



Measuring with Hands or Feet

The purpose of this activity is for children to practice measuring using non-standard measurement tools. In this activity, children will measure their height using paper cutouts of their hands or feet.



Key Concepts

- Understand that measuring requires equal-sized units, starting at the origin, and ensuring no gaps between units.
- Compare the height of different people.

Materials and Setup

- Colored paper
- Markers
- Scissors
- Optional: chart paper or butcher paper, double-sided tape, stickers



30 minutes



Small groups or whole group activity



Large wall or floor space

Activity Instructions

In this activity, children will measure their own height and compare that to the height of others in their setting. The instructions below describe how to use chart paper and cutouts of a child's hand or foot to create a Measuring Tool.

However, a variety of materials and spaces may be used for this activity. For example, you may consider laying the chart paper on the floor instead of attaching it to the wall. Also, instead of cutouts of a child's hand or foot, you can use craft sticks or other recycled materials. Modify the activity based on your space and available materials.

Children can measure their height in a whole group setting, or the educator can call them up in pairs while they are engaging in other things.



Prepare Your Measuring Tool

1. Create 15–20 cutouts of a child's hand or foot using colored paper. Children may want to help in drawing hand or foot cutouts. Ensure that each cutout is the exact same size.
2. Attach chart or butcher paper to a wall. Using double-sided tape, attach the cutouts against the paper in a vertical line to create a measuring tape. Ensure the cutouts start at the bottom and there are no gaps between them. This will be the Measuring Tool that all children will use.



Using Your Measuring Tool

3. Explain that children are measuring their height with the Measuring Tool.
4. In pairs, invite one child to stand with their back against the Measuring Tool. The second child marks or places a sticker on the paper where the top of the first child's head meets the chart. The educator writes the name of the first child next to the mark or sticker.
5. Invite the pair of children to count the number of hand or foot cutouts that measure the first child's height.
6. Ask the children to switch roles and measure the second child's height, counting the number of hand or foot cutouts on the measuring tool.

Questions to ask: Which one of you is tallest? Which one of you is shortest? How do you know?

7. After all children have measured their height, gather as a group and discuss the following questions:
 - a. Who is the tallest person in our class? How do you know? How many hand or foot cutouts tall are they?
 - b. Who is the shortest person in our class? How do you know? How many cutouts tall are they?
 - c. Are there some children who are the same height? How do you know? How many cutouts tall are they?



Using M⁵ to Support Children’s Measurement

This section offers ways to use the M⁵ Early Math Practices to support children’s early math learning and development during this activity.

Mutual Learning

- Notice what children understand about the rules that apply to measuring, such as equal-sized units, no gaps between units, and start at the origin. Ask questions to help them understand how to adjust their measuring strategies.
 - ◊ If children are placing their first unit far away from the origin, ask them to think about where their measurement should begin and end.
- Observe the languages, gestures, and vocabulary children use to describe the person they are measuring.

Meaningful Math Investigations

- Invite children to compare what happens when you use different measurement tools to measure the same objects.
 - ◊ Ask children to measure their height using cardboard blocks, or connecting cubes. How is the answer different from when they measured using the hand or foot cutouts?
- Invite children to explain their reasoning.
 - ◊ “How do you know Amira is taller than Minh?”

Materials and Environment

- Provide children with additional non-standard measurement units, such as cardboard blocks, markers, or spoons to measure how tall they are.
- Offer standard measurement tools and model how to use them.
 - ◊ “I wonder how long our hand cutout is using this measuring tape. Do you want to hold it at the bottom of the hand and I will go all the way to the top of the fingers? Look, it says the number 5. It is 5 inches long.”

Math Language and Discourse

- Use comparative vocabulary to describe the heights of different children.
 - ◊ “Matteo is tall, but Alejandra is even taller.”
- Invite children to describe height using numbers.
 - ◊ “You are 15 hands tall.”





Multiple Representations

- Use gestures to help children visualize how tall someone is and to indicate the start and end points of where you are measuring.
 - ◊ “Is Ms. Patel short (holds their hands close to each other) or tall (stretches their hands far away from each other)?”
 - ◊ “Can you show me where you think we should start measuring and where we should end?”

Universal Design for Learning (UDL) at a Glance

Ideas are aligned with CAST’s Universal Design for Learning Guidelines 3.0 (2024).

- Offer tool choices (hand cutouts, foot cutouts) to boost autonomy.
- Pre-teach measurement vocabulary with pictures and gestures in English and children’s home languages.
- Vary how children participate in the activity by standing, sitting, or measuring on the floor; support mobility devices and different movement needs.
- Let children show learning in multiple ways (for example, by placing units, pointing, counting aloud, answering questions).
- Offer accessible tools to support varied motor and communication needs.

