

# Curriculum Planning & Assessment Resource

## Mathematics Grade 3



**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 3 Geometry 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.

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](mailto:info@arpdc.ab.ca) to report any error or omissions.

Table of Contents		Important Links	
<b>Important Links</b>	3	<b>New Learn Alberta Progressions</b>	<b>Planners and Concept Maps</b>
<b>Introduction</b>	3	<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 3G1.1</a>	4	<b>Recorded Video:</b> <ul style="list-style-type: none"> <li>• <a href="#">How to Read these Curriculum Planning &amp; Assessment Resources</a></li> </ul>	<b>Curriculum Progressions</b> <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="#">KUSP 3G1.2</a>	9		
<a href="#">Literature Connections</a>	12		
			<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 3 - Geometry 1

## Organizing Idea

Geometry: Shapes are defined and related by geometric attributes.

## Guiding Question

In what ways might geometric properties refine interpretation of shape?

## Outcome

3G1 Students relate geometric properties to shape.

## 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)

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

[3G1 Summative](#) (EN)

[3G1 évaluation sommative](#) (FR)

[3G1 Summative - Showcasing my understanding](#) (EN)



# KUSP 3G1.1

## Prerequisite Knowledge: the students knows

- the attributes of shapes include sides, vertices, and faces.
- 2-D shapes may have sides that are line segments.
- 3-D shapes may have faces that are 2-D shapes.
- a shape can be made from other shapes.
- shapes can be named by their attributes
- the terms: Geometric attributes, Side, Line Segment, Vertices, Edge, Face, 2 Dimensional, 3 Dimensional, Composite Shape

### Vocabulary | Essential vocabulary & concepts

- **Geometric properties:** the traits or properties that make a shape unique and distinct
- **Parallel:** lines or planes that are always the same distance apart and never meet
- **Perpendicular:** lines or planes that intersect at a right angle
- **Plane:** a flat surface with no thickness
- **Right angle:** angle created when 2 lines intersect each other at  $90^\circ$
- **Polygon:** a closed shape with three or more sides
- **Vertex/Vertices:** represents the location where 2 or more lines (2D) or edges (3D) are connected
- **Irregular polygon:** a polygon whose sides and angles are not all equal
- **Vertex/Vertices:** the point (corner) where 2 sides of a 2-D shape or 3 or more edges of a 3-D solid meet
- **Translation:** a transformation where a shape is moved along a straight line without turning
- **Rotation:** a transformation where a shape is turned around a point
- **Reflection:** a transformation where a shape is flipped in a straight line to form a mirror image

### Nelson Pre-Assessments

#### Pre Assessments 3: Finding Each Students Pathway

- Naming and Sorting 3D Objects - p.26
- Exploring 3D Objects - p.27
- Naming and Sorting 2D Shapes - p. 28
- Sorting 3D Objects - p.29
- Sorting 2D Shapes - p.30

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

### Learning Recovery

- Identify and sort 2-D shapes
- Identify geometric attributes of 2-D shapes.
- Identify and name regular and irregular polygons.

### I Know Statements | Metacognition

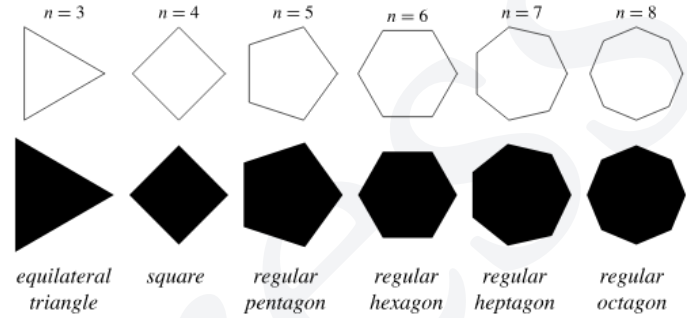
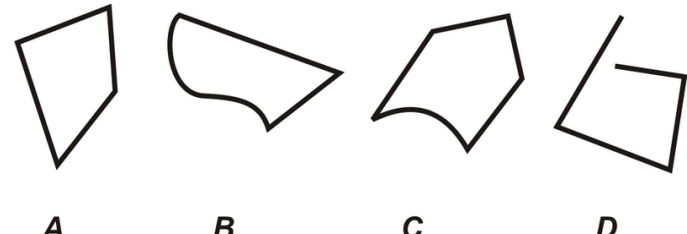
- I know parallel lines never intersect and perpendicular lines intersect at a right angle.
- I know triangles, quadrilaterals, pentagons, hexagons, and octagons are all examples of polygons.
- I know a regular polygon has equal sides and angles.
- I know geometric properties can be used to describe relationships between lines and angles.
- I know right angles can be identified using referents.

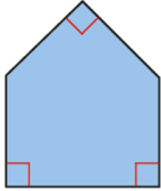
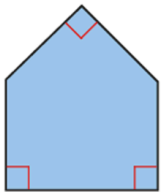
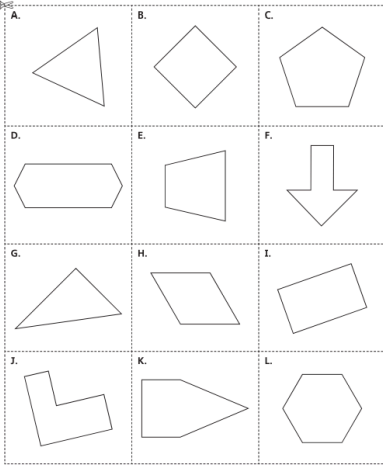

### I Can Statements | Skills

- I can compare the sides and angles of a polygon.
- I can describe the geometric properties of regular and irregular polygons (i.e., number of sides, length of sides, number of vertices, number of angles).
- I can sort polygons by geometric properties and describe the sorting rule.
- I can classify polygons as regular or irregular.

### Enhancement

- Identify different types of quadrilaterals in the environment and then discuss the relationships among them.
-

Learning Outcome		3G1.1 Students relate geometric properties to shape.			
Knowledge	Understanding	Skills & Procedures	Achievement Indicators	Illustrative Examples	Assessments ( <a href="#">Explainer</a> )
<p>Geometric properties can describe relationships, including <a href="#">perpendicular</a>, parallel, and equal.</p> <p>Parallel lines or planes are always the same distance apart.</p> <p>Perpendicular lines or planes intersect at a 90° (right) angle.</p> <p>Right angles can be identified using various referents, such as</p> <ul style="list-style-type: none"> <li>the corner of a piece of paper</li> <li>the angle between the hands on an analog clock at 3:00</li> <li>a capital letter L</li> </ul> <p>Polygons include</p> <ul style="list-style-type: none"> <li>triangles</li> <li>quadrilaterals</li> <li>pentagons</li> <li>hexagons</li> <li>octagons</li> </ul> <p>Regular polygons have sides of equal length and interior angles of equal measure.</p>	<p>Geometric properties are relationships between geometric attributes.</p> <p>Geometric properties define a class of polygon.</p>	<p>Investigate the relationships between the sides of a polygon, including perpendicular, parallel, and equal, using referents for 90° or by measuring. (a)</p>	<p>Compares the relationship between the sides of a polygon, including perpendicular, parallel, and equal.</p>	<div style="text-align: center;">  <p><a href="#">Wolfram Mathworld</a></p> </div> <p>Sort the above shapes into groups containing parallel or perpendicular lines.</p> <p><i>Which of the figures below is a polygon?</i></p> <div style="text-align: center;">  </div> <p>[Figure 3]</p> <p>The easiest way to identify the polygon is to identify which shapes are <i>not</i> polygons.</p> <p>Choices B and C each have at least one curved side. So they <i>cannot</i> be polygons because polygons must have <i>straight</i> sides.</p> <p>Choice D has all straight sides, but one of the vertices is <i>not</i> at the endpoints of the two adjacent sides, so it is <i>not</i> a polygon.</p> <p>Choice A is composed entirely of line segments that intersect at their endpoints. So, it is a polygon. The correct answer is A. Source: 1.12 Polygons Flx on <a href="#">cK-12 Foundation</a></p>	<p><a href="#">3G1a - Sort 2D Shapes Based on Attributes - Parallel and Perpendicular - Deep</a></p> <p><a href="#">3G1a - Will the Real Polygon Please Stand Up - Surface</a></p>

		Investigate the relationships between vertices of a polygon, including equal or right angles, using direct comparison or referents for $90^\circ$ . (b)	Compares the relationships between vertices of a polygon, including equal or right angles.	 <ul style="list-style-type: none"> <li>• What do you notice about this shape?</li> <li>• How many sides has the shape got?</li> <li>• How many vertices?</li> <li>• Do you think there are any right angles in the shape? Use a right-angle checker to help you.</li> <li>• Is it a regular shape or an irregular shape? How do you know?</li> <li>• Can you name the shape?</li> <li>• Use squared or dotted paper. Can you draw an irregular pentagon with only two right angles? What about only one right angle?</li> <li>• Repeat this activity with other polygons.</li> </ul> <p style="text-align: right;"><a href="#">Source: NCETM</a></p>	<a href="#">3G1b - Sort Polygons Based on Attributes - Angles</a> - Deep
		Describe geometric properties of regular and irregular polygons. (c)	Describes the geometric properties of regular and irregular polygons, including the sides and angles.	 <ul style="list-style-type: none"> <li>• What do you notice about this shape?</li> <li>• How many sides has the shape got?</li> <li>• How many vertices?</li> <li>• Do you think there are any right angles in the shape? Use a right-angle checker to help you.</li> <li>• Is it a regular shape or an irregular shape? How do you know?</li> <li>• Can you name the shape?</li> <li>• Use squared or dotted paper. Can you draw an irregular pentagon with only two right angles? What about only one right angle?</li> <li>• Repeat this activity with other polygons.</li> </ul> <p style="text-align: right;"><a href="#">Source: NCETM</a></p>	<a href="#">3G1c - Geometric Properties of Regular/Irregular Polygons - Surface</a> <a href="#">3G1c - Frayer Model Regular Polygon</a> - Deep <a href="#">3G1c - Frayer Model Irregular Polygon</a> - Deep
		Sort polygons according to geometric properties and describe the sorting rule. (d)	Sorts polygons according to geometric properties and describes the sorting rule.	<p>Polygons (I)</p>  <p>Sort polygons according to a geometric property and describe the sorting rule.</p> <p><b>Jump Math, Grade 3, unit 5, pg. 94</b></p>	<a href="#">3G1d - Sort Away</a> - Deep <a href="#">3G1d - Polygon Table</a> - Deep
		Classify polygons as regular or irregular using geometric properties. (e)	Classifies polygons as regular or irregular using geometric properties.		<a href="#">3G1e Classifying Polygons</a> - Deep



<p><b>Websites/Other</b></p> <p><a href="#">Regular and Irregular Polygons</a> - Source: Math Monks</p> <p><a href="#">Polygons</a> - Source: cK-12 Foundation</p> <p><a href="#">Geometric Properties of Shapes</a> - Source: Study.com</p> <p><a href="#">Regular Polygon</a> - Source: Wolfram Mathworld (Teacher reference for examples/image, explanation)</p>	<p><b>Gizmos</b></p> <p>New Learn Alberta (Teacher Login Required)</p> <p><a href="#">Classifying Quadrilaterals</a></p> <p><a href="#">Classifying Triangles</a></p> <p><a href="#">Polygon Angle Sum</a></p> <p><a href="#">Triangle Angle Sum</a></p> <p>For access to additional resources login to Gizmos account. Request an account <a href="mailto:alberta@explorellearning.com">alberta@explorellearning.com</a></p>
<p><b>Indigenous Lesson Plans and Resources</b></p> <p><a href="#">String Games</a>, from Math Central, University of Regina.</p> <p>Students use traditional Navajo and Inuit string games to create figures with their hands. Students could use this activity to identify polygons within the strings.</p>	<p><b>Problem Solving</b></p> <p>Coming Soon</p>

IN Progress



# KUSP 3G1.2

## Prerequisite Knowledge: the student can

- can slide, turn, or flip a shape.
- knows the attributes of a shape don't change when it is slid, turned, or flipped.
- describe the attributes of 2-D and 3-D shapes in different positions.
- I can identify slides, turns, and flips of 2-D and 3-D shapes in art.

### Vocabulary | Essential vocabulary & concepts

- **Transformation:**
- **Translation:** when a shape is moved along a straight line without turning
- **Rotation:** when a shape is turned around a point
- **Reflection:** when a shape is flipped through a straight line to form a mirror image

### Nelson Pre-Assessments

#### Pre Assessments 4: Finding Each Students Pathway

Lines of Symmetry - p. 47  
Symmetry - p. 46

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

### Learning Recovery

- 

### I Know Statements | Metacognition

- I know that translations, reflections, and rotations are types of transformations.
- know that the geometric properties of a polygon do not change when it is translated, reflected, or rotated.

### I Can Statements | Skills

- I can identify a given transformation.
- can move a 2-D shape without changing its geometric properties.
- I can translate a 2-D shape.
- I can rotate a 2-D shape.
- I can reflect a 2-D shape.

### Enhancement

-

Learning Outcome		3G1.2 Students relate geometric properties to shape.			
Knowledge	Understanding	Skills & Procedures	Achievement Indicators	Illustrative Examples	Assessments ( <a href="#">Explainer</a> )
Transformations include <ul style="list-style-type: none"> <li>• translations</li> <li>• rotations</li> <li>• reflections</li> </ul> The distance between any two vertices of a shape is maintained in the image created by a transformation.	Geometric properties do not change when a polygon undergoes a transformation.	Examine geometric properties of polygons by translating, rotating, or reflecting using hands-on materials or digital applications.	Compares geometric properties of polygons that have been translated, rotated, or reflected using hands-on materials or digital applications.	Use a mirror to see a reflection. Use a pin in a vertex to rotate a shape. Trace a shape, slide it and trace again.	Students may benefit from completing practice through <a href="#">Interactive Transformations</a> .  Alternatively, if students have already used Geoboards, the following site offers additional problems using the <a href="#">Geometry Transformation</a> manipulative.



## Resources

<p><b>Mathology</b></p> <p><a href="#">ARPD Math Little Books for Alberta Curriculum</a>  <a href="#">Mathology Free Resources on New Learn Alberta</a></p> <p><b>Mathology Little Books</b>            Mathology Little Book: <a href="#">Gallery Tour</a></p> <p><b>Mathology Interactive Tools</b></p> <ul style="list-style-type: none"> <li>- <a href="#">Geoboards</a></li> <li>- <a href="#">Pattern Blocks</a></li> <li>- <a href="#">Polygons</a></li> </ul>	<p><b>Math UP</b></p> <ul style="list-style-type: none"> <li>• <b>AB_ Transformations</b> <ul style="list-style-type: none"> <li>o <b>Lesson 1:</b> <a href="#">Recognizing Transformations</a></li> <li>o <b>Lesson 2:</b> <a href="#">Geometric Properties and Transformations</a></li> </ul> </li> </ul>
<p><b>Existing Texts</b></p> <p>Math Focus 5 - Chapter 11            Math Makes Sense 5 - Unit 6</p>	<p><b>NCETM (teacher guides and resources)</b></p>
<p><b>Websites/Other</b></p> <p><a href="#">Similarity Transformations, 2023</a> from Tutors.com  <a href="#">Geometry Transformations - Flip, Slide and Turn</a> from Online Math Learning</p>	<p><b>Gizmos</b></p> <p>New Learn Alberta (Teacher Login Required)  <a href="#">Reflections</a>  <a href="#">Rock Art (Transformations)</a></p>

	For access to additional resources login to Gizmos account. Request an account <a href="mailto:alberta@explorellearning.com">alberta@explorellearning.com</a>
<b>Indigenous Lesson Plans and Resources</b> <a href="#">Small Number and the Skateboard Park</a> , from Math Catcher, Simon Fraser University This video makes connections with geometry and real-world applications.	<b>Problem Solving</b> Coming Soon

In Progress

## Literature Connections

Title & Author	Format (Picture Book, Novel, Non-fiction, other)	Publisher ISBN	Notes
<p><b><i>If You Were a Polygon</i> by Marcie Aboff</b></p> <p>What could you do if you were a polygon? You could have at least three straight sides. You could be a kite, a star, or a stop sign. What else could you be if you were a polygon? Find out in this installment of the bestselling MATH FUN series by Trisha Speed Shaskan! With creative examples, easy-to-understand text, and engaging art, these entertaining and educational picture books books are perfect for young math lovers to read aloud or read alone.</p>	<p>Picture Book</p>	<p>Nonfiction Picture Window Books; Illustrated edition (Aug. 20 2009)</p> <p>10-1404856927 13- 978-1404856929</p>	 <p><a href="#">YouTube</a> -Children's Books Read Aloud</p>
<p><b><i>If You Were a Quadrilateral</i> by Molly Cece Barlow Blaisdell</b></p> <p>What could you do if you were a quadrilateral? You could have four straight sides. You could be a checkerboard, a kite, or a yoga mat. What else could you be if you were a quadrilateral? Find out in this installment of the bestselling MATH FUN series by Trisha Speed Shaskan! With creative examples, easy-to-understand text, and engaging art, these entertaining and educational picture books books are perfect for young math lovers to read aloud or read alone. Quadrilaterals including attributes</p>	<p>Picture Book</p>	<p>Picture Window Books;</p> <p>Illustrated edition (October 1, 2009) 10-1404856900 13-978-1404856905</p>	 <p>YouTube - Childrens Books Read Aloud - Milk</p>