

Measuring Scavenger Hunt with Tubes

NOTE: Children should always be given ample time to experiment, notice, and wonder before they are provided an explanation.

Always engage children with our two favorite questions:

What do you notice?

What do you wonder?



Resist the urge to answer any questions children have while exploring. Instead, respond back with questions to children and let them make sense of the world. Sample questions you might use: What do you think? Do you notice any patterns? What could we change? Can we test something else? What can we try next? If children ask a testable question, which they could answer by doing an experiment, talk through with them how they might design a test to help answer their question. As much as possible and within reason, let them actually test their questions by trying the experiments they propose.

Learning Objectives

Children will...

- define measurement.
- explore measurement with paper towel or toilet paper tubes.

Key Question

What can we measure with tubes?

Vocabulary (See **What the heck? Explanation of Math** at the end for definitions.)

Measurement

Height

Width

Distance

Materials

Paper towel tubes (1 per person)

Toilet paper tubes (2 per person)



Notice and Wonder Developmentally Appropriate Practice

1. Give each child one paper towel roll and two toilet paper rolls.
2. Show them an object and talk about its height.
3. Ask them the following questions and let them explore:
 - What can you find that is one paper towel tube tall?
 - What can you find that is one toilet paper tube tall?
4. Have them call out when they have found a new object that is the right height.
5. Show them an object and talk about the length and the width of the object.
6. Ask them the following questions and let them explore:
 - What can you find that is one paper towel tube long or wide?
 - What can you find that is one toilet paper tube long or wide?
7. Have them call out when they have found an object that is the right length or width.
8. Continue with challenges for the children, two paper towel tubes long, three toilet paper tubes wide, two toilet paper tubes tall...
 - Ask them to demonstrate how they know the object is the correct dimension.
9. Have children measure the height, length, or width of an object first using paper towel tubes and then toilet paper tubes. Record their measurements so they can compare them.
 - After children have collected some data, ask them what they notice when they make a measurement using paper towel tubes compare to toilet paper tubes.

NOTE: If you want to add teamwork into the activity, you can give each child one of each tube. Then they have to work together to measure objects longer than one tube.

Children should notice...

- it hard to find an object that is exactly the correct length, width, or height.
- it takes more toilet paper tubes to measure an item than paper towel tubes.

Differentiating Developmentally Appropriate Practice

Younger children can just measure any item with tubes.

Older children can use measuring devices like rulers or meter sticks or measuring tapes to make and compare dimensions.

Extensions for Additional Learning

As always, ask the children throughout the experiment what they notice and what they wonder. If their wonder questions are testable, as much as possible and within reason, let them actually test their questions by trying new experiments.

See below for examples of what they might wonder and experiments they might do to test their wonderings.

- I wonder how many tubes tall I am?
- I wonder how many tubes wide is the door?
- I wonder how many tubes it is from the chair to the door? Or from the chair to the window? Which one is farther?
 - Let them try it!

#STEMAZingPictureBook Recommendations:

Inch by Inch by Leo Lionni

Is a Blue Whale the Biggest Thing There Is? by Robert E. Wells

Connections to the activity:

Have children measure with their feet or hands. Introduce a ruler to the children.

#STEMAZingResource Recommendations:

<https://www.sesamestreet.org/toolkits/stem/measurement>

<http://bit.ly/SesameStreetMeasuringWithTubes>

AZ Early Learning Standards

Math Standard - Strand 3: Measurement & Data - Concept 3: Measures

The child uses measurement to describe and compare objects in the environment.

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What the heck? Explanation of the Math

Starting at a very young age, children compare based on observable attributes and characteristics. Children are naturally interested in measurement so they can answer questions like “How tall am I?”, “Who is taller?”, and “How far can I jump?” Using non-standard units (like paper towel tubes or toilet paper tubes) instead of standard units (like inches, feet, and yards) is the foundation of teaching measurement.

Measurement is finding a number that shows the size or amount of something. **Height** is used to tell how tall someone or something is. **Distance** is how far it is between two things or people or places. **Width** is how far it is from side to side of something.