Linear, Area and Volume Assessments for K- 5 grade

Student:

Grade:

Date:

✋The purpose of this assessment is to identify students' conceptions of linear, area and volume measurement. Please pose the questions to two students and probe only to gain a deeper understanding of their thinking **not to extend it**. There is a student copy of the assessment and the interviewer copy. Let the student write on or do whatever they need on their copy. You will use yours to take extensive notes about what the student did and their responses to your questions. Bring the student work and your notes with you to the June workshop.

Counting - This should be used with very young students to identify the child's understanding of number in terms of one to one correspondence. If the child has one to one correspondence less than 10, he/she may struggle with this assessment.

> Sara had this many cubes (put out "10" in a straight line). Can you tell me how many cubes Sara has?

Notes:

Give the student small and large paper clips and have them measure Slither first. Please attend to how the student measures with the clips and challenges they have as they work through the process. After they have measured Slither, have them measure Speedy. Again, don't give them any clues about what to do. Let them struggle. Pose questions only for the purpose of identifying how they are thinking about it. (Note on Speedy: our goal is for them to notice that Speedy is not straight. They will need to follow Speedy's shape to get his measure. The issues the student will grapple with are the same as they did with Slither.

**1.** How long is Slither? How long is Speedy?
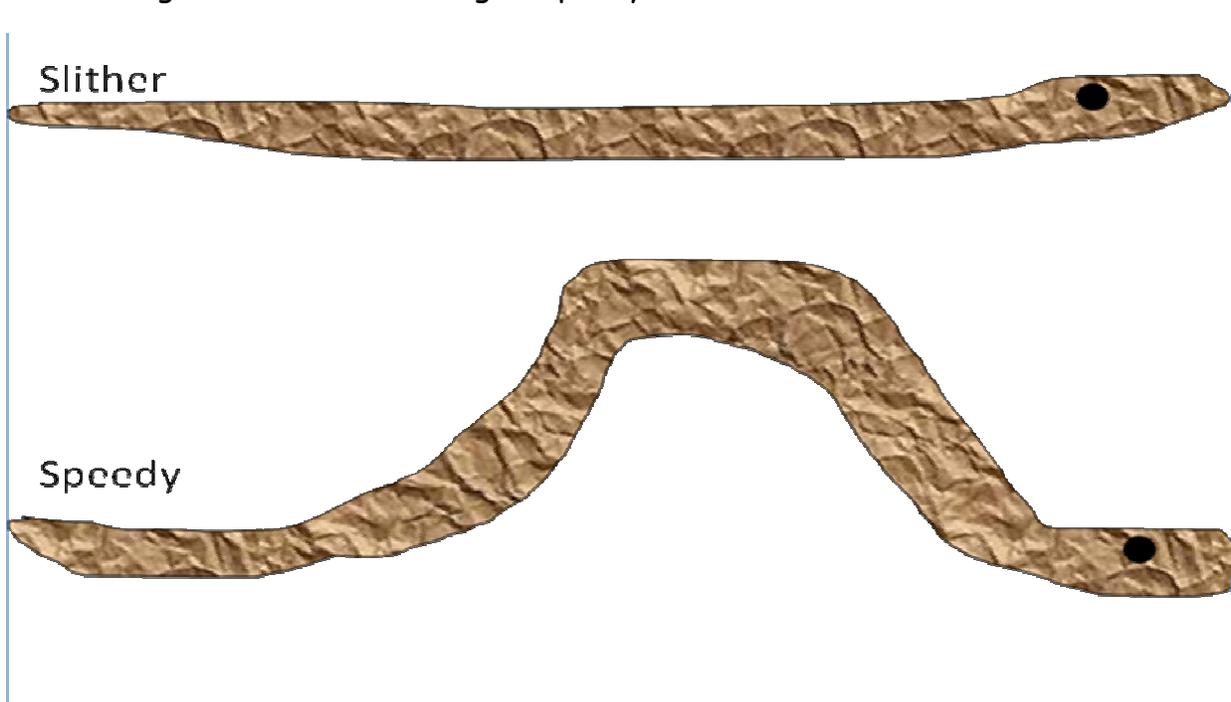
Notes:

There are two assessments here. The first is for grades K-3 and the other for 4-5. They differ in that the K-3 only assesses through a half unit where the 4-5 assesses to fourths.   If you are working with third grade, it might be interesting to see if your students can deal with fourths.

Grades K-3

2.   How many units long is each of the snakes?

_____ units

_____ units

_____ units

_____ units

K-3

Notes:

Grades 4-5

_____ units

_____ units

_____ units

_____ units

_____ units
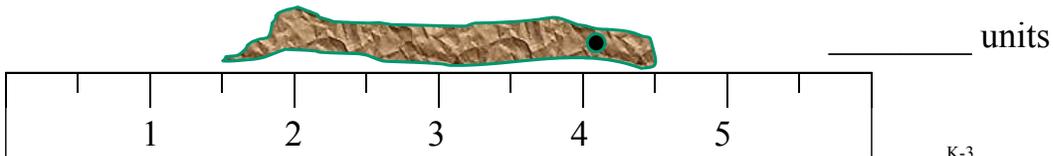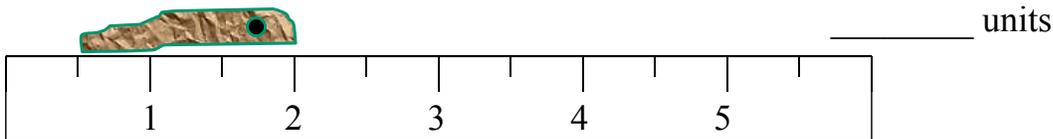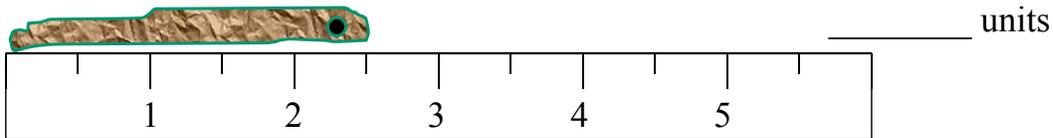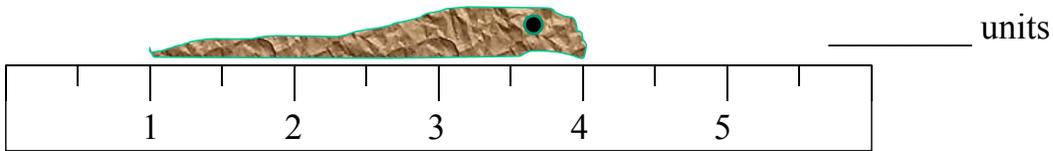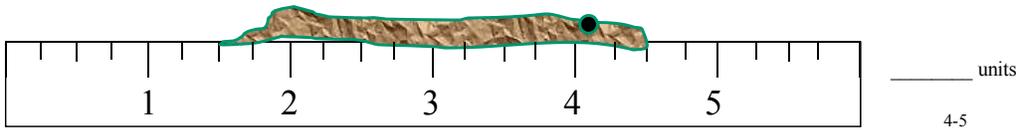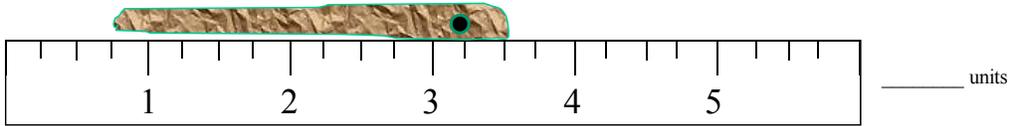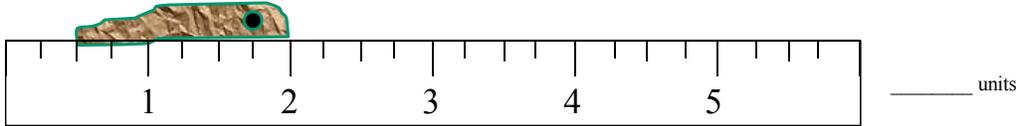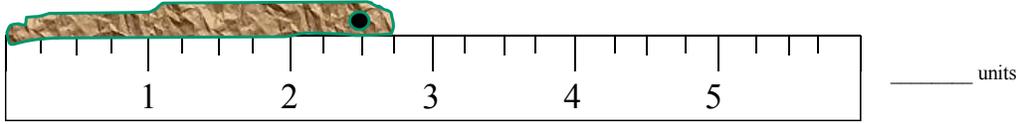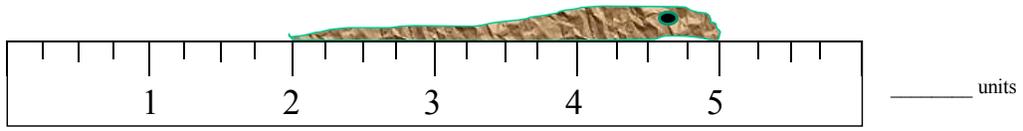
4-5

Notes:

3. Who is correct, Maria or Andrea?

Maria says the snake is 6 paper clips long. Her friend, Andrea, says that is 4 paper clips long. Who is correct? How you do you know?
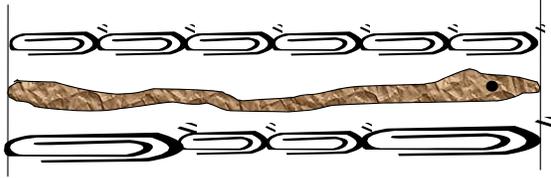
4. How long is Slinky?

This is Slinky. How long is he?
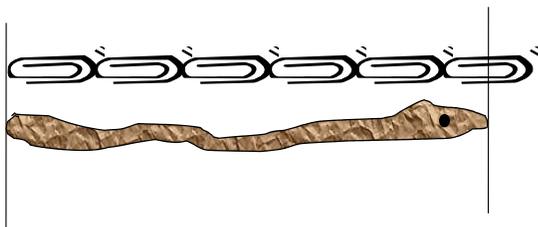
5. Mary and Charlie are measuring the length of the car using their footsteps.
Who will use more footsteps when measuring, Mary or Charlie? How do you know?

Mary

Charlie
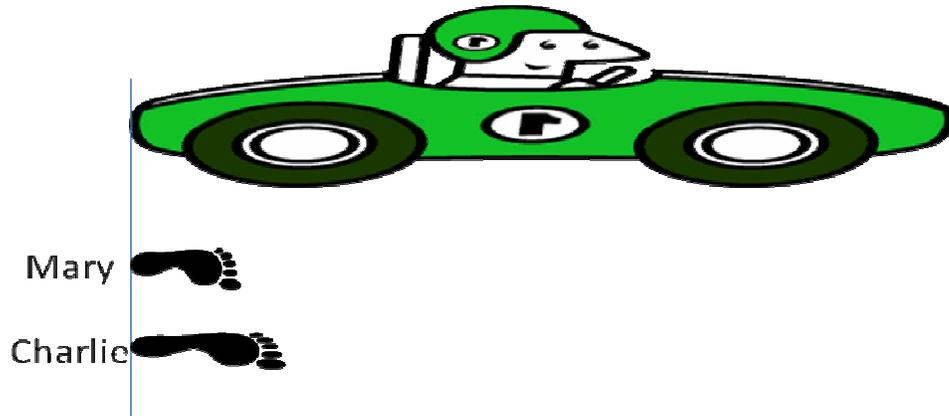
Notes:

This question assesses students' thinking about area. They are not to use tiles or a ruler. You want them to visualize how many tiles would fit in the rectangle. Ask them to show you how they figured it out (on their paper) and be sure to ask them how they counted. (There are two questions for different grade level bands. Second grade is listed for both. You can try either or both if you are assessing a second grade student (depending on their ability level).

6. Grades K-2

This is a cage being made for the snakes. They are going to put these tiles on the floor of the cage.   How many tiles will they need?
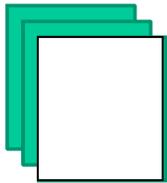
K-2

Notes:

6. Grades 2-5

This is a cage being made for the snakes. They are going to lay these
tiles on the floor of the cage.   How many tiles will they need?

2-5

Notes:

7. There is no written student portion for Volume Measurement – you will need to make a rectangular prism using cubes for this item. Again, 2nd graders could use either prism dependent on the student's ability.

K-1   2 x 3 x 2

2-5   3 x 4 x 3

Present the students with the rectangular prism. Tell them: This a model of an apartment building. If each one of these cubes represents an apartment, how many apartments are in this building? You can use the diagram to help you record what the student did. Again, record what the student describes and how they counted the number of cubes.

K–1 Notes:

2-5 Notes: