

Grade 1 Math Unit 6-Measurement

UNIT OVERVIEW

In grade 1, instructional focus should focus on four critical areas. This unit is connected to Focus #3, **Developing understanding of linear measurement and measuring lengths as iterating length units.** (See Connections for further explanation)

There are 2 clusters within this unit:

- a. Measure lengths indirectly and by iterating units (* See Connections for further explanation)
- b. Tell and write time **

STANDARDS

CC_Common Core State Standards - Mathematics (2010) - Grade 1

Domain 1.MD Measurement and Data

Cluster Statement Measure lengths indirectly and by iterating length units.

Standard 1.MD.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.

Standard 1.MD.2 Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.

Cluster Statement Tell and write time.

Standard 1.MD.3 Tell and write time in hours and half-hours using analog and digital clocks.

CONTENT ELABORATIONS

1.MD.1

1.MD.1 calls for students to indirectly measure objects by comparing the length of 2 objects by using a third object as a measuring tool. This concept is referred to as transitivity. In order for students to be able to compare objects, students need to understand that length is measured from one end point to another end point. They determine which of two objects is longer, by physically aligning the objects. Typical language of length includes taller, shorter, longer, and higher. When students use bigger or smaller as a comparison, they should explain what they mean by the word. Some objects may have more than one measurement of length, so students identify the length they are measuring. Both the length and the width of an object are measurements of length.

MP.6, MP.7 should be emphasized.

1.MD.2

1.MD.2 asks students to use multiple copies of one object to measure a larger object. This concept is referred to as iteration. Through numerous experiences and careful questioning by the teacher, students will recognize the importance of making sure that there are not any gaps or overlaps in order to get an accurate measurement. This concept is a foundational building block for the concept of area in 3rd grade.

Students use their counting skills while measuring with non-standard units. While this standard limits measurement of whole numbers of length, in a natural environment, not all objects will measure to an exact whole unit. When students determine that the length of a pencil is six to seven paperclips long, they can state that it is about six paperclips long.

MP.5, MP.6, MP.7 should be emphasized.

1.MD.3

1.MD.3 calls for students to read both analog and digital clocks and then orally tell and write the time. Times should be limited to the hour and the half-hour. Students need experiences exploring the idea that when the time is at the half-hour, the hour hand is between numbers and not on a number.

MP.5, MP.6, MP.7 should be emphasized.

UNIT VOCABULARY

length
long
short
measure
unit

hour hand
hour
minute hand
minute

analog clock
o'clock
digital clock
half hour

BIG IDEAS

ENDURING UNDERSTANDINGS

- Telling time to the hour and half hour using analog and digital clocks.
- Objects may be compared according to length.
- Objects may be used to determine length , but must correspond with a standard unit of measurement.
- Tools may be created to measure length.
- Organize and represent data collected from measurement.
- Ask and answer questions related to measurement data.

ESSENTIALS QUESTIONS

Choose a few questions based on the needs of your students

- How can we measure the length of an object?
- What can we use to measure objects?
- How can we tell which of two objects is longer than the other?
- How can we order a group of objects by their length?
- How does using an object help us when measuring another object?
- Why would an estimate be helpful when measuring?
- When is an estimate good enough? When should I measure instead of using an estimate?
- How can we compare the length of a set of objects?
- How are measuring units selected?
- How do measurements help compare objects?
- Why is telling time important?
- How do you use time in your daily life?
- How can we measure time?
- What does the hour hand on a clock tell us?
- Why is it important to know the difference between the two hands?
- What does the minute hand on a clock tell us?

CONNECTIONS

In Critical Focus Area #3 students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units) and the transitivity principle for indirect measurement. (Students should apply the principle of transitivity of measurement to make indirect comparisons, but they need not use this technical term.)

* This cluster connects to Describe and compare measurable attributes in Kindergarten, and to Measure and estimate lengths in standard units and Represent and interpret data in Grade 2.

** This cluster connects to Work with time and money in Grade 2.

Standards for Mathematical Practice (SMP)

MP.1 Make sense of problems and persevere in solving them

MP.2 Reason abstractly and quantitatively

MP.3 Construct viable arguments and critique the reasoning of others

MP.4 Model with mathematics

MP.5 Use appropriate tools strategically

MP.6 Attend to precision

MP.7 Look for and make use of structure (Deductive reasoning)

MP.8 Look for and express regularity in repeated reasoning (Inductive Reasoning)

MEASURE LENGTHS INDIRECTLY AND BY ITERATING UNITS

	CONTENT	SKILLS
A.	Order and compare objects by length.	Order and compare objects by length. 1. Identify the measurement known as the length of an object. 2. Directly compare the length of three objects. 3. Order three objects by length. 4. Compare the lengths of two objects indirectly by using a third object to compare them (e.g., if the length of object A is greater than the length of object B, and the length of object B is greater than the length of object C, then the length of object A is greater than the length of object C.)
B.	Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end.	Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end. 1. Know to use the same size non-standard objects as iterated (repeating) units when measuring length. 2. Know that length can be measured with various units. 3. Compare a smaller unit of measurement to a larger object. 4. Demonstrate the measurement of an object using non- standard units (e.g. paper clips, unifix cubes, etc.) by laying the units of measurement end to end with no gaps or overlaps. 5. Determine the length of the measured object to be the number of smaller iterated (repeated) objects that equal its length.

TELL AND WRITE TIME

A.	Tell and write time in hours and half-hours using analog and digital clocks.	Tell and write time in hours and half-hours using analog and digital clocks. 1. Recognize that analog and digital clocks are objects that measure time. 2. Know hour hand and minute hand and distinguish between the two. 3. Determine where the minute hand must be when the time is to the hour (o'clock). 4. Determine where the minute hand must be when the time is to the half hour (thirty). 5. Tell/Write the time to the hour and half hour correctly using analog and digital clocks.
McGraw-Hill, <u>My Math</u> Chapter 8 Georgia Math frameworks: Grade 1 Unit 4		