

Magical Measurement Activity



Strands:

Number & Quantity

X

Algebra

Functions

Geometry

Statistics & Probability

In this game of comparative measuring you can use your magical measuring wand to test your measuring powers.

Set-Up:

- Players work in groups of two.
- Place all the measuring tools in the middle of the table.

Object of the Game: Express the length of an object as a whole number of length units; by laying multiple copies of a shorter object (the length unit) end to end, understand that the length of an object is the number of same-size length units that span it with no gaps or overlaps.

Pre-Game Play: Pairs choose two different types of measuring wands. Hold them next to each other and compare them. Answer the following questions:

1. Which one is longer?
2. Which one is shorter?
3. How much longer is the longer one in terms of the shorter one?

On Your Turn:

1. Use the magical measuring spoons to measure the length of a table.
 - a. Count the number of magical measuring spoons you used.
 - b. Write down the numbers of spoons you used.
 - c. Is your number the same as the measurements other pairs found?
 - d. If not, why are there differences?
2. Compare the lengths of a paper towel roll and a spoon. Which one is longer?
3. If you measure the same table with paper towel rolls, will you use more paper towel rolls or more spoons? Why do you think so?
4. Measure the table again, this time using paper towel rolls.
5. Is the table more measuring paper towel rolls long or more measuring spoons long? Were you surprised by your results?
6. Choose another magical measuring tool (not a spoon and not a paper towel roll). Repeat the task starting at Step 2 for this new tool.
7. Find another object to measure.
 - a. Estimate how many spoons you need to measure the object.
 - b. Measure the object using spoons. Record the length.
 - c. Estimate how many paper towel rolls you need to measure the object.
 - d. Measure the object using paper towel rolls. Record the length.
 - e. Does it matter which tool you use to measure?
 - f. How will you indicate the tool you used to measure?

Materials:

- 20 plastic spoons
- 20 toilet paper rolls
- 20 paper towel rolls
- 20 drinking straws
- 20 paper clips, 2 different sizes of each, using only one size at a time)

Where:

Outside

Inside

On-line

On-site

X

Think About It:

1. What measurement tool is most accurate to use to measure short lengths?
2. What measurement tool would you use to measure the length of a long distance?
3. Does it matter which tool you use to measure the length of an object? If so, what do you need to record to make the measurement of an object clear?

Variations:

Measure More: Choose two different objects to measure. Compare the lengths you find with the lengths you have already measured. If the numbers are the same but the tools are different, why does it take the same number of measuring tools to measure two different objects? Why are the numbers the same? Does the measuring tool matter? Explain.

What Tool is Best? Choose two different objects to measure then choose the best tool to use to measure each object. Would paperclips be a good tool to use to measure a table? Why or why not? Use different tools to measure the same objects. Why are the numbers different? Which tool is more accurate?

Helpful Hints:

1. The length units you use to measure a single object must be the same size.
2. As you measure, make sure you line up the measuring tools end to end so that the tools touch but do not overlap.
3.
 - a. If the measurements found by different pairs of learners using the same tool are very different, repeat the task.
 - b. If the measurements found by different pairs are off by one, explain how you measured and counted the use measuring tools you used.
 - c. If the table is not an integer length of spoons (i.e. If the number of spoons needed is 10.5) did you add an extra spoon getting 11 spoons or did you count 10 spoons and not worry about the leftover amount of table? Either method is reasonable. If the number of spoons needed is less than 10.5, then rounding down to 10 is better than rounding up to 11. If the number is greater than 10.5, then rounding up to 11 is best.