THOMPSON RIVERS UNIVERSITY | Education & Social Work

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

Unit Title: Measurement | Number of Lessons: 14 | Time (in weeks): 3

Name: Katie Ellis | Subject(s): Math | Grade(s): K

Rationale

This unit is important because it develops skills in measurement, relative comparison and estimation which are highly transferable and useful skills. Students will practice applying their skills and logic in various measurement activities. Students will start the unit by mastering the concept of non-standardized measurement techniques before moving onto using a standard ruler. Vocabulary for measuring and making comparisons will be reviewed regularly.

This unit incorporates Indigenous processes and ways of learning and knowing through collaborative work, learning holistically with context and reason, and incorporating play throughout the unit. This unit is highly interactive, and students are encouraged to support one another's learning. Students will practice combining their thinking to problem solve and accomplish learning tasks. Students will be learning and practicing their skills through games, story problems, and hands-on activities.

Overview:

In the first week students will be guided through and then have the opportunities to practice measuring with non-standardized units. Students will start by lining up marshmallows to correspond with a line, then record the number of marshmallows that line was. Then students will progress through guided treasure and scavenger hunts around the classroom.

In the second week students will continue to explore measuring activities using non-standardized units. Students will work together to measure items around the classroom in non-standardized units. Students will explore using their hands, feet, and steps as non-standard measurement tools.

In the third week, students will be introduced to standardized units, and practice measuring using a ruler. Students will practice colouring in rulers on paper before progressing to using an actual. Students will measure 2D and 3D images/objects with their rulers. The unit finishes with students applying their knowledge and skills in gamified activities.

CORE COMPETENCIES

Communication	Thinking	Personal & Social
Collaborating: 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	Critical and Reflective thinking: 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,	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.

contributing.	and synthesize information and evidence; and reflect to draw reasoned conclusions.	

BIG IDEAS

(multiple subject areas for integrated unit)

Subject Name: Math	Subject Name: Career Education	Subject Name
Objects have attributes that can be described, measured, and compared.	Effective collaboration relies on clear, respectful communication.	

LEARNING STANDARDS

Curricular Competencies	Content
Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving	direct comparative measurement: understanding the importance of using a baseline for direct comparison in linear measurement linear height, width, length (e.g., longer than, shorter than, taller than, wider than)
Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts	
Use mathematical vocabulary and language to contribute to mathematical discussions	

Prerequisite Concepts and Skills:

Can count to 10+
Can count objects with 1 to 1 correspondence
Can use different manipulatives to represent quantities
Can write numbers 1-10+
Can participate meaningfully in a discussion

Teacher Preparation Required:

Lesson #	Teacher Preparation Required (See Unit Plan Sample)
Lesson 1	-Buy mini marshmallows, make 20 copies of worksheet -Prep 20 Measurement Booklets for Lessons 1-4
Lesson 2	Buy sticker gems, make 20 copies of worksheet
Lesson 3	Make 20 copies of scavenger worksheet
Lesson 4	Make 20 copies of worksheet
Lesson 5	None
Lesson 6	-Gather animal photos for students to cut out (magazines, calendars, etc.) -Make 20 copies of worksheet
Lesson 7	Make 20 copies of worksheet
Lesson 8	Make 20 copies of worksheet
Lesson 9	None
Lesson 10	Make 20 copies of worksheet

Lesson 11	None
Lesson 12	Make 20 copies of scavenger worksheet
Lesson 13	Cut class set of string (different colours for each size- 2, 5, 7, 10cm)
Lesson 14	-Make 12 copies of walkabout worksheet -Create items checklist for students X20 copies

Cross-Curricular Connections:

Career Education:
Everything we learn helps us to develop skills.
Students will be able to demonstrate effective work habits and organizational skills appropriate to their level of development.

Aboriginal 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).

In this unit students will be developing their reciprocal relationships with their peers as they work together to explore the concept of measurement and what it means outside of the classroom. This unit encourages students to support one another to accomplish a variety of learning tasks and discussions. Students will practice applying their knowledge of measurement to their understanding of themselves and their environment.

Universal Design for Learning (UDL):

Multiple Means of Engagement:

-Group work and individual work opportunities
-Flexibility with time/pacing
-Regular student feedback
-Visuals to support text
-Front loading expectations

Multiple Means of Representation:

-Simplified language for oral instructions, accompanied with visual reminders
-Text is read aloud and supported with visual images
-Large print
-Teacher scribes new vocabulary for students
-Selected/alternative seating available

Multiple Means of Expression and Action:

-Oral and written/visual expression of thinking are welcome
-Use of graphic organizer/outline with minimal visual clutter
-Choice and variety of materials available

Differentiated Instruction (DI):

Students working on learning pencil grip can use pencil grasp holders.

Students needing support writing their name or other words:
-Refer to their name tag/white board for reference
OR Write word in yellow and the students trace over

Students needing support to focus will be kept in close proximity to the teacher. Students needing help regulating may hold a stuffed animal/comfort item/fidget item (as long as it is not a significant distraction to themselves/others).

Overview of Lessons:

Week 1

Lesson 1

Name &Time (Minutes Allotted):	Introduction to Counting Non-Standardized Units, 30 min
Learning Standards: Curricular Competencies	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts Use mathematical vocabulary and language to contribute to mathematical discussions
Learning Standards: Content	direct comparative measurement: understanding the importance of using a baseline for direct comparison in linear measurement linear height, width, length (e.g., longer than, shorter than, taller than, wider than)
Instructional Objectives	Students will be able to estimate reasonably Students will be able to use non-standardized units of measurement Students will be able to count units of measurement and record a numerical representation
Assessment:	Self-Assessment: Student's self-check their worksheet
Teaching Strategies:	Physically demonstrate activity with class Check-in for understanding List of steps written on board with visual reminders Exemplar on display for reference Circulating as students are working
Materials:	Mini marshmallows Worksheet X20 Document camera Manipulatives (unifix cubes)
Lesson Activities:	
Introduction/Hook:	Hook: Show students marshmallows and an item, ask them to guess how many marshmallows it would take to match the length of the item. Schema activation re: estimating distances Practice lining up marshmallows to demonstrate how to line up them up when using them to measure. Introduce vocab for measurement, highlight L/L, etc. Using a square desk as an example Length= long Height=high Width= wide

	Other words to use when measuring? Big/small, heavy/light, lots/little. As a class, practice measuring different items. Students partner up and then given time to go find an item or space in the class to measure, as a class we line up the units being used and then chant/count the items that each set of partners chose.
Body:	Marshmallow Math Worksheet Use document camera to demonstrate/fill out the worksheet. Explain estimations, have students complete the "Guess"'s Once they are done, demonstrate lining up the marshmallows for the bug spray and recording the number in the "Actual". Hand out the marshmallows. Student work time, circulating. Once students have completed the worksheet, they can eat their marshmallows. *Early finishers can colour their worksheet Review student's findings of the math worksheet, using document cam. Investigate any major discrepancies, use marshmallows to demonstrate counting when reviewing the worksheet. Student counting/chanting. Self-assessment: Student's check their own work.
Closure:	Reinforcing vocab: Students complete the cover and first page of their measurement booklet, page=length

Lesson 2

Name &Time (Minutes Allotted):	Guided Treasure Hunt, 30 min
Learning Standards: Curricular Competencies	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts Use mathematical vocabulary and language to contribute to mathematical discussions
Learning Standards: Content	Direct comparative measurement: understanding the importance of using a baseline for direct comparison in linear measurement linear height, width, length (e.g., longer than, shorter than, taller than, wider than)
Instructional Objectives	Students will be able to use vocabulary meaningfully and make direct comparisons. Students will be able to use non-standardized units of measurement
Assessment:	Observation: Participation in class activity (Y/N) Use of vocabulary in discussions (Y/N) Summative Product: Completion of Treasure Map (Y/N)

Teaching Strategies:	Physically demonstrate activity with class Check-in for understanding List of steps written on board with visual reminders Exemplar on display for reference Circulating as students are working
Materials:	Manipulatives for non-standard units Treasure map worksheet Pencil Document camera to display worksheet
Lesson Activities:	
Introduction/Hook:	Hook: Tell the students we will be going on a treasure hunt! We will need to find different sized items to complete the treasure map! Review vocab learned in Lesson 1
Body:	Students move to desks, given Treasure Map worksheet, first instruction is to write their name on it. Teacher reads out "clues", 4 clues (1 person from each table going on a mission at a time) to lead to treasure. First clue: You need to find something that is smaller than your hand, but bigger than your thumb. Student from each table goes to find an item from around the classroom, brings it to their table, students work together to measure item with non-standardized units. Record number in treasure chest #1 Repeat process with clues 2-4, making sure each students gets a turn. Students receive their treasure, a sticker/gem, to put on their completed worksheet. Students colouring worksheet if they are finished early. Discussion: Biggest items? Smallest? Prompting for vocab use.
Closure:	Reinforcing vocab: Students complete second page of their measurement booklet, page=height

Lesson 3

Name &Time (Minutes Allotted):	Non-standardized Scavenger #1, 30 min
Learning Standards: Curricular Competencies	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts Use mathematical vocabulary and language to contribute to mathematical discussions
Learning Standards: Content	direct comparative measurement: understanding the importance of using a baseline for direct comparison in linear measurement linear height, width, length (e.g., longer than, shorter than, taller than, wider than)
Instructional Objectives	Students will be able to use non-standardized units to measure various classroom items Students will be able to record the measurement in numerical form
Assessment:	Summative product:

	Completed worksheet (to their best ability, some may not finish all items, goal is 5/8 completed) with reasonable answers (some responses will vary, ex. Not all books are the same size). Observation: Students counting aloud with one-to-one correspondence Units being used to measure are closely lined up/organized
Teaching Strategies:	Physically demonstrate activity with class Check-in for understanding List of steps written on board with visual reminders Exemplar on display for reference Circulating as students are working
Materials:	Manipulatives for non-standardized units Scavenger worksheet Pencil
Lesson Activities:	
Introduction/Hook:	Tell students they did such a great job on yesterday's Treasure Hunt that now they will be going on individual quests! A scavenger hunt! Show students the worksheet and run through the first one (or two) items as a class.
Body:	Students given worksheets, helping peers is encouraged, working semi-independently. Students work time, students finding items, bringing them to their desk to measure (if possible). Students use manipulatives provided at desk. Teacher circulating and supporting where needed. *Not all students will complete the worksheet, goal is 5/8, focus on accuracy not speed. Students gather on carpet, with worksheet in hand. Students share and compare responses, talk about why some answers vary more than others. Prompt for use of vocab words .
Closure:	Reinforcing vocab: Students complete third page of their measurement booklet, page= width

Lesson 4

Name &Time (Minutes Allotted):	Non-standardized Scavenger #2, 30 min
Learning Standards: Curricular Competencies	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts Use mathematical vocabulary and language to contribute to mathematical discussions
Learning Standards: Content	direct comparative measurement: understanding the importance of using a baseline for direct comparison in linear measurement linear height, width, length (e.g., longer than, shorter than, taller than, wider than)

Instructional Objectives	Students will be able to use non-standardized units to measure various classroom items Students will be able to record the measurement in numerical form
Assessment:	Summative product: Completed worksheet (to their best ability, some may not finish all items, goal is 5/8 completed) with reasonable answers (some responses will vary, ex. Not all books are the same size). (Y/N) Observation: Students counting aloud with one-to-one correspondence (Y/N) Units being used to measure are closely lined up/organized (Y/N)
Teaching Strategies:	Physically demonstrate activity with class Check-in for understanding List of steps written on board with visual reminders Exemplar on display for reference Circulating as students are working
Materials:	Manipulatives for non-standardized units Scavenger worksheet Pencil
Lesson Activities:	
Introduction/Hook:	Let students know that today's scavenger hunt is going to be even TRICKIER than yesterday's! Are they up for the challenge?! Demonstrate first one or two items on the worksheet. Today they are given a target measurement, and they need to FIND an item that matches that measurement. Example: Find *something* that is 7 unifix cubes long. If trying to find something 7 cubes long, put together 7 cubes and then walk around and trying to find an item that matches it's length.
Body:	Students given worksheet, reminder to write name. Helping peers is encouraged, students working semi-independently. Students work time, students finding items, bringing them to their desk to measure (if possible). Students use manipulatives (unifix cubes) provided at desk. Teacher circulating and supporting where needed. *Not all students will complete the worksheet, goal is 5/8 Students gather on carpet, with worksheet in hand. Students share and compare responses (what did you find in the class that is 11 unifix cubes long?), talk about why some answers vary more than others. Prompt for use of vocab words.
Closure:	Reinforcing vocab: Students complete final page of their measurement booklet, page= weight. Take home measurement booklet (put in student mailbox)

Week 2

Lesson 5

Name &Time (Minutes Allotted):	Comparative Measurement – Vocab and Estimation practice, 30 min
Learning Standards: Curricular Competencies	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving Incorporate First Peoples worldviews and perspectives to make

	connections to mathematical concepts Use mathematical vocabulary and language to contribute to mathematical discussions
Learning Standards: Content	direct comparative measurement: understanding the importance of using a baseline for direct comparison in linear measurement linear height, width, length (e.g., longer than, shorter than, taller than, wider than)
Instructional Objectives	Students will be able to recall vocabulary learned last week Students will be able to work collaboratively to accomplish a learning task Students will be able to use non-standardized units to measure an item/space
Assessment:	Observation: -Collective assessment of vocab retention during introduction of lesson -Students are being kind and cooperative when engaging with peers -As a group, students will verbally report the measurement they found by lining up and then counting the unifix cubes.
Teaching Strategies:	Physically demonstrate activity with class Check-in for understanding List of steps written on board with visual reminders Exemplar on display for reference Circulating as students are working
Materials:	Chart paper/markers Unifix cubes
Lesson Activities:	
Introduction/Hook:	Review concepts from last week, vocab used to measure items/places. Five different items/places chosen by students to investigate. Students make estimations of distance in unifix cubes, write down estimations on board.
Body:	Each table assigned one of the five items/places to measure with unifix cubes. Students collaborating with the peers at their table group to find the measurement (work together to line up cubes, then count them aloud as group and write answer on white board).
Closure:	Students gather back at carpet; actual measurements are recorded. Students reflect on the accuracy of their estimations. Discussion: What is the use of estimation? Why do we practice it?

Lesson 6

Name &Time (Minutes Allotted):	EDFN 4100 Measurement Lesson- Partner work, 30 min
Learning Standards: Curricular Competencies	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts Use mathematical vocabulary and language to contribute to mathematical discussions
Learning Standards: Content	direct comparative measurement: understanding the importance of using a baseline for direct comparison in linear measurement linear height, width, length (e.g., longer than, shorter than, taller than,

	wider than)
Instructional Objectives	Students will be able to work together in pairs/trios to help one another measure their height in non-standardized units. Students will make a reasonable estimation and compare their relative height to a local animal of their choosing.
Assessment:	Students will record their height in non-standardized units on their worksheet. Students will complete the line "I am taller/smaller than a(n) ANIMAL OF CHOICE.
Teaching Strategies:	Physically demonstrate activity with class Check-in for understanding List of steps written on board with visual reminders Exemplar on display for reference Circulating as students are working
Materials:	Worksheet X20 copies EDFN 4100 Lesson 2 Worksheet.docx Magazines/calendars/etc. with pictures of local animals Unifix cubes/other manipulatives (paper clips, links, blocks) Scissors, glue Pencil
Lesson Activities:	
Introduction/Hook:	Students seated on carpet to begin lesson. Hook: Stand up if you think you are taller than a duck? (Have students return to sitting). Who thinks they are taller than a bear? Smaller? What about an elk? Practice estimating and making relative comparisons to warm students up. Introduction: Demonstrate the activity with the entire class, getting student volunteers to help. Complete the activity as a class, writing the steps down as we go through them for students to refer back to when it's their turn.
Body:	*Step 1: Write your name on your worksheet* *Step 2: Decide which partner will be measured first, second (and possibly third).* *Step 3: Partner lies down, other partners line up manipulatives to match height.* *Step 4: Together they all count the number of units. Record number of units on worksheet.* *Step 5: Repeat process with other partner(s) until everyone has their height recorded.* Students measure each other using non-standardized units and record on their worksheet.
Closure:	Students go to desks and cut out an animal and paste it onto their worksheet. Circulating and checking with students for understanding of concepts, offering support where needed. Join at carpet, students share their findings with peer through informal

	discussion.

Lesson 7

Name &Time (Minutes Allotted):	Measuring with our Hands, 30 min
Learning Standards: Curricular Competencies	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts Use mathematical vocabulary and language to contribute to mathematical discussions
Learning Standards: Content	direct comparative measurement: understanding the importance of using a baseline for direct comparison in linear measurement linear height, width, length (e.g., longer than, shorter than, taller than, wider than)
Instructional Objectives	Students will be able to estimate reasonably Students will be able to use non-standardized units to measure distances
Assessment:	Collective observation: Students verbalize/suggest estimates for distances Summative Product: Recorded distances on How Many Hands Worksheet by counting aloud while they use their hands to measure distances
Teaching Strategies:	Physically demonstrate activity with class Check-in for understanding List of steps written on board with visual reminders Exemplar on display for reference Circulating as students are working
Materials:	Worksheet X20 Pencil CLIP BOARDS?! (class set)
Lesson Activities:	
Introduction/Hook:	Students gather on carpet. Hook: Ask if everyone brought their hands with them today? Did anyone leave them at home? Show them to me! How many hands do you have? Introduction: Pick a distance and ask students to guess how many hands away it would be? Record estimates on chart paper. Use my hands and demonstrate lining them up one after another (no gaps), have students chanting/counting as I demonstrate. Practice one more as a class, use a student's hands this time.
Body:	"How Many Hands?" Worksheet Students moving around the classroom to complete the worksheet (CLIP BOARDS WOULD BE HELPFUL!), using their hands to measure distances, using a pencil to record the distance on their worksheet. Students can work alongside a partner but are responsible for completing their own worksheet.

	*Not all students will complete the entire worksheet, this is ok!
Closure:	Gather students on carpet again, worksheets in their hands, ask if students can think of when we might use our hands to measure something? Fun Fact: Horse's heights are usually measured in hands! Discuss answers/differences, speculate why there might be differences?

Lesson 8

Name &Time (Minutes Allotted):	Measuring with our Feet, 30 min
Learning Standards: Curricular Competencies	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts Use mathematical vocabulary and language to contribute to mathematical discussions
Learning Standards: Content	direct comparative measurement: understanding the importance of using a baseline for direct comparison in linear measurement linear height, width, length (e.g., longer than, shorter than, taller than, wider than)
Instructional Objectives	Students will be able to estimate reasonably Students will be able to use non-standardized units to measure distances
Assessment:	Collective observation: Students verbalize/suggest estimates for distances Summative Product: Recorded distances on "How Many Feet Worksheet" by counting aloud while they use their feet to measure distances
Teaching Strategies:	Physically demonstrate activity with class Check-in for understanding List of steps written on board with visual reminders Exemplar on display for reference Circulating as students are working
Materials:	Worksheet X20 Pencil Clip boards (class set)
Lesson Activities:	
Introduction/Hook:	Students gather on carpet. Hook: Ask if everyone brought their feet with them today? Did anyone leave them at home? Show them to me! Keep your shoes on! Hands up if you have stinky feet! Introduction: Pick a distance and ask students to guess how many feet away it would be? Record estimates on chart paper. Use my feet and demonstrate stepping slowing and lining them up one

	after another (no gaps, heel to toe), have students chanting/counting as I demonstrate. Requires some balance, have students practice as a class. *DI Option, student uses second set of shoes to move around and count. Practice one more as a class, use a student's feet this time.
Body:	Student work time, "How Many Feet?" Worksheet. Students moving around the classroom to practice using their feet as non-standardized units. Students can work alongside a partner but are responsible for completing their own worksheet. *Not all students will complete the entire worksheet, this is ok!
Closure:	Gather students on carpet again, worksheets in their hands, ask if students can think of when we might use our feet to measure something? Prompt: Has anyone heard of "feet" being used to measure before? Where do you think this idea came from? Discuss answers/differences, speculate why there might be differences?

Lesson 9

Name &Time (Minutes Allotted):	Measuring in Steps (Outside), 30 min
Learning Standards: Curricular Competencies	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts Use mathematical vocabulary and language to contribute to mathematical discussions
Learning Standards: Content	direct comparative measurement: understanding the importance of using a baseline for direct comparison in linear measurement linear height, width, length (e.g., longer than, shorter than, taller than, wider than)
Instructional Objectives	Students will be able to estimate reasonably Students will be able to use non-standardized units to measure distances
Assessment:	Students will collectively demonstrate their learning through participation in the class activity.
Teaching Strategies:	Physically demonstrate activity with class Check-in for understanding List of steps written on board with visual reminders Exemplar on display for reference Circulating as students are working
Materials:	1 chart for recording estimates/actual distances Different coloured pens/markers Clip board

	Document camera
Lesson Activities:	
Introduction/Hook:	Tell students we will be going outside for math today! Get them dressed into their outside gear and lined up! Remind them we are doing math outside (not going to the playground), so stay close so they know what we are doing!
Body:	Gather students together once we are outside. Introduce that we will be measure with our STEPS today! Practice taking a few steps and counting out loud! Gather students back again, pick a tree/distance and ask students to guess how many steps it would take to get there? Draw the tree onto the chart, record the estimate, go with the students to pace them and count out the steps aloud until we reach the tree as a class. From this spot, pick another target, take a couple estimates from students and record them, then lead the students in their corresponding steps and counting until they reach the target Repeat process as a class.
Closure:	Go back inside, students put away outdoor gear. Students sit at desks or on floor so they can see the projector, use the document camera to show students the chart that we made together outside! Which was the longest distance? The shortest? Look at the estimates compared to actual distances? How close were we? Did we improve with our estimations? Stay the same? Why?

Week 3

Lesson 10

Name &Time (Minutes Allotted):	Introduction to Standardized Units
Learning Standards: Curricular Competencies	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts Use mathematical vocabulary and language to contribute to mathematical discussions
Learning Standards: Content	direct comparative measurement: understanding the importance of using a baseline for direct comparison in linear measurement linear height, width, length (e.g., longer than, shorter than, taller than, wider than)
Instructional Objectives	Students will be able to use a fixed ruler to find measurements (length).
Assessment:	Students will use a ruler to find and record measurements in centimeters.
Teaching Strategies:	Physically demonstrate activity with class Check-in for understanding List of steps written on board with visual reminders Exemplar on display for reference Circulating as students are working
Materials:	Worksheet 1 X20 Worksheet 2 X20 (TPT Download: measuringlengthininchesandcentimeters, pgs. 2 & 6)

Lesson Activities:	
Introduction/Hook:	Introduce a ruler to the class! Show them what it looks like, how the numbers increase by 1, just like a number line. Write the word “centimeter” on the chart paper, students tell me the first letter of the word, practice saying “centimeter” as a class. Show abbreviation for centimeters= cm. Explain that a centimeter is ALWAYS the same size, unlike the blocks and other items we were using to measure. Do we all have the same size hands/feet/steps? Nope! But centimeters are always the same.
Body:	Students working at desks. Remember to get names on worksheets before giving out other instructions. Demonstrate/show exemplar using document camera. Part 1: Colouring the ruler to show how long the item is. Practicing finding the end of the item and corresponding measurement on the ruler. Part 2: Colouring the vehicles, circle the number at the end of the item, recording the measurement in the circle.
Closure:	Bring students back to carpet, ask students to tell me which vehicle was the longest? The shortest? How do you know?

Lesson 11

Name &Time (Minutes Allotted):	Measuring Monsters!
Learning Standards: Curricular Competencies	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts Use mathematical vocabulary and language to contribute to mathematical discussions
Learning Standards: Content	direct comparative measurement: understanding the importance of using a baseline for direct comparison in linear measurement linear height, width, length (e.g., longer than, shorter than, taller than, wider than)
Instructional Objectives	Students will be able to physically manipulate a ruler to measure short distances in centimeters on a worksheet.
Assessment:	Observation: Student is able to manipulate a ruler to align with measurement targets Summative Product: Student is able to communicate corresponding measurement by writing the number
Teaching Strategies:	Physically demonstrate activity with class Check-in for understanding List of steps written on board with visual reminders Exemplar on display for reference

	Circulating as students are working
Materials:	A ruler for each student Blank paper Pencil Colouring materials Document camera
Lesson Activities:	
Introduction/Hook:	Let students know that they will be drawing monsters today in math! We are going to create measurement monsters! Review rulers, how the numbers increase by 1 like a number line, what centimeters are, the abbreviation.
Body:	Students at desk, given blank piece of paper. Step by step activity: Demonstrate on document alongside students. Step 1: Draw a body for your monster *big/small, any shape* Step 2: Draw a head for your monster Step 3: Draw arms and legs for your monster Step 4: Draw a tail onto your monster Step 5: Draw your monster a set of horns Get rulers out, measure length of head, write number next to head with cm abbreviation. Step by step, measure and record body, tail, and horns. Bonus/Challenge: Measure all arms and add together.
Closure:	Who had a head bigger than 10 cm? Who had a tail smaller than 3 cm? Etc. Name your monster! Colour your monster and add more detail!

Lesson 12

Name &Time (Minutes Allotted):	Centimeter Scavenger Hunt
Learning Standards: Curricular Competencies	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts Use mathematical vocabulary and language to contribute to mathematical discussions
Learning Standards: Content	direct comparative measurement: understanding the importance of using a baseline for direct comparison in linear measurement linear height, width, length (e.g., longer than, shorter than, taller than, wider than)
Instructional Objectives	Students will be able to use a ruler to measure various classroom items Students will be able to record the measurement in numerical form
Assessment:	Summative product: Answered worksheet to their best ability (goal is 5/9 completed) with reasonable answers. Some responses will vary, ex. Not all crayons are the same size.

Teaching Strategies:	Physically demonstrate activity with class Check-in for understanding List of steps written on board with visual reminders Exemplar on display for reference Circulating as students are working
Materials:	Ruler, pencil Scavenger Worksheet (Downloads/PDF- Measurement Scavenger Hunt) Document camera
Lesson Activities:	
Introduction/Hook:	Introduce student's job for the day! Scavenger hunt! Will need a special tool to help them…..Any guesses? A ruler! Go through first item as a class, demonstrating how to measure a 3D object using a ruler. Review vocab (height, length, width).
Body:	Students at desk. Worksheet handed out; students write name at top. Review appropriate vs inappropriate places in classroom students can look for items. Students work time, teacher circulating and supporting. Students encouraged to work alongside peers, still need to do their own worksheet. Goal: Accuracy > completion
Closure:	Students gather on carpet, with worksheet in hand. Students share and compare responses, talk about why some answers vary more than others. Prompt for use of vocab words.

Lesson 13

Name &Time (Minutes Allotted):	Measuring Length; Story Problems
Learning Standards: Curricular Competencies	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts Use mathematical vocabulary and language to contribute to mathematical discussions
Learning Standards: Content	direct comparative measurement: understanding the importance of using a baseline for direct comparison in linear measurement linear height, width, length (e.g., longer than, shorter than, taller than, wider than)
Instructional Objectives	Students will be able to apply their skills and knowledge about measurement to simple story problems.
Assessment:	Observation: Students are using rulers to measure the different strings to determine which one is most appropriate for the problem. Students are collaborating and communicating with their peers.
Teaching Strategies:	Physically demonstrate activity with class Check-in for understanding List of steps written on board with visual reminders Exemplar on display for reference Circulating as students are working

Materials:	String/yarn, different colours are different lengths (2, 5, 7, 10cm), enough for each student to have a set.
Lesson Activities:	
Introduction/Hook:	Hook: Need our thinking caps on today! We are going to be solving story problems! Practice doing a story problem together, demonstrate (and narrate thinking) how I find out which string would be the best for the situation (estimation and then trial and error). If I was making a leash for my toy dog and needed a piece of string that was 7cm long, which piece of string would I use?
Body:	Students sitting at their desks, each given a set of strings. Problems are read out loud to class, text/visuals displayed via document camera. Students silently hold up the string they think it is when they are ready. Discuss possible answers. Repeat with next question. Question 1: Kelly is making a bracelet for a teddy bear and needs 5cm of string to put the beads onto. Which string should they use? *Hold up your choice once you've decided.* Question 2: Sam is wrapping a present and needs a piece of string that is 7 cm long. Which string should they choose? Question 3: Taylor is making a ring for their baby brother; they need a small piece of string that is 2cm long. Which string would be the best to use? Question 4: Olaf is sewing up a hole in his scarf and needs a piece of string that is 10 cm long. Which string would be the best to use? Question 5: Blake is making a bow and needs a piece of yarn that is 7cm long, which string should they use? Question 6: Charlie is making a keychain using pieces of string that are 5cm long. Show me a piece of string that is 5cm long. Question 7: Avery is making an anklet and needs a piece of string that is bigger than 9cm. Which string do you think they would use? Question 8: Alex is decorating a bookmark and needs a very short piece of string for the top. It must be smaller than 3cm. Which string should they choose?
Closure:	Instruct students to try and put the strings in order from biggest to smallest. Which string is the longest? The shortest? How do you know? How can you prove/explain your thinking?

Lesson 14

Name &Time (Minutes Allotted):	Measurement Game: Walkabout in Centimeters, 30 min
Learning Standards: Curricular Competencies	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts Use mathematical vocabulary and language to contribute to mathematical discussions
Learning Standards: Content	direct comparative measurement: understanding the importance of using a baseline for direct comparison

	in linear measurement linear height, width, length (e.g., longer than, shorter than, taller than, wider than)
Instructional Objectives	Students will be able to play cooperatively and respectfully with peers/partner Students will be able to apply skills and knowledge of measurement to practical situations
Assessment:	Students demonstrate ability to apply skills and knowledge in a logical manner by participating in the partner walkabout activity
Teaching Strategies:	Physically demonstrate activity with class Check-in for understanding List of steps written on board with visual reminders Exemplar on display for reference Circulating as students are working
Materials:	Rulers Pencil crayons Dice Worksheet X12 -Downloads/PDF-Rulermeasurmentgamewalkabout Item checklist X21 Document Cam
Lesson Activities:	
Introduction/Hook:	Introduce activity; that students will be going on a pretend walkabout the neighbourhood.
Body:	Students working with a partner from their table group. Possible one group of three if an odd number. Document camera displaying worksheet and checklist. Students will roll the die, and then draw a line (using their ruler) that many cm's towards target. Each partner using a different colour pencil crayon (Ex. Student A= blue, Student B= orange). Task/Goal = Collect each item, check off list as they go. Students provided item check list to help guide them as they play with their partner. Rules: Must go around buildings and the pond. Can collect items in any order they see fit. * Extension Task/Early Finishers = Visit each building
Closure:	Which item did you collect first? Last? Which was the trickiest to retrieve? Easiest? Why? Would you take a different path if you played this game again? How would it be different?

Resources:

BC Curriculum https://curriculum.gov.bc.ca/curriculum/mathematics/K/core
First People's Principles of Learning http://www.fnesc.ca/first-peoples-principles-of-learning/
First Voices- Secwepemc

Teachers Pay Teachers Worksheets

“In Our Own Words: Bringing Authentic First Peoples Content to the K-3 Classroom” (FNESC)

Extensions to Unit:

Mass: Sort by weight Volume/Capacity Add more pages to student’s measurement booklet Meters, Kilometers More games/centers Estimation challenges Conservation of mass (different shapes/sized glasses)

Reflections and Revisions

n/a