



Constructing Task: I Spy

(Approximately 2 Days)

STANDARDS FOR MATHEMATICAL CONTENT

MCC2.MD.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

MCC2.MD.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

MCC2.MD.3 Estimate lengths using units of inches, feet, centimeters, and meters.

MCC.2.MD.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

STANDARDS FOR MATHEMATICAL PRACTICE

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

*****Mathematical Practices 1 and 6 should be evident in EVERY lesson.*****

BACKGROUND KNOWLEDGE

(Information quoted from Van de Walle and Lovin, Teaching Student-Centered Mathematics: Grades K-3, pages 225-226)

“The first and most critical goal is for students to understand the attribute they are going to measure. When students compare objects on the basis of some measureable attribute, that attribute becomes the focus of the activity. For example, is the capacity of one box more than, less than, or about the same as the capacity of another? No measurement is required, but some manner of comparing one volume to the other must be devised. The attribute of “capacity” (how much a container can hold) is inescapable.

Many attributes can be compared directly, such as placing one length directly in line with another. In the case of volume or capacity, some indirect method is probably required, such as filling one box with beans and then pouring the beans into another box. Using a string to

compare the height of a wastebasket to the distance around is another example of an indirect comparison. The string is the intermediary. It is impossible to compare these two lengths directly.”

ESSENTIAL QUESTIONS

- Why is it important for me to know how to measure different objects using different units of measurement?
- Why do we need to be able to estimate a measurement or value?
- How does using a different unit change our measurement?

MATERIALS

- Measurement tools – rulers, yardsticks, meter sticks
- chalk
- *I Spy* student task
- Measurement cards
- Class set of construction paper

GROUPING

Small Groups

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

Part I

Gather students together on the class meeting area. The teacher will ask a question like, “What in this room is 10 inches long?” In cooperative groups students need to agree on an object they think is 10 inches long. They may remember some items from previous tasks, encourage this discourse. Take time to allow groups to share what object they predicted. Then measure it to see what the actual length is and discuss the difference in each group’s prediction and the actual measurement. The students complete the “I Spy” task chart for various measurements collaboratively with group members. They will put a (+) or (-) amount in the difference column to show if the object is more (+) or less (-) than the estimate. If the estimation and actual measurement are the same, put a zero in the difference column. Use the data to figure out which group made the most accurate object-estimates.

Part II

Students will work together to cut out all the Measurement Cards. As a small group they will be placing their measurement cards in order but they will be allowed to decide if they will be placing their cards in order from largest to smallest or smallest to largest. As a small group they will work to create each of the lengths. This can be done by marking their measurements using chalk on the sidewalk. Each group should use the appropriate measurement tools to measure out each length; they should not work towards converting the measurement cards into the same unit.

Exposing the students to a variety of units will help them to decide which measurement tool is needed and it will create an opportunity for discussing how different units affect the length. Students should paste their measurement cards in order onto construction paper, making sure to label their paper either “largest to smallest” or “smallest to largest”.

FORMATIVE ASSESSMENT QUESTIONS

- How did you choose that item as an estimate for the measurement?
- Was your estimate close? How close?
- How did you use what you know to help you estimate the lengths?
- When you put the cards in order, how did you organize them?
- How do you know they are in the correct order?

DIFFERENTIATION

Extension

- Students can create their own list of measurement cards to order.

Intervention

- Students can work in partner groups to order cards.



Name: _____

I Spy

Measurement	Object	Actual Measurement	More or less than actual measurement
5 inches			
5 centimeters			
5 feet			
10 inches			
10 centimeters			
10 feet			
1 foot			
1 yard			
1 meter			
1 inch			
1 centimeter			

Measurement Cards

18 inches	5 inches	2 yards, 4 inches
25 inches	6 feet, 7 inches	8 feet, 3 inches
3 feet, 2 inches	5 feet	1 foot
50 inches	10 inches	1 yard, 6 inches