

Just in Time Quick Check

Standard of Learning 1.MG.1

Strand: Measurement and Geometry

Standard of Learning 1.MG.1

The student will reason mathematically using nonstandard units to measure and compare objects by length, weight, and volume.

Students will demonstrate the following Knowledge and Skills:

- a) Use nonstandard units to measure the:
 - i) lengths of two objects (units laid end to end with no gaps or overlaps) and compare the measurements using the terms longer/shorter, taller/shorter, or the same as;
 - ii) weights of two objects (using a balance scale or a pan scale) and compare the measurements using the terms lighter, heavier, or the same as; and
 - iii) volumes of two containers and compare the measurements using the terms more, less, or the same as.
- b) Measure the length, weight, or volume of the same object or container with two different units and describe how and why the measurements differ.

Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting and Prerequisite SOL: K.MG.1

Just in Time Quick Check 1.MG.1: Student Interview

Teacher Note: The following items are needed to complete this quick check: two different nonstandard units to measure length, a pan or balance scale with objects to weigh using nonstandard units, and two containers to use when measuring volume with nonstandard units.

1. Length

a) Use a nonstandard unit to measure the length of the paint brush.

_____ units



b) Use a nonstandard unit to measure the length of the crayon.

_____ units



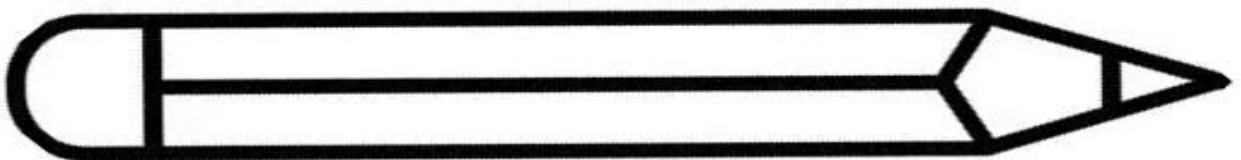
- Which is longer? paint brush or crayon
- Which is shorter? paint brush or crayon

c) Use a nonstandard unit to measure the length of the pencil.

_____ units

Use a different nonstandard unit to measure the length of the pencil.

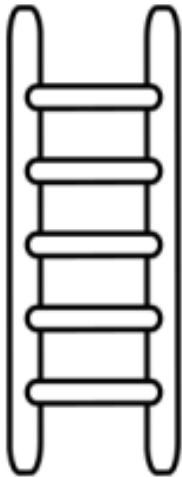
_____ units



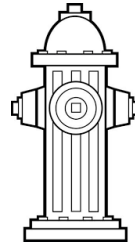
Why are the measurements different?

Student response:

d) Use a nonstandard unit to measure the length of the ladder and the fire hydrant.



_____ units



_____ units

- Which is shorter? ladder or fire hydrant
- Which is taller? ladder or fire hydrant

2. Weight

a) Provide the student with a balance scale or pan scale. Ask: *What is this tool used for?*

Student response:

b) Ask the student to use the scale and a nonstandard unit to weigh two different objects.

Object 1: _____ number of units _____

Object 2: _____ number of units _____

- Which object is heavier?
- Which object is lighter?

3. Volume

Provide the student with 2 containers of different sizes and a nonstandard unit for the student to measure the volume of each container.

Ask the student to use the nonstandard units to fill each container to see how much each will hold.

Container 1: _____ number of units _____

Container 2: _____ number of units _____

- Which container holds more?
- Which container holds less?

1.MG.1 Just in Time Quick Check Teacher Notes

Common Errors/Misconceptions and their Possible Indications

1. Length

a) Use a nonstandard unit to measure the length of the paint brush.

_____ units



b) Use a nonstandard unit to measure the length of the crayon.

_____ units



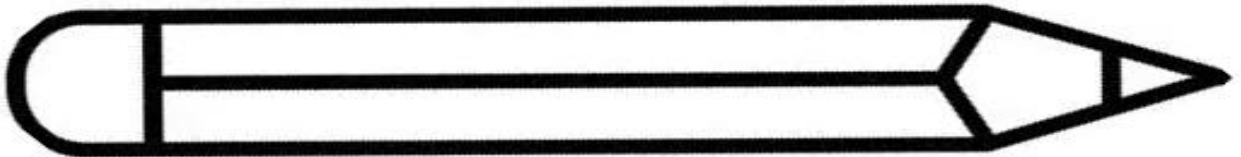
- Which is longer? paint brush or crayon
- Which is shorter? paint brush or crayon

c) Use a nonstandard unit to measure the length of the pencil.

_____ units

Use a different nonstandard unit to measure the length of the pencil.

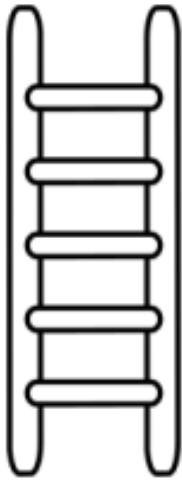
_____ units



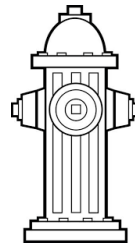
Why are the measurements different?

Student response:

d) Use a nonstandard unit to measure the length of the ladder and the fire hydrant.



_____ units



_____ units

- Which is shorter? ladder or fire hydrant
- Which is taller? ladder or fire hydrant

Some students may struggle to iterate a unit along the length of the objects provided. They may leave gaps between subsequent units or overlap units, both producing inaccurate answers. Providing experiences for students to share their results with their peers will allow for discussions around why answers may vary. This will provide opportunities to share how to appropriately measure and why touching one unit with the next, without overlapping, is important.

Students should have many experiences measuring with nonstandard units. Inch color tiles and other manipulatives prepare students for measuring with a ruler in grade 2. Students can transition from nonstandard units to a ruler because they can use both the color tiles and a ruler to measure the length of objects.

2. Weight

- a) Provide the student with a balance scale or pan scale. Ask: *What is this tool used for?*

Student response:

- b) Ask the student to use the scale and a nonstandard unit to weigh two different objects.

Object 1: _____ number of units _____

Object 2: _____ number of units _____

- Which object is heavier?

- Which object is lighter?

Some students may use two different-sized nonstandard units to measure the objects, thereby not understanding that to compare weights, the same unit needs to be used. Students need many experiences measuring and comparing the weights of real objects with nonstandard units. Students may also benefit from measuring the weight of the same object using a wide variety of nonstandard units of different weights. These experiences reinforce that the unit's size matters and that the heavier the unit, the fewer the number of units needed to measure weight.

3. Volume

Provide the student with 2 containers of different sizes and nonstandard units for the student to measure the volume of each container.

Ask the student to use the nonstandard units to fill each container to see how much each will hold.

Container 1: _____ number of units _____

Container 2: _____ number of units _____

- Which container holds more?

- Which container holds less?

Some students will struggle to compare the number of nonstandard units that each container can hold accurately. This may indicate difficulty counting objects using one-to-one correspondence. Activities that engage these students in counting a variety of concrete objects of different shapes and sizes will be beneficial. It may also be helpful to provide a hundreds chart or number path as support in matching objects (one per number) to improve accuracy.