn Alberta (Teacher Login Required)

- [Critter Count \(Modeling Multiplication\)](#)
- [Chocomatic \(multiplication, arrays and area\)](#)
- [No Alien Left Behind \(Division with Remainders\)](#)
- [Perimeters and Areas of Similar Figures](#)

ExploreLearning Gizmos Site:

[Factor Trees \(Factoring Numbers\)](#)

For access to additional resources, request a Gizmos account alberta@explorelarning.com



Click to jump!

[KUSP 3N3.1](#)

[KUSP 3N3.2](#)

[KUSP 3N3.3](#)

[Literature Connections](#)

KUSPs 3N3.3

Assumable Curriculum / Prerequisite Knowledge / Vocabulary

Understand the inverse relationship of addition and subtraction; Equal sharing; Skip count by 5s & 10s to 100; Skip count by 2s to 20; Equal (meaning & symbol); Equality; Unequal (meaning & symbol)

Student Language | Essential vocabulary & concepts

- **Fact Family:** a collection of math facts that express the relation between the same set of numbers
- **Pattern:** a repeated sequence or arrangement about which predictions can be made
- **Division:** equal sharing/grouping of a quantity
- **Multiplication:** combining equal groups
- **Product:** what is produced when two or more factors are multiplied
- **Quotient:** what is produced by dividing one quantity by another

I Know Statements | Metacognition

- I know a multiplication fact has related division facts.
- I know that a multiplication table shows both multiplication and division facts.
- I know a fact family is a group of related multiplication and division facts.

Pre-Assessments

Nelson Pre-Assessments 3: Finding Each Students Pathway

- Putting Together Equal Groups - p.16
- Sharing Equally - p.17
- Equal Groups - p.18

Nelson Leaps and Bounds pages will be referenced in the Assessments to follow up for emerging learners.

I Can Statements | Skills

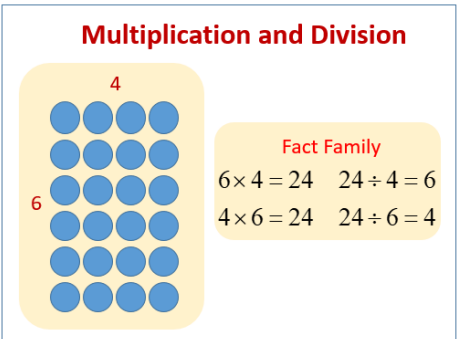
- I can recognize patterns in multiplication and division.
- I can recognize patterns in multiplication tables and skip counting.
- I can recall my multiplication facts with factors to 10.
- I can recognize families of related multiplication and division facts

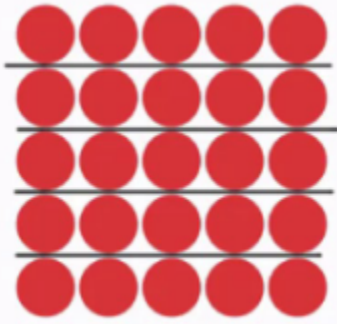
Learning Recovery

-

Enhancement

-

Learning Outcome	Students analyze and apply strategies for multiplication and division within 100.																																																																																																																																																																																																																																																																																																				
Knowledge	Understanding	Skills & Procedures	Achievement Indicators	Illustrated Examples	Assessments (Explainer)																																																																																																																																																																																																																																																																																																
<p>A multiplication table shows both multiplication and division facts.</p> <p>Fact families are groups of related multiplication and division number facts.</p>	<p>Multiplication number facts have related division facts.</p>	<p>Examine patterns in multiplication and division, including patterns in multiplication tables and skip counting.</p>	<p>Observe and find patterns within the multiplication table to demonstrate multiplication and division.</p>	<p>Use skip counting by 2s, 5s, 10s, etc. in a multiplication table to demonstrate products of 2, 5 or 10.</p> <p>Suggested order of facts</p> <table border="1" data-bbox="1619 479 2175 876"> <tr><th>x</th><th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th></tr> <tr><th>0</th><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><th>1</th><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><th>2</th><td>0</td><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td><td>14</td><td>16</td><td>18</td><td>20</td></tr> <tr><th>3</th><td>0</td><td>3</td><td>6</td><td>9</td><td>12</td><td>15</td><td>18</td><td>21</td><td>24</td><td>27</td><td>30</td></tr> <tr><th>4</th><td>0</td><td>4</td><td>8</td><td>12</td><td>16</td><td>20</td><td>24</td><td>28</td><td>32</td><td>36</td><td>40</td></tr> <tr><th>5</th><td>0</td><td>5</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td></tr> <tr><th>6</th><td>0</td><td>6</td><td>12</td><td>18</td><td>24</td><td>30</td><td>36</td><td>42</td><td>48</td><td>54</td><td>60</td></tr> <tr><th>7</th><td>0</td><td>7</td><td>14</td><td>21</td><td>28</td><td>35</td><td>42</td><td>49</td><td>56</td><td>63</td><td>70</td></tr> <tr><th>8</th><td>0</td><td>8</td><td>16</td><td>24</td><td>32</td><td>40</td><td>48</td><td>56</td><td>64</td><td>72</td><td>80</td></tr> <tr><th>9</th><td>0</td><td>9</td><td>18</td><td>27</td><td>36</td><td>45</td><td>54</td><td>63</td><td>72</td><td>81</td><td>90</td></tr> <tr><th>10</th><td>0</td><td>10</td><td>20</td><td>30</td><td>40</td><td>50</td><td>60</td><td>70</td><td>80</td><td>90</td><td>100</td></tr> </table> <p>Find patterns in the x2 in the table (all skip counting)</p> <table border="1" data-bbox="1619 937 2175 1391"> <tr><th>x</th><th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th></tr> <tr><th>0</th><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><th>1</th><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><th>2</th><td>0</td><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td><td>14</td><td>16</td><td>18</td><td>20</td></tr> <tr><th>3</th><td>0</td><td>3</td><td>6</td><td>9</td><td>12</td><td>15</td><td>18</td><td>21</td><td>24</td><td>27</td><td>30</td></tr> <tr><th>4</th><td>0</td><td>4</td><td>8</td><td>12</td><td>16</td><td>20</td><td>24</td><td>28</td><td>32</td><td>36</td><td>40</td></tr> <tr><th>5</th><td>0</td><td>5</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td></tr> <tr><th>6</th><td>0</td><td>6</td><td>12</td><td>18</td><td>24</td><td>30</td><td>36</td><td>42</td><td>48</td><td>54</td><td>60</td></tr> <tr><th>7</th><td>0</td><td>7</td><td>14</td><td>21</td><td>28</td><td>35</td><td>42</td><td>49</td><td>56</td><td>63</td><td>70</td></tr> <tr><th>8</th><td>0</td><td>8</td><td>16</td><td>24</td><td>32</td><td>40</td><td>48</td><td>56</td><td>64</td><td>72</td><td>80</td></tr> <tr><th>9</th><td>0</td><td>9</td><td>18</td><td>27</td><td>36</td><td>45</td><td>54</td><td>63</td><td>72</td><td>81</td><td>90</td></tr> <tr><th>10</th><td>0</td><td>10</td><td>20</td><td>30</td><td>40</td><td>50</td><td>60</td><td>70</td><td>80</td><td>90</td><td>100</td></tr> </table> <p>What do you know about 15? Relate to arrays, multiplication and division.</p>	x	0	1	2	3	4	5	6	7	8	9	10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	3	4	5	6	7	8	9	10	2	0	2	4	6	8	10	12	14	16	18	20	3	0	3	6	9	12	15	18	21	24	27	30	4	0	4	8	12	16	20	24	28	32	36	40	5	0	5	10	15	20	25	30	35	40	45	50	6	0	6	12	18	24	30	36	42	48	54	60	7	0	7	14	21	28	35	42	49	56	63	70	8	0	8	16	24	32	40	48	56	64	72	80	9	0	9	18	27	36	45	54	63	72	81	90	10	0	10	20	30	40	50	60	70	80	90	100	x	0	1	2	3	4	5	6	7	8	9	10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	3	4	5	6	7	8	9	10	2	0	2	4	6	8	10	12	14	16	18	20	3	0	3	6	9	12	15	18	21	24	27	30	4	0	4	8	12	16	20	24	28	32	36	40	5	0	5	10	15	20	25	30	35	40	45	50	6	0	6	12	18	24	30	36	42	48	54	60	7	0	7	14	21	28	35	42	49	56	63	70	8	0	8	16	24	32	40	48	56	64	72	80	9	0	9	18	27	36	45	54	63	72	81	90	10	0	10	20	30	40	50	60	70	80	90	100	<p>Examining Patterns - Surface/Deep</p> <p>Solve Problems - Eureka Math (engage ny) - Deep/Transfer</p>
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		<p>Recognize families of related multiplication and division number facts.</p>	<p>Given a multiplication fact and division fact determine if the number facts belong to the same number fact family.</p>	<div data-bbox="1681 1473 2116 1796" data-label="Complex-Block"> <p style="text-align: center;">Multiplication and Division</p>  </div>																																																																																																																																																																																																																																																																																																	

				 <p>Which of the following number sentences do NOT fit with the array? $25 \div 5 = 5$ $24 \div 6 = 4$ $5 \times 5 = 25$ $6 \times 5 = 30$</p>	
		<p>Recall multiplication number facts, with factors to 10, and related division facts.</p>	<p>Refine strategies to increase efficiency (eg., use known facts to derive facts)</p>	<p>If I know $8 \times 5 = 40$ and $8 \times 2 = 16$ then $8 \times 7 = 56$ since $40 + 16 = 56$.</p> <p>When solving division and multiplication problems, what is your favorite strategy? Why is it your favorite strategy to use?</p> <ul style="list-style-type: none"> • Use Partials: Addition, subtraction, multiplication, and division • Break Apart to Multiply • Halve and Double • Compensation • Use an Inverse Relationship 	<p>Fact Families - Surface</p>
		<p>Recall multiplication number facts to 10×10 and its related division facts.</p>	<p>Recall multiplication number facts to 10×10 and its related division facts.</p>	<p>Use objects to show the following multiplication questions. $3 \times 4 =$ $7 \times 8 =$ $2 \times 6 =$ $5 \times 6 =$ $2 \times 9 =$</p> <p>Draw arrays (or area model) to show the following multiplication questions. $2 \times 9 =$ $8 \times 8 =$ $4 \times 6 =$ $1 \times 2 =$ $9 \times 3 =$</p> <p>Solve the following multiplication questions. $6 \times 8 =$ $2 \times 4 =$ $3 \times 3 =$ $10 \times 6 =$ $7 \times 3 =$</p> <p>Division Use objects to show the following division questions. $12 \div 2 =$ $10 \div 5 =$ $56 \div 7 =$ $100 \div 10 =$</p> <p>Draw arrays or pictures to solve the following division questions. $24 \div 4 =$ $50 \div 5 =$ $14 \div 7 =$ $49 \div 7 =$</p> <p>Solve the following division questions. $30 \div 5 =$ $81 \div 9 =$ $28 \div 7 =$ $36 \div 6 =$</p>	<p>Strategies - Surface or Deep depending on in class work</p>

Resources

Mathology

[APLC Math Little Books for Alberta Curriculum](#)
[Mathology Free Resources on New Learn Alberta](#)

Mathology Activities

Mathology Grade 3: Number Unit 6, Multiplication and Division: Activities 29, 32, 33
 Mathology Little Books: Calla's Jingle Dress (Lots of activities on adding/subtracting/multiplying/dividing)

Links to Other Grades

Mathology Grade 4: Number Unit 5, Fluency with Multiplication and Division Facts: Activity 24

Mathology Interactive Tools:

- [Counters](#)
- [Multiplication Chart](#)
- [Money](#)
- [Build a Number Line](#)
- [Arrays](#)

Math UP

Representing Multiplication and Division

- Lesson 1: Representing Multiplication Using Sets and Arrays
- Lesson 2: Representing Multiplication on a Number Line
- Lesson 3: Representing Division as Sharing
- Lesson 4: Creating Groups of a Given Size

Multiplying and Dividing

- Lesson 1: Multiplying in Parts
- Lesson 2: Multiplying by Special Numbers
- Lesson 3: Dividing in Parts
- Lesson 4: Solving Problems With Multiplication and Division

Existing Textbooks

Math Focus 3 - Chapters 8 & 9
Math Focus 4 - Chapter 6
Math Makes Sense 4 - Unit 3

NCETM (teacher guides and resources)

[See NCETM Resources above](#)

Websites/Other

[Mathematics Developmental Continuum](#) - Indicators of Progress Tasks/Activities (Australia)

[MMMathMania](#)
[Math Games | CoolMath4Kids](#) (multiplication games with facts: Tractor Tug, Meteor Multiplication, Swimming Otters)
[Math Flips](#) from <https://mathvisuals.wordpress.com/math-flips/>

[CEMC Web Resources - Problem of the Week - University of Waterloo](#)

[NRICH Multiplication and Division Tasks](#) (rich multiplication/division practice - U of Cambridge)
[NRICH Multiplication and Division KS2](#) (rich Multiplication and Division Tasks - U of Cambridge)

[3-Act Tasks | Questioning My Metacognition](#) (Graham Fletchy)
[3 Act Math Tasks By Kyle Pearce, Dan Meyer and Others](#) (Make Math Moments 3 Act tasks)

[Writing Numberless Word Problems | Teaching to the Beat of a Different Drummer](#) (Numberless word problems for problem solving reasoning)

[Multiplication, Division – Math Visuals](#) (multiplication and division talks)

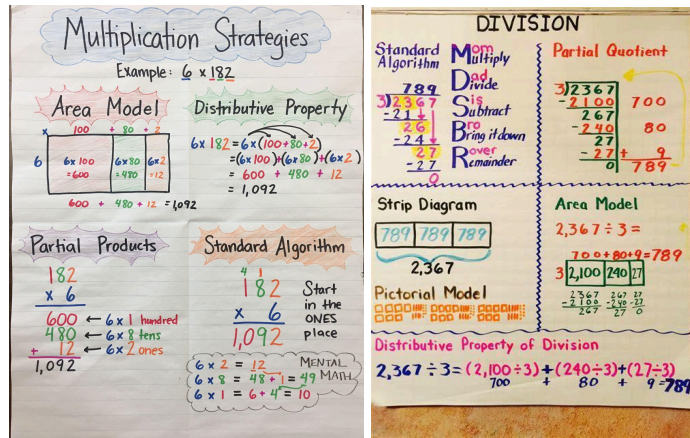
[Number Talk Images](#) (Number Talks for Arrays)

Websites and Resources to Support Planning

Inclusion - An [inclusive](#) approach to maths teaching
Inclusion - [Good Practices](#) on Inclusive Curricula in Mathematics Sciences
Differentiation: Preview vocabulary and pre teach to students. Use various forms of media to present vocabulary including simplified explanations, visuals in the form of diagrams to label and connect concepts.

Resources Developed by School Divisions/Educational Institutions

[Edmonton Catholic Pacing Guides](#)
[Edmonton Catholic Curriculum Crates](#)
[LearnAlberta Curriculum](#)
 APLC [Curriculum Professional Learning Resources](#)
 Alberta Teachers Association Library [General Mathematics Resources](#)
 Mathematics and Numeracy - [Curriculum Implementation Toolkit, Grades 4-6](#)



All Hands on Deck (Box Car and One Eyed Jacks)
 Multiplication Games from pages 59-81
 Minor Remainders page 129
 Division With a Twist page 130

[Kentucky Intervention Guide KNP](#) - provides great lessons and activities (outcomes based) for Teachers K-3

Gizmos

New Learn Alberta (Teacher Login Required)
[Critter Count \(Modeling Multiplication\)](#)
[Chocomatic \(multiplication, arrays and area\)](#)
[No Alien Left Behind \(Division with Remainders\)](#)
[Perimeters and Areas of Similar Figures](#)

ExploreLearning Gizmos Site:
[Factor Trees \(Factoring Numbers\)](#)

For access to additional resources, request a Gizmos account alberta@explorellearning.com

Indigenous Lesson Plans and Resources

Mathology Little Books: Calla's Jingle Dress (Lots of activities on adding/subtracting/multiplying/dividing)



Click to jump!

[KUSP 3N3.1](#)

[KUSP 3N3.2](#)

[KUSP 3N3.3](#)

[Literature Connections](#)

Literature Connections

Title	Author	Format (Picture Book, Novel, Non-fiction, other)	Publisher	ISBN	Notes
Anno's Mysterious Multiplying Jar	Masaichirō Anno, Mitsumasa Anno	Juvenile Fiction	Philomel Books, 1983	0399209514, 9780399209512	factors
Germs Make Me Sick!	Melvin Berger	Picture Book	HarperCollins; Illustrated edition (August 4, 2015)	9780062381873, 978-0062381873	doubling
Each Orange Had 8 Slices	Paul Giganti Jr.	Picture Book	Greenwillow Books; Illustrated edition (April 27 1999)	068813985X, 978-0688139858	multiplication
Amanda Bean's Amazing Dream	Liza Woodruff	Picture Book	Scholastic Press (Aug. 1 1998)	0590300121, 978-0590300124	Multiplication
Multiplying Menace The Revenge of Rumpelstiltskin	Pam Calvert	Picture Book	Charlesbridge	9781570918902, 1570918902	Multiplication
Zero the Hero	Joan Holub	Picture Book	Henry Holt and Co. (BYR); 1st edition (Feb. 28 2012)	0805093842, 978-0805093841	Multiplying by Zero
Spaghetti and Meatballs For All!	Marilyn Burns	Picture Book	Scholastic Paperbacks; Illustrated edition (Aug. 1 2008)	0545044456, 978-0545044455	Multiplication/Division
A Remainder of One	Elinor J Pinczes	Picture Book	Houghton Mifflin Harcourt	9780547349961, 0547349963	Division
One Watermelon Seed	Celia Barker Lottridge	Picture Book	Fitzhenry and Whiteside; 1st edition (August 14, 2012)	1554552222, 978-1554552221	Arrays
Emma's Grouping	JL Cornish	Picture Book	Teacher Author, The (February 24, 2022)	0645383317, 978-0645383317	Multiplication
The Great Divide	Dayle Ann Dodds	Picture Book	Candlewick; Reprint edition (Feb. 3 2005)	0763615927, 978-0763615925	Dividing in half
2 X 2 = Boo!	Loreen Leedy	Picture Book	Holiday House; Illustrated edition (Jan. 1 1995)	0823412725, 978-0823412723	Multiplication