6 GEOMETRY

GRADE SIX MATH: GEOMETRY
LONG RANGE PLANNING - CESD

Please note:

- These documents may be used to **support planning** for the Grade 6 math curriculum. En Francais
- Financial Literacy has been included here in order to share opportunities for **cross-curricular connections**.
- These documents **will be updated throughout the year,** aligning with the *suggested* Grade 6 Long Range Plan. En Francais
- All included resources are available **at no cost**, however some may require you to download from an outside source.
- Resources from the New Learn Alberta website will require you to login with your google email to access them.

Organizing Ideas:

In order to reduce the size of these documents, each of the Organizing Ideas have their own documents, which you can access below.

- **Grade 6 Math - NUMBER - Long Range Planning-CESD**
- **Grade 6 Math - ALGEBRA - Long Range Planning-CESD**
- **Grade 6 Math - GEOMETRY - Long Range Planning-CESD**
- **Grade 6 Math - COORDINATE GEOMETRY - Long Range Planning-CESD**
- **Grade 6 Math - MEASUREMENT - Long Range Planning-CESD**
- **Grade 6 Math - PATTERNS - Long Range Planning-CESD**
- **Grade 6 Math - STATISTICS - Long Range Planning-CESD**
- **Grade 6 Math - FINANCIAL LITERACY - Long Range Planning-CESD**

Learning Outcomes:

Moved to tab on left.

- 6G1 Students analyze shapes through symmetry and congruence. *Updated October 30, 2025*

Vocabulary Legend:

Student language - Important to know	**NEW to Grade**
Student language	**NEW to Grade**
Tier 2 words*	Hyperlinked with example or definition (Professional Language - for the teacher)

Resource Legend:

Teacher Lesson plan | A book in Learning Services or IMC | Video | Printable

ARPDC SUPPORTING DOCUMENTS

Geometry Scope and Sequence K-6
This resource provides the Scope and Sequence of outcomes for the Organizational Ideas Geometry and Coordinate Geometry for Alberta K-6 Mathematics.

Webinars

- Session 1: "This session provides teachers an opportunity to look at what could be focused on for the months of September and October 2023 in the new Math 6 program. In addition, this video will assist you in planning and instructional strategies as well as resource supports."
- Session 3: "In this session, we will look at a review of December plans and what we might focus on for January and February. The theme for this session is to make math and the strategies visible to the students to support their learning and thinking. Specifically, we move forward with 6N4 looking at strategies for multiplying and dividing and we will begin our work on reviewing the important "unit fraction" to prepare students for 6N5 and 6N6 that we will revisit in February for addition of fractions and work with equivalent fractions and decimals. This session also revisits the terminology surrounding algebraic expressions as well as revisiting 6G1.2 and 6CG1.2. Recorded December 6, 2023."

Misc

- Grades 4-6 Resources to Support the Teaching and Learning of Math Verbs

REMEMBER

Rote memorization focuses on memorizing facts in isolation. This often leads to the belief that math is about memorization and seldom leads to long term retention.

Fluency with facts is developed when students are provided with many opportunities to

- work with facts in a variety of situations, using a variety of models and manipulatives
- connect unknown facts to known facts
- explore patterns within the facts

Other

Important note about LearnAlberta Resources
In order to access LearnAlberta resources, *you must be logged into your LearnAlberta account and have added your teacher certificate number.* If you have not logged in or you have not added your teacher certificate number, you will end up with a "Page not found" error when clicking on one of the links.

Other:
Math Tasks/Manipulatives/Resources

General Manipulatives

Relational Rods

- Relational Rods
  - Slide 1: Each of these 4 images show the number of relational rods in one bag.
  - Slide 2: Images of the relational rods that can be printed or used when making slideshows or handouts.
- Polypad (make a teacher account and make a copy!)
  - This is a simple interactive page that displays each relational rod that is infinitely cloned.

Assessment

Students need opportunities to demonstrate conceptual understanding in a variety of ways, both in formative and summative situations. High quality assessment practices provide opportunities for this when data is triangulated through observations, conversations and product.

Two book series that focus on identifying and analyzing student misconceptions are:

- "Uncovering Student Thinking About Mathematics" Cheryl Rose Tobey et al.
  - In the Common Core Grades 3-6: Alberta Grades 3-6 alignment guide
  - Grades K-8: Alberta K-6 alignment guide
- "Mine the Gap for Mathematical Understanding" by John SanGiovanni et al.
  - Grades 3-5: Alberta Grades 3-6 alignment guide
  - Grades 6-8: Alberta Grades 4-6 alignment guide

6G1 analyze shapes through symmetry & congruence

GRADE SIX MATH: 6G1
LONG RANGE PLANNING - CESD

Geometry (G)
Shapes are defined and related by geometric attributes.

6G1 Students analyze shapes through symmetry and congruence.

UNDERSTANDINGS	KNOWLEDGE	SKILLS & PROCEDURES
1. Symmetry is a relationship between two shapes that can be mapped exactly onto each other through reflection or rotation.	1. Symmetrical shapes can be mapped by any combination of reflections and rotations. 2. A tessellation is the tiling of a plane with symmetrical shapes. 3. Tessellations are evident in First Nations and Métis star blanket designs that convey a specific purpose.	1. Verify symmetry of two shapes by reflecting or rotating one shape onto another. 2. Describe the symmetry between two shapes as reflection symmetry or rotation symmetry. 3. Visualize and describe a combination of two transformations that relate symmetrical shapes. 4. Describe the symmetry modelled in a tessellation. 5. Investigate tessellations found in objects, art, or architecture.
UNDERSTANDINGS	**KNOWLEDGE**	**SKILLS & PROCEDURES**
1. Congruence is a relationship between two shapes of identical size and shape. 2. Congruence is not dependent on orientation or location of the shapes.	**1.** Shapes related by symmetry are congruent to each other. **2.** Congruent shapes may not be related by symmetry.	1. Demonstrate congruence between two shapes in any orientation by superimposing using hands-on materials or digital applications. 2. Describe symmetrical shapes as congruent.

SPECIAL CARE AND ATTENTION

Clarification
Email from Learn Alberta on February 21, 2025 states “In this Learning Outcome, the intent is for students to identify the symmetry modelled in a tessellation, therefore symmetrical shapes are the focus so that students can identify the combinations of reflections and/or rotations that were used to create the tessellation. Students are not required to create tessellations in this Learning Outcome; however, teachers have the flexibility to create learning activities that best meet the needs of their students and could ask students to create a tessellation from symmetrical or asymmetrical shapes.”

VOCABULARY

Analyze
Congruence
Demonstrate
Describe
Investigate
Location
Orientation
Plane*
Reflection / Reflection Symmetry
Relate
Relationship
Rotation / Rotation Symmetry
Shapes
Size
Superimpose
Symmetry / Symmetrical
Tessellation
Tiling
Verify
Visualize

ASSESSMENTS

Formative Assessment

Summative Assessment
- 6G Assessment Questions

Performance Tasks created by AAC
- Blanket Creators
  - Also assesses: ELA&L: Students create texts that reflect personal voice and style through creative and critical thinking processes.

INSTRUCTION

High Leverage Instructional Strategies / Practices
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GRADE SIX MATH: 6G1
LONG RANGE PLANNING - CESD

Learning Experiences

APLC

- Curriculum Planning and Assessment Resources
- Indigenous Culture Based Learning in Alberta Curriculum

Learning

- Edmonton Catholic
  - Pacing Guide
    - Year at a Glance (CESD organized)
    - March
      - Grade 6 March.pdf
  - Curriculum Crates: These are amazing in-depth resources.
    - Gr. 6 Math - Students analyze shapes through symmetry and congruence.

Gizmos on LearnAlberta

- Holiday Snowflake Designer Students explore axis of symmetry through designing a snowflake.
  - Teacher version with answer key
- Proving Triangles Congruent Students learn the conditions for determining whether two triangles are congruent.
  - Teacher version with answer key
- Quilting Bee (Symmetry) Students recognize two types of symmetry: line symmetry and rotational symmetry
  - Teacher version with answer key
- Reflections Students practice reflections with a point, line, triangle, and quadrilateral.
  - Teacher version with answer key
- Rock Art (Transformations) Students recognize and describe transformations - on a cartesian plane.
  - Teacher version with answer key
- Rotations, Reflections and Translations Students learn about rotations, reflections, and translations in a coordinate plane.
  - Teacher version with answer key

Math Tasks (Collated by CBE)

- Tessellations
  - Tessellation Interactivity A GeoGebra interactivity to explore tessellations.
  - Tessellating Triangles A task exploring tessellation of different types of triangles.
  - Tessellating Transformations A challenge to create tessellations using equilateral triangles, reflections and rotations.
- Congruence
  - Congruent FIgures Students explore congruent and noncongruent figures. The activity asks students to explain how they know whether two shapes are congruent or not.
  - Are They Congruent? Students use transformations to make arguments for why two figures are or are not congruent. Note | Pair A, on slide, 3 requires students to reflect across a diagonal line.
  - Peg Rotation This is a challenging activity that asks students to apply their knowledge of transformations. Note | Although some students may be able to visualize the transformations, having tracing paper, or transparencies available will help support all learners

Opportunities to Connect Outcomes:

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Resources

Books

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INDIGENOUS RESOURCES

From ARPDC

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PROFESSIONAL LEARNING