Lesson 3 - Math: Measurements | 40- 60 minutes

Activity 1: Using Non-Standard Measurement Worksheet
Activity 2: Math Measuring Stations

Summary

Students are introduced to nonstandard measurement by first choosing everyday units, such as hands, feet, cubes, or classroom objects, to measure familiar items on a warm-up worksheet. They then explore both nonstandard and standard tools at hands-on measuring stations, record and graph their results, and compare their findings to see how different tools can produce different measurements. Through these comparisons, students begin to understand why communities developed shared, standard measurement systems to support fairness and clear communication.

This lesson helps students:

- Experience and compare standard and nonstandard measuring tools to notice how results change with different tools
- Record and graph measurement results and use observations to explain why consistent tools matter.
- Recognize that standard measurement systems support fairness and shared understanding.

Key Discovery:

Students discover that standard measuring tools create consistent results, while nonstandard tools vary, which is why communities developed shared measurement systems for fairness and clear communication.

Standards	• Primary: 1.OA.D.8, 1.GM.B.4, 1.GM.B.5 • Secondary: 1/OA.C.5, 1.OA.D, 1.W.2
Materials	• Items to measure (book, desk, door width) • Non-standard items to measure with (paperclips, shoes, markers) • Non-Standard Measurement Worksheet • Math Measuring Stations Worksheet (and teacher templates)



Vocabulary	• **Compare**: to look at two or more things to see how they are similar or different • **Contrast:** to show the differences between two or more things • **Standard Tool:** a tool that is the same for everyone (e.g., ruler, measuring tape). • **Units of Measurement**: those units that are described as fixed, set, universally accepted, and consistent quantities used for comparison. • **Non-Standard Tool:** a tool that can change from person to person (e.g., hands, feet, finger widths). • **Unit:** what you count when you measure (such as cubes, inches, or paperclips). • **Graph:** a picture that shows measurement results so we can compare them.

Setup & Logistics:

- Copy the Using Non-Standard Measurement Worksheet and the Measuring Station Recording Sheet.
- Gather tools (rulers, measuring tapes, cubes, paperclips).
- Set and label stations with one item to measure and one type of measuring tool each; post a pre-labeled Station Graph Chart (x-axis: group names, Y-axis: units) at every station.
- Organize groups of 3-5 and assign a group name or color for graphing.

Language Extension:

Language Audio to be added soon.

Class Flow:

Activity 1-Using Non-Standard Measurement:

Step 1: Launch

- Invite students to look at the cultural items on the worksheet and think about what nonstandard unit might make sense for measuring each one.
- Explain that people sometimes use everyday units like hands, feet, or other available objects when they do not have a ruler.



Step 2: Complete the worksheet and Quick check

- Students complete the worksheet individually or in pairs.
- Ask students to share what they noticed about how the measuring units were placed on the page (touching end-to-end, fingers always spread out…)

Activity 2-Measuring Stations:

Step 1: Launch

- Show an example of a standard (ruler) and a nonstandard (hand) tool.
- Explain that each station has one item to measure and one tool to use to measure.
- Groups gather their materials (recording sheet, clipboard, crayon/marker) and choose a group name or color for graphing.

Step 2: Station Work

- At each station, groups:
    - Measure the item using the tool provided.
    - Record the measurement on the Measuring Station Recording Sheet.
    - Find their group's name on the Station Graph Chart and color one box for every unit measured, going up the chart.
    - Tidy up materials before moving to the next measuring station.
- Teacher circulates to ask questions and support counting and recording.
- Station Exampels:
    - Table length — feet (nonstandard)
    - Desk width — hand span (nonstandard)
    - Chair height — ruler (standard)
    - Pencil length — finger widths (nonstandard)
    - Book height — Unifix cubes/paperclips (standardized)

Step 3: Think and Share Gallery Walk Discussion

- Invite students on a short gallery walk to look at the completed graphs at each station or gather the graphs and the students for a central discussion.
- Teacher Prompts:
    - What do you notice about the graphs?
    - Which stations have bars that look very similar?
    - Which graphs look very different? Why do you think that happened?
    - What does this tell us about the measuring tools we used?
- Options: Possibly close by naming the discovery: Standard measuring tools create consistent results, while nonstandard tools vary, which is why communities develop shared measurement systems for fairness and clear communication.

