

NCSC UDL Unit Concept Reinforcement Activity for Math ES Lesson 1

*If the student has not had experience (or has had very little experience) with the concept of length or the skill of measuring, it might be helpful to provide instruction using this Concept Reinforcement Activity (CRA) before the Introduction to Lesson 1. Just as with any other student, it is unlikely that he/she will learn this concept or skill after receiving instruction only once, so you can provide this activity at other times during the unit. But do not expect or require mastery of this CRA before the student takes part in the unit. The CRA is supplemental instruction and should only be provided **in addition to** the instruction in the unit; it does not take the place of the unit.*

Key Vocabulary: The following key vocabulary terms are used in the reinforcement activities and the unit. It is important to provide these terms in the student’s communication system and describe the meaning using the definitions in the unit as provided or paraphrased as needed. The purpose is to build understanding of the terms rather than teaching the student to recite the definitions. For example, when comparing the lengths in the first activity state, “The length of this box is longer. The length measures how long this box is.”

Unit Definition	Possible Paraphrased Definition
Inch - a standard unit of length in the US Customary system equal to 1/12 of a foot	Inch – a way to measure something that stays the same size. 12 inches = 1 foot
Length - a measurement of the distance from one point to another	Length – how long, tall, or wide something is from one point to another
Measure - to determine a quantity/amount	Measure – the way we find the size of something

Exploratory Activity

Purpose: *The exploratory activity is designed to build the concept of lengths (e.g., one being longer than another); apply size terminology to the lengths; and relate size to numbers as measured by units (i.e., one inch units for this activity). Provide objects of various lengths and discuss which ones are bigger(est), smaller(est), longer(est), shorter(est), etc. to help build an understanding of size. With help, have the student order the objects accordingly.*

1. Present two books (or linear objects of interest to the student such as candy bars, pictures of vehicles, etc.) that are very different in length and that measure full inches. Have the student identify which is shorter and which is longer. Measure each box with the student showing the student how to line the end of the ruler to one edge of the box. Count each inch on the ruler.
 - a. Optional activity: Help the student graph the length on 1 inch graph paper using 1 inch cubes or 1 inch squares of paper to provide a visual check to see if they are correctly identified. *The intent is not to teach graphing, so provide full support to the student.*
2. Repeat step 1 several times with other books.
3. Repeat steps 1 and 2 using three books.
4. Repeat step 3 using books that are less obviously different in length.

Additional Support: If the student is having trouble counting the inches on the ruler, consider having the student place 1 inch blocks/squares along the book, laying the ruler alongside the blocks, and then have the student count the blocks and identify the number on the ruler at the end of the blocks to make the connection. Continue with the graphing step.

Scripted Activity with Data Collection

Purpose: *This activity is designed to provide extra practice to learn or refine the skill of measuring, which will be used throughout this unit. The activity provides extra instruction on using a tool to measure (i.e., placing the tool at the beginning edge of the object and moving the tool sequentially along the length of the object), counting using 1-to-1 correspondence, and communicating the length using both the number and unit of measure.*

There are three versions – Version A, Version B, and Version C. Each version follows the same instructional script, but the materials are different (provide whatever individualized supports your student needs to interact with the materials).

Use as many versions of the activity as your student needs to further develop the skill; you may need to only do one version or you may need to do all three. Mastery of this skill is not expected nor required to continue working within this unit. Instead, this activity should be used solely as practice whenever it can be worked in during instruction on the unit or at other times during the school day. It does not take the place of instruction with peers on the UDL unit, rather, it supplements that instruction.

Based upon the student and the skill, choose any one of the instructional strategies from the *NCSC Instructional Resource Guide* to use during instruction throughout the practice activity. Use the data to give you more information on what part of the skill the student may need more focused instruction on throughout the unit.

Materials and Directions for Teacher

Version A: Provide paper clips and an object or picture/photo that can be measured by several paper clips.

Version B: Provide inch cubes or 1 inch squares of paper and an object or picture/photo that can be measured by several inch cubes or 1 inch squares of paper.

Version C: Provide rulers and an object (big book, bookcase, table top, etc.) that can be measured by several rulers.

Use objects that can be measured using whole units instead of objects that use partial units of measure (e.g., a book that measures 9 inches long instead of a book that measures 9 ½ inches).

Instructional Cue	Student Expected Response	Version	Definition	Date
<p>As you read the script, indicate the end of the object the student will be measuring.</p> <p>“We measure to find out how long something is. How long something is, is its length. Let’s find out how long the (insert name of object or picture/photo) is. When we measure, we start at the end of the thing we are measuring. Show me where we should start measuring”.</p>	<p>The student indicates the far left corner of the object/picture.</p>			
<p>Demonstrate where to place the tool as you read the script.</p> <p>“We use tools to measure how long something is, or what we call its length. We put the “0” point of the tool at the end of the object. Place this (insert name of measurement tool from Activity A, B, or C) where we should start measuring.”</p>	<p>The student places the measurement tool (the “0” point) at the far left corner of the object/picture.</p>			

<p><i>Demonstrate how to move the tool as you read the script.</i></p> <p>“Let’s keep measuring to find out how long the (insert name of object or picture/photo) is. We move the “0” point of the tool to the same spot where the previous measurement ends. Now you do it.”</p>	<p>The student places the measurement tool (the “0” point) at the far left corner of the object/picture and sequentially moves the tool, matching the “0” point of the tool to the other end of the previous unit of measure.</p>			
<p><i>Demonstrate counting as you read the script.</i></p> <p>“Now let’s count to find out how long the (insert name of object or picture/photo) is. Now you do it.”</p>	<p>The student counts units sequentially from “1” to the last unit used and stops counting.</p>			
<p>“When we tell the length of something, we say the number and the name of the unit of measure. The (insert name of object or picture/photo) is (insert number and unit of measure) long. Tell me how long the (insert name of object or picture/photo) is”.</p>	<p>The student includes both the number and the unit of measure when answering.</p>			

Transition Activity: Back to the UDL Lesson

After providing the instruction from the CRA, help the student transition back to the UDL Lesson (*Introduction of Lesson 1*) by conducting a short review of the terms “longer(est)”, “shorter(est)”, “inch”, “measure”, and “length”. Remind the student of the objects used in the CRA, showing pictures of the objects or the objects themselves. Next, discuss the terms of “longer(est)” and “shorter(est)” using the objects from the *Introduction of Lesson 1*. Review how a ruler or manipulatives had been used to measure, but now explain that the student will measure using different objects. During the *Body and Practice of Lesson 1*, use the script for measuring to assist as needed and to further teach the student the skill of measuring linear units. Use strategies from the *Instructional Resource Guide* as needed to move the student toward skill acquisition.