THOMPSON RIVERS UNIVERSITY | Education & Social Work

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

Lesson Title: Long Jump | Lesson #: 1 | Date: February 12/25

Name: Stephanie Selman | Subject: Math - Measurement | Grade(s): 1

## Rationale:

This lesson will help students grasp the basic concept of measurement by using nonstandard units which will provide them with a conceptual understanding of estimation and comparison. Completion of this lesson will allow for a more straightforward transition into measurement using standard units.

## Core Competencies:

| Communication | Thinking | Personal & Social |
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| - Students combine their efforts with those of others to effectively accomplish learning and tasks | - They work with clear purpose and consider the potential uses or audiences of their work | - They are aware and respectful of others' needs and feelings and share their own in appropriate ways |

## Big Ideas (Understand)

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

## Learning Standards

| (DO) | (KNOW) |
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| Learning Standards - Curricular Competencies | Learning Standards - Content |
| • Estimate reasonably<br>• Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving | • Direct measurement with non-standard units:<br>• Understand the importance of using a baseline for direct comparison in linear measurement<br>• Iterating a single unit for measuring |

## Instructional Objectives & Assessment

| Instructional Objectives (students will be able to…) | Assessment |
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| • Estimate measurements using nonstandard units<br>• Gather accurate measurements using nonstandard units<br>• Compare differences in measurements | • Questions: why did you guess that number? Can you explain your thinking?<br>• Observe: are students lining their units up end to end? Are there gaps in the units, or are they overlapping? Have they chosen objects that are the same size?<br>• Questions: Was your jump longer or shorter than your partners? By how much?<br>• Exit ticket |

## Prerequisite Concepts and Skills:

- Ability to listen quietly to a story

- Basic counting skills
- Concept of comparing items based on size: "more" and "less" or "larger" and "smaller"

## Indigenous Connections/ First Peoples Principles of Learning:

Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place)

## Universal Design for Learning (UDL):

Group work - having students work in pairs for the activity removes any barriers for participation such as inability to read or write

Options through nonstandard units – the use of nonstandard units makes this lesson accessible for all students, as any object that lines up against another can be used for this activity

## Differentiate Instruction (DI):

Before the lesson I will create student pairings which are designed around their strengths and weaknesses so that they can support and assist one another. I will also provide any additional supports/adaptations based on any IEP's students may have.

## Materials and Resources

- Tape
- Worksheets
- Variety of nonstandard units (including unsharpened pencils)
- Poster paper
- Pencils
- Computer & screen for YouTube read aloud

## Lesson Activities:

| Teacher Activities | Student Activities | Time |
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| Introduction (anticipatory set – "HOOK"):<br><br>Watch "If the Shoe Fits" read aloud: https://www.youtube.com/watch?v=XsLz-icSu5g | - Allow students to sit in a circle to watch the read aloud | 6-7 mins |
| Body:<br><br>**Before:**<br><br>Activate students' memories by reminding them of a comparison between objects: "Last week we watched a video that showed two objects, and we decided which of the two objects were bigger or smaller – do you remember? What's smaller, a bridge or a bike? Is a baseball bigger or smaller than a basketball? Is a whale longer or shorter than a goldfish? | - Students remain in the circle and listen to the teacher make connections from the previous lesson and explain nonstandard units | 8-10 minutes |

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| Today, like the mice in our story, we're going to measure to see if something is long or short, but we're going to use nonstandard units to find this measurement<br><br><u>Explain nonstandard measurement & units</u>: refers to the process of measuring objects using nonstandard units. Instead of measuring using the precise measurements that we see on our rulers or tape measures, we are using everyday objects like paperclips in the story to measure things.<br><br>Explain we must use items that are all the same size, that line up from end to end, and don't have gaps between them, like how Albert and Wonder from the story laid the paperclips down | | |
| Ask students to brainstorm as a class different things that can be used for non-standard measurement (write down the suggestions on poster paper so it can be kept up around the classroom) – give one or two suggestions beyond paperclips if students are needing help getting started | - Provide suggestions for different nonstandard units | |
| <u>Demonstrate:</u><br>Pick one of the brainstormed units and demonstrate how to use it to measure the length of the white board<br>"Ok, so if we used brand new, unsharpened pencils to measure the board, this is how we would line them up. | - Students sit and watch demonstration of how to line up units properly | |
| <u>Explain estimation:</u><br>"Now that we have our units, we want to take a guess how many pencils we think it will take to get across the board. Does anyone have any guesses?" take a few hands and record the estimates on the board<br>"Those were some smart guesses, and we call smart guesses estimating. That's when we take a peek and make a guess in our head of the total number rather than counting it out one by one. So now that we've made our estimations, let's see how many pencils it will take"<br>Keep going across the board, lets count together (demonstrate across the board and | - Listen to explanation and provide estimations when asked, choral counting | |

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| count chorally with the students), and we found out that the whiteboard is "x" pencils long<br><br>"Were any of our estimations close?"<br><br><u>Explain Activity & Worksheet:</u><br>"Ok, now that we understand how to measure with nonstandard units, were going to do an activity. We are going to get into partners that I have assigned and measure how far they can jump. I will be handing out this worksheet.<br><br>There is a spot for you to write down three different things:<br>- Write down what you are going to use to measure how far you will jump – you can pick something from the list we brainstormed, or something else, but you and your partner must use the same object<br>- You are going to write down how far you think your jump will be – so you will estimate how long your jump will be. So if you are using pencils, how many pencils long do you think your jump will be?<br>- After you have jumped, you are going to write down the measurement of your jump (ex. 10 pencils)<br><br>You will write down all this information about your own jump, and then you will write down the same information about your partner's jump. I will put a piece of tape on the ground once you have found your partners so everyone knows where they will be jumping from. Then at the bottom, you are going to compare your jumps and write if your jump was longer or shorter than your partners, and by how many units. Everyone must fill out their own worksheet.<br><br><u>Check for understanding</u>:<br>- Can someone tell me what is the first step once we have our partner?<br>- Can you and your partner use different objects to measure?<br>- Should there be any gaps in our units when we are measuring?<br>- Any questions? | - Listen to explanation of activity and worksheet | |

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| When I say go, you're going to find a partner and pick a nonstandard unit that you want to measure with, and I will hand out the worksheets."<br><br>During:<br><br>Walk around the room and identify any students who are struggling to get started. Ask them questions to help clarify what they need to do to get started with the task.<br><br>Observe (have a sheet to record observations) and ask the assessment questions, talking to one group at a time and then moving on:<br>- Why did you guess that number? Can you explain your thinking?<br>- Was your jump longer or shorter than your partners? By how much?<br>- If you switched from using a pencil (object A) to using a water bottle (object B), do you think it would be more or less units?<br><br>Have early finishers repeat the activity with a different nonstandard unit | - Students find partners, find a spot to get set up, select their nonstandard unit, and wait for teacher to provide tape for starting line<br><br>- Students conduct activity – students take turns estimating, jumping, and measuring the distance to record on their worksheet<br>- Students who finish early repeat activity with different unit of measurement | 2 min<br><br>10-15 mins |
| Closure:<br>After:<br><br>Have students clean up their tape, and bring the class back together to discuss the task<br>- Ask if anyone would be willing to share their findings – what was their unit, what did they estimate, and what was the actual measurement? Take a few hands to compare the nonstandard units used<br>- Ask the students if anyone's estimate was accurate<br>- Ask students what the hardest part of the activity was. What did they have to overcome to accomplish this task?<br>- Think-pair-share with table groups or elbow partners – how would being able to compare things be useful in daily life?<br>-<br>Summarize the main ideas and set up expectations for future lesson:<br>- "Today we learned that we can use everyday objects, or nonstandard units, | - Students clean up their tape, return to their seats to participate in class discussion regarding the activity and summary of key points | 3-5 mins |

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| like paper clips, whiteboard markers, or popsicle sticks to measure and compare different things like how tall something is, or how far we can jump. Next week we're going to move onto taking measurements with standard units, so like what we see on a ruler or a tape measure." | | |
| Have students complete an exit ticket:<br>- Using the object you picked for the activity, estimate how many units it would take to get across the field.<br>- If you and your partner jumped across the field, who do you think would get there first? | - Students complete Exit ticket | 3-5 mins |

## Organizational Strategies:

- Allow students to sit in a circle to watch the read aloud video
- Poster paper on display with ideas of nonstandard units
- Echo clap to get students' attention
- Putting tape on the ground as a "jumping off" point
- Assigning partners before activity

## Proactive, Positive Classroom Learning Environment Strategies:

- Make behaviours and noise expectations clear before beginning activities – assigned partners, jumping off point, no yelling
- Teacher will circulate around the room and offer assistance and encouragement while checking for understanding
- Echo clap as attention grabber

## Extensions:

- Physical health and education
- Students can take this activity home and measure against their siblings or parents, or use nonstandard units to measure the length of their room, the sidewalk, blanket, etc.

## Reflections (if necessary, continue on separate sheet):

I chose to do my lesson plan on this topic because measurement is something that I personally struggle with, and I wish that I had been taught strategies early on that helped me establish stronger building blocks within this concept/topic. Measurement is applicable in many forms of everyday life, and I feel that this topic will help grade 1 students develop a strong foundation to be able to transition into learning about standard measurement. I would say that one of the most difficult parts of building this lesson plan was within the pre-requisites section. As this lesson is geared towards grade 1 I did not want my expectations to be too high or too low. I have not spent a lot of time with students in this grade level, and so I found it difficult trying to gauge what expectations I should have of them going into the lesson. I feel that when teaching the lesson I may face potential challenges with redirecting the student's attention back to a class discussion following the activity, because they will be excited about

jumping around and comparing against their friends. I am excited about conducting this lesson, and hopefully I will have the opportunity to do so in my next practicum.