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Curriculum Planning & Assessment Resource

Mathematics
Grade 2

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

Curriculum Planning & Assessment Resource
Mathematics
Grade 2 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@arpdc.ab.ca to report any error or omissions.

Table of Contents

Important Links

New Learn Alberta Progressions
- Competency Progressions
- Numeracy Progressions
- Literacy Progressions

Recorded Video:
- How to Read these Curriculum Planning & Assessment Resources

Planners and Concept Maps
- K-3 Math Planners
- 4-6 Math Planners (under development)
- Assessment Planners (under development)
- K-3 Math Action Verbs and 4-6 Math Verb Resources

Curriculum Progressions
- Skills and Procedures Progression K-3 (under development)
- Concept Progressions (under development)

Interactive Numbered Outcomes Document with Skills

Acknowledgements

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

Grade 2 Number 3

Organizing Idea

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

Guiding Question

In what ways can parts compose a whole?

Learning Outcome

2N3 Students interpret part-whole relationships using unit fractions.

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.*

Summative Assessment(s) [*understanding surface vs deep vs transfer*]

Fraction Brownies **Fraction Bakery**

Click to jump!

KUSP 2N3

Literature Connections

KUSP 2N3

Assumable Curriculum / Prerequisite Knowledge / Vocabulary

Part to whole relationship: e.g. one-half is part of a whole.; Understanding of one-half, halves, equal sharing between two, two halves make a whole.

Student Language | Essential vocabulary & concepts

- **Fraction:** a number that stands for part of something; part of a set or part of a whole
- **Unit Fraction:** A fraction where the top number (the "numerator") is 1
- **Partition:** to separate the whole into groups
- **Denominator:** represents the number of equal parts that make up the whole unit
- **Numerator:** represents the part out of the whole unit
- **Equal:** having the same amount, size, number, or value
- **Part:** a piece of the whole
- **Whole:** all of the parts put together
- **Quantity:** an amount or number of something
- **Even number:** a number that, when arranged in pairs, has no remainder
- **Set:** a collection of items with a common attribute

I Know Statements | Metacognition

- I know a fraction is an equal part of a whole.
- I know a whole can be partitioned into a number of equal parts.

Pre-Assessments

Pre-Assessments 2: Finding Each Students Pathway

- Equal parts - p. 9

Pre-Assessments 3: Finding Each Students Pathway

- Equal Parts - p.7

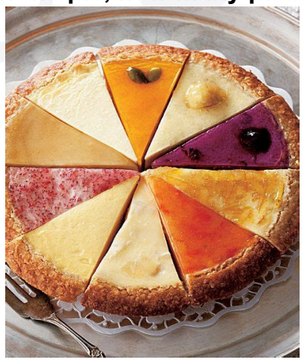
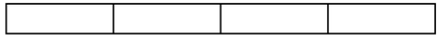
Nelson Leaps and Bounds Pages will be referenced in the Assessments to follow up for emerging learners.

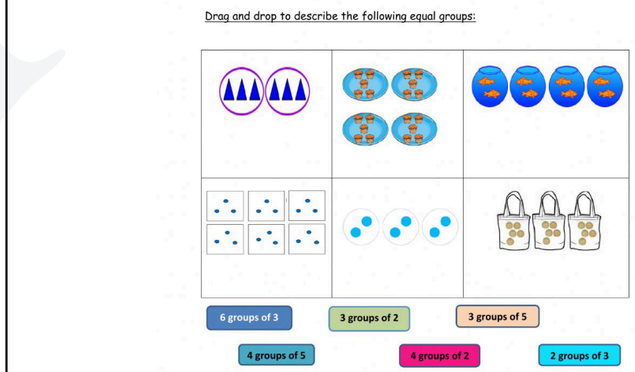
I Can Statements | Skills

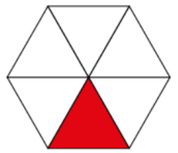
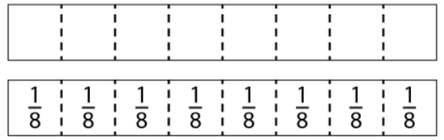
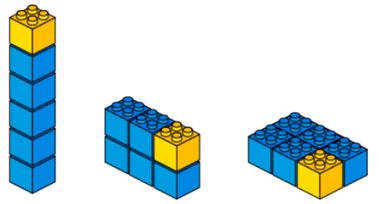
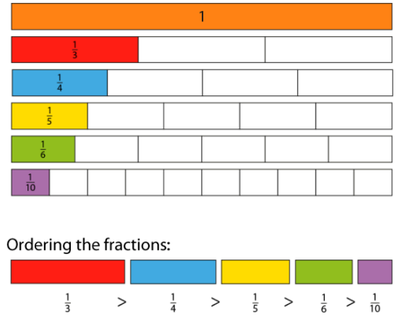
- I can partition a set of objects or a shape into equal groups (up to 10).
- I can compare different unit fractions of the same whole (e.g., pizza, cookie, or a shape).
- I can compare the same unit fractions of different wholes.
- I can use a given unit fraction to model one whole.

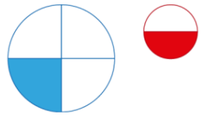
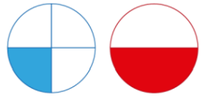
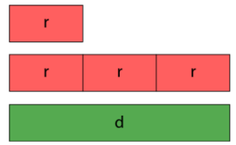
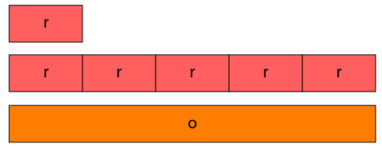
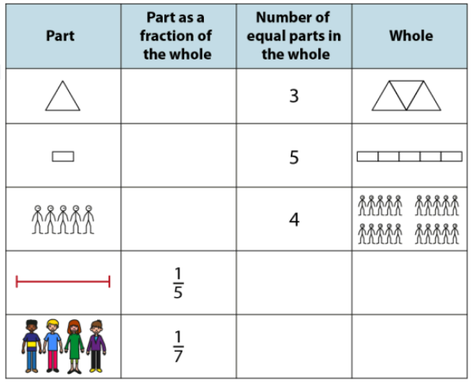
Learning Recovery

Enhancement

Learning Outcome		2N3 Students interpret part-whole relationships using unit fractions			
Knowledge	**Understanding**	**Skills & Procedures**	**Achievement Indicators**	**Illustrative Examples**	**Assessments** (Explainer)
A whole can be a whole set of objects, or a whole object, that can be partitioned into a number of equal parts. The whole can be any size and is designated by context. A unit fraction describes any one of the equal parts that compose a whole.	Fractions can represent part-to-whole relationships. One whole can be interpreted as a number of unit fractions.		Describe everyday situations where fractions are used as a whole or a set.	Part–whole relationship – cardinal context (time): Mon Tue Wed Thu Fri Sat Sun *'If the week is the whole, then Tuesday is part of the whole.'* **If Canada is the whole, Alberta is part of the whole**  **If we eat half of the pie, how many pieces did we eat?** 	
		Model a unit fraction by partitioning a whole object or whole set into equal parts, limited to 10 or fewer equal parts.	Cut or fold a whole into equal parts or draw a whole in equal parts, demonstrate that the parts are equal, and name the parts.	Folding paper:  • *'I have folded my whole length of paper into four equal parts.'* **Once children are confident identifying equal and unequal parts, present the following problem**	2N3 A Sweet Treat **- surface** **Note:** is it not important that grade 2's learn fraction vocabulary of numerator and denominator but rather the interpretation of the unit fraction as 1 piece of several equal pieces. Using Deci-Tracks, ask students which rods can be

				'Three children have folded their paper strips in different ways. Which strip is the odd one out? Can you find a way to make each of the strips the odd one out?' Ravi Holly Jimmy *'Liz has folded her paper strip into three equal parts. Lara has folded her paper strip into four equal parts. Part of their strips are hidden. Whose paper strip is longer?'* Liz Lara Liz Lara Squares divided into four equal parts in different ways: *'Has each square been divided into equal or unequal parts?'* One part of each whole: • *'What is the same about each part?'* • *'What is different?'*	used to create equal sections counting to 10? How would they write the unit fraction? Ans: red = ⅕, yellow = ½ and white = 1/10 Note: ⅕ is 1 out of 5 equal pieces. Ask students how they can break up a loonie into equal value coins? What does each coin represent as a unit fraction? Dimes = 10 so each is 1/10 Quarters = 4 to make a loonie so each is ¼ What other manipulatives do you have that students could model a unit fraction?
		Partition Sort a given set of objects into equal groups and explain the sorting.		**2N3 A Healthy Divide - surface/deep**

		Compare the same unit fractions of different wholes, limited to denominators of 10 or less.	Partition a whole object into unit fractions up to one-tenth concretely or pictorially.	 • *'The whole has been divided into six equal parts.'* • *'One of the parts has been shaded.'*  • *'The whole has been divided into eight equal parts.'* • *'Each equal part is one-eighth of the whole.'*	[2N3 It's All in Name](#) **- deep** [1.5 cm Grid Paper](#) **- to use with 2N3 It's All in a Name**
			Name and record the fraction represented by the shaded and non-shaded parts of a given region.	*'Now look at these models.'*  • *'What is the same?'* • *'What is different?'* • *'All the models have the same fraction of yellow, but the yellow brick is in different positions.'* **One-sixth ⅙ of the blocks are yellow**	
		Compare different unit fractions of the same whole, limited to denominators of 10 or less.	**Compare** different unit fractions as greater or lesser than of the same whole (e.g. cuisenaire rods/fraction strips)	• *'What fraction is each piece of the whole length?'*  	[Modeling Wholes](#) **- surface**

			Compare different unit fractions as greater or lesser than of different wholes	• *'Emma looks at these two diagrams. She says that they prove that* $\frac{1}{4} > \frac{1}{2}$*. Do you agree or disagree?'*  • *'Disagree: to compare fractions, the wholes must the same.'* 	
		Model one whole, using a given unit fraction, limited to denominators of 10 or less.	Given a unit fraction of a set or shape, create the whole	• *'The red rod is one-third of the whole. What is the whole?'*  • *'The red rod is one-fifth of the whole. What is the whole?'*   	[Modeling Wholes](#) **- surface (repeat)**

Resources

Mathology

[Mathology Free Resources on New Learn Alberta]

Mathology Little Books
Mathology Little Book: The Best Birthday

Mathology Activities
Links to Other Grades
Mathology Grade 1: Number Cluster 5, Composing and Decomposing: Activity 22 (ignore thirds)

Math UP

- **Fractions**
  - Lesson 1: Representing Fractions
  - Lesson 2: Comparing Fractions
  - Lesson 3: Regrouping Fractions Into Wholes
  - Lesson 4: Fair Shares

Existing Textbooks

Math Makes Sense 3 - Unit 5

Math Focus 3 - Chapter 4 Fractions

NCETM (teacher guides and resources)

Guidance on the teaching of fractions in Key Stage 1
(Spine 3; Key Stage 1; 3.0)

Preparing for fractions: the part-whole relationship
(Spine 3; Year 3; 3.1)

Unit fractions: identifying, representing, and comparing
(Teaching points 1-4 address this outcome)
(Spine 3; Year 3; 3.2)

Websites/Other

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

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

Gizmos New Learn Alberta (Teacher Login Required)
Equivalent Fractions (Fraction Tiles)
Fraction Artist 1 (Area Models of Fractions)
Fraction Artist 2 (Area Models of Fractions)
Fraction Garden (Comparing Fractions)
Toy Factory (Set Models of Fractions)
Fraction, Decimal, Percent (Area and Grid Models)
Modeling Fractions (Area Models)
Part-to-part and Part-to-whole Ratios

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

Indigenous Lesson Plans and Resources

Coming Soon

Problem Solving

Coming Soon

Literature Connections

Title	Author	Format (Picture Book, Novel, Non-fiction, other)	Publisher	ISBN	Notes
A Fraction's Goal — Parts of a Whole	Brian P. Cleary	Picture Book	Millbrook Press; Illustrated edition (Aug. 1 2013)	1467713805, 978-1467713801	Parts of a Whole
Fraction Fun	David A. Adler	Picture Book	David A. Adler	0823413411, 978-0823413416	Denominators and Numerators
Sir Cumference and the Fraction Faire	Cindy Neuschwander	Picture Book	Charlesbridge; Illustrated edition (March 7 2017)	1570917728, 978-1570917721	Numerator, denominator, parts of a whole
The Doorbell Rang	Pat Hutchins	Picture Book	Greenwillow Books; Illustrated edition (Oct. 26 1989)	0688092349, 978-0688092344	Fractions
Fraction Action	Loreen Leedy	Picture Book	Holiday House; Illustrated edition (Jan. 1 1994)	082341244X, 978-0823412440	Fractions
Ed Emberley's Picture Pie	Ed Emberley	Picture Book	LB Kids; Revised ed. edition (Feb. 1 2006)	0316789828, 978-0316789820	Fractions
Gator Pie	Louise Mathews	Picture Book	Sundance Pubns (June 1 1995)	0760800057, 978-0760800058	Fractions
Give Me Half!	Stuart J. Murphy	Picture Book	HarperCollins; Illustrated edition (April 1 1996)	9780064467018, 978-0064467018	Fractions
Fractions	Sara Pistoia	Picture Book	Av2; Reprint edition (Aug. 1 2016)	1489651055, 978-1489651051	Fractions
Eating Fractions	Bruce McMillan	Picture Book	Scholastic Press (Sept. 1 1991)	9780590437707, 978-0590437707	Fractions, halves
The Hershey's Milk Chocolate Bar Fractions Book	Jerry Pallotta	Picture Book	Scholastic, 1999	0439135192, 9780439135191	Fractions, parts of a whole
Emma's Fractions	JL Cornish	Picture Book	Teacher Author, The (December 17, 2021)	0645383309, 978-0645383300	An educational story exploring halves, quarters and eighths