

Measurement – A Co-Teaching Lesson Plan

Co-Teaching Approaches

A “(Y)” in front of the following list items indicates the approach is outlined in the lesson. An “(N)” in front of the following list items indicates the approach is not outlined in the lesson.

- (Y) Parallel Teaching
- (Y) Team Teaching
- (Y) Station Teaching
- (Y) One Teach/One Observe
- (N) Alternative Teaching
- (Y) One Teach/One Assist

Subject

Grade 5 Mathematics

Strand

Measurement

Topic

Estimating, measuring, and identifying equivalent measures

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- 5.9 The student will
- a) given the equivalent measure of one unit, identify equivalent measurements within the metric system; and
 - b) solve practical problems involving length, mass, and liquid volume using metric units.

Outcomes

Students should already have background knowledge about the two systems of measurement: U.S. Customary and metric. They will use appropriate tools to measure items, using metric and U.S. Customary tools, in the classroom

Materials

- Scale balance, weights, scale
- Rulers, measuring tapes, yardsticks, meter sticks
- Thermometers

- Measuring cups, graduated cylinders
- Linear Measurement Recording Sheet (attached)
- Mass/Weight Recording Sheet (attached)
- Liquid Capacity/Volume Recording Sheet (attached)
- Temperature Recording Sheet (attached)
- Different-sized containers
- Items listed on recording sheets or other items available in the classroom

Vocabulary

capacity/liquid volume, length, mass, metric, temperature, U.S. Customary, weight

Co-Teacher Actions

Lesson Component	Co-Teaching Approach(es)	General Educator (GE)	Special Educator (SE)
Anticipatory Set	Team Teaching	Discuss tools and their purpose. Ask, “When would someone ever have to use these tools for measurement at home, school, or work?”	Discuss tools and their purpose. Ask, “When would someone ever have to use these tools for measurement at home, school, or work?”
Lesson Activities/ Procedures	Team Teaching	1. To begin this lesson, set up four stations with materials in bins or on trays labeled with the station name: Linear measurement: Materials include rulers with metric and U.S. Customary units, yardsticks, meter sticks, and measuring tapes. Mass/weight: Materials include balance, weights (ounces, pounds, grams, and kilograms), scale, a book,	The SE will refer to visuals for the different tools.

board eraser, pencil, notebook, and an apple.

Liquid volume: Materials include measuring cups with metric and U.S. Customary units, graduated cylinders, different-sized containers (such as empty bottles and jars).

Temperature: Materials include thermometers (at least one digital thermometer to measure body temperature), a cup of iced water, a cup of water that has been sitting outside, and a cup of water from the refrigerator.

2. Students, working in groups, will need approximately 20 minutes at each station, so this lesson might take two class periods. Distribute the four recording sheets to each student. Discuss the questions that appear at the top of each page. Choose one of the sheets to fill out as a class. Make sure that students understand the difference in tools (devices) and units, and supplement as necessary. Detail carefully.
3. Send each group of students to one of the four stations, and give them approximately 20 minutes to complete the activities. Students should be

Lesson Component	Co-Teaching Approach(es)	General Educator (GE)	Special Educator (SE)
		<p>working with a partner throughout the activities.</p> <p>4. After about 20 minutes, have students clean up and put all materials back into the bins, and have them rotate to the next station or rotate the materials.</p> <p>5. As the students work, circulate and answer questions as necessary. Students may need guidance and clarification. The GE needs to be asking clarifying questions, getting students to explain their process and use the appropriate vocabulary in their discussions. The GE will also be making notes on and selecting students to share out their thinking with the class at the end of the activities.</p>	<p>questions, getting students to explain their process and use the appropriate vocabulary in their discussions. The SE will also be making notes on and selecting students to share out their thinking with the class at the end of the activities.</p>
Guided/ Independent Practice	Station teach	All stations are independent guided practice as the GE circulates and helps students with stations, asking questions of students, monitoring their work, and selecting students to present during closure discussion.	The SE will help students during the rotation with prompting questions and ensuring proper measurement, asking questions of students, monitoring their work, and selecting students to present during closure discussion.
Closure	Team teach	<p>After students have completed all stations, lead a class discussion on their findings.</p> <p>Have the selected students share their</p>	The SE will prompt students with guiding questions by using appropriate vocabulary.

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		findngs and describe their process, making sure that all students are sharing and comparing their measurements. Lead a discussion on accuracy and problems that can occur when using a measuring device.	
Formative Assessment Strategies	Parallel Teaching	<p>Questions: Class Discussion (This may also serve as notes on the day’s activities for students to complete and keep.)</p> <p>What are the units of measure for length in the U.S. Customary and/or metric system? How are these units of measure related?</p> <p>What are the units of measure for liquid in the U.S. Customary and/or metric system? Explain how these units of measure are related.</p> <p>Journal/Writing Prompts</p>	<p>Teachers are gaining insight into their understanding of the assignment. As the information is completed, The SE will prompt students, in order to clarify any miscues.</p> <p>What are the units of measure for weight/mass in the U.S. Customary and/or metric system? How are these units of measure related?</p> <p>What is the unit of measure for temperature in the U.S. Customary and metric system? Explain how these units of measure are related.</p>

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		Describe the ways you could measure a puppy, including the measurement system and units of measure you would use.	
Homework		Have students select an object at home to measure in length, weight, capacity, and/or temperature. Ask them to bring that object in (or draw a picture of or describe the object) and be prepared to share with the class that object's length, weight, and/or capacity.	If some students need additional assistance, students may also choose an item from the school (outside the classroom) to share with the class.

Specially Designed Instruction

- Some students may benefit from having a digital copy of the forms, so that they may use audio features while working.
- Some students may benefit from having a playlist that includes the names of the measuring tools with pictures and important vocabulary. They can refer to this playlist as they work through stations.
- Teacher can explicitly show the students how to measure accurately and provide repeated practice.
- Have students complete all activities with a partner, taking turns being the recorder and the measurer.

Accommodations

- Read worksheets aloud before each activity.
- Allow extra time to complete stations (The teacher may set up a secondary stations for those who do not complete the station as quickly so that rotations can continue. Teacher may allow some students to work at a different pace.)
- Reduce the number of items to be measured at each station.

Modifications

- For those students requiring a modified curriculum, content could be modified to include just one system of measurement, and/or only focusing on one parameter (length, mass, or volume)

Notes

- “Special educator” as noted in this lesson plan might be an EL teacher, speech pathologist, or other specialist co-teaching with a general educator.

Note: The following pages are intended for classroom use for students as a visual aid to learning.

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Linear Measurement Recording Sheet

Name _____ Date _____

1. What are the most common metric units of linear measurement?
2. What are the most common U.S. Customary units of linear measurement?
3. What are the most common tools used for linear measurement?

Directions: Estimate in metric and U.S. Customary units the length of each object listed in the chart below, and record your estimates in the appropriate columns. Then, measure in metric and U.S. Customary units the actual length of each item, and record the measurements in the appropriate columns.

Object	Estimated Length In Metric Units	Actual Length In Metric Units	Estimated Length In U.S. Customary Units	Actual Length In U.S. Customary Units
Height of a desk				
Length of your foot				
Width of the classroom				
Length of a pencil				
Width of the chalkboard				
Length of your fingernail				
(Your choice)				

Mass/Weight Recording Sheet

Name _____ Date _____

1. What are the most common metric units of mass/weight measurement?
2. What are the most common U.S. Customary units of mass/weight measurement?
3. What are the most common tools used for measuring mass/weight?

Directions: Estimate in metric and U.S. Customary units the mass/weight of each object listed in the chart below, and record your estimates in the appropriate columns. Then, measure in metric and U.S. Customary units the actual mass/weight of each item, and record the measurements in the appropriate columns.

Object	Estimated Mass/Weight In Metric Units	Actual Mass/Weight In Metric Units	Estimated Mass/Weight In U.S. Customary Units	Actual Mass/Weight In U.S. Customary Units
Mathematics book				
Board eraser				
Pencil				
Notebook				
Apple				
Shoe				
(Your choice)				

Liquid Capacity/Volume Recording Sheet

Name _____ Date _____

1. What are the most common metric units of liquid capacity/volume measurement?
2. What are the most common U.S. Customary units of liquid capacity/volume measurement?
3. What are the most common tools used for measuring liquid capacity/volume?

Directions: Estimate in metric and U.S. Customary units the capacity/volume of each container listed in the chart below, and record your estimates in the appropriate columns. Then, measure in metric and U.S. Customary units the actual capacity/volume of each container, and record the measurements in the appropriate columns.

Container	Estimated Capacity/Volume In Metric Units	Actual Capacity/Volume In Metric Units	Estimated Capacity/Volume In U.S. Customary Units	Actual Capacity/Volume In U.S. Customary Units
Soda bottle (oz.)				
Soda bottle (ml./liter)				
Water bottle (oz.)				
Water bottle (ml.)				
Baby food jar				
Bucket				
(Your choice)				

Temperature Recording Sheet

Name _____ Date _____

1. What is the unit of temperature measurement called in the metric and the U.S. Customary systems?
2. What are the two scales called?
3. What is the most common tool used for measuring temperature?

Directions: Estimate in metric and U.S. Customary units the temperature of each item listed in the chart below, and record your estimates in the appropriate columns. Then, measure in metric and U.S. Customary units the actual temperature of each item, and record the measurements in the appropriate columns.

Item To Measure	Estimated Temperature In Metric Units	Actual Temperature In Metric Units	Estimated Temperature In U.S. Customary Units	Actual Temperature In U.S. Customary Units
Room temperature				
Body temperature*				
Ice water				
Water from outside				
Water from refrigerator				
Outside temperature				
(Your choice)				

*Be certain to sterilize the body temperature thermometer between uses.