

# Curriculum Planning & Assessment Resource

## Mathematics Grade 1



**Alberta Regional Professional  
Development Consortia**

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# Curriculum Planning & Assessment Resource

## Mathematics

### Grade 1 Measurement 1

#### 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.

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Table of Contents		Important Links	
Important Links	2	<b>New Learn Alberta Progressions</b>	<b>Planners and Concept Maps</b>
Introduction	2	<ul style="list-style-type: none"> <li><a href="#">Competency Progressions</a></li> <li><a href="#">Numeracy Progressions</a></li> <li><a href="#">Literacy Progressions</a></li> </ul>	<ul style="list-style-type: none"> <li><a href="#">K-3 Math Planners</a></li> <li>4-6 Math Planners (under development)</li> <li>Assessment Planners (under development)</li> <li><a href="#">K-3 Math Action Verbs</a> and <a href="#">4-6 Math Verb Resources</a></li> </ul>
<a href="#">KUSP 1M1.1</a>	4	<b>Recorded Video:</b>	<b>Curriculum Progressions</b>
<a href="#">KUSP 1M1.2</a>	10	<ul style="list-style-type: none"> <li><a href="#">How to Read these Curriculum Planning &amp; Assessment Resources</a></li> </ul>	<ul style="list-style-type: none"> <li>Skills and Procedures Progression K-3 (under development)</li> <li>Concept Progressions (under development)</li> </ul>
<a href="#">Literature Connections</a>	15		<a href="#">Interactive Numbered Outcomes Document with Skills</a>

#### 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 1 Measurement 1

## Organizing Idea

Measurement: Attributes such as length, area, volume, and angle are quantified by measurement.

## Guiding Question

In what ways can length provide perspectives of size?

## Learning Outcome

1M1 Students relate length to the understanding of size.

## 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)

[\[understanding surface vs deep vs transfer\]](#)

[1M1 Sample Summative with Outcomes - Comparison \(EN\)](#)

[1M1 évaluation sommative - comparaison \(FR\)](#)

[1M1 Sample Summative Mastery \(EN\)](#)



# KUSP 1M1.1

## Prerequisite Knowledge

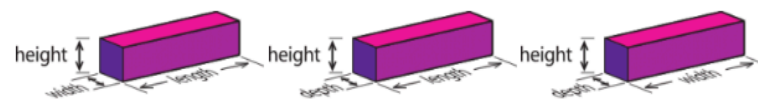
- concept of ESTIMATION
- understanding of a unit of measurement
- how to measure using a non-standard unit (tipping end-over-end)
- choosing an appropriate non-standard unit of measurement (pencil vs pool noodle for short or long lengths)

## Vocabulary | Essential vocabulary & concepts

- **Measure:** To determine the size, amount, or degree of something, using standard or non-standard units.
- **Length:** the measure from end to end
- **Depth:** the distance or length measured between the nearest end and farthest end of an object
- **Height:** the vertical distance measured between the top and the base of an object
- **Width:** the horizontal distance measured from side to side

When naming the dimensions of a three-dimensional figure, the only rule is *make sense and be clear*. It will help to use labels.

When the figure is "level," *height* clearly refers to the vertical dimension—how tall the figure is—regardless of whether that dimension is greatest or least or something in between; *length* (if you use the word) refers to the longer of the other two dimensions. But you may also refer to the other dimensions as *width* and *depth* (and these are pretty much interchangeable, depending on what "seems" wide or deep about the figure). See these examples.



When height would be unclear—for example if the figure is not "level"—people cannot know what is meant by width, depth, or height without labels, although

*length* is generally still assumed to refer to the longest measurement on the figure. And, as in two dimensions, terms like "length," "width," and "height" won't feel natural or be clear for some shapes, like a tennis ball.

Source: [Elementary Math at EDC](#)

## Nelson Pre-Assessments 1: Finding Each Students Pathway

- Measuring Length - p. 30

**Leaps and Bounds Pages** are referenced in the PreAssessments Answer Key for follow up for emerging learners.

Learning Recovery


## I Know Statements | Metacognition

- I know height, width, depth, and diameter are examples of length.
- I know a length does not have to be a straight line.
- I know distance is the length of the space between two points.
- I know the distance between objects or people, the distance between home and school, and the distance between towns or cities are examples of distance in real life.
- I know length can be measured and that it describes the amount of space between two points.
- I know length stays the same, even if the object is repositioned.

## I Can Statements | Skills

- I can recognize the height, width, or depth of an object when a shape is in different positions.
- I can compare and order objects according to length.
- I can describe distance in my life using familiar concepts.
- I can explain that the length of an object is the same when the object is moved or has a different name.

Enhancement

Learning Outcome					
1M1.1 Students relate length to the understanding of size.					
Knowledge	Understanding	Skills & Procedures	Achievement Indicators	Illustrative Examples	Assessments ( <a href="#">Explainer</a> )
<p>Size may refer to the length of an object, including</p> <ul style="list-style-type: none"> <li>• height</li> <li>• width</li> <li>• depth</li> </ul> <p>A length does not need to be a straight line.</p> <p>The length between any two points in space is called distance.</p> <p>Familiar contexts of distance include</p> <ul style="list-style-type: none"> <li>• distance between objects or people</li> <li>• distance between objects on the land</li> <li>• distance between home and school</li> <li>• distance between towns or cities</li> </ul>	<p>Length is a measurable attribute that describes the amount of fixed space between the end points of an object.</p> <p>Length remains the same if an object is repositioned but may be named differently.</p>	<p>Recognize the height, width, or depth of an object as lengths in various orientations.</p>	<p>The length of a side of an object can be described as height, width, or depth.</p>	<p>Measure the length of an object. (indirectly or using a nonstandard object)</p> <p><b>Questions:</b>            Where did you begin your measurement?            Where did you end your measurement?            Measure the length of a second object.  <b>Questions:</b>            Which object is longer? shorter? How do you know?</p> <p>Give an object. Use a pipe cleaner (or string) to outline its length.  <b>Questions:</b>            How can you compare the length of two objects?            Which is longer? How do you know?</p> <p>Use a pipe cleaner or string to compare the length of the height, width and depth.</p> <p><b>Ordering Objects by Length</b></p>  <p>Build towers using Unifix/Snap cubes and order them according to length. Describe the order you used. Encourage the use of terms such as shortest/tallest; shortest/longest.  <b>Questions:</b>            - Can you reorder them from tallest to shortest?            - Do you have any towers that are the same size? Where would you put them in your line-up?</p>	<p><a href="#">1M1.1a - Being Observant - Surface/Deep</a></p>
		<p>Compare and order objects according to length.</p>	<p>Order objects from longest to shortest or shortest to longest/widest to narrowest/tallest to shortest/deepest to shallowest and describe the process used.</p>	<p><b>Knowledge:</b> Length is a measurable attribute that describes the amount of fixed space between the end points of an object. Teacher Note: Students are not using a ruler. They could use a nonstandard unit of measure.</p> <p><b>You have been given three different measuring tools to use.</b></p> <p><b>Which tool would you use to measure the following objects?</b></p>	<p><a href="#">Longer or Shorter - Surface - K5Learning</a></p> <p><a href="#">Draw a longer or shorter object - Deep - K5Learning</a></p> <p><a href="#">Order Shortest &amp; Longest - Surface - K5 Learning</a></p> <p><a href="#">Tallest Shortest - Surface - K5 Learning</a></p>



Put these objects in order from shortest to longest



Put these in order from shallowest to deepest



Put these objects in order from shortest to tallest

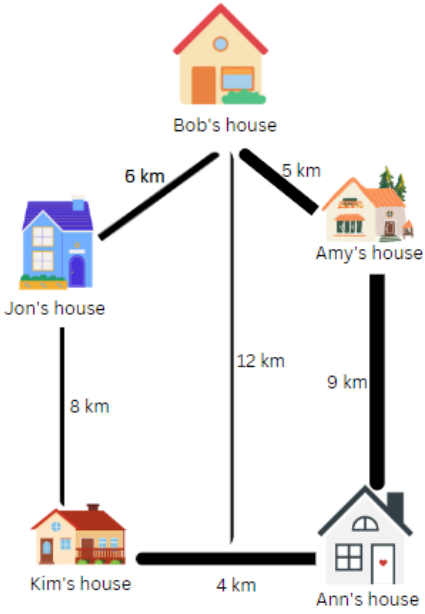


Describe distance in familiar contexts.

Recognize distance in familiar contexts.

Which distance is the farthest?  
Which distance is the least?

- From my classroom to the office
  - From my house to the school
  - From my classroom to the gym
  - From here to the nearest city
- From my classroom to the washroom
  - From here to the moon



- Which distance is the longest?
- John's house to Ann's?
  - Bob's house to Kim's?
  - Ann's house to Amy's?
  - John's house to Amy's?

Which two friends live the closest to each other?

**Teacher Note:** Students are not responsible for reading units of distance as shown in the example. If the diagrams you provide are drawn to a reasonable scale, students should be able to judge length based on comparative language of longer, short, same etc.

Length and Measurement - pages 19-23 [Student resource Book](#) - Core Knowledge

Length and Measurement [Teachers Guide](#) - Core Knowledge

[Accompanying Powerpoints and Lessons](#) for Length and Measurement - Core Knowledge

# Resources

## Mathology

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

### Mathology Little Books

Mathology Little Book: [Animals Measure](#)  
 Mathology Little Book: [The Amazing Seed](#)

## Math UP

- **AB\_Length**
  - o Lesson 1: Comparing Lengths Directly
  - o Lesson 2: Comparing Lengths Indirectly
- **AB\_Area and Capacity**
  - o Lesson 1: Comparing Areas
  - o Lesson 2: Comparing Capacities

## Existing Texts

**Math Focus 1 - Chapter 4 Pages 40-43**  
**Math Focus 2 - Pages 32-33**  
**Math Makes Sense 1 - Unit 4**  
**Math Makes Sense Workbook - Unit 8, Lesson 5**

## NCETM

[Measures](#) - Review the list of suggested activities (middle column) for additional assessment and learning opportunities.

## Indigenous Lesson Plans and Resources

[Infusing Indigenous Knowledge - Main website](#)

### Grade 1 Mathematics

Use Cree words for measurement and system of measurement. Learn how Elders measured. Use comparisons such as a thumb for one inch.

- Plant a garden to measure depth and spacing of seed plants, height of plants.
- Recognize and compare distances between familiar places. For example, from their community to Peace River or Slave Lake, etc.
- Compare distances related to hunting . For example, the distance between hunter and the animal and/or the distance to go hunting – balancing load.
- Draw a map of the school yard/community to identify places that are near or far.
- Compare width and depth of local bodies of water (lake, ponds, puddles) or with everyday items (estimate capacity with a variety of shapes and sizes of water glasses, birchbark containers).

## Problem Solving

[The Long and Short of It](#) - Measurement Math Unit by Trinity Western University, BC

[Exploring Mathematics Through Problem Solving and Student Voice](#) - Ontario Teachers Federation (2015) - slides 20-22

**Illustrative Mathematics [Tasks](#): (Grey sections below are hyperlinked)**

- **K.MD.A. Describe and compare measurable attributes.**
  - Longer and Heavier? Shorter and Heavier?
  - **K.MD.A.1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.**
    - Which is heavier?
  - **K.MD.A.2. Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.**
    - Longer and Shorter
    - Size Shuffle
    - Which is heavier?
    - Which is Heavier?
    - Which is Longer?
    - Which weighs more? Which weighs less?

- **K.MD.B. Classify objects and count the number of objects in each category.**
  - **K.MD.B.3. Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.**
    - Goodie Bags
    - Sort and Count I
    - Sort and Count II
- **1.MD. Grade 1 - Measurement and Data**
  - **1.MD.A. Measure lengths indirectly and by iterating length units.**
    - **1.MD.A.2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.**
      - Growing Bean Plants
      - How Long?
      - Measure Me!
      - Measuring Blocks

### Other Websites/Resources

A Guide to Effective Instruction in Mathematics - Kindergarten to Grade 3 - [Measurement](#). Ontario Ministry of education. **Pages 61-90**

### Gizmos

New Learn Alberta (Teacher Login Required)

ExploreLearning Gizmos Site:

[Cannonball Clowns \(Number Line Estimation\)](#)

For access to additional resources login to Gizmos account. Request an account [alberta@explorellearning.com](mailto:alberta@explorellearning.com)



# KUSP 1M1.2

## Prerequisite Knowledge

- **ESTIMATION** should naturally be included within this strand of measurement. The explicit instruction of estimation strategies is an important skill that needs to be formally introduced as a specific “indirect” measurement.
- recognize the height, width, or depth of an object when a shape is in different positions.
- compare and order objects according to length.
- describe distance in my life using familiar concepts.
- explain that the length of an object is the same when the object is moved or has a different name.

### Vocabulary | Essential vocabulary & concepts

- **Area:** the amount of flat space covered by a shape/region
- **Capacity:** the amount a container can hold
- **Measure:** To determine the size, amount, or degree of something, using standard or non-standard units.
- **Length:** the measure from end to end
- **Depth:** the distance or length measured between the nearest end and farthest end of an object
- **Height:** the vertical distance measured between the top and the base of an object
- **Width:** the horizontal distance measured from side to side.

### I Know Statements | Metacognition

- I know that when objects are difficult to move, their size can be compared with a third object.
- I know how to compare using higher, wider and deeper.

### Pre-Assessments

#### Nelson Pre-Assessments 1: Finding Each Students Pathway

- Measuring Length - p. 30

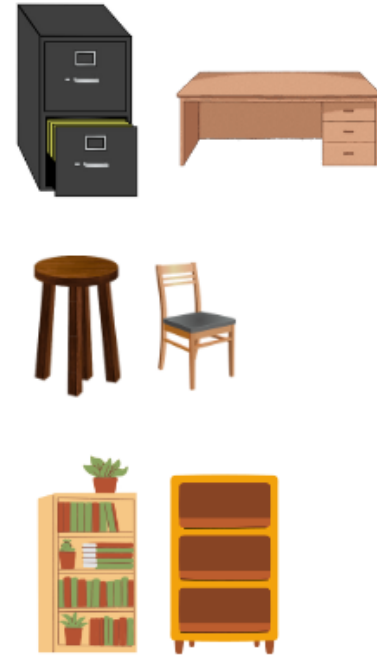




**Leaps and Bounds Pages will be referenced in the PreAssessments answer Key for follow up for emerging learners**

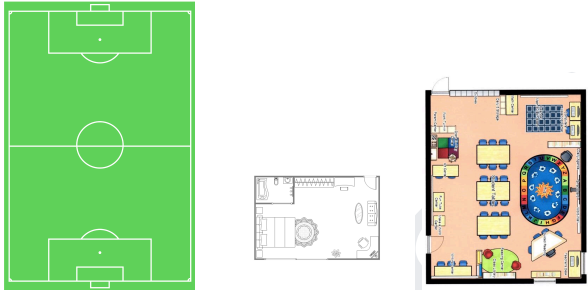




### I Can Statements | Skills

- I can compare the length, area, or capacity of two objects using a third object.
- I can order objects according to length, area, mass, or capacity.
- I can compare objects, using words like higher, wider, and deeper.
- I can compare objects directly and indirectly.

Learning Recovery

Enhancement

Learning Outcome		1M1.2 Students relate length to the understanding of size.			
Knowledge	Understanding	Skills & Procedures	Achievement Indicators	Exemplars	Assessments ( <a href="#">Explainer</a> )
<p>Indirect comparison is useful when objects are fixed in place or difficult to move.</p> <p>Comparisons of size can be described by using words such as</p> <ul style="list-style-type: none"> <li>• higher</li> <li>• wider</li> <li>• deeper</li> </ul>	<p>The size of two objects can be compared indirectly with a third object.</p>	<p>Compare the length, area, or capacity of two objects directly or indirectly using a third object.</p>	<p>Describe and compare objects based on size. (by direct or indirect comparison)</p>	<p><b>Using Indirect Measurement</b></p> <ol style="list-style-type: none"> <li>1. Choose two pieces of furniture in the classroom.</li> <li>2. Choose a measuring tool (shoe, notebook, pencil, marker, string)</li> <li>3. Measure the height, length, and width of each piece of furniture.</li> <li>4. Which one is taller? Shorter? Wider?</li> </ol> <p><b>Look at the two objects and compare them using size vocabulary (taller, shorter, wider, heavier, lighter, bigger, smaller)</b></p>  <p><b>non-standard units</b> Any item that can be used to measure something, e.g. paper clips, blocks, finger spaces, handspans, feet.</p> <p><b>examples</b></p> <p>The pencil is 15 blocks long.</p>  <p>The pencil is 6 paper clips long.</p>  <p>The bar is 6 handspans long.</p>  <p>The bar is 4 'feet' long.</p> 	<p><a href="#">1M1.2a Fill a Glass - Deep</a></p> <p><a href="#">1M1.2a Remplir un verre - français - Profond/Deep</a></p> <p>Math Makes Sense 1 Workbook - page 190</p>

		<p>Order objects according to length, area, or capacity.</p>	<p>Compare and describe the length, area, and or capacity of objects.</p>	<p><b>Which has the largest area?</b></p>  <p><b>Put the snakes in order from the shortest to the longest</b></p>  <p><b>Use a measuring cup to put the cups in order from the smallest capacity to the largest capacity</b></p> 	<p><b>Length and Measurement</b>  - <a href="#">Student Resource Book</a> - Surface/Deep  - Core Knowledge</p> <p><b>Length and Measurement</b>  - <a href="#">Teachers Guide</a> - Surface/Deep - Core Knowledge</p> <p><b>Length and Measurement</b>  - <a href="#">Accompanying Powerpoints and Lessons</a> for Surface/Deep - Core Knowledge</p> <p><a href="#">Measurable Attributes</a> - Comparing Common Objects - Deep</p>
			<p>Order objects according to length, area, mass, and/or capacity.  (Pictures can be taken or drawn to represent the student output.)</p>	<p><b>Order the following objects by length.</b></p>  <p><b>Order the following objects by area.</b></p>  <p><b>Order the following objects by height.</b></p>	



Use Cree words for measurement and system of measurement. Learn how Elders measured. Use comparisons such as a thumb for one inch.

- Plant a garden to measure depth and spacing of seed plants, height of plants.
- Recognize and compare distances between familiar places. For example, from their community to Peace River or Slave Lake, etc.
- Compare distances related to hunting . For example, the distance between hunter and the animal and/or the distance to go hunting – balancing load.
- Draw a map of the school yard/community to identify places that are near or far.
- Compare width and depth of local bodies of water (lake, ponds, puddles) or with everyday items (estimate capacity with a variety of shapes and sizes of water glasses, birchbark containers).

(2015) - slides 20-22

### Other Websites

[Steve Wyborne's Blog: I'm on a Learning Mission. 51 Esti-Mysteries](#): downloadable PowerPoints that use clues to walk students through the process of building estimation skills.

IN Progress

Click to jump!



[KUSP 1M1.1](#)

[KUSP 1M1.2](#)

[Literature Connections](#)

## Literature Connections

Title	Author	Format (Picture Book, Novel, Non-fiction, other)	Publisher	ISBN	Notes
Ants Rule: The Long and Short of It	Bob Barner	Picture Book	Holiday House (Feb. 21 2017)	0823436608, 978-0823436606	Comparing length
Super Sand Castle Saturday	Stuart J. Murphy	Picture Book	HarperCollins; Illustrated edition (Jan. 1 1999)	9780064467209, 978-0064467209	Height, width, depth
Capacity	Henry Pluckrose	Picture Book	Children's Press; Updated edition (Aug. 28 2018)	0531135152, 978-0531135150	Capacity
Size	Henry Pluckrose	Picture Book	Children's Press; Library edition (Aug. 28 2018)	053117512X, 978-0531175125	Exploring size through direct comparisons
How Long?: Wacky Ways to Compare Length	Jessica Gunderson	Picture Book	Picture Window Books; Illustrated edition (Aug. 15 2013)	1479519146, 978-1479519149	Comparing length
How Tall?: Wacky Ways to Compare Height	Mark Weakland	Picture Book	Picture Window Books; Illustrated edition (Aug. 15 2013)	1479519138, 978-1479519132	Comparing height
Best Bug Parade	Stuart J. Murphy	Picture Book	HarperCollins (March 1 1996)	0007619383, 978-0007619382	Comparisons length and height
A Beach for Albert	Eleanor May	Picture Book	Kane Press; Illustrated edition (Aug. 1 2013)	1575655314, 978-1575655314	Capacity