THOMPSON RIVERS UNIVERSITY | Education & Social Work

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

Unit Title: Measurement | Number of Lessons: 8 | Time (in weeks): 2

Name: Denae & Katie | Subject(s): Math | Grade(s): 2

Rationale

This measurement unit is designed to help Grade 2 students build a strong, hands-on understanding of how we measure and describe the world around us. The lessons move from simple exploration using everyday language and non-standard units to more structured use of standard units and tools like rulers and scales. Students learn through active, real-life experiences such as comparing objects, estimating, and solving problems, which helps make their learning meaningful and engaging. This unit also encourages students to think critically, communicate their ideas, and connect math to their daily lives, supporting both their understanding of measurement and their overall confidence in math.

Overview:

This unit introduces Grade 2 students to measurement through hands-on activities. Students explore length, height, and width using both non-standard and standard units. The lessons build from basic comparisons to using tools and estimating, ending with a final activity where students apply their understanding in a meaningful way through place-based learning.

CORE COMPETENCIES

Communication	Thinking	Personal & Social
Communication Students communicate with intention and purpose. They understand that communication can influence, entertain, teach, inspire, and help us make sense of the world and our experiences. **Collaboration** Students work collaboratively in pairs, groups, and as a whole class to practice estimating, measuring, and comparing objects. They engage in turn-and-talks and class discussions to share their ideas and listen to other perspectives.	**Critical & Reflective Thinking** Students explore possibilities, develop and reflect on processes, monitor progress, and adjust procedures in light of criteria and feedback. **Creative Thinking** Through open-ended and outdoor tasks, students demonstrate creative thinking by exploring multiple ways to measure objects and to express their understanding.	**Personal Awareness and Responsibility** Students demonstrate responsibility by using materials appropriately, staying on task, and participating in classroom and outdoor learning experiences **Positive Personal and Cultural Identity** Students identify and develop an appreciation for different perspectives on issues. They generate, use, and evaluate strategies to resolve problems. **Social Awareness and Responsibility**

		Students show empathy, disagree respectfully, and create space for others to use their voices. During outdoor learning, they demonstrate respect and care for the environment.

BIG IDEAS

(multiple subject areas for integrated unit)

Subject Name: Mathematics 2
Objects and shapes have attributes that can be described, measured, and compared.

LEARNING STANDARDS

Curricular Competencies	Content
Reasoning and analyzing CC1-Use reasoning to explore and make connections CC2- Estimate reasonably **Understanding and solving** CC6- develop, demonstrate, and apply mathematical knowledge through play, inquiry, and problem solving CC9- Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures **Communicating and representing** CC12- Explain and justify mathematical ideas and decisions	C. 6- symbolic representation of equality and inequality C. 7- Direct linear measurement, introducing standard metric units C.9- Pictorial representation of concrete graphs, using one-one correspondence

Prerequisite Concepts and Skills:

Students should have prior experience with basic comparison (e.g., bigger/smaller, longer/shorter) and counting. They should also be familiar with using simple tools and participating in hands-on activities. Basic communication skills, such as describing and explaining their thinking, will support their learning throughout the unit.

Teacher Preparation Required:

Lesson #	Teacher Preparation Required (See Unit Plan Sample)
Lesson 1	● Gather a variety of classroom objects (pencils, books, containers, toys) ● Prepare mystery bag items (2–3 objects with clear differences)

	● Set up sorting stations (long/short, heavy/light, big/small) ● Prepare visual vocabulary cards (longer, shorter, heavier, lighter, taller) ● Print recording sheets/exit slips (example in lesson) ● Prepare observation checklist ● Set up visual schedule and timer
Lesson 2	● Gather non-standard measuring tools (cubes, paperclips, popsicle sticks) ● Select classroom objects for measuring (desk, books, table, door frame) ● Prepare recording sheets/exit slips (example in lesson) ● Prepare observation checklist ● Set up partner/group rotations ● Prepare visual lesson schedule and transition cues ● Review and model expectations for using materials
Lesson 3	● Gather rulers (cm) ● Gather non-standard tools for comparison (cubes, paperclips) ● Prepare tape lines for measuring activity (different lengths) ● Prepare recording sheets/observation sheets ● Prepare chart paper/board for comparing results ● Prepare “mystery bag” with a ruler for lesson hook ● Review and model how to use a ruler (starting at 0, lining up)
Lesson 4	● Gather meter sticks or measuring tapes and rulers ● Prepare tape or wall space for height measurement activity ● Gather materials for outdoor measuring (chalk, cones, markers) ● Prepare recording sheets/clipboards (example in lesson) ● Plan outdoor learning expectations and boundaries ● Prepare estimation examples for modeling (height/distance) ● Select a talking piece for sharing circle
Lesson 5	● Prepare rulers, metre sticks, tape measures and centimetre cubes ● Prepare unit cards for cm, dm, m ● Print off recording sheets/ exit slips (example in lesson) ● Set up objects for measuring and comparing (pencils, books, etc.) ● Review key vocabulary: centimeter, decimetre, metre, longer, shorter ● Plan demonstration for building and comparing units
Lesson 6	● Gather measuring tools ● Collect classroom/brought items of different sizes (small, medium, large) ● Prepare unit sorting cards/images ● Prepare recording sheets/ exit slips (example in lesson) ● Prepare teacher modeling and examples of appropriate vs inappropriate unit choice ● Set up partner/group measurement activities
Lesson 7	● Gather measuring tools ● Select fun objects for measurement stations ● Set up stations ● Print off recording sheets (example in lesson)
Lesson 8	● Prepare outdoor learning expectations ● Prepare clipboards, recording sheets (example in lesson), pencils

	● Gather measuring tools ● prepare/plan objects that student will measure (make sure there is enough selection) ● Plan place-based discussion prompts ● Select a talking piece for sharing circle

Cross-Curricular Connections:

This unit connects to other subject areas by using measurement in real-life contexts. In science, students explore materials and observe properties like size, weight, and capacity. In language arts, they practice describing, explaining, and recording their thinking. In physical education, they can measure distance or movement, and in art, they can explore size, shape, and space through creative activities.

Aboriginal Connections/ First Peoples Principles of Learning:

This unit connects to Indigenous ways of knowing by recognizing that measurement has traditionally been learned through experience, observation, and connection to the land. Students explore how non-standard measurement, such as using body parts (hand spans or footsteps), was and is used in everyday life. The unit also emphasizes learning through hands-on activities, storytelling, and real-world connections, reflecting Indigenous perspectives that learning is holistic, experiential, and connected to community and environment.

Universal Design for Learning (UDL)

This unit is designed to support all learners by providing multiple ways to engage, learn, and show understanding. Students explore measurement through hands-on activities, visual supports, and discussions, allowing them to learn in ways that work best for them. Instructions are modeled and broken down clearly, and students can demonstrate their learning through speaking, drawing, or doing. Flexible grouping and choice in activities help ensure all students feel supported and successful.

Multiple Means of Representation

- Provide visual supports: unit cards, diagrams, number lines
- Teacher modeling of measurement orally and visually, using key vocabulary
- Provide measurement examples through classroom, personal, and outdoor experiences

Multiple Means of Action and Expression

- Allow students to measure physically and record results on worksheets
- Oral explanations and sharing circles
- Place-based outdoor learning supports movement and kinesthetic learners
- Providing choice in what to measure
- Allow creative expressions through drawings, diagrams, using number lines

Multiple Means of Engagement

- Hands-on, interactive, and collaborative activities
- Connecting measurement to real-world contexts and outdoor learning
- Integrated place-based learning and Indigenous perspectives
- Providing choice and variety

Differentiated Instructions (DI)

- Hands-on activities, visual supports, and flexible grouping are used to support all learners, with extra help or challenges provided as needed.

Overview of Lessons:

Lesson 1

Name &Time (Minutes Allotted):	What is measurement?:
Learning Standards: Curricular Competencies	● Use direct comparison to compare two objects (e.g., longer/shorter, heavier/lighter) ● Use reasoning to describe and compare measurable attributes ● Communicate mathematical thinking using everyday language Students begin exploring measurement by directly comparing objects and using language to describe differences, building a foundation for understanding measurable attributes.
Learning Standards: Content	● Measurable attributes (length, height, weight) ● Direct comparison of objects ● Introduction to measurement vocabulary (longer, shorter, taller, heavier, lighter)
Instructional Objectives	S.W.B.A.T: ● Identify measurable attributes (length, height, weight, capacity) in everyday objects. ● compare two or more objects using simple measurement language (e.g., longer, shorter, heavier, lighter). ● Describe their thinking when comparing objects using words or actions. ● Sort objects based on a measurable attribute (e.g., long vs short, heavy vs light). ● Participate in hands-on exploration to investigate measurement concepts.
Assessment:	FOR: ● Mini class discussion AS: ● Worksheet recordings ● Partner turn and talks ● Mini group discussions OF: ● Exit ticket of accumulated recordings ● Write their names on the board to show they are done

Teaching Strategies:	Model EVERYTHING: ● how to use materials ● how to move between stations ● how to talk to partners ● How to sort items ● How to compare and record comparisons Use clear, simple routines: ● "Take a deep breath if you can hear my voice" → *breath in*" ● Visual timer ● Transition reminders ● "Write your name on the board when you are done" Assign simple roles (if needed): ● holder ● speaker ● measurer
Materials:	Materials Needed: ● Variety of classroom objects (for comparing): ○ pencils, books, erasers, markers ○ water bottles, containers, small toys ● Mystery bag (for hook activity) ○ 2–3 objects with noticeable differences (heavy/light, big/small) ● Sorting materials (optional but helpful): ○ trays, bins, or mats for grouping objects ● Visual supports: ○ picture cards showing comparison words ○ Visual lesson schedule ● Paper and pencils/crayons ○ for quick draw-and-label assessment Teacher materials to prep: ● Visual lesson schedule for students ● Observation sheet ● Vocabulary words with visuals on the back
Lesson Activities:	
Introduction/Hook:	Hook: Teacher: "what do you notice about these two waterbottles?" Teacher: *takes a few responses* Teacher: "Yes, one is larger/longer,bigger, heavier, etc……" Teacher: invites students to stand beside one thing in the room that is larger, taller, longer, shorter, etc…….

	"These are examples of different measurement attributes! Today we are going to investigate items and learn about different measurement techniques!"
Body:	Main Activity: Sorting & Comparing Stations Set up simple stations with a 5 minute visual timer: ● long vs short objects ● heavy vs light ● big vs small containers ● Vocabulary terms for measurement ● Mystery bag game Students: ● touch ● move ● Discuss and record comparisons ● Sort into sizes ● Decide and record individual sheets as a group ● Participate in a turn and talk ● Transition from station to station Mystery Bag Game: ● Students will take turns putting an item in each of the two "mystery bags" and have the rest of the group blindly feel inside the bag and guess which item bag has the longer, heavier, smaller, etc…. Item
Closure:	Students will: ● Finish recording any observations ● Write their name on the board when finished ● Find a partner's name on the board to compare sheets ● Give their partner a compliment about their work ● Hand in their worksheet as an exit ticket

Lesson 2

Name &Time (Minutes Allotted):	Measuring Length with non- standard units
Learning Standards: Curricular Competencies	● Estimate and measure length using non-standard units ● Use reasoning to compare and describe measurements ● Communicate mathematical thinking using appropriate vocabulary Students build on their understanding of measurable attributes by using non-standard units to measure objects, exploring how different tools can produce different results.
Learning Standards: Content	● Measurement using non-standard units (e.g., cubes, paperclips, hands) ● Understanding that measurement involves repeating a unit ● Comparing measurements using informal units

Instructional Objectives	• **Measure the length of objects using non-standard units** (e.g., cubes, paperclips, hand spans) • **Use the same unit repeatedly to measure accurately** • **Compare measurements** (longer, shorter) • **Describe their measuring process** using simple language
Assessment:	• For: Observe and guide during measuring • As: Partner discussion and comparison • Of: Measure and compare two objects
Teaching Strategies:	• Real-life measurement tasks • Partner work • Guided practice • Visual supports • Movement-based activities • Model how to use materials (no throwing cubes) • Clear instructions before starting stations • Practice transitions (“waterfall” “shhhhhh”) Assign roles if needed: • measurer • counter • recorder Keep rotations short (5–10 min)
Materials: https://www.youtube.com/watch?v=2wUsdsae0ro	Non-standard measuring tools: • linking cubes • paperclips • popsicle sticks • hand spans (their own hands!) Objects to measure: • pencils, books, desks, whiteboards • Recording sheet Teacher materials: • Observation worksheet • Student signature list • Lesson schedule visual for the students
Lesson Activities:	

Introduction/Hook:	Activating Prior Knowledge ● Ask: *"How did we compare objects yesterday?"* ● Quick review: longer/shorter Quick reminder activity: ● *"Hold up something longer than your pencil"* Transitioning to lesson topic: ● "Great! You remembered how to measure one item against another item! ● "Now we are going to use that same item to guess how many of them it would take to measure your desk." Students will: ● Hold up something longer than a pencil (from their desk) ● Use that item to guess how many of them it would take to measure their desk. ● Participate in a quick turn and talk with their elbow partner about their predictions
Body:	Students rotate through measuring with their desk partner: ● desk with cubes ● book with paperclips ● table with hand spans ● Height against a door frame Focus: ● lining units up properly ● counting carefully As a pair, students will: ● Take turns measuring with non- standard units ● Record predictions ● Record observations ● Participate in partner discussions Teacher will: ● Model measuring with non-standard units ● Model lining units up properly

	● Model making predictions and recordings ● Observe and encourage measurement vocabulary ● Encourage students to take turns measuring and recording ● Collect observation sheets
Closure:	**"Teach the Teacher"** Teacher will say: "I forgot how to measure… Can you teach me?" Students choose how to respond: ● explain ● demonstrate ● act it out Then they: ● show OR explain their thinking ● Sign their names on a paper in their own personalized way to show that they are finished

Lesson 3

Name &Time (Minutes Allotted):	Why Standard Units Matter:
Learning Standards: Curricular Competencies	● Estimate and measure length using non-standard and standard units ● Compare measurements and explain differences ● Communicate mathematical thinking using appropriate vocabulary Students build on their understanding of non-standard measurement by comparing results and explaining why standard units (like centimeters) provide more consistent and accurate measurements.
Learning Standards: Content	● Measurement using non-standard and standard units ● Understanding the need for standard units for consistency ● Introduction to measuring with centimeters using a ruler
Instructional Objectives	S.W.B.A.T: ● Explain why non-standard measurements can give different results ● Use a ruler to measure objects in centimeters ● Compare measurements and describe them using appropriate vocabulary (longer, shorter) ● Understand that standard units provide consistent and fair measurements
Assessment:	Assessment FOR Learning ● Observe students comparing measurements from non-standard tools ● Ask:

	○ "Why are the measurements different?" ○ "How does a ruler help?" Assessment AS Learning ● Partner discussion: ○ Observation comparisons ● Student self-check (thumbs up/side/down for understanding) Students demonstrate understanding by: ● measuring an object using a ruler ● explaining (or showing) why standard units are important UDL options: ● say it ● show it ● draw it What is being assessed: - Recognizes that non-standard units can vary - Uses a ruler appropriately (starting at 0) - Uses basic measurement vocabulary - Explains why standard units are needed
Teaching Strategies:	● Inquiry-based learning (identify the "measurement problem") ● Hands-on exploration (using rulers) ● Gradual release (I do → We do → You do) ● Think-pair-share ● UDL (multiple ways to demonstrate understanding)
Materials:	● Rulers (cm) ● Non-standard tools (cubes, paperclips, hands) ● Classroom objects (books, pencils, desks) ● Chart paper or board (to compare results)
Lesson Activities:	
Introduction/Hook:	Teacher will: ● Prompt students to find a piece of tape in the circle that aligns or feels right to them Sharing circle hook: - "Today we're going to sit in a circle. Circles are important in many Indigenous communities because everyone is equal, everyone can see each other, and everyone has a chance to share." - "In a sharing circle, we listen respectfully and only speak when it's our turn. You can always choose to pass." Teacher will then: ● Introduce "talking stick" ● Circle prompts:

	➢ "How are you feeling today about math or in general?" Quick Discussion Prompt: ● "Yesterday we measured objects using cubes, paperclips, and hands" The Teacher will: ○ Hand back student worksheets ○ Invite students to share their recordings from the previous lesson ○ Record student numbers on the white board ○ Ask: "Did everyone get the same answers?" "Now that we have discovered that if we measure an item using different units, we will get different results, I wonder if there is a way, a tool that we could use to measure with the same unit and get the same result!" "Any guesses as to what tool might be in this mystery bag?" "perhaps a tool that can be used to measure items?….hmmmm what could it be?" "A Ruler!!"
Body:	Bring out a ruler like it's special: "This is a tool everyone uses so measurements match!" Let students: ● explore it ● notice numbers ● talk about what they see Hands-On Intro Activity: ● Teacher models first ● Then class tries together ● THEN independent ● Measure a small object together (model slowly) ● Model where to start measuring ● Then let students try with rulers Before handing out rulers: ● Model expectations clearly: ○ how to hold ○ how to use ○ not a sword

	Main Activity: Teacher: ● Prompts: “Who has a longer line?” “Who has a shorter line?” ● Pre-place tape ● Allow “pass” for sharing circle(important culturally + emotionally) ● Model how to place the ruler ● Model how to use the ruler ● Remind students of the different measurement tools (cm, mm) Students: ● use rulers to measure their tape line ● Record their findings on an observation sheet ● Participate in class discussion
Closure:	Students: ● Find a classmate with tape with the same color shirt ● Participate in a partner discussion and compare results ● Record partners observations ● Optional class share Teacher: ● Encourage mathematical vocabulary ● Circle the class ● Collect observation sheets

Lesson 4

Name &Time (Minutes Allotted):	Meters- height and distance
Learning Standards: Curricular Competencies	● Estimate and measure length using standard units (meters and centimeters) ● Use reasoning to compare and describe measurements ● Communicate mathematical thinking using appropriate vocabulary (taller, shorter, longer) Students apply their understanding of measurement by estimating, measuring, and comparing height and distance using standard units, while explaining their thinking using appropriate mathematical language.
Learning Standards: Content	● Measurement using standard units (meters and centimeters) ● Understanding when and why to use different units (cm vs m) ● Measuring height and distance in real-world contexts
Instructional Objectives	● Measure height and distance using meters ● Choose appropriate tools (ruler vs meter stick/tape) ● Compare measurements using correct language (taller, shorter, longer) ● Explain why meters are used instead of centimeters for larger measurements

Assessment:	Assessment FOR Learning:
	
	● Observe students as they measure height and distance, focusing on:
	  ○ correct tool use (meter stick vs ruler)
	  ○ starting at zero
	  ○ alignment and accuracy
	● Ask guiding questions:
	  ○ "Why did you choose meters?"
	  ○ "How do you know this is taller/longer?"
	
	Assessment AS Learning:
	
	● Students engage in partner discussions to reflect on:
	  ○ how accurate their estimates were
	  ○ what strategies helped them measure
	● Sharing circle reflection:
	  ○ "One way I helped somebody today was…"
	  ○ "My favourite part was…"
	
	Assessment OF Learning:
	
	Students demonstrate understanding by measuring height or distance and showing their learning through one of the following (UDL choice):
	
	● recording the measurement (number + unit)
	● drawing and labeling their measurement
	● verbally explaining how and why they used meters
	
	What is being assessed:
	● Uses appropriate tool for larger measurements
	● Measures with reasonable accuracy
	● Uses correct vocabulary (meter, taller, longer)
	● Demonstrates understanding of when to use meters vs centimeters

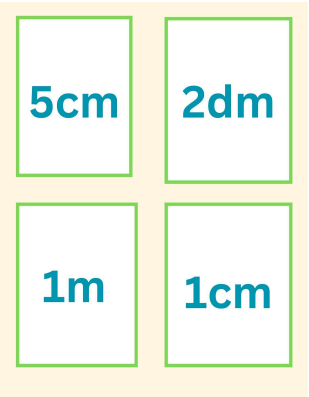
Teaching Strategies:	● Experiential learning (hands-on + outdoor learning) ● Land-based learning (connection to environment and space) ● Gradual release (I do → We do → You do) ● Think-pair-share ● UDL (choice in how students show learning)
Materials: https://www.youtube.com/watch?v=z6FV9fzF6OM	● Rulers ● Meter sticks or measuring tape ● Chalk or cones (for outdoor measuring) ● Tape (for marking distances) ● Clipboard/recording sheet (optional)
Lesson Activities:	
Introduction/Hook:	Intro video: Measuring Length in Meters for Kids --- Discussion After Video:

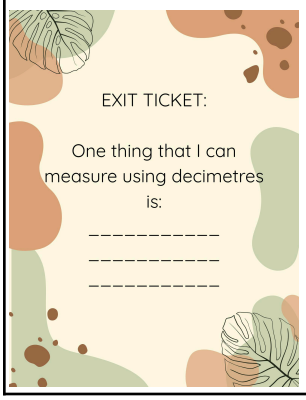
	Ask: ● "What kinds of things did they measure with meters?" ● "Why didn't they use a ruler?" Guide to idea: ● meters = bigger things ● cm = smaller things Teacher will: ● Ask for a volunteer ● "Do you think my volunteer is 1 meter tall?, taller? Or shorter?" ● record student responses on the board ● Model measuring the students height
Body:	Set the tone: "Today we are going to learn through our bodies and the space around us." Activity 1: Height Measurement (Partners or groups of 3) ● Students work in pairs ● Students will take turns tracing their partners height on the board or with a piece of tape ● Groups will work together to measure each other's height (against wall or lying down) ● As a group, students will record observations on a worksheet Ask: ● "Who is taller?" ● "How do you know?" Activity 2: Go Outside – Measuring Distance Set up: ● Mark a starting line ● Students measure 3 steps walking heel-to-toe (approximation) ● Students record observations (If extra time) : Students can: ● measure how far they can jump ● measure distance between two trees ● measure a path or line

Closure:	Introduce sharing circle: ● "We're going to end in a sharing circle. In many Indigenous communities, circles are important because they show that everyone is equal and we are all working together." ● "In a sharing circle, we listen respectfully. You can share when it's your turn, or you can choose to pass." Students can share: ● "One way I helped somebody today was…" ● "My favourite part of today was…" "Thank you for sharing and working together today. In a circle, we learn from each other."

Lesson 5

Name &Time (Minutes Allotted):	**Understanding and Comparing Standard Units- decimeter intro**
Learning Standards: Curricular Competencies	CC1- Use reasoning to explore and make connections - Students are connecting cm, dm, and m to understand relationships
Learning Standards: Content	C8- Direct linear measurement, introducing standard metric units.
Instructional Objectives	**SWBAT:** ● Describe and compare the length of centimeters, decimeters, and meters ● Demonstrate understanding of relationships between units (10cm=1dm) ● Order units from smallest to largest (shortest to longest) ● Estimate which unit would be appropriate for measuring different sizes of objects
Assessment:	**Triangulated:** **Conversation**: student explanations of relationships between units **Observation:** students' ability to build, compare, and order units **Product**: Exit slip or recording sheet ordering units and identifying appropriate units
Teaching Strategies:	● Provide lots of informative visuals ● "Waterfall" attention grabber ● Hands-on exploration (manipulatives) ● Turn-and-talk ● Movement-based learning (human number line)
Materials:	● Rulers ● Meter sticks ● Tape measure ● Manipulative cubes ● Recording worksheet/exit slips
Lesson Activities:	
Introduction/Hook:	"Yesterday and the day before, we started using tools like rulers and metres to measure." "Who remembers what a meter is and who remembers what a centimeter is?"

	Teacher holds up: ● A ruler ● A meter stick (drawn "number line" to represent cm is the shortest, dm is bigger than a cm, and meter is the longest) Teacher: "I wonder… are these measuring tools the same size?" (take responses) "Today we are going to explore different measurement units and figure out how they are connected!" "Do you think a centimeter, a decimeter, and a metre are all the same size?" Students: ● Turn-and-talk with partner ● Share ideas
Body:  	**Building the units (teacher modeling) Decimeter** Teacher shows ● 1 cm on a ruler ● Then uses cubes to build 10 centimetres "10 centimetres makes something called a decimeter." ● Teacher builds a decimeter with cubes ○ Compares it to a meter stick "10 decimeters makes 1 metre!" SO: "100 centimeters makes 1 metre (make a connection to centipede or 100 cents equals 1 whole dollar)" **Partner activity: Build and Compare** Students work in pairs to: ● Build 1 decimetre using cubes ● Compare it to a ruler (centimetres) ● Compare it to 1 meter ○ They will discuss what they notice ○ Use proper vocabulary - The teacher circulates the class and asks pairs questions (which is bigger (longer), how do you know?) **Class activity:** The teacher gives individual students or pairs a card with a specific measurement on it (e.g., 5cm, 2dm, 1m) and a numberline/visual. Students will: ● Stand in a line from shortest to longest (smallest to largest) and place their card in front of them so everyone can see them ● They can adjust themselves and help each other ● Then they can explain their thinking Teacher prompts: ● "Who thinks they should move? Why?" ● Does everyone agree on the placement?

Closure:  	"When would we use centimeters?" - Take responses "When would we use meters?" - Students share again Exit slip: - Draw or write one thing you think would be measured in decimeters

Lesson 6

Name &Time (Minutes Allotted):	Choosing the Appropriate Measurement Unit
Learning Standards: Curricular Competencies	CC12- Explain and justify mathematical ideas and decisions (students explain why they chose the appropriate unit)
Learning Standards: Content	C8- Direct linear measurement, introducing standard metric units
Instructional Objectives	**SWBAT:** ● Select appropriate units (cm, dm, m) for measuring different object ● Justify their choice of unit using mathematical language (e.g., longer, shorter, bigger) ● Estimate and then measure objects using appropriate tools (ruler, tape measure, metre stick) ● Explain their measurement decisions
Assessment:	**Triangulated assessment** **Conversation:** students justification of unit choices **Observation:** students' justification of unit choices **Product:** recording sheet/exit slip
Teaching Strategies:	● Reminder of classroom safety for when moving around the classroom ● Teacher modeling ● Waterfall or clapping attention grabber ● Hands-on measurement activities ● Sorting tasks
Materials:	● Measurement recordings sheet ● Unit sorting cards ● rulers/metre sticks/measuring tapes ● Classroom objects
Lesson Activities:	
Introduction/Hook:	"Yesterday we learned all about decimeters and practiced comparing them to centimeters and meters" Teacher shows: ● A pencil ● A desk

	● The classroom door "I wonder… would we use the same unit to measure all of these?" Students: ● Show a thumbs up or a thumbs down/sideways or partner share "Today we are going to become measurement experts by choosing the best unit!"
Body: **Observation sheet:** Object I Chose: _____ Best Unit (cm, dm, m): _____ Tool I Used: _____ Measurement (rounded): _____ Why I Chose This Unit: _____	**Teacher modeling:** Models measuring a pencil with: ● Centimentres (appropriate) ● Decimeters (somewhat appropriate) ● Meters (not appropriate) "Could I measure this pencil in metres? Technically yes but is it the BEST choice?" Students respond. Teacher emphasizes and gives examples of: ● Small objects- cm ● Medium objects-dm ● Large objects- metre **Partner activity:** In pairs, students will: ● Find an object in the classroom (pencil, book, desk, door, etc.) ● Determine the best unit of measurement (cm, dm, m) ● Then measure the object using the correct tool ● Record their object, chosen unit, and measurement (round to the nearest whole number) Teacher circulates the room and asks: "Why did you choose that unit? Would another unit work? Why?" **Sorting activity:** The teacher places cards or images on the board of different things to measure. Students will: ● Sort each object into cm, dm, m for the BEST unit of measurement on the board or on a sheet ● Come up and justify choices
Closure:	"Exit slip: "The best unit to measure a _____ is _____ because_____." The teacher provides an example. Share your answer with two different people you have not worked with today

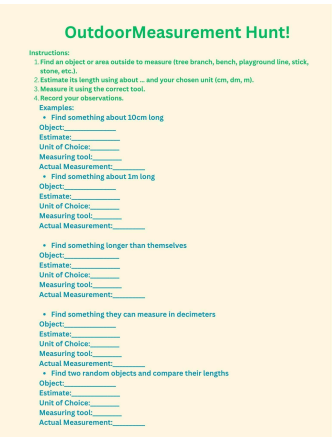
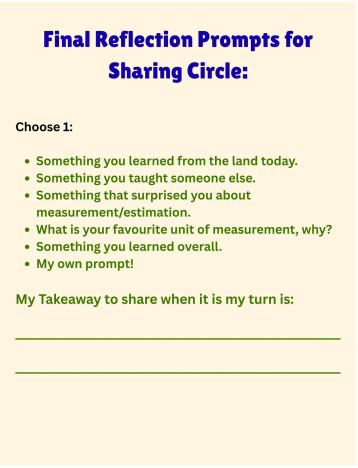
Lesson 7

Name &Time (Minutes Allotted):	Estimation and Measurement Practice
Learning Standards: Curricular Competencies	CC2- Estimate reasonably
Learning Standards: Content	C8- Direct linear measurement, introducing standard metric units (cm, dm, m; introducing estimation)
Instructional Objectives	**SWBAT:** ● Estimate, using the term *about,* the lengths of objects using appropriate units ● Measure objects using standard tools to find more exact answers ● Compare their estimates to actual measurements ● Reflect on the accuracy of their estimates
Assessment:	**Triangulated** **Conversation:** student reflections on estimate vs actual measurement **Observation:** students' estimation strategies and measuring skills **Product:** recording sheet showing estimates and actual measurements
Teaching Strategies:	● Think-aloud modeling (estimate vs exact measurement) ● Inquiry-based learning ● Partner work ● Reflective discussion
Materials:	● rulers/metre sticks/ ● Classroom objects/items from home ● Recording sheets
Lesson Activities:	
Introduction/Hook:	"Raise your hand if you've ever guessed how long or tall something is!" "That is actually called estimating – when we say ***about*** how long something is" Teacher holds up an object: "Think for a couple seconds and share with your shoulder partner how long you think this is. Remember, we are just estimating, so it does NOT have to be exact." Students share to the class and the teacher will write some guesses on the board to compare to the actual results. (for engagement)
Body:	**Teacher Modeling:** ● Models thinking outloud: ○ "I think this is ABOUT 3 decimeters or 30 centimeters long" ○ Measures with a ruler- "oh it is actually 32 centimeters long, i was close but measuring gives us a more exact answer" ○ "When we estimate we say *about.* When we measure with a ruler, we try to be more exact or precise" **Partner activity:** Students will rotate through a couple stations where students will: 1. Look at the object 2. Estimate (using about and units) 3. Measure using a tool 4. Record both answers

Recording sheet: **Object:** _____ **My Estimate (about … cm / dm / m):** _____ **My Measurement (exact):** _____ **Difference (Estimate – Measurement):** _____ **Notes / Observations:** _____ **share and compare with your partner!**	Students compare estimate vs actual and discuss with a partner Prompts: ● Was your estimate close? ● What helped you make a good estimate? ● Would you change your estimate next time?
Closure:	**Reflection Discussion:** "Were your estimates always exact?" Allow conversation and responses. "No, and that is completely okay! Estimates are not meant to be exact, they are close guesses!" "When we want or need to be exact, what do we do?" "Thats right we measure"

Lesson 8

Name &Time (Minutes Allotted):	Outdoor Measurement Hunt!
Learning Standards: Curricular Competencies	CC9- Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures.
Learning Standards: Content	C8- Direct linear measurement, introducing standard metric units
Instructional Objectives	**SWBAT:** ● Apply estimation and measurement skills in an outdoor environment ● Select appropriate units and tools for measuring natural and built objects ● Measure and record lengths using standard units ● Communicate their thinking and observations with peers
Assessment:	**Conversation:** student explanations of unit choice and reasoning **Observation:** student engagement, collaboration, and measurement skills outdoors **Product:** completed outdoor measurement sheet
Teaching Strategies:	● Using a talking piece for sharing ● Reviewing student expectations when outside ● Place-based learning ● Inquiry and exploration
Materials:	● worksheet/pencil for recording ● Clip boards ● Talking piece fo sharing circle ● Outdoor space ● Measuring tools (rulers, tape measures, metre sticks)

Lesson Activities:	
Introduction/Hook:	**Before going outside:** "Over the past few days, we have been learning how to measure, estimate, and choose the best unit." "Today we are going to take our learning outside! In many Indigenous ways of learning, learning is done from the land by observing, exploring, and experiencing" "Today the land will be our classroom! You will be estimating the lengths of outdoor items, then measuring to find a more exact answer." The teacher goes over outdoor rules/expectations.
Body:  **OutdoorMeasurement Hunt!** Instructions: 1. Find an object or area outside to measure (tree branch, bench, playground line, stick, stone, etc.). 2. Estimate its length using about … and your chosen unit (cm, dm, m). 3. Measure it using the correct tool. 4. Record your observations. Examples: • Find something about 10cm long Object:_____ Estimate:_____ Unit of Choice:_____ Measuring tool:_____ Actual Measurement:_____ • Find something about 1m long Object:_____ Estimate:_____ Unit of Choice:_____ Measuring tool:_____ Actual Measurement:_____ • Find something longer than themselves Object:_____ Estimate:_____ Unit of Choice:_____ Measuring tool:_____ Actual Measurement:_____ • Find something they can measure in decimeters Object:_____ Estimate:_____ Unit of Choice:_____ Measuring tool:_____ Actual Measurement:_____ • Find two random objects and compare their lengths Object:_____ Estimate:_____ Unit of Choice:_____ Measuring tool:_____ Actual Measurement:_____	**Outdoor Measurement Hunt:** In groups students will explore the outdoor space safely and find different objects using the prompts on their observation sheet. Examples are: ● Find something *about* 10cm long ● Find something *about* 1m long ● Find something longer than themselves ● Find something they can measure in decimeters ● Find two random objects and compare their lengths For each item, students will: 1. Estimate 2. Choose the best unit 3. Measure 4. Record **Check-in:** "Turn to your partner and share one measurement that surprised you so far"
Closure:  **Final Reflection Prompts for Sharing Circle:** Choose 1: • Something you learned from the land today. • Something you taught someone else. • Something that surprised you about measurement/estimation. • What is your favourite unit of measurement, why? • Something you learned overall. • My own prompt! My Takeaway to share when it is my turn is: _____ _____	**Unit reflection and sharing:** Students gather in a circle outside to reflect on their learning. Teacher leads class sharing circle with guided prompts, students may use any one of the following or their own: - Something they learned from the land today - Something they taught someone else - Something that surprised them about measurement/estimation - What is your favourite unit of measurement, why? - Something you learned overall Teacher models how to share respectfully, using a talking piece can help with turn taking.

Resources:

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Extensions to Unit:

Math extensions:

- Classroom “measurement museum” where students bring an item from home, estimate, measure, and display their items in order from shortest to longest.
- Create your own ruler activity

Cross curricular extensions:

- SS- Explore traditional indigenous uses of measurement such as hand/foot spans, tree estimating activity (45 degree angle & pencil method) https://educ-indig-mathnet-2024.sites.olt.ubc.ca/files/2024/07/Session-1B-NL-Estimating-Heights-of-Trees-Handout.pdf
- ELA- story based measurement involving First Peoples perspectives of measurement

Reflections and Revisions

We chose the topic of measurement because it fits into the Grade 2 curriculum and because it was suggested by our Teacher Mentor. Measurement is a topic that can provide students with various life skills, but can also be challenging for some individuals to grasp without sufficient support. Because of this, we wanted to include lessons and activities that were hands-on, interactive, engaging, and had ties to real-world experiences. We also made sure our lessons had a main focus to ensure full understanding of students, one concept at a time, such as: centimeters, decimeters, and meters. In the curriculum there is not mention of decimeters but our Teacher Mentor advised that we teach that alongside centimeters and meters. Although unit conversions are not necessary at this level, introducing comparing the different units can help students visualize the reasoning behind using different units, rather than ‘just because’. We decided to incorporate triangulated assessment into the unit because it is an indigenized approach to evaluating students progression of learning through multiple means, not just one specific assessment. The unit concludes with an outdoor, place-based learning experience where students can apply their developed skills through a measurement hunt in a meaningful, memorable, and collaborative way.

Some challenges we faced while designing this unit include:

- Ensuring lessons were simple enough while still providing students with rich learning
- Ensuring we added various activities that support different learners
- Planning the order of the lessons to make sure they flow smoothly
- Finding/making resources that support just centimeters, decimeters, and meters

Lesson 1-4 artifacts below

Lesson 1-4 artifacts:

Teacher Assessment Sheet:

Title: Lesson 1 – Comparing Attributes

Student Name	Identifies Attribute (length/height/weight)	Uses Comparison Language	Participates in Activity	Explains Thinking	Notes
	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	

Student Worksheet:

Title: Let's Compare!

1. **Draw TWO objects that you have compared:**

_____ _____

2. **Circle one:**

- **longer / shorter**
- **heavier / lighter**
- **taller / shorter**

3. **Finish the sentence:**
   "One of the items I have measured is _____ than the other"

Lesson 2:

Teacher Assessment Sheet

Title: Lesson 2 – Non-Standard Measurement

Student Name	Uses Repeating Unit	Lines Up Units Correctly	Counts Accurately	Compares Results	Notes

Student Recording Sheet

Title: Measuring with Non-Standard Units

Object	Tool Used	My Estimate	My Measurement

Desk	cubes

Lesson 3:

Teacher Assessment Sheet

Title: Lesson 3 – Standard Units

Student Name	Understands Need for Standard Units	Uses Ruler Correctly	Starts at 0	Uses Vocabulary	Explains Why	Notes

Student Worksheet

Title: Measuring with a Ruler

1. **Measure your object:**
   Object: _____
   Length: _____ cm
2. **Compare:**
   My object is:
   ☐ longer ☐ shorter

Lesson 4:

Teacher Assessment Sheet

Title: Lesson 4 – Measuring Height & Distance

Student Name	Chooses Appropriate Tool	Measures Accurately	Uses Meter Language	Participates in Outdoor Activity	Explains Thinking	Notes

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Student Recording Sheet

Title: Measuring with Meters

Part 1: My Height

My height is: _____ m / cm,

My partner's height is: _____m/cm,

Draw yourself:
[space]

Part 2: Measuring Distance

What did you measure? _____

My measurement: _____ m