



Wizards of Wright

Lesson: Measurement

Background Info for Wizards:	This lesson is a review of middle school measurement skills. During this lesson, students will be reviewing measurement tools, metric conversion, and finding area.
Materials:	Measurement Tools poster 1 set of Measurement Tools game cards Metric Conversion lab worksheets (1 per student) Metric Conversion Booklets (1 per group) plastic cube toys (1 per group) rulers (1 per group) Finding Area worksheets (1 per student)
Lesson Time: <i>70 minutes</i>	Introduction: 5 minutes Guided Lesson #1: 10 minutes Student Activity #1: 15 minutes Guided Lesson #2: 5 minutes Student Activity #2: 15 minutes Student Activity #3: 15 minutes Conclusion: 5 minutes
Learning Targets:	Students will check their measurement tools knowledge. Students will reassess their metric conversion skills. Students will review finding area.
Introduction for Students: 5 minutes	Say to the students: Today we will be reviewing some of the measurement skills you've already learned about. Ask students: Who can list some examples of when you've used measurement, outside of school?
Guided Lesson #1: 10 minutes	Say to the students: Let's make a list of all the measurement tools you can think of. Tell me what the tool is, and what it would measure. (Make a list on the board if you're able.)



	<ul style="list-style-type: none">- Guide students to think about tools that measure length and weight.- If needed, ask about time and temperature.- If needed, make suggestions like distance, volume, and mass. <p>If needed, ask about measurements when cooking and measurements when drawing angles in math class.</p> <p>Show the students the Measurement Tools poster.</p> <p>Ask students: Which ones did we miss?</p> <ul style="list-style-type: none">- Read each item and clarify what each one measures.- Be careful to emphasize that the digital scale measures in ounces (weight) and a triple beam scale measures in grams (mass).- The poster can stay up during the activity.
<p>Student Activity #1: 15 minutes</p>	<p>(Students will need to be split into 2 teams. Ask the teacher if the teams have already been created. If not, wait while he or she does this.)</p> <p>Divide the class into 2 teams and have each group stand in lines facing you.</p> <p>Explain the rules of the game:</p> <ul style="list-style-type: none">- The 2 students in the front of the line will compete against each other.- They will be shown a picture of an object that needs to be measured.- The students will “race” to give the correct answer first.- The student that says the name of the measurement tool first goes to the back of the line.- The other student will go sit down at their desk.- There will be no yelling out answers if you are not one of the 2 students playing. <p>After all pictures are played, the group with the most students left wins the game.</p> <p>The correct answers are on the back of the picture cards.</p> <p>Please note that there are a few items that could be measured with multiple tools. Let the students know the other ways to measure the item each time. For example: There are items that can be measured by a triple beam scale, ruler, or graduated cylinder. It just depends on your need to find length, volume, or mass.</p>



Guided Lesson #2:

5 minutes

Write the words meter, liter, and gram on the board.

Ask students: What do these words have in common?

- measurement units
- parts of the metric system

Write gallon, pound, and yard next to the other 3 words.

Ask students: What do these words have in common?

- measurement units
- parts of the standard system (also called the US customary system)

Ask students: Who can match the standard unit to the metric unit?

- meter and yard
- liter and gallon
- gram and pound

In science the metric system, or International System of Units (SI) is always used. It is a universal system. That means that all scientists around the world can look at a unit of measurement and know exactly what they are looking at even if they speak a different language. The metric system also uses units of 10. Each time you use a smaller or larger unit of measure, you just add or subtract 10.

Student Activity #2:

15 minutes

(Students will be working in small groups for this activity.)

Groups should be just 2-3 students. Ask the teacher if the groups have already been created. If not, wait while he or she does this.)

Pass out 1 Metric Conversion worksheet to each student, and 1 Metric Conversion booklet to each group.

Say to the students: Look at the top of your worksheet. Tell me some things that you notice about the chart with the prefixes.

- The prefixes listed go in front of your metric unit of measurement.
- Think about the unit gram.
- Picture the word gram in the center box.

Ask students: What would a gram converted to the hundreds be called?

- Right, a hectogram.
- Move your finger from the center box to the left twice.

Ask students: What about the unit of measure for 1 tenths of a gram?



	<ul style="list-style-type: none">- decigram- With this conversion you are moving to a smaller unit. <p>Say to the students: When you convert from one unit to the next, you may move the decimal or multiply or divide.</p> <p>Ask students: If I had to convert 100.5 centimeters to meters which way would I move on the chart, and how many places would I move my decimal point?</p> <ul style="list-style-type: none">- from the right to the left- 2 places <p>So, how many meters equals 100.5 centimeters?</p> <ul style="list-style-type: none">- 1.005m <p>Say to the students: For the second part of your worksheet, you will be converting metric units to standard units. Using the clues in your conversion booklet, you will work as a group to figure out your conversions. I will be walking around the room to answer any questions.</p> <p>Give the groups 5-10 minutes to finish their worksheet, then go through the answers listed on the answer key.</p>
<p>Student Activity #3: 15 minutes</p>	<p>Ask the students: What do you know about finding the area of a square, rectangle, or triangle?</p> <ul style="list-style-type: none">- Answers should include area is a 2-dimensional quantity, area is measured in square units, and any formulas that they remember. <p>Say to the students: Squares, rectangles, and triangles are 2D or 2-dimensional objects.</p> <p>Ask the students: What is the difference between a 2D and 3D object?</p> <ul style="list-style-type: none">- Guide students to answers that include 3D objects have depth (width) and volume, 2D objects are flat, 3D objects have hidden edges. <p>(Students will be working in small groups for this activity. Groups should be just 2-3 students. Ask the teacher if the groups have already been created. If not, wait while he or she does this.)</p> <p>Pass out 1 puzzle cube toy and 1 ruler to each group. Pass out 1 Finding Area worksheet to each student.</p> <p>Demonstrate creating a triangle and rectangle with a puzzle cube and review the area formulas at the top of the Finding Area worksheet.</p>



	<p>Review the questions on the worksheet.</p> <p>Triangle: $A = \frac{1}{2} (B \times H)$ Rectangle and square: $A = L \times W$</p> <p>Say to the students: On the sheet, be sure to record your answers in square units.</p> <p>Give the groups 10 minutes to finish their worksheet. Go over the answers with them when they are finished.</p> <p>Collect puzzle cube toys and rulers before moving on to the conclusion.</p>
<p>Conclusion: 5 minutes</p>	<p>Ensure understanding by asking the following questions:</p> <ul style="list-style-type: none">- What is measurement?- Name a measurement tool?- Why is understanding measurement important?- What is an example of a metric unit?- What is an example of a standard unit?- What is the difference between a 2D and 3D object?- What is the formula for the area of a triangle?

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<https://byjus.com/maths/area-of-a-triangle/>;
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