THOMPSON RIVERS UNIVERSITY | Education & Social Work

Bachelor of Education (Elementary) & Bachelor of Education (Secondary) STEM Lesson Plan

Lesson Title: Non-Standard Measurement **Lesson #** 1 **Date:** February 14, 2025

Name: Ashley Anderson **Subject:** Math **Grade(s):** 1

Rationale:

This lesson is important because it will help students understand the concept of measurement using non-standard units.

Core Competencies:

Communication	Thinking	Personal & Social
Collaborating - Students combine their efforts with those of others to effectively accomplish learning and tasks.	Critical Thinking 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.	Personal Awareness & Responsibility - Students who are personally aware and responsible take ownership of their choices and actions.

Big Ideas (Understand)

Objects and shapes have attributes that can be described, measured, and compared.

Learning Standards

(DO)	(KNOW)
Learning Standards - Curricular Competencies	**Learning Standards - Content**
• Model mathematics in contextualized experiences. • Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving. • Visualize to explore mathematical concepts.	• Direct measurement with non-standard units.

Instructional Objectives & Assessment

Instructional Objectives (students will be able to…)	Assessment
• Students will be able to articulate measurement with non-standard units.	• Students participated in the activity by physically moving and counting non-standard objects on a given cut out. • Students verbally and/or wrote down what the measurement was of their given cut out using a non-standard unit.

Prerequisite Concepts and Skills:

The students need to be able to physically move and line up little objects (non-standard units) as well as the ability to count and write down numbers (IEP exceptions).

Indigenous Connections/ First Peoples Principles of Learning:

Learning is holistic, reflexive, reflective, experiential, and relational. Hands on experience and practice are embedded in this lesson.

Universal Design for Learning (UDL):

Throughout this lesson students are able to engage with the activity in many ways. Students are given different non-standard units to choose from, students are able to move around and interact with the materials, there are also multiple means of representation through, voice, demonstration, and written. Students may also choose to do the activity with a peer so they can have help with the counting and writing.

Differentiate Instruction (DI):

This lesson can be adapted for those with IEP's, as students with attention deficits may sit in a wiggle chair, on the floor or stand. Students with writing deficits/ numeracy deficits can work with a partner, the CEA or the teacher.

Materials and Resources

- "If the Shoe Fits" video projected on screen
- Worksheets
- Pencils
- Erasers
- Timer
- Shoe cut outs
- Mitten cut outs
- Teddy bear cut outs
- Non-standard units
    - Paper clips
    - Tens blocks
    - Crayons
    - Erasers

Lesson Activities:

Teacher Activities	Student Activities	Time
Introduction (anticipatory set – "HOOK"): **Attention Grabber** -Get students attention by doing **clap clap, clap clap clap.** Repeat if needed until all students are quiet and ready to listen to instruction. -Ask students to go to carpet, sit down and face the screen, inform them that we will be watching/listening to a story. **(Hook)** -Have "If the Shoe Fits" video story projected on the screen. https://www.youtube.com/watch?v=XsLz-icSu5g -With the front cover showing ask the students what they think this story may be about based on the images and the title. Take answers from students who are raising their hands. -After you have got the students schemas activated by asking them the questions and they have answered, start the video.	-Students repeat the claps in the same rhythm, stop talking and freeze so that they are ready to listen to instruction. -Students head to carpet and get ready to watch/listen to the story. -Students raise their hand, wait to be called on, then share what they think the story will be about. -Students sit quietly and watch/listen to the video.	1 min 10 min

-At 1:39 after Wanda measures her feet and gets a different measurement than Albert pause the video and ask the students "Why do you think Wanda got a different measurement than Albert if they both used mouse feet?" -Give wait time and once someone says "It is because they have different sizes of feet!" say "Great thinking, as people we have different sizes of feet so maybe the mice do too! Let's listen to the rest of the story and see what happens!" continue playing the video. ***If no student gets it right then just take their thinking into consideration and just say "Great thinking, lets listen to the rest of the story and see what happens!" and then continue playing the video."** -When video mentions that it is because they have different sized feet silently motion that the student was right by making eye contact and giving a thumbs up. -Let the rest of the video play.	-Students think about the question and then raise their hand, wait to be called on, then share their thinking.	
Body: **Introduce the lesson on measurement with non-standard units.** -Explain to class that we now be doing our own measuring with objects from the room. There will be three different cut outs to be measured with different units (shoe, mitten, and teddy bear). ***Show the different cut outs, work sheet, and their choice of units while explaining and demonstrating the task*** -There will be three different groups set up in the class, one with the shoe cut outs and objects to measure, then one with the mitten cut outs and objects to measure, then lastly, one with the teddy bear cut outs and objects to measure. The teacher will be splitting the students up into the three groups, where there will be enough cut outs for each person. Let students know that they will get a chance to be in each group as they will be moving stations after 5 minutes. -Let students know what the expectations are when working in a group and what you want them to complete. ***Write expectations on the board*** - Don't take materials away from classmates - Wait your turn for materials - Ask politely to share with someone - Measure the cut out with at least 2 or more non-standard units/objects and write down your answer on your worksheet	-Students continue to sit at the carpet and listen to instruction. -Students listen to expectations. -Students head to the station they were assigned each grab a cut out, worksheet,	5 min 15 min

-Tell students their groups, send them to their station, and put a 5-minute timer on where students can see it. -Walk around checking on groups and helping where needed. -Let students know when they have 2 minutes left -Let students know when it is time to switch groups and where to go (moving clock wise)	and a pencil, then pick which object they would like to use to measure the cut out. They then use the object to measure the cut out and then write down their answer, repeating this step throughout the three stations.	
Closure: -Once every student has got a chance to go to each group then ask them to sit down at their table, with their sheet and ask them closing questions. **Think, Pair, Share:** - "Did anyone find anything surprising to you while you were measuring?" - "Do you think you would use this strategy again if you needed to measure something but didn't have a ruler or tape measure?" - "Compare your measurements with your elbow partner, did you get the same or different answers?" -After students have gotten the chance to share their findings ask them to put the materials away, put cut out on teachers' desk and hand in their worksheets to the 'hand in' bin.	-Students sit down in the chairs at their group and listen to teacher instruction. -Students listen to the question, think about it, talk to their elbow partner, then share with the class if they want to. -Students clean up the stations, hand in worksheet, and get ready for the next part of the day.	5 min 2 min

Organizational Strategies:

- To grab attention, teacher will do a rhythmed clap and students will repeat it back.
- Students may choose to stand, sit in a wiggle chair or yoga ball if they are feeling antsy.
- If students are getting over whelmed and/or over stimulated by the group activity they are allowed to tell the teacher what zone they are in (Green, yellow, blue, or red which is referencing the class sensory regulation poster) then the teacher can allow them to go take a quick break by getting a drink of water or to put headphones on to block the noise.

Proactive, Positive Classroom Learning Environment Strategies:

- Teacher will grab attention by doing **clap clap, clap clap clap.**
- Teacher will move around the class as students are working to ensure they are on task, answer questions, give clues and any help students may need.
- Teacher will verbally acknowledge those who are on task and tell them what a good job they are doing on their effort, hard work and engagement thus giving them encouragement.
- Teacher will verbally tell the students what is expected of them during this activity (be kind to your peers, don't take materials away from classmates, wait your turn for materials, ask politely to share with someone, measure the cut out with at least 3 or more non-standard units/objects and write down your answer on your worksheet).

Extensions:

This lesson could be extended into a measurement unit using non-standard measurement where students get the opportunity to bring something from home to measure or pick something around the class. The next lesson would also include teaching the students about length vs. width (up and down vs side to side) and getting them to measure both using their choice of a non-standard unit. Another addition to the lesson could include getting

students to estimate how many non-standard units they think something is going to be before they measure it, then getting them to measure it and see how close they were.

Reflections (if necessary, continue on separate sheet):

After the lesson the teacher will reflect on the activity asking themselves what went well, what didn't, and was the activity too easy or too challenging in order to adjust accordingly and meet student needs.

I chose to do this topic after having so much fun using non-standard measurements to measure stuff in our class, it became an inspiration to creating this lesson plan for a Grade 1 class. Some challenges I faced while creating this lesson plan is thinking about how much time to spend on each thing, I want to make sure that I am giving students enough time to engage with the activity and learn from it without burning them out and losing their attention. I think a way I could overcome this challenge while delivering it is to plan a brain break in case I feel I am losing the students attention. During delivery I can also see how the students are doing on time and adjust accordingly. Another thing I found challenging while creating this lesson plan is debating whether or not I should have the students work in groups or let them all pick a handout and work on their own. This was a challenge to me because I wasn't sure how well the students would work together or if I let them pick a cut out then maybe there would be fights over certain ones. Ultimately, I chose to have the students work in groups because I feel as if it is beneficially for the students to learn to work together, share, and help each other. One way I could overcome this in a class would be to get to know my students and how they work best, perhaps giving students the choice to do either. Some misconceptions students may have while working is what way they should be measuring (up and down or side to side), or they might have trouble lining up the non-standard units straight. Because of this, the worksheets would say "How long is the shoe?" "How tall is the teddy bear?" & "How tall is the mitten?" as well as having picture of their given non-standard units so they just need to write the number beside it. While explaining the activity I would make sure to show the students what way I want them to measure. If students get confused while working I will be walking around and help them as they need, however, this is planned to be their first lesson measuring with non-standard units so I would not be upset if they were measuring the other way because they are still participating in the activity and practicing measurement.