**📍 Station 1: Measure & Sort!**

**Focus:** Classifying by Observable Properties  
**NGSS Standard:** **2-PS1-1**

### **Goal**:

You will **measure** and **compare** the lengths of everyday classroom items. Then, you'll **sort** and **analyze** the data to look for patterns and relationships between objects.

**Materials needed:**

 Ruler (with **centimeters** and **inches**)

 (Optional) Digital or plastic **caliper** for precise measuring

 Small objects: pencil, eraser, spoon, stick, crayon, cube

 Measurement Recording Chart

**Student Directions:**

#### Step 1: Measure Your Objects

1. Pick one object at a time.
2. Use your **ruler** (or caliper) to measure:
   * **Length** (the longest side)
   * **Width** (the shorter side, if needed)
3. Record both measurements in **centimeters (cm)** and **inches (in)** in your chart.
   * Measure to the **nearest tenth** (e.g., 5.2 cm or 2.1 in)
   * Ask your teacher for help if you’re unsure how to read the ruler!

#### 📏 Step 2: Complete the Measurement Chart

Use a chart like this to keep your data organized:

| **Object** | **Length (cm)** | **Length (in)** | **Width (cm)** | **Width (in)** |
| --- | --- | --- | --- | --- |
| Pencil |  |  |  |  |
| Eraser |  |  |  |  |
| Spoon |  |  |  |  |
| Stick |  |  |  |  |
| Crayon |  |  |  |  |
| Cube |  |  |  |  |

#### 🧠 Step 3: Sort the Objects

1. Now look at your chart.
2. Use your **length (cm)** column to **rank** your objects:
   * Line them up **from shortest to longest**.
3. If two items are the same length, place them side by side.

### 📊 Analyze & Record:

Answer the following questions:

* 🥇 **Which object is the longest?** → \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* 🥈 **Which is the shortest?** → \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* 🤔 **Did any two objects have the same length?** ☐ Yes ☐ No
  + If yes, which ones? → \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* 🎉 **What surprised you about your measurements or sorting?**  
  → \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
  → \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### 📍 Station 1: **Measure & Sort!**

**Focus:** Classifying by Observable Properties  
**NGSS Standard:** **2-PS1-1** – Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

### ✅ **ITEEA STEL Standards – Elementary School Level**

**STEL 3A** – Use measurement tools and techniques to gather data.  
→ Students practice using rulers and calipers to measure accurately, learning how tools help solve problems.

**STEL 4A** – Materials have properties that help determine how they are used.  
→ Learners explore length, width, and patterns, supporting understanding of how materials are classified and chosen based on measurable features.

**STEL 8A** – Designing includes identifying a problem, creating ideas, and selecting a solution.  
→ Through sorting and comparison, students begin developing foundational skills in selecting and organizing design criteria.

**STEL 11A** – Describe and explain how information is collected and used to inform decisions.  
→ Students collect, organize, and interpret measurements to draw conclusions about size relationships among objects.

### ✅ **Common Core Math Standards – Elementary (Grades 2–3)**

**CCSS.MATH.CONTENT.2.MD.A.1** – Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.  
→ Students use rulers or calipers to measure length and width of objects.

**CCSS.MATH.CONTENT.2.MD.A.2** – Measure the length of an object twice, using different length units, and describe how the two measurements relate to the size of the unit chosen.  
→ Students compare centimeters and inches, observing unit conversions and differences.

**CCSS.MATH.CONTENT.2.MD.D.10** – Draw a picture graph and a bar graph to represent a data set with up to four categories.  
→ Optional extension: Students can turn their data into bar or line plots to show the length order or frequency of sizes.

**CCSS.MATH.PRACTICE.MP5** – Use appropriate tools strategically.  
→ Students use rulers and measuring tools to gather and apply data effectively.

**CCSS.MATH.PRACTICE.MP6** – Attend to precision.  
→ Measuring to the nearest tenth encourages careful attention and use of decimals.

### ✅ Summary:

This activity combines hands-on measurement and data analysis, helping students classify objects by physical properties. It supports **NGSS 2-PS1-1**, aligns to **ITEEA STEL standards** by encouraging measurement and material analysis, and integrates **Common Core Math** skills through real-world measurement, tool use, and data interpretation.