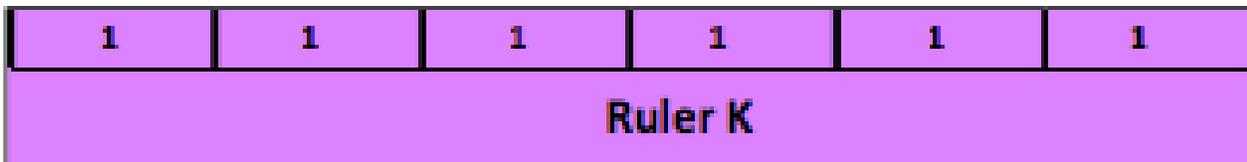
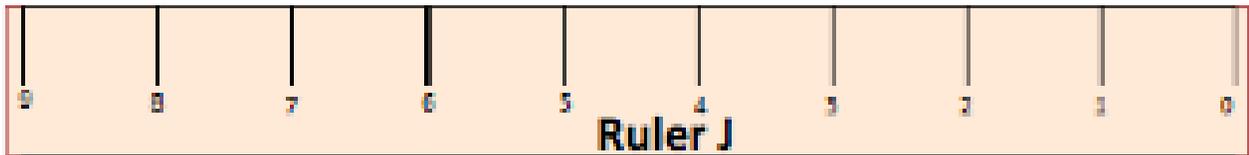


Strange Rulers

MCTM - 2013



Task 6: Strange Rulers



Ruler image:

discoveryschool.com

Materials:

7 different rulers,
string

paperclip, a piece of

“How long is the paperclip?” “How long is the string?”

Task Description:

1. Examine the rulers in your envelope to answer the following questions:
 - i. Which rulers could give you an accurate measure?
 - ii. Which rulers you should not use?
2. For each ruler you can(not) use, explain why the ruler will or will not give an accurate measure

Reasons for rulers I can and I cannot use:

Task 6: Strange Rulers

Level: Grades 2 or up

Prerequisite: Measurement of length including: equal unit size; unit iteration; composing and decomposing units; unit compensation; measuring with non-standard units; measuring with standard units and tools; measurement with a ruler when the object is shorter than the ruler and when the object is longer than the ruler; measurement from the “zero point” and when the “zero point” is a number other than zero.

Goals of task: This task is designed to reinforce the above prerequisite knowledge, used either as a summative or formative assessment of students’ understand of length measurement using rulers.

Grades 2 or 3: Assessment of student understanding of length measure and using rulers. Use at the end of a unit on length measure and using rulers to determine what students understand or what misconceptions they may have about length measurement and the use of rulers..

Grade 4 or higher: Formative assessment of student understanding of length measure and using rulers. Use to determine students’ knowledge and misconceptions about length measurement and the use of rulers.

Materials: Strange Rulers, A piece of string that is longer than the Strange Rulers, Paper Clip, Recording sheet.

Student Grouping: Students may work in pairs or groups of three.

Launch:

In the past, we have used a lot of different tools to measure length or height. Who can tell me what you used to measure length? (Most likely, students will say a ruler, but they may also mention non-standard units such as linking cubes, sticky notes, etc...)

So, today, we are going to continue to examine some strange rulers and use what we know about measurement to decide which ones we can use to measure.

Explore:

Students will be deciding which rulers can be used to measure the string and paper clip. Listen carefully to their discussions about which rulers can and cannot be used. Ask students to justify their thinking so they will be prepared for the summary discussion (e.g. “Why do you think ruler (letter) can (or cannot) be used to measure?”)

Summarize:

For each ruler, ask the class whether it can or cannot be used to measure length. Ask student to explain/justify their answer. Ask the class whether they agree or disagree, and also to justify why they agree or disagree.

What we see as important concepts in this task

This task highlights the many ideas of length measurement (see prerequisites), in particular the following:

1. Measurement with standard units and tools,
2. Measurement with a ruler when the object is shorter than the ruler (paper clip) and when the object is longer than the ruler (string – requires iterating the ruler or decomposing the string).
3. Evaluating whether the units on a “ruler” are the same size.
4. Measurement from the “zero point,” and when the “zero point” is a number other than zero.