THOMPSON RIVERS UNIVERSITY | Education & Social Work

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Bachelor of Education (Elementary) & Bachelor of Education (Secondary) STEM/BETT Unit Plan Template

Unit Title:	Mathematics for Arthur Hatton Elementary	Number of Lessons	8	Time (in weeks):	2
Name:	Perimeter & Area	Subject(s):	Mathematics	Grade(s):	4/5

Rationale

This unit plan is important because it teaches students to measure the perimeter and area of regular and irregular shapes. This unit is a crucial building block in a student's mathematical and educational journey as it relates to real-world scenarios in which this fundamental curriculum is needed to develop elements, including spatial reasoning, problem-solving, analyzing, and understanding applications. Further, this unit was developed specifically for a grade 4/5 class.

Overview:

This unit plan covers perimeter and area calculations over eight lessons using a variety of hands-on activities. Students will engage with four lessons on perimeter and then four on area. Each lesson will have a portion of instruction and then move into an activity to spark students' interest and learning processes.

CORE COMPETENCIES

Communication	Thinking	Personal & Social
● Collaborating - Working Collectively: Students combine their efforts with those of others to effectively accomplish learning and tasks. As members of a group, they appreciate interdependence and cooperation, commit to needed roles and responsibilities, and are conscientious about contributing. They also negotiate respectfully and follow through on plans, strategies, and actions as they share resources, time, and spaces for collaborative projects.	● Critical thinking & Reflective Thinking - Questioning & Investigating: Students learn to engage in inquiry when they identify and investigate questions, challenges, key issues, or problematic situations in their studies, lives, and communities and in the media. They develop and refine questions; create and carry out plans; gather, interpret, and synthesize information and evidence; and reflect to draw reasoned conclusions. Critical thinking activities may focus on one part of the process, such as questioning, and reach a simple conclusion, while others may involve more complex inquiry requiring extensive thought and reflection.	● Positive personal and cultural identity - Identifying personal strengths and abilities: Students acknowledge their strengths and abilities, and they intentionally consider these as assets, helping them in all aspects of their lives. Students understand that they are unique and are a part of larger, and often multiple, communities. They explain how they are using their strengths and abilities in their families, their relationships, and their communities. ● Personal awareness and responsibility - Self-advocating: Students who are personally aware and responsible have a sense of self-worth and a growing confidence in a variety of situations. They value themselves, their ideas, and their accomplishments. They are able

		to express their needs and seek help when needed, find purpose and motivation, act on decisions, and advocate for themselves. ● Social Awareness & Responsibility - Building Relationships: Students build and maintain diverse, positive peer and intergenerational relationships. They are aware and respectful of others' needs and feelings and share their own in appropriate ways. They adjust their words and actions to care for their relationships.

BIG IDEAS

(multiple subject areas for integrated unit)

Subject Name: **Mathematics**
● Closed shapes have area and perimeter that can be described, measured, and compared. ● Polygons are closed shapes with similar attributes that can be described, measured, and compared.

LEARNING STANDARDS

Curricular Competencies	**Content**
● CC1 Explain and justify mathematical ideas and decisions	● C1 Area measurement of squares and rectangles
● CC2 Develop and use multiple strategies to engage in problem solving	● C2 Relationships between area and perimeter
● CC3 Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving	● C3 Perimeter of regular and irregular shapes
● CC4 Use reasoning to explore and make connections	● C4 Line symmetry
● CC5 Use mathematical vocabulary and language to contribute to mathematical discussions	● C5 Regular and irregular polygons
● CC6 Communicate mathematical thinking in many ways	
● CC7 Financial literacy — Monetary calculations and developing simple financial plans	
● CC8 Represent mathematical ideas in concrete, pictorial, and symbolic forms	
● CC9 Reflect on mathematical thinking	
English Language Arts:	

Create & Communicate: ● ELA1 Use writing and design processes to plan, develop, and create texts for a variety of purposes and audiences **Comprehend & Connect:** ● ELA2 Access information and ideas from a variety of sources and from prior knowledge to build understanding	
Science: **Planning & Conducting:** ● S1 With support, plan appropriate investigations to answer their questions or solve problems they have identified ● S2 Choose appropriate data to collect to answer their questions **Evaluating:** ● S3 Identify possible sources of error **Applying & Innovating:** ● S4 Transfer and apply learning to new situations	
Art Education: **Reasoning & Reflecting:** ● AE1 Connect knowledge and skills from other areas of learning in planning, creating, interpreting, and analyzing works for art **Communicating & Documenting:** ● AE2 Express, feelings, ideas, and experiences through the arts ● AE3 Experience, document and present creative works in a variety of ways ● AE4 Adapt learned skills, understandings, and processes for use in new contexts and for different purposes and audiences	

Prerequisite Concepts and Skills:

- Counting & measuring with simple tools
- Understanding how important precise measurement is
- Addition & simple multiplication with a calculator
- Recording data on paper or a digital device
- Ability to use standard units for measurement
- Baseline knowledge of irregular and regular shapes

Teacher Preparation Required:

Lesson #	Teacher Preparation Required (See Unit Plan Sample)

Lesson 1	**Perimeter: Perimeter Introduction** ● Ensure both Hook and Body worksheets are complete, and that students will end up with whole numbers when measuring and calculating perimeter (2 blocks by 3 blocks, for example) during Hook ● Set up YouTube video and slideshow ● Materials gathered
Lesson 2	**Perimeter: Symmetry and the Perimeter of Regular Shapes** ● Pre-draw symmetric shapes on the board ● Set up YouTube video ● Printed worksheets and materials gathered
Lesson 3	**Perimeter: Finding the Perimeter of Irregular Shapes and Triangles** ● Ensure access to a measuring wheel ahead of class ● Pre-draw regular and irregular shapes
Lesson 4	**Perimeter: Creating Own Irregular Shape and Finding Its Perimeter** ● Pre-draw an example of a building to show students, and upload it on Canva to show via Smartboard
Lesson 5	**Area: Calculating the Area of Rectangles and Squares Using Grid Paper** ● Cut-out rectangles & squares of different sizes ● Print-out exit tickets ● Set-up YouTube videos https://www.youtube.com/watch?v=1dqAOKdJmRI (hook) https://www.youtube.com/watch?v=xCdxURXMdFY (teacher explanation to further how to find the area if needed) ● Print off worksheets https://www.k5learning.com/worksheets/math/grade-5-geometry-rectangles-area-perimeter-metric-a.pdf https://www.k5learning.com/worksheets/math/grade-5-geometry-rectangles-area-perimeter-metric-c.pdf https://www.k5learning.com/worksheets/math/grade-5-geometry-rectangular-shapes-area-perimeter-metric-b.pdf https://www.teacherspayteachers.com/Product/Area-Task-Cards-Free-3430518
Lesson 6	**Area: Understanding the Area of Triangles** ● Printout worksheets https://www.k5learning.com/worksheets/math/grade-5-area-of-triangles-d.pdf https://www.k5learning.com/worksheets/math/grade-5-area-of-right-triangles-e.pdf https://www.k5learning.com/worksheets/math/grade-5-area-of-right-triangles-a.pdf ● Set up YouTube video https://www.youtube.com/watch?v=xCdxURXMdFY ● Printout the maze activity (game): https://www.teacherspayteachers.com/Product/Area-of-Triangles-Maze-3702072 ● https://www.teacherspayteachers.com/Product/Area-of-Rectangles-and-Triangles-Maze-9534046
Lesson 7	**Area: Exploring Area through Mosaic Art** ● Worksheets for area practice of rectangles & squares https://www.k5learning.com/worksheets/math/grade-2-geometry-area-a.pdf https://www.k5learning.com/worksheets/math/grade-2-geometry-area-b.pdf https://www.k5learning.com/worksheets/math/grade-2-geometry-area-concept.pdf

	https://www.k5learning.com/worksheets/math/grade-3-geometry-area-rectangle-c.pdf https://www.k5learning.com/worksheets/math/grade-3-geometry-area-grid-cm.pdf ● Set-up examples of mosaic art for inspiration ● Lego for doing Lego Land activity (Hook) - rectangles & squares https://www.weareteachers.com/area-and-perimeter/ ● Chart for students to record their mosaic data https://www.teacherspayteachers.com/Product/3-Column-Organizer-Ruled-Color-3015091
Lesson 8	**Area: Designing a Playground (Real-World Application)** ● Set-up examples of playground images or videos https://www.teacherspayteachers.com/Product/FREE-YARD-Parts-of-a-House-Clipart-3799948 https://stock.adobe.com/ca/search?k=playground+clip+art https://www.vecteezy.com/free-vector/kids-playground ● Gather a list of playground equipment & approximate costs ● Brain Break https://www.youtube.com/watch?v=UEuFi9PxKuo

Cross-Curricular Connections:

This is a mathematics unit designed for a grade 4 and 5 split-class. With this, there are cross-curricular connections, specifically with grades 4 and 5 English Language Arts (ELA), science, and arts education, which are present during the various activities where students are creating and building a floor plan, a playground, and a mosaic of geometric shapes that represent the perimeter and/or area. Students will be solving problems, deciding which data to use in the form of shapes, and applying what they have learned to the new situations they're faced with.

Indigenous Connections/ First Peoples Principles of Learning:

Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place): Students will be measuring and counting, which can be a trial-and-error endeavor. This allows students the opportunity to reflect and predict using their reasoning skills and natural problem-solving abilities.

Learning involves patience and time: Patience and time are intertwined with learning new things, and that's exemplified in mathematics. Giving students appropriate time to learn and expand their thinking is important for retaining information in a calm and supportive fashion.

Learning involves recognizing the consequences of one's actions: Mathematics is an objective course that teaches students this Indigenous principle — if they perform a certain action, like adding two digits, there is a direct consequence, and calculations will affect it positively or negatively in terms of accuracy.

Universal Design for Learning (UDL)

- Use multiple means of representation for what perimeter and area are — written, verbal, and pictures
- Allow all students to use a calculator to find the area of rectangles & squares using **Area = Length * Width**
- Allow all students to use a calculator to find the area of triangles using **Area = ½ (Base * Height)**
- Allow all students to use a calculator to find the perimeter of regular and irregular shapes using applicable equations: **P = S+ S + S + S, P = L + W + L + W and P = 2L * 2W.**
- Use grid paper that is large enough to be easily seen so students are not struggling to count the squares.

- Use real-world structures to explain how to calculate the perimeter and area (i.e. playgrounds, fields, the classroom, etc.)
- Scaffolded area calculation worksheets for multiple levels of understanding from basic to advanced
  https://www.k5learning.com/worksheets/math/grade-2-geometry-area-a.pdf
  https://www.k5learning.com/worksheets/math/grade-2-geometry-area-b.pdf
  https://www.k5learning.com/worksheets/math/grade-2-geometry-area-concept.pdf
  https://www.k5learning.com/worksheets/math/grade-3-geometry-area-rectangle-c.pdf
  https://www.k5learning.com/worksheets/math/grade-3-geometry-area-grid-cm.pdf
  https://www.k5learning.com/worksheets/math/grade-5-area-of-triangles-d.pdf
  https://www.k5learning.com/worksheets/math/grade-5-area-of-right-triangles-e.pdf
  https://www.k5learning.com/worksheets/math/grade-5-area-of-right-triangles-a.pdf

Differentiated Instruction (DI)

- Allow exit tickets to be pictures and/or written
- Use scaffolded levels of worksheets from basic to advanced
- Ensure directions are clear & worksheets are appropriate for the students' needs & abilities
- Consult specific individual education plans to appropriately serve student learning requirements

Overview of Lessons:

Lesson 1

Name & Time (Minutes Allotted):	**Perimeter Introduction - 50 minutes**
Learning Standards: Curricular Competencies	***Mathematics 4:*** **Reasoning and Analyzing** ● Use reasoning to explore and make connections **Understanding and Solving** ● Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving **Communicating and representing** ● Use mathematical vocabulary and language to contribute to mathematical discussions ● Explain and justify mathematical ideas and decisions ***English Language Arts 4:*** **Comprehend and connect (reading, listening, viewing)** ● Access and integrate information and ideas from a variety of sources and from prior knowledge to build understanding ***Science 4:*** **Planning and Conducting** ● Safely use appropriate tools to make observations and measurements, using formal measurements and digital technology as appropriate ● Collect simple data **Processing and analyzing data and information** ● Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends **Evaluating** ● Make simple inferences based on their results and prior knowledge **Applying and innovating**

	● Transfer and apply learning to new situations
Learning Standards: Content	***Mathematics 4:*** ● perimeter of regular and irregular shapes ● regular and irregular polygons
Instructional Objectives	Students will be able to: ● Measure with standard units using a ruler ● Understand the meaning of perimeter ● Calculate the perimeter of a regular shape
Assessment:	● Product: Worksheets ● Observation: Students physically measure objects and record their findings ● Conversation: Elbow partner and class discussions ● Engage with students on a class and individual level to ensure needs are being met (understanding, learning, engaging, etc.)
Teaching Strategies:	● Students will only be allowed to find a book to measure during the activity once they've finished measuring the perimeter of the first object and raised their hand to notify the teacher ● Spend ample time on activating prior knowledge and reviewing key elements, specifically measuring with a ruler and units (cm, m) ● Varied approaches to absorbing curriculum (drawing, conversations, questions, inquiry, etc.)
Materials:	● YouTube video for Hook: https://youtu.be/ZeNBKdAslwk?si=q4A-ncSg9dKkgsjU ● Smartboard/projector ● Rulers ● Pencils and erasers ● Hook worksheet: One-sided with a rectangle (5 cm x 4 cm) x 25 ● Body activity worksheet: Two columns (Object, Measurement with Ruler [cm]) x 25 ● Slideshow with definition and examples of perimeter ● Whiteboard and markers ● Calculators ● Books x 25 ● Classroom objects (posters, toys, etc.) ● Lined paper for calculations
Lesson Activities:	
Introduction/Hook:	**Video and Activate Prior Knowledge (15 Minutes):** ● Teacher will play "Perimeter Song" from Mr. R.'s Songs for Teaching's YouTube channel ● Students will measure a physical square block with standard units (using a ruler to measure centimetres), and record on their worksheet ● Students will share with their elbow partners what and how they measured
Body:	**Measurement Review and Perimeter Discussion (10 Minutes):** ● Using the block and whiteboard, the teacher will demonstrate and discuss the results of the opening activity and review how to measure regular units with a ruler ● Explain that the perimeter is the total distance of a shape

	● Discuss Equations (P= S + S + S + S, P = L + W + L + W, and P = 2L + 2W) ● Share examples of perimeter with regular household items (rug, television, Xbox) via slideshow **Lesson Activity - Measuring Perimeter of Classroom Objects (15 Minutes):** ● Hand out worksheets and books ● Teacher will show an example of measuring the perimeter of a whiteboard eraser ● Students will work on measuring two objects (desk and book of choice), and record findings on a worksheet
Closure:	**Closure - Share Findings (10 Minutes)** ● Students will share with their elbow partners the unique book that they measured ● Teacher will review how to measure the polygon ● If time, students can share with the class what book they measured for the second object, and how they measured it ● Teacher will collect worksheets

Lesson 2

Name & Time (Minutes Allotted):	**Symmetry and the Perimeter of Regular Shapes - 45 Minutes**
Learning Standards: Curricular Competencies	***Mathematics 4:*** **Reasoning and Analyzing** ● Use reasoning to explore and make connections **Understanding and Solving** ● Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving **Communicating and representing** ● Represent mathematical ideas in concrete, pictorial, and symbolic forms ● Use mathematical vocabulary and language to contribute to mathematical discussions ● Explain and justify mathematical ideas and decisions ***English Language Arts 4:*** **Comprehend and connect (reading, listening, viewing)** ● Access and integrate information and ideas from a variety of sources and from prior knowledge to build understanding ***Science 4:*** **Planning and Conducting** ● Safely use appropriate tools to make observations and measurements, using formal measurements and digital technology as appropriate ● Collect simple data **Processing and analyzing data and information** ● Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends **Evaluating** ● Make simple inferences based on their results and prior knowledge **Applying and innovating** ● Transfer and apply learning to new situations
Learning Standards: Content	***Mathematics 4:***

	● Perimeters of regular and irregular shapes ● Line symmetry ● Regular and irregular polygons
Instructional Objectives	Students will be able to: ● understand the symmetry of regular shapes, including a square and the equilateral triangle ● show the symmetry of a square ● Implement equation(s) to solve a regular shape's perimeter
Assessment:	● Product: folded paper, worksheet ● Observation: watching students interact with their paper and worksheets ● Conversation: class discussion during hook, individual conversations between students and teacher, elbow partner discussions ● Engage with students on a class and individual level to ensure needs are being met (understanding, learning, engaging, etc.)
Teaching Strategies:	● Spend ample time activating prior knowledge, specifically what symmetry and perimeter are ● Varied approaches to absorbing curriculum (drawing, conversations, questions, inquiry, etc.) ● Thoroughly explain new concepts and challenge prior knowledge
Materials:	● Hook YouTube video https://youtu.be/79aZuCLPyCw?si=pbg6jSgMgmV-BuE8 ● Smartboard/projector ● Pointer stick ● Pencil and erasers ● Grid paper cut in half (into square) x 25 squares ● Body worksheet: *(Made on Canva)* ● Calculators ● Whiteboard with markers and eraser ● Lined paper for calculations
Lesson Activities:	
Introduction/Hook:	**Video and Activate Prior Knowledge (10 Minutes):** ● Play Symmetry! from the Jack Hartmann Kids Music Channel ● Engage in class discussion and review during the video (play and pause the video during prompts, "Is this shape symmetrical?"
Body:	**Linking Symmetry to Perimeter and Regular Shapes (10 Minutes):** ● Teacher will have pre-drawn examples of symmetric regular shapes (triangle, square, hexagon) on the whiteboard, and explain if a regular shape is symmetrical, its length will be the same on all sides ● Use a basic rectangular piece of grid paper as a physical example of symmetry. It will be cut in half to be a square (regular shape). Students will fold their paper to show an understanding of symmetry. ● Review what perimeter means — "the total distance of a shape" — and show examples of symmetrical length and width using pre-drawn shapes and equations (P = S+ S + S + S, P = L + W + L + W and P = 2L * 2W)

	● Students will find the perimeter of the square grid paper using a ruler or by counting squares and share their findings with their elbow partners. **Engaging With Perimeter of Regular Shapes Worksheet (15 Minutes):** ● Teacher will hand out the worksheet that has students solving the perimeter of regular shapes (squares, triangles, etc.) ● Teacher and class will complete the first question together, solving the perimeter by using either equation and with/without a calculator ● Students will engage with the worksheet as the teacher roams and helps students in need ● As needed, stop and analyze the worksheet
Closure:	**Reviewing Worksheet (10 Minutes)** ● Run through all 12 questions as a class with students sharing their answers ● Teacher will collect worksheets once the review is complete

Lesson 3

Name & Time (Minutes Allotted):	**Finding the Perimeter of Irregular Shapes - 50 Minutes**
Learning Standards: Curricular Competencies	***Mathematics 4:*** **Reasoning and Analyzing** ● Use reasoning to explore and make connections **Understanding and Solving** ● Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving **Communicating and representing** ● Represent mathematical ideas in concrete, pictorial, and symbolic forms ● Use mathematical vocabulary and language to contribute to mathematical discussions ● Explain and justify mathematical ideas and decisions **Connecting and reflecting** ● Reflect on mathematical thinking ***English Language Arts 4:*** **Comprehend and connect (reading, listening, viewing)** ● Access and integrate information and ideas from a variety of sources and from prior knowledge to build understanding ***Science 4:*** **Planning and Conducting** ● Safely use appropriate tools to make observations and measurements, using formal measurements and digital technology as appropriate ● Collect simple data **Processing and analyzing data and information** ● Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends **Evaluating** ● Make simple inferences based on their results and prior knowledge **Applying and innovating**

	● Transfer and apply learning to new situations
Learning Standards: Content	***Mathematics 4:*** ● Perimeters of regular and irregular shapes ● Line symmetry ● Regular and irregular polygons
Instructional Objectives	Students will be able to: ● Differentiate between a regular and irregular shape ● Calculate the perimeter of an irregular shape ● Draw their own regular and irregular shapes
Assessment:	● Observation: Whiteboard irregular and regular shapes, engaging with worksheet and class hook ● Product: Whiteboard drawings, worksheet, regular/irregular shapes drawings ● Conversation: Class discussion, elbow partner discussion, individual teacher-student conversations
Teaching Strategies:	● Ensure supplies are handed out in an orderly manner and aren't distracting students ● Varied approaches to absorbing curriculum (drawing, conversations, questions, inquiry, etc.) ● Stimulate prior knowledge through example and discussion
Materials:	● Measuring wheel ● Whiteboard and markers ● Irregular shapes perimeter worksheet: https://pango.education/maths-resource/38140/perimeter-worksheet ● Extra worksheet: https://www.mathworksheets4kids.com/perimeter/customary/grid-easy1.pdf ● Lined paper for calculations ● Pencils and erasers ● Student whiteboards and markers ● Grid paper x 25
Lesson Activities:	
Introduction/Hook:	**Measuring the Classroom (8 Minutes):** ● Teacher will measure the perimeter of the classroom with a measuring wheel. Ensure students understand how a measuring wheel works ahead of time (how it counts per metre). Students will count aloud with the teacher as they measure the irregular shape ● Draw the outer classroom lines on the board and fill in the length and width on the whiteboard (round to the nearest whole number) ● Discuss why the classroom is an irregular shape (not all sides and angles are equal).
Body:	**Applying Perimeter to Irregular Shapes (15 Minutes):** ● Have pre-drawn shapes of regular shapes (triangle, hexagon, and square) and irregular shapes (rectangle, polygons). Have students differentiate the two in a class discussion. ● Teacher will then ask students to draw a regular or irregular shape on their boards and then show it. (Example: "Show me an irregular shape"). Repeat three or four times.

	● Show example of how to calculate irregular shape on the board using pre-drawn samples and equations (P = L + W + L + W and P = 2L * 2W). Have students calculate the perimeters on whiteboards while doing a demonstration **Perimeter of Irregular Shapes Worksheet (17 Minutes):** ● Teacher will hand out the activity worksheet linked in the materials section ● Students will work on the worksheet by themselves as the teacher roams around the classroom and helps as needed. ● Students who finish early will raise their hands and receive another worksheet. This sheet challenges students to count grid squares to determine the perimeter of irregular shapes. ● Teacher will address common errors or questions with the entire class as needed
Closure:	**Review Worksheets (7 Minutes)** ● Teacher and students will go over both worksheets together ● Teacher will collect worksheets at the end of lesson **Draw a Regular and Irregular Shape (3 Minutes)** ● Students will draw a regular and irregular shape on a grid piece of paper to demonstrate learning. It is a shape of their choice. Teacher will collect it at the end of the lesson.

Lesson 4

Name & Time (Minutes Allotted):	**Creating Own Irregular Shape and Finding Its Perimeter - 50 Minutes**
Learning Standards: Curricular Competencies	***Mathematics 4:*** **Reasoning and Analyzing** ● Use reasoning to explore and make connections **Understanding and Solving** ● Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving **Communicating and representing** ● Represent mathematical ideas in concrete, pictorial, and symbolic forms ● Use mathematical vocabulary and language to contribute to mathematical discussions ● Explain and justify mathematical ideas and decisions **Connecting and reflecting** ● Reflect on mathematical thinking ***Arts Education 4*** **Communicating and documenting** ● Adapt learned skills, understandings, and processes for use in new contexts and for different purposes and audiences ● Interpret and communicate ideas using symbolism to express meaning through the arts ***English Language Arts 4:*** **Comprehend and connect (reading, listening, viewing)** ● Access and integrate information and ideas from a variety of sources and from prior knowledge to build understanding

	Science 4: **Planning and Conducting** ● Safely use appropriate tools to make observations and measurements, using formal measurements and digital technology as appropriate ● Collect simple data **Processing and analyzing data and information** ● Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends **Evaluating** ● Make simple inferences based on their results and prior knowledge **Applying and innovating** ● Transfer and apply learning to new situations
Learning Standards: Content	***Mathematics 4:*** ● Perimeters of regular and irregular shapes ● Line symmetry ● Regular and irregular polygons
Instructional Objectives	Students will be able to: ● Articulate their knowledge of irregular shapes through drawing and conversations ● Calculate the perimeter of their own polygon ● Write the two equations to find the perimeter (P = L + W + L + W and P = 2L * 2W) ● Draw a straight-lined irregular shape ● Express mathematical thinking and understanding through drawing
Assessment:	● Product: Perimeter of unique 2-D building, exit ticket ● Conversation: Elbow partner and class discussions, as well as individual teacher-student conversations throughout lesson ● Observation: Teacher will watch as students draw and calculate the perimeter of their own floor plans
Teaching Strategies:	● Ensure an example of the building is given and promote conversation to help students generate an idea for their unique creation. ● Varied approaches to absorbing curriculum (drawing, conversations, questions, inquiry, etc.) ● Stimulate prior knowledge through example and discussion
Materials:	● Pre-drawn floor plan of building as example ● Smartboard ● Grid paper ● Pencils and erasers ● Rulers ● Index cards ● Pencil crayons
Lesson Activities:	
Introduction/Hook:	**We Are Drawing Our Own 2-D Buildings! (5 Minutes)** ● Teacher will begin lesson by showing their floor plan of a swimming pool (drawn and uploaded online to show on the Smartboard). The example will be coloured and have elements, like a leisure pool, hot tub, and diving board area. The perimeter

	of the building will also be calculated. It will be an irregular shape. ● Students are informed that they'll be drawing the floor plan of their own building, and that it can be whatever they want (McDonald's, arcade, etc.). **Discussing Real World Examples of Irregular Shapes (5 Minutes)** ● Students will speak with their elbow partners about real-world examples of buildings they can draw, and why they're irregular shapes. ● Students will share with the class what examples they came up with, and whether or not the building is an irregular shape
Body:	**Design a Building Activity (30 Minutes)** ● Using grid paper, students will create their own irregular or regular-shaped building. They will draw the straight lines on grid paper and draw the inside (mall, office, pool, etc), as well as colour and name it. ● They will calculate the perimeter of their 2-D building by adding up all the sides of the irregular shape ● If they are finished early, they can add smaller buildings around their main one, draw/colour more, etc.
Closure:	**Sharing Unique Buildings (7 Minutes)** ● Share their design with their elbow partners ● Teacher give students the opportunity to share their designs with the entire class **Reflect on What I've Learned About Perimeter (3 minutes):** ● Teacher will hand out index cards. Students will fill out an exit ticket answering the following question: 1. What are the two equations to find the perimeter? ● Teacher will collect exit tickets and drawings to assess products.

Lesson 5

Name & Time (Minutes Allotted):	***Calculating the Area of Rectangles & Squares Using Grid Paper***
Learning Standards: Curricular Competencies	***Mathematics 5:*** **Reasoning & Analyzing:** ● CC4 Use reasoning to explore and make connections **Understanding & Solving** ● CC3 Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving ● CC2 Develop and use multiple strategies to engage in problem solving **Communicating & Representing** ● CC5 Use mathematical vocabulary and language to contribute to mathematical discussions ● CC1 Explain and justify mathematical ideas and decisions ***Science 5:*** **Planning & Conducting:**

	● S1 With support, plan appropriate investigations to answer their questions or solve problems they have identified ● S2 Choose appropriate data to collect to answer their questions **Evaluating:** ● S3 Identify possible sources of error **Applying & Innovating:** ● S4 Transfer and apply learning to new situations ***English Language Arts 5:*** **Comprehend & Connect:** ● ELA2 Access information and ideas from a variety of sources and from prior knowledge to build understanding ***Arts Education 5:*** **Communicating & Documenting:** ● AE3 Experience, document and present creative works in a variety of ways
Learning Standards: Content	● Area measurement of squares and rectangles ● Relationships between area and perimeter
Instructional Objectives	**Students will be able to (SWBAT):** ● Understand & explain what "area" is of a rectangle & square ● Calculate the area of a rectangle & square using the formula Area = Length * Height ● Use grid paper to model & count square units to determine the area ● Solve basic real-world problems involving the area of rectangles & squares
Assessment:	● Participation in the activities (observation) ● Interaction with students (conversation) ● Worksheets provided (Product - complete/incomplete) ● Grid paper question answered (Product - complete/incomplete) ● Exit ticket (Product - complete/incomplete)
Teaching Strategies:	● Discussion (conversations) ● Hands-on activity (observation) ● Hands-on "hook" (observation) ● Video ● Worksheets for students applying the formula **Area = Length x Width** (product) ● Observation
Materials:	● Laptop for presentation portion ● Projector for presentation & video ● YouTube video link ● Squares for "hook" such as tiles ● Grid paper ● Pencils & erasers ● Rulers ● Calculators ● Worksheets ● Whiteboard ● Whiteboard markers

	● Whiteboard eraser
Lesson Activities:	
Introduction/Hook:	**Hook - Activity 1: Opening "hook" as an Activity (10 minutes)** ○ Play short video https://www.youtube.com/watch?v=1dqAOKdJmRI ○ Challenge students to build something out of their square unit manipulatives. Get them to count how many squares they used. ○ Why do they think this is important to know how many squares they used if they were building a park? A garden? What is this space called inside the perimeter? ● Introduce area as what we're doing for this lesson & give the students an overview of the lesson.
Body:	**Teacher Explanation (15 minutes):** ● Introduce how to find the area of a square ● Explain how we measure area in square units ● Introduce how to find the area of a rectangle ● If needed, show **YouTube video** (it also gives the area of a triangle so stop there & use it for the next class): https://www.youtube.com/watch?v=xCdxURXMdFY ● Take questions that students may have **Guided Practice with Grid Paper (15 minutes)** ● **Activity 2: Counting Squares on Grid Paper** ○ Hand out the grid paper to students ○ Demonstrate how to draw a rectangle on a grid ○ On their grid paper, ask students to draw a **4 x 3** rectangle using the squares on their grid paper ○ Ask students to count how many squares are in their area (should be 12) ○ Show students how to calculate the area using the formula **Area = Length x Width** ● **Activity 3: Hands-On Grid Paper Practice** ○ Ask students to draw different squares & rectangles on their grid paper with specific dimensions (i.e. **5 x 2, 6 x 4**) ○ Have the students count the number of squares for each of their shapes ○ Have students use the formula (**Area = Length * Width**) to see if their numbers are the same as what they counted **Independent Practice (20 minutes)** ● **Task 1: Find the Area of Given Shapes** ○ Hand out the worksheet for finding the area of given rectangles & squares ○ Remind students to write their names on their worksheets ○ Choice 1: Ask students to complete their worksheets by finding the area of squares & rectangles ○ Choice 2: Solve the problems on the worksheet

	https://www.teacherspayteachers.com/Product/Area-Task-Cards-Free-3430518 ● **Task 2: Answer a real-life problem on paper "A rug measures 3m by 5m. What is its area?** ○ Ask students to solve & explain their answers on their paper ○ Remind students to write their names on their papers
Closure:	**Wrap-up discussion and Reflection (10 minutes)** ● Discuss how students thought that by starting with grid paper, helped them ● Ask if students have any questions ● Review the Area formula for squares & rectangles ● Exit ticket ○ Ask students to draw a square or rectangle and find the area of it ○ Ask students to write their names on their exit ticket and hand it in ● Ask students to clean up their area

Lesson 6

Name & Time (Minutes Allotted):	***Understanding the Area of Triangles***
Learning Standards: Curricular Competencies	***Mathematics 5:*** ● CC1 Explain and justify mathematical ideas and decisions ● CC2 Develop and use multiple strategies to engage in problem solving ● CC3 Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving ● CC4 Use reasoning to explore and make connections ● CC5 Use mathematical vocabulary and language to contribute to mathematical discussions ***English Language Arts 5:*** **Create & Communicate:** ● ELA1 Use writing and design processes to plan, develop, and create texts for a variety of purposes and audiences **Comprehend & Connect:** ● ELA2 Access information and ideas from a variety of sources and from prior knowledge to build understanding ***Science 5:*** **Planning & Conducting:** ● S1 With support, plan appropriate investigations to answer their questions or solve problems they have identified ● S2 Choose appropriate data to collect to answer their questions **Evaluating:** ● S3 Identify possible sources of error **Applying & Innovating:** ● S4 Transfer and apply learning to new situations ***Arts Education 5:*** **Communicating & Documenting:**

	• AE3 Experience, document and present creative works in a variety of ways
Learning Standards: Content	• C1 Area measurement of squares and rectangles • C2 Relationships between area and perimeter
Instructional Objectives	• Understand & apply the formula for the area of a triangle: **Area = ½ (Base * Height)** • Relate the area of a triangle to the area of a rectangle • Solve real-world problems involving the area of triangles
Assessment:	• Observation of students participating in the activities • Observation of the students applying the area of a triangle formula correctly **Area = ½ (Base * Height)** • Worksheets to calculate the area of triangles (product) • Guided journal sheet to fill out with questions on what they learned & what questions they still have (product) • Maze activity (game) (product): https://www.teacherspayteachers.com/Product/Area-of-Triangles-Maze-3702072
Teaching Strategies:	• Discussion (conversation) • Video • Grid paper (observation) • Maze activity (game) (product) • Real-world example question (product)
Materials:	• Laptop for presentation • Projector • Whiteboard • Whiteboard markers & eraser • Worksheets: https://www.k5learning.com/worksheets/math/grade-5-area-of-triangles-d.pdf https://www.k5learning.com/worksheets/math/grade-5-area-of-right-triangles-e.pdf https://www.k5learning.com/worksheets/math/grade-5-area-of-right-triangles-a.pdf • Maze game: https://www.teacherspayteachers.com/Product/Area-of-Triangles-Maze-3702072 https://www.teacherspayteachers.com/Product/Area-of-Rectangles-and-Triangles-Maze-9534046 • Grid paper • Pencils & erasers • Rulers • Small whiteboards for students to use • YouTube video: https://www.youtube.com/watch?v=xCdxURXMdFY
Lesson Activities:	
Introduction/Hook:	**Hook & Introduction (15 minutes)** • Start with a real-world scenario: "Imagine you're designing a new playground, and you need to figure out how much space is needed for a triangular slide. How would you measure that area?"

	● Refresh area of rectangles from the previous lesson **(Area = Length * Width)** ● Introduce the concept that a triangle can be seen as half of a rectangle ○ Draw a rectangle on the board, divide it diagonally to form two congruent triangles, & discuss how each triangle represents half of the rectangle's area **[Area = ½ (Base * Height)]** ○ Watch the **YouTube video** remaining minutes for triangle areas: https://www.youtube.com/watch?v=xCdxURXMdFY
Body:	**Development (20 minutes)** ● **Activity 1: Deriving the Triangle Area Formula** ○ Ask students to draw a rectangle on their grid paper measuring 5 cm x 3 cm ○ Ask students to calculate the rectangles area (15 cm squared) ○ Next, have the students draw a line diagonally through their rectangle so they get two even triangles ○ Discuss how the area of a triangle would be half of the rectangle ○ Discuss how the area formula might be represented ● **Activity 2 (Choice #1): Worksheets to Apply the Formula of a Triangle** ○ Hand out the worksheets of various triangles made on grid paper in cm ○ Have the students measure the triangles height & base ○ Have the students apply the area of a triangle formula to each triangle to find the area of each one ○ Remind students to write their name on their papers & hand them in ● **Alternative to Activity 2 (Choice #2): Worksheet to Simply Calculate the Area of Triangles** ○ Hand out the worksheets of various triangles ○ Have the students calculate and record their answers on the sheet ○ Remind the students to add their name to their papers & hand them in **Practice (15 minutes):** ● **Interactive Exercise: Triangle Area Maze Worksheet** ○ Handout the maze worksheet ○ Remind students to write their name on their sheets ○ Explain the maze - Students have to calculate the area of triangles to find the correct route **Real-World Application (10 Minutes):** ● Put the students into small groups of 2 or 3 ● Give the groups a small whiteboard, whiteboard markers, & a whiteboard eraser

	● Get the students to calculate the triangular area of a flower garden that we want to put in and we need to know the amount of soil that we need for it ● Ask students to write out their calculations and answers on a sheet of paper with their names ● Ask students to hand in their papers
Closure:	**Wrap-up Discussion & Reflection:** ● Recap what they have learned ● Ask if anyone has questions or want to share anything ● Ask students to hand in all of their worksheets & papers used for this lesson and remind them to add their names to all sheets ● Ask students to clean up their area

Lesson 7

Name & Time (Minutes Allotted):	***Exploring Area Through Mosaic Art***
Learning Standards: Curricular Competencies	***Mathematics 5:*** ● CC1 Explain and justify mathematical ideas and decisions ● CC2 Develop and use multiple strategies to engage in problem solving ● CC3 Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving ● CC4 Use reasoning to explore and make connections ● CC5 Use mathematical vocabulary and language to contribute to mathematical discussions ***English Language Arts 5:*** **Comprehend & Connect:** ● ELA2 Access information and ideas from a variety of sources and from prior knowledge to build understanding ***Science 5:*** **Evaluating:** ● S3 Identify possible sources of error **Applying & Innovating:** ● S4 Transfer and apply learning to new situations ***Art Education 5:*** **Reasoning & Reflecting:** ● AE1 Connect knowledge and skills from other areas of learning in planning, creating, interpreting, and analyzing works for art **Communicating & Documenting:** ● AE2 Express, feelings, ideas, and experiences through the arts ● AE3 Experience, document, and present creative works in a variety of ways
Learning Standards: Content	● C1 Area measurement of squares and rectangles ● C2 Relationships between area and perimeter
Instructional Objectives	**SWBAT:** ● Understand and calculate the area of squares, rectangles, & triangles ● Apply area calculations in the creation of a mosaic art piece ● Enhance spatial reasoning & creativity through geometric design

Assessment:	● Observation of students during the planning and calculation phases to ensure they accurately determine the area of each shape ● Provide immediate feedback and support to students who may struggle with area calculations or design planning (conversation) ● Evaluate the completed mosaics based on the accuracy of area calculations, creativity in design, and overall presentation (product) ● Participation in the gallery walk & support for their classmates (observation)
Teaching Strategies:	● Discussion ● Grid paper (product) ● Show examples of mosaic art ● Lego for hook to build mosaics (observation & conversation) ● Use art to enhance learning by building a mathematics mosaic with rectangles & squares (out of paper), coloured as students choose, and glued onto cardstock or construction paper - Students will calculate the area of their mosaic as they go along by finding the area of each shape they glue onto their mosaic (product)
Materials:	● Grid & graph paper ● Laptop for presentation ● Projector ● Whiteboard ● Whiteboard markers & eraser ● Small whiteboards for students to use ● Scissors ● Rulers ● Pencils & erasers ● Cardstock or construction paper for mosaic base & shape cutouts ● Glue sticks ● Coloured pencils or markers (as a backup) ● Examples of mosaics for inspiration ● Practice worksheets for the area of rectangles & squares https://www.k5learning.com/worksheets/math/grade-2-geometry-area-a.pdf https://www.k5learning.com/worksheets/math/grade-2-geometry-area-b.pdf https://www.k5learning.com/worksheets/math/grade-2-geometry-area-concept.pdf https://www.k5learning.com/worksheets/math/grade-3-geometry-area-rectangle-c.pdf https://www.k5learning.com/worksheets/math/grade-3-geometry-area-grid-cm.pdf ● Random Lego pieces that are in squares & rectangle forms ● Charts for mosaic information recording https://www.teacherspayteachers.com/Product/3-Column-Organizer-Ruled-Color-3015091
Lesson Activities:	
Introduction/Hook:	**Hook & Introduction: (15 Minutes)**

	Lego Land Building: 1. I**ntroduction:** ● Begin by introducing students to mosaic art by showcasing examples from around the world. Discuss how mosaics are composed of small, coloured pieces arranged to form a shape or pattern **2. Hook:** ● Give students random pieces of Lego that are rectangles & squares ● Instruct students that they will be building a flat surface with the areas that are picked randomly from a set of numbers in a bag ● Randomly pull numbers from the bag & get students to try to figure out how to build a flat surface with that given area ○ i.e. area = 15 so Lego pieces would need to be 5 x 3 or 3 x 5 ● Once they've tried a few, get students to clean up the Lego & return it to the teacher ● Explain that they will be doing something like this for the main activity today but it'll be a mosaic of coloured paper shapes that they are going to glue onto paper to create an art mosaic of mathematical areas
Body:	**3. Review of Area Concepts: (15 minutes)** ● Review the concept of finding the area of rectangles & squares by the formula **Area = Length x Width** ● Provide a few practice problems where students will calculate the area of given rectangles & squares to ensure understanding ○ https://www.k5learning.com/worksheets/math/grade-2-geometry-area-a.pdf ○ https://www.k5learning.com/worksheets/math/grade-2-geometry-area-b.pdf ○ https://www.k5learning.com/worksheets/math/grade-2-geometry-area-concept.pdf ○ https://www.k5learning.com/worksheets/math/grade-3-geometry-area-rectangle-c.pdf ○ https://www.k5learning.com/worksheets/math/grade-3-geometry-area-grid-cm.pdf **4. Planning the Mosaic Design (20 minutes):** ● Handout graph paper & instruct students to sketch a simple mosaic design composed of squares & rectangles. ○ Emphasize that the shapes should align with the grid lines to simplify area calculations ● Encourage students to colour their shapes to make an esthetically pleasing arrangement of their mosaic **5. Calculating the Area of Their Mosaic (20 minutes)** ● Once designs are sketched & the students are happy with them, have them calculate the area of each individual shape in their mosaic by counting the number of squares within each shape or using multiplication for larger rectangles ● Ask students to record their areas on a separate sheet of paper, careful to keep track of which shapes they have done ○ Ask students to also record the dimensions & shape by their area calculation (in case they need to recheck them) - A chart would be best for this:

	https://www.teacherspayteachers.com/Product/3-Column-Organizer-Ruled-Color-3015091 **6. Creating the Mosaic (30 minutes)** ● Provide students with coloured cardstock or construction paper for them to cut out the shapes corresponding to their designs on their graph paper ● Instruct students to glue their shapes that they cut out from the construction paper onto a larger piece of cardstock or construction paper replicating their design from their graph paper
Closure:	**7. Gallery Walk & Discussion (10 minutes)** ● Ask the students to walk around & look at what their classmates have created ● Ask students to clean up their area and put their mosaics to the side for the glue to dry

Lesson 8

Name & Time (Minutes Allotted):	***Designing a Playground (Real-World Application)***
Learning Standards: Curricular Competencies	***Mathematics 5:*** ● CC1 Explain & justify mathematical ideas & decisions ● CC2 Develop & use multiple strategies to engage in problem solving ● CC3 Develop, demonstrate, and apply mathematical understanding through play, inquiry, & problem solving ● CC4 Use reasoning to explore & make connections ● CC5 Use mathematical vocabulary & language to contribute to mathematical discussions ● CC6 Communicate mathematical thinking in many ways ● CC7 Financial literacy — Monetary calculations and developing simple financial plans ***English Language Arts 5:*** **Create & Communicate:** ● ELA1 Use writing & design processes to plan, develop, and create texts for a variety of purposes & audiences **Comprehend & Connect:** ● ELA2 Access information and ideas from a variety of sources & from prior knowledge to build understanding ***Science 5:*** **Planning & Conducting:** ● S1 With support, plan appropriate investigations to answer their questions or solve problems they have identified ● S2 Choose appropriate data to collect to answer their questions **Evaluating:** ● S3 Identify possible sources of error **Applying & Innovating:** ● S4 Transfer & apply learning to new situations ***Art Education 5:*** **Reasoning & Reflecting:**

	● AE1 Connect knowledge and skills from other areas of learning in planning, creating, interpreting, and analyzing works for art **Communicating & Documenting:** ● AE2 Express, feelings, ideas, and experiences through the arts ● AE3 Experience, document and present creative works in a variety of ways
Learning Standards: Content	● C1 Area measurement of squares & triangles ● C2 Relationships between area & perimeter
Instructional Objectives	● Use a real-life scenario to design an area based on square, rectangles, & triangles that students can relate to ● Understand and calculate the area of squares, rectangles, & triangles ● Use measurement & spatial reasoning to solve practical design challenges ● Enhance spatial reasoning & creativity through geometric design ● Develop, demonstrate, & apply mathematical understanding through play, inquiry, & problem-solving ● Communicate mathematical thinking through models & diagrams
Assessment:	● Observe & use conversation with students in the planning process ○ Ask guiding questions: ■ "How would you decide where to put large equipment like slides?" ■ "Do you think that your design maximizes the space?" ■ "How did you decide what things to put into your design?" ● Presentation of Product ○ Clear-labelling of playground structures ○ Correct area & perimeter calculations ○ Is the playground visibly pleasing & realistic (does it make sense)?
Teaching Strategies:	● Discussion about design & area calculations ● Observation of the creation process & mathematical calculations of area ● Creating a realistic playground design for real-world connection (product) ● Grid/graph paper to design on (product) ● Use examples of playground equipment & design ● Create & provide a budget for the playground equipment for students to use
Materials:	● Graph & grid paper ● Rulers ● Pencils & erasers ● Coloured pencils & markers ● Calculators ● Examples of playground equipment images & approximate cost ● Large poster paper for final designs ● Worksheet for expenses (copy is printed)
Lesson Activities:	

Introduction/Hook:	**1. Hook (15 minutes)** ● Ask the students to imagine that they are asked to design a playground and they can add anything they want as long as it's within a budget and size that are given ○ How would they begin? ○ What do they need to consider? ○ How would they make it inclusive? **2. Introduction** ● Show pictures of playgrounds to students & discuss the elements they include (i.e. swings, slides, climbing structures, benches, swings, pathways, etc.) ● Explain the task for the day: "You will design a playground that is inclusive for your neighbourhood or school that fits within a 20m x 30m space and stays within a budget of $150,000"
Body:	**3. Planning the Playground (25 minutes)** ● **Step 1: Draw the Layout of the playground on graph paper** ○ Tell students that 1 square is equivalent to 1 square meter & ask them to sketch their playground design ○ Show students pictures that they use to represent their equipment that they include Clipart of playground & park items https://www.teacherspayteachers.com/Product/FREE-YARD-Parts-of-a-House-Clipart-3799948 https://stock.adobe.com/ca/search?k=playground+clip+art https://www.vecteezy.com/free-vector/kids-playground ● **Step 2: Area & Perimeter Calculations** ○ Ask students to calculate the total area of their playground & ensure that they use the space efficiently ○ Ask students to calculate the perimeter of the fences & pathways if they have included them ● **Step 3: Brain Break (5 minutes when needed)** ○ **https://www.youtube.com/watch?v=UEuFi9PxKuo** **4. Budgeting & Cost Analysis (20 minutes)** ● Provide students with a price list of common & inclusive playground equipment ● Ask students to select what they want to include into their designs that fit in their space and is within their budget **5. Create a final playground design (30 minutes)** ● Students will create a final blueprint of their playground design on a large sheet of paper ○ On the side of their large sheet of paper, students will list the cost of each piece of equipment, the total cost of their design staying within their budget, & how they stayed within the space that they had been given
Closure:	**6. Discussion (20 minutes):** ● Students will share their designs with the class if they wish to

	• Ask students to place their designs on the side of the classroom to dry & to be assessed • Ask students to clean up their areas

Resources:

https://www.teacherspayteachers.com/Product/FREE-YARD-Parts-of-a-House-Clipart-3799948
https://stock.adobe.com/ca/search?k=playground+clip+art
https://www.vecteezy.com/free-vector/kids-playground
https://www.teacherspayteachers.com/Product/3-Column-Organizer-Ruled-Color-3015091
https://www.k5learning.com/worksheets/math/grade-2-geometry-area-a.pdf
https://www.k5learning.com/worksheets/math/grade-2-geometry-area-b.pdf
https://www.k5learning.com/worksheets/math/grade-2-geometry-area-concept.pdf
https://www.k5learning.com/worksheets/math/grade-3-geometry-area-rectangle-c.pdf
https://www.k5learning.com/worksheets/math/grade-3-geometry-area-grid-cm.pdf
https://www.teacherspayteachers.com/Product/3-Column-Organizer-Ruled-Color-3015091
https://www.youtube.com/watch?v=xCdxURXMdFY
https://www.teacherspayteachers.com/Product/Area-of-Triangles-Maze-3702072
https://www.teacherspayteachers.com/Product/Area-of-Rectangles-and-Triangles-Maze-9534046
https://www.k5learning.com/worksheets/math/grade-5-area-of-triangles-d.pdf
https://www.k5learning.com/worksheets/math/grade-5-area-of-right-triangles-e.pdf
https://www.k5learning.com/worksheets/math/grade-5-area-of-right-triangles-a.pdf
https://www.teacherspayteachers.com/Product/Area-of-Triangles-Maze-3702072
https://www.teacherspayteachers.com/Product/Area-Task-Cards-Free-3430518
https://www.youtube.com/watch?v=UEuFi9PxKuo
https://youtu.be/ZeNBKdAslwk?si=q4A-ncSg9dKkgsjU
https://www.mathworksheets4kids.com/perimeter/customary/grid-easy1.pdf
https://youtu.be/79aZuCLPyCw?si=pbg6jSgMgmV-BuE8
https://pango.education/maths-resource/38140/perimeter-worksheet
https://letssharekнowledge.com/wp-content/uploads/2018/05/area-and-perimeter-grade-4-maths-resources-printable-worksheets-w7.pdf

Extensions to Unit:

Lesson 1: Different ways of measurement besides a 30-cm ruler, including a metre stick and non-standard units like string and paper clips.
Lesson 2: Creating more symmetric shapes and objects using classroom supplies, like drawing shapes and cutting them out with scissors. And once done, the perimeter can be calculated.
Lesson 3: More in-depth focus on irregular shapes that will be common for students during their mathematical journeys, like right-angle triangles.
Lesson 4: Students can build physical representations of their floor plans using blocks, making it more physical and tangible when calculating the shape's perimeter.
Lesson 5: More worksheets & calculations for rectangles & squares could be added for students to do. The levels of those questions could be increased as well if students need more of a challenge. Lower-level worksheets could also be used to decrease the level of complexity.
Lesson 6: More worksheets & calculations for triangles could be added for students to do. The levels of those questions could be increased as well if students need more of a challenge. Lower-level worksheets could also be used to decrease the level of complexity.
Lesson 7: The area of triangles could be added to enhance the calculations and level of learning required in building the mosaics, rather than just using rectangles & squares.
Lesson 8: Students could present their playground designs with a short proposal letter explaining how they chose the equipment, how they stayed within their budget, & how they stayed within the area that they had.

Reflections and Revisions

It was challenging to write the lessons because we are not familiar with the students in the class, and we only have what our Teacher Mentor says to go by. From what we are being told, we will be in a very diverse classroom with multiple IEPs & learning challenges. It sounds like we will have everything from students who can do the grade 4-5 mathematics curriculum to those who cannot even count to 10.

I (Tanya) found it challenging to write only four lesson plans and get what I wanted to do into that amount of time. For my final lesson (Lesson 8), I may have to do it in two separate lessons and go into a 9th lesson if our Teacher Mentor is okay with it. I think the activity will be really fun for the students to create & I want them to have time to enjoy the process.

I (Tanya) also found it challenging to find hooks & activities that I was totally happy with for my lesson plans. It's an odd age group with grades 4-5, and hard to gauge what they would like & react well to.

My (Stephen) biggest challenge was planning for a class that I've never met before, especially because we've been told the students' abilities vary greatly in mathematics and beyond. Further, it was difficult because I've never taught math nor created a unit plan for it. Nevertheless, it was a great learning experience. I'm confident that we've created a unit plan that can be altered and adapted to suit the needs of students once we're actually teaching at Arthur Hatton.