PRACTICE TASK: Groundhog's Garden

Approximately 2 days

STANDARDS FOR MATHEMATICAL CONTENT

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

MCC.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. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*

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.

BACKGROUND KNOWLEDGE

Students should have an understanding of nonstandard units of measurement and have multiple experiences measuring objects using direct comparison and non-standard measurement tools.

ESSENTIAL QUESTIONS

- What can we use to measure objects?
- How can we measure the length of an object?
- How can we compare the length of a set of objects?
- How can we order a group of objects by length?

MATERIALS

- One copy of flower sheet per student
- Worms or ladybugs measuring tool sheet (each sheet has tools for two students)
- *How Groundhog's Garden Grew*, by Lynne Cherry, or similar text
- "Groundhog's Garden" Recording Sheet

GROUPING

Individual

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION

Part I
Begin the lesson by reading, *How Groundhog's Garden Grew*, by Lynne Cherry (or similar story.) Discuss the different plants in the story, and how you might go about measuring them. How could you measure flowers if Groundhog planted a flower garden?

Next, have students cut out the single ladybug and the single worm on the task sheet. Have students practice measuring each flower using each object. After students have had time to measure each one using each single unit, lead them in a discussion about how much easier it is to use a measuring tool, rather than a single unit. Ask them to compare the previous tasks and the level of success they felt they had using the tools they created versus the frustrations they may have had using the single units (single handprint and footprint). Once students recognize the need for a measurement tool, move on to part II.

Part II
Task Directions
Each student will have a bag of flowers and a measuring tool - either worms or ladybugs.

1. The student will choose 5 flowers to measure.
2. They will record an estimate first before measuring with their ladybugs or worms.
3. Have the students measure the length of the flower card.
4. Record measurements on the recording sheet.
5. The student will paste the flowers in an order that makes sense to them onto the back of their recording sheet.
6. The student will explain what they discovered while measuring flowers and describe how the flowers were ordered.

Part III
To extend students' experiences using nonstandard measurement tools and to emphasize the need for using a measurement tool, have students engage in the activity, "*Guess and Measure*". (Van de Walle, Activity 8.5, page 231) Make a list of things in the room to measure. Have students make a row or chain of exactly ten units (allow them to choose from a set of materials) to use in helping measure the object. First, have them estimate the length of the object to be measured and then lay the measuring tool against the object to record an actual measurement. Once all students have completed the activity, have them share their measuring tool and explain why they chose the units they selected. *How did their measurements compare to those other students determined? What factors may have caused their results to differ?*

FORMATIVE ASSESSMENT QUESTIONS

- How did you order the flowers and why did you choose to do it in that way?
- (When measuring the flowers) Show me where you are putting your measuring tool.
- What do you think your measurements would be had you chosen the other measuring tool? Why?

DIFFERENTIATION

Extension

- "Crooked Paths" (Van de Walle, Activity 8.3, page 229) Make several lines of masking tape on the floor for students to measure distances. Be sure to include distances that are curved and crooked, in addition to straight lines. Require students to estimate the measurement of each, predict which distance will be longer (or shorter) and then take an actual measurement using the tool of their choice.

Intervention

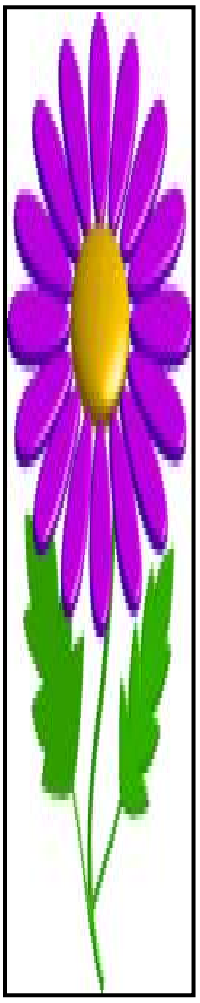
- Draw a line from the base of the flower to the top for students to use as a guide when measuring.
- "Guess and Measure" (Van de Walle, Actvity 8.5, page 231). See description above and modify by placing a piece of masking tape along the dimension of each object to be measured.

Flowers for Groundhog's Garden

Flower 1

Flower 2

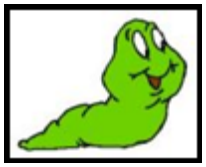
Flower3



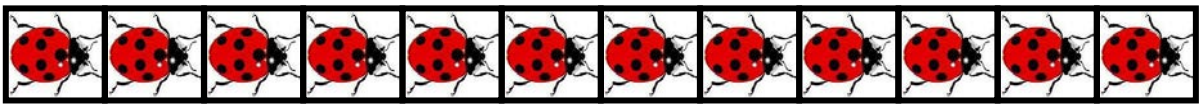
Flower 4

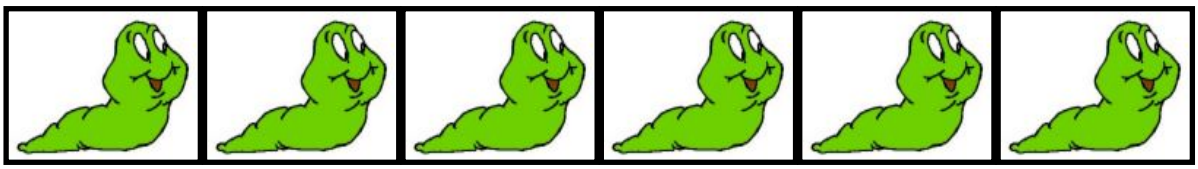
Flower 5

Flower 6



Cut out each measuring tool. Measure your flowers and record your results on the recording sheet.





Name _____ **Date:_____**

Flower Measurement Recording Sheet

Directions: Estimate the length of each flower below. Then measure and record the length of each flower below.

Flower Number	Estimate		Actual Measure	
	Ladybug	Worm	Ladybug	Worm
1				
2				
3				
4				
5				
6				

After recording the measurements for each flower, glue the flowers onto the back of this sheet in an order that make sense to you. Explain how the flowers are ordered:

_____

_____

_____