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## Measurement - Sample Lesson Plan

**Topic:** Estimating and Measuring Distance

**Grade Level:** Grade 1

**Duration:** 1 hour

### ***Specific Objectives***

*By the end of the lesson, students should be able to:*

- Use concrete materials to investigate the relationship between the size of a unit and the number of units needed to measure length.

### ***Prerequisite Knowledge***

*Students should already:*

- Be able to read and write numbers
- Be able to identify measure attributes of objects ( such as length)

### ***Materials/Manipulatives***

- 15–20 one-inch paper clips for each pair of students (or other classroom items of consistent length of which there is a large classroom supply, such as Cuisenaire rods, place value rods, etc.)
- one unsharpened pencil, measure me recording sheet, measure me objects

### ***Engage***

- The teacher will show the class an unsharpened pencil and will ask “how long do you think this pencil is?”

**Guided questions:** *How do you know? How can we find out? Compared to your pencil do you think is it longer or shorter? Why? Is the use of a ruler the only way to measure a pencil?*

*(Assuming that a student suggests using a ruler or measuring tape)*

- Show the class a paper clip and ask them if it could be used to measure the pencil.  
**Guided question:** *How could you use paper clips to measure a pencil?*

### Explore and Explain

- Place students in pairs and supply them with an unsharpened pencil and a few paper clips. Ask the students to ‘measure’ the length of their pencils using the clips. As students engage in the task, observe and record their misconceptions and challenges. Then have students explain their strategies and conclusion (*select those groups that will share – ensure that each group chosen has the misconceptions that you need to address*).
- Engage the class in a discussion which would be based on the misconceptions observed. **Guided Questions:** *How many paper clips did you use to measure your pencil? How did you use the paper clips to measure the pencil? How many persons got that amount? Why do you think \_\_\_\_\_ had a different number from \_\_\_\_\_? How do you think we can work so that everyone has the same amount?*
- Using a computer and projector (*to project the process of measuring the pencil*) or large cuts-outs of the pencil and the paper clips on the white/chalkboard engage students through questioning so that they ‘realize’ the importance of
  - Placing the first paper clip at the edge of the pencil and
  - Placing the paper clips end on end so that they have **this layout**



### As Opposed to



*Where necessary - Engage them in a conversation where they will realize that sometimes, while they may get the same amount without aligning the paperclips properly, there are other times when this convention will not work. Use other examples to bring out the point.*

Have each group re-try the task and report their ‘new’ findings. Provide them with another item – the edge of their note book and have them ‘measure’ using paper clips.

**Elaborate/Extension:**

- Have students measure the height of a person (since this task can be done at home, it could be the height of a family member) using unsharpened pencils (or another agreed-upon unit).
- First have each student, 'guess' the height of the other person in 'pencils'. Then have them verify their assumptions by measuring. Encourage them to share how they measured the person and why they thought that was the best way (*did they have the persons stand against a wall and mark the top of their head? Did they have the person lay on the ground and drew and outline of the person then measure the outline? Did they.....*).

<b>MEASURE A PERSON</b>	
I think _____ is _____ pencils tall.	I measured _____ using pencils and _____ is _____ pencils tall.
This is how I measured _____ (use words and drawings)	

**Evaluate:**

- Give students a Recording Sheet (see below) with a list of items. These items should be at specific points (stations) in the classroom. Have students complete their sheets as they walk from one station to the next. *Get the assistance of another adult if necessary to monitor students at each measuring station.*

Evaluation: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### **Sample Recording Sheet For Explore Activity**

Instruction: Use the chart to record your measurement of length of each object

Object	Tool 1	Tool 2
	Eg. Paper clip	Eg. Pencil
Book		
Marker		