Lesson Topic	Measuring Mass with Non-Standard Units	Date	Wednesday, January 26, 2022
Subject/Grade Level	Grade 2 Mass	Time	8:32-9:28 56 min

Outcomes from Alberta Program of Studies	
General Learning Outcomes	**SS.** Use direct and indirect measurement to solve problems.
Specific Learning Outcomes	**SS2.** Relate the size of a unit of measure to the number of units (limited to non-standard units) used to measure length and mass. **SS3**. Compare and order objects by length, height, the distance around and mass (weight)* using non-standard units, and making statements of comparison.

Learning Objectives
Students will know: How to use non-standard units to measure and compare the masses of various objects. Students will be able to: Measure and compare the mass of different objects around the classroom sing non-standard units.

Prior to the lesson I need to:	Materials/ Equipment and Resources
Get multiple pan balances Find an object for students to compare weight (from the classroom) Gather 4 to 5 different non-standrd units Print copies of Activity 10.4 (23 copies) Print copies of Activity 10.3 (23 copies)	Pan Balances Classroom objects with different masses (e.g. stapler, a pad of sticky notes, tissue box, etc.) Non-standard units for measuring mass (e.g small and large snap cubes, beads, blocks, metal washers, paperclips, coins) Activity 10.3→Estimating and Measuring Mass Activity 10.4→Measuring Mass

Time	Introduction
10-15 min	● Model the term mass while reviewing how to use a pan balance ● Display an object and ask students to look around the classroom for objects that are heavier and lighter ○ Have them record these items on the whiteboards

	• Share objects as a class
	• Test 1 or 2 of the objects suggested by students
	• Rebalance the pan, place an object on one side and have students estimate how many snap blocks it will take to measure equal
	  ○ Encourage students to estimate and vote on an estimate
	  ○ Record number on board
	• Add snap blocks until the pans balance
	  ○ Questions to ask: (encourage reasoning)
	  ■ How close was your estimate to the result?
	  ■ Did you estimate too many or too few blocks?
	• Switch unit to foam blocks
	  ○ How many foam blocks do you think we will need to balance the object
	  ○ Invite students to estimate
	• Add foam blocks to the opposite side one at a time until balanced
	  ○ Questions to ask: (encourage reasoning)
	  ■ How many foam blocks did we need?
	  ■ How did knowing the number of snap blocks help you estimate how many foam blocks we needed?

Time	Body (Learning Activities)
25-30 min	• Hand out Activity 10.4→Measuring Mass • Review as a class • Students will choose an object and unit for measuring • They must estimate before measuring the mass of each object • Have students do this in pairs so that there is enough access to pan balance • Remind students at the end to circle their heaviest objects and underline their lightest • Share results as a class
Time	Closure

10-15 min	• Provide small groups of students with a pan balance, a different object to measure and two or three sets of different non-standard units
	  ○ Snap blocks
	  ○ Counters
	  ○ Foam blocks
	• Hand out Activity 10.3→ Estimating and Measuring Mass
	  ○ Review instructions as a class
	  ○ Model how they will fill in chart
	• Have students begin measuring, walk around to observe and assist
	• Have students share their results (write them on board)
	  ○ They different objects they measured and their weights in non-standard units
	• Order the results as a class, determine what the heaviest item was? The lightest item?

Sponge Activity (Activities)	Pick 5 students to grab an item from the classroom, bring them to the front and order them as a class.

Assessment:

- Formative Assessment→Observations throughout the class: are students able to use a non-standard unit to measure the mass of an object? Can they compare and order the different masses of objects.
- **Summative Assessment**→ Activity 10.4: Measuring Mass. Students will choose a variety of objects and choose a unit for measuring. They will estimate the mass of each object and then measure the object and record their results. Students are also asked to find the heaviest and lightest object that they measured. **(SS2, SS3).**

Differentiation:

- Reading through the instructions as a class to ensure that all students are aware of the expectations of the activity. Provides the opportunity for students to ask questions about the activity process or results.
- Modelling the activity so that students directly see what they are supposed to do, including how to measure from the beginning and end, estimating and recording.
- Having the students work in pairs helps students learn how to collaborate but also is the first person partners should turn to for help.
- Having a class discussion at the end provides the opportunity for students to share, compare and contrast their results with their peers. Also does not require students to record their thoughts, but instead share them orally.

Resources:

- Small, M. (2008). *Math focus 2*. Nelson Education.
- Small, M. (2008). *Nelson Math Focus. Teacher's Resource*. Thomson/Nelson