# Measure Up with Math Grade 6 Measuring Experiences

Learning about the Tape Measure

Below you will find ways to support the use of a Tape Measure. These examples are meant to assist you, the teacher, in delivering the activities to your students. After experimenting with the exemplars, build and create your own experiential learning experience for your students to measure their understanding of numbers in real life scenarios using a tape measure.

Inch Scale – Identifying the marks on a measuring tape.
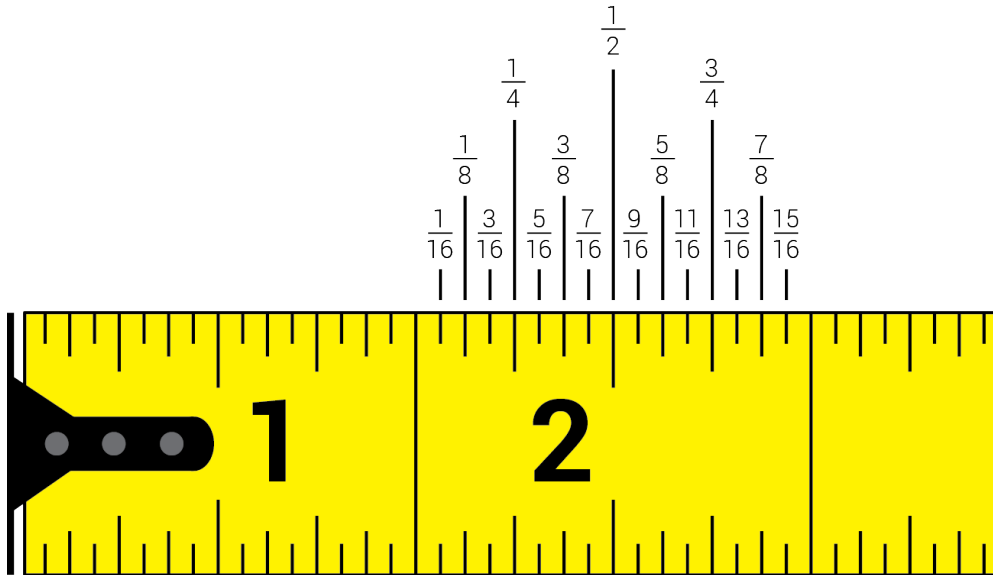
Parts of a Measuring Tape
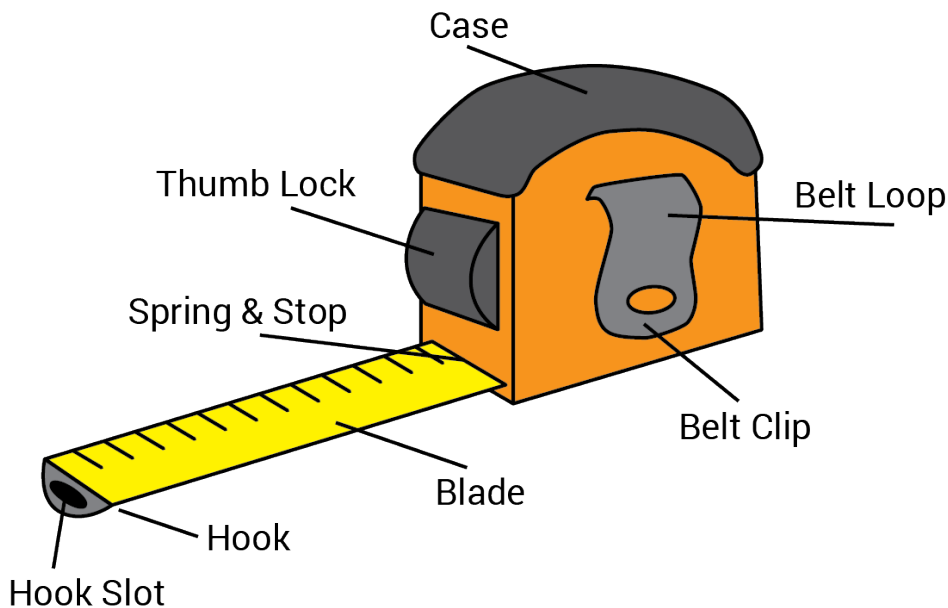
Measurement – Using Tools of the Trade to Measure: Exemplar #1

Learning how to use a tape measure is valuable for several reasons:

<u>Practicality:</u> Tape measures are tools used in various professions and everyday tasks, such as carpentry, construction, interior design, sewing, crafting, and DIY projects. Knowing how to use one allows you to accurately measure dimensions for these activities.

<u>Accuracy in Measurements:</u> Using a tape measure properly ensures accurate measurements, which are crucial in many fields. Whether you're building furniture, installing fixtures, or sewing clothes, precise measurements are key to achieving the desired outcome.

<u>Improving Spatial Awareness:</u> Regularly using a tape measure can enhance your spatial reasoning and visualization skills. It allows you to understand and interpret dimensions, aiding in conceptualizing how different components fit together in a space.

<u>Basic Life Skills:</u> Understanding how to read a tape measure is a fundamental skill that can be applied to various aspects of life, from measuring a space for furniture to knowing the size of a room when moving house.

Learning to use a tape measure correctly doesn't take long, but it can be a very important life skill. Tape measures have both metric and imperial units that allow for both measurements to take place, so knowing how to read them ensures that you get the measurement correct. The activities below help highlight these reasons and add a layer of practicality.

Steps	Activity	Description	Outcomes
1	Activate prior knowledge	Ask students questions about their experience using a tape measure ▪ who has used one? ▪ what is it used for? ▪ where do you see this being used? ▪ how is it read?	
2	Introduce the Tape Measure	Show video- [How To Read A Tape Measure and figure fractions, Easy to follow tutorial and why is the end loose?](#)	
3	Practice using measuring tapes	Break students up into small groups (2-3 people) and have them complete the Classroom Scavenger Hunt using tape measures.	<u>OUTCOME:</u> N04 Students will be expected to relate improper fractions to mixed numbers and mixed numbers to improper fractions. <u>INDICATOR:</u> N04.04 Place a given set of fractions, including mixed numbers and improper fractions, on a number line, and explain strategies used to determine position.

Steps	Activity	Description	Outcomes
4	Consider possible extensions	Extension #1: Students could use counting methods to find various improper fractions and mixed numbers on both a number line and measuring tape to build understanding of the conversion between them. For example, a student could be asked to identify $2\frac{3}{8}$ inches on a measuring tape then to count by eighths starting at $\frac{1}{8}$ to get to 19 eighths.	OUTCOME: N04 Students will be expected to relate improper fractions to mixed numbers and mixed numbers to improper fractions. INDICATOR: N04.04 Place a given set of fractions, including mixed numbers and improper fractions, on a number line, and explain strategies used to determine position.
		Extension #2: Students could be asked to measure, then order the mixed numbers on a number line that looks like a measuring tape on paper, a few objects of similar size like a deck of cards, a cell phone and a calculator.	OUTCOME: N04 Students will be expected to relate improper fractions to mixed numbers and mixed numbers to improper fractions. INDICATOR: N04.04 Place a given set of fractions, including mixed numbers and improper fractions, on a number line, and explain strategies used to determine position.
		Extension #3: Perimeter and area are important in Mathematics 6. Students can now use their metric measurements to calculate the perimeter of polygons (and area of rectangles) then extend to finding the perimeter of 3D objects.	OUTCOME: M03 Students will be expected to develop and apply a formula for determining the: ▪ perimeter of polygons ▪ area of rectangles INDICATORS: M03.01 Explain, using models, how the perimeter of any polygon can be determined. M03.02 Generalize a rule (formula) for determining the perimeter of polygons. M03.03 Explain, using models, how the area of any rectangle can be determined. M03.04 Generalize a rule (formula) for determining the area of rectangles. OUTCOME: PR03 Students will be expected to represent generalizations arising from number relationships using equations with letter variables. INDICATORS: PR03.01 Write and explain the formula for finding the perimeter of any regular polygon. PR03.02 Write and explain the formula for finding the area of any given rectangle.

Measurement − Using Tools of the Trade to Measure: Exemplar #2

Using **measuring tapes** to solve problems in situations found in everyday life is important as well as to show how simple tools are applied to reach an end goal. **Knowing how** to use numbers to give valuable information to be communicated to others is important. The activities in the chart below can be completed in any order.

Activity	Description	Outcomes
Data Collection	Have students use the measuring tapes to measure the height of other students in their group then take a group of students and line them up and show how to find the average height without calculation. Ask analysis questions such as what percent of the class is taller than 5'? What percent of the class is shorter than 4'5"'?	OUTCOMES: N06 Students will be expected to demonstrate an understanding of percent (limited to whole numbers) concretely, pictorially, and symbolically.
Data Collection and Graphing	Provide students with an opportunity to measure a group of similar items (could be of their choosing or of the teachers choosing), then have students create a table of values and graph the data sets. Students can then discuss/describe relationships within the graph. **This activity would be best completed as a modeled activity first (whole class activity) and then follow up by providing students with the opportunity to explore on their own.	OUTCOME: PR01 Students will be expected to demonstrate an understanding of the relationships within tables of values to solve problems PR02 Students will be expected to represent and describe patterns and relationships, using graphs and tables. INDICATORS: PR02.01 Translate a pattern to a table of values, and graph the table of values (limited to linear graphs with discrete elements). PR02.02 Create a table of values from a given pattern or a given graph. PR02.03 Describe, using everyday language, orally or in writing, the relationship shown on a graph.
Triangle Activity	Students can be provided an opportunity to explore triangles in nature by exploring outside (or inside the school) and finding triangles (can be structural or natural). Students can use their measuring tapes to **measure** lengths of the sides, **draw** the triangles out and then make comparisons - **labeling** the type of triangle, **sorting** the triangles found and noting orientation of congruent triangles.	OUTCOMES: G01 Students will be expected to construct and compare triangles, including scalene, isosceles, equilateral, right, obtuse, or acute in different orientations. INDICATORS: G01.01 Sort a given set of triangles according to the length of the sides. G01.02 Sort a given set of triangles according to the measures of the interior angles. G01.03 Identify the characteristics of a given set of triangles according to their sides and/or their interior angles.

Activity	Description	Outcomes
		G01.04 Sort a given set of triangles and explain the sorting rule.
		G01.05 Draw a specified triangle.
		G01.06 Replicate a given triangle in a different orientation and show that the two are congruent.
Estimation	Have students estimate the length of an object in both metric and imperial then use the measuring tape to see if their estimation skills are accurate.	<u>OUTCOME:</u> N02 Students will be expected to solve problems involving whole numbers and decimal numbers. <u>INDICATORS:</u> N02.03 Determine the reasonableness of an answer. N02.04 Estimate the solution and solve a given problem using an appropriate method (technology, mental mathematics, or paper-and-pencil calculation). N02.05 Create problems involving large numbers and decimal numbers. N02.07 Use technology, mental mathematics, or paper-and-pencil calculation to solve problems involving the addition and subtraction of decimal numbers.

Scientific Measurement Classroom Scavenger Hunt

Name: _____

Date: _____ Period: _____

Part one: Measuring length

Directions: Using a measuring tape to measure the following items in the classroom. You will work in lab groups but can move around the room if you need to.

1.   Length of paper clip: _____ cm

2.   Width of paper clip: _____ mm

3.   Width of classroom door: _____ cm

4.   Height of classroom door: _____ m

5.   Length of student desk: _____ cm

6.   Length of teacher desk: _____ m

7.   Length of science book: _____ cm

8.   Width of science book: _____ cm

9.   Thickness of science book: _____ cm

10. Length of new pencil eraser: _____ mm

11. Thickness of pencil eraser: _____ mm

12. Length of computer keyboard: _____ cm

13. Height of classroom floor to ceiling: _____ m

Part two: Data Collection

Data Collection: Comparing the height of my classmates:

Step 1

1.   Create a table that lists all your classmates names.
2.   Measure and record the heights to the nearest inch.

Step 2

1.   Organize your data from shortest to tallest

Answer the following questions.

1.   What percentage of the class is taller than the other (boys or girls)?
2.   From the measurements compare the percentages of each to the overall class size.
     For example 2 students of 25 were 47 inches tall. (8 % of the students are 47 inches in height).

Helpful links for using measuring tapes

Videos

- [How Do I Use a Tape Measure? | DIY Basics](#)
- [How to Read A Tape Measure and figure fractions, Easy to follow tutorial and why is the end loose?](#)
- [8 cool tricks you can do with a tape measure](#)

Care and Safety Using a Tape Measure

1. When measuring around an object, use a string to stretch around large objects and then measure the string, for example, the circumference of a tree.
2. Avoid bending the steel measuring tape, this could kink or break the blade.
3. Dry the blade before retracting it into the case, if not this can cause the blade to rust.
4. Avoid damaging the hook, don't allow the hook to be slammed against the case while retracting.
   (A damaged hook could mislead the actual measurement).
5. The edges of the steel blade are sharp, be careful when retracting that your hands or fingers are not rubbing against it.
6. Always store the tape measure in the designated location.
7. Avoid dropping the tape measure on hard surfaces, this could damage the case.