Activity:

4. In the same pairs, use the magical measuring spoons to measure the length of the table.

As learners measure, make sure they are lining up the measuring spoons end to end so that the spoons touch but do not overlap.

5. Count and write down the number of magical measuring spoons you used.

Have the different pairs share their responses.

6. Did each pair use the same number of magical measuring spoons?
7. Did some pairs use a different number of magical measuring spoons?
8. Why might there be differences?

Help learners compare the magical measuring spoon measurements that each group found. If the numbers are very different, ask them to repeat the task. If the numbers are off by one, ask learners to show you how they measured. Ask them what they think they should do if the table is not an integer length of spoons (For example, if the number of spoons needed is 10.5, did students add an extra spoon getting 11 spoons or did they 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.)

9. Hold up a paper towel roll and a spoon. Which one is longer?
10. If you measure the table with paper towel rolls, will you use more paper towel rolls or more spoons? Why do you think so?
11. Measure the table again, this time using paper towel rolls.
12. Is the table more magical measuring tubes long or more magical measuring spoons long?
13. Were you surprised that it took more magical measuring spoons to measure the length of the table?
14. Choose another magical measuring tool (not a spoon and not a paper towel roll). Repeat the task starting at problem 10 for this new tool.

Work with learners to estimate length in terms of comparisons and in terms of length in measuring wand units.

15. Do you think the free throw line will be longer or shorter than the length of the table?
16. How many measuring tools long do you think the free throw line will be?
17. Choose a measuring tool and measure the length of the free throw line by lining them up end to end so that they touch but do not overlap. Count the number of measuring tools you used.
18. How close was your estimate?
19. Is the free throw line longer or shorter than the length of the table?

***A sample Chart is provided to help students keep track of the things that they are measuring.

Magical Measurements

		Free Throw Line 	Choice	Choice
Spoon				
Tube				
Choice				
Choice				

Extensions:

Measure More: Ask learners to choose different things to measure. Compare the lengths they are finding with the lengths they have already measured. If the numbers are the same but the tools different, ask students why it takes, for example, 10 paperclips to measure a book and 10 paper towel rolls to measure a table. Why are the numbers the same? Learners need to distinguish that the measuring tool matters.

What Tool is Best? Ask learners to choose objects to measure then choose the best tool to use to measure the object. Ask if paperclips would be a good tool to use to measure a table? Why or why not? If they use different tools to measure the same objects, ask why the numbers are different and which tool is more accurate. Learners who measure accurately with informal tools can move up to the use of rulers or measuring tapes.

Area: Measure how much surface objects have by using square sticky notes or paper plates to cover the object.

Perimeter: With one of your magical measuring tools, measure all sides of the object. You can even line your wands up along the edge of a circle to see how big a circle is. To visualize the difference in perimeter students can line up the appropriate number of

Compare: Find a magical measuring wand that is the same length as one side of a magical measuring square. Measure both the perimeter and the area of several different square or rectangular objects. Are there any objects that have the same area but different perimeters? Are there any objects that have the same perimeter but different areas?

Adding and Subtracting: You can always figure out how many more wands one object is than another or how close your guess is by solving an addition or subtraction problem. You can also figure out how much larger one object is than another in terms of the measuring wands.

Multiplication: Measure the table with a paper towel roll (a relatively longer object). Measure the paper towel roll with the paperclips (a relatively shorted object. Record your responses. If it takes y paper clips to measure a paper towel roll and x paper towel rolls to measure the table, then without measuring, how many paper clips do you think it would take to measure the table? Measure the table with the paper clips. Is your response correct?

Launch:

Decide on some tools that will make good magical measuring wands and a list of things that you can measure. The lists below give some ideas. Add some of your own ideas.

Suggested Measuring Wands

- Plastic spoons*
- Toilet paper rolls*
- Paper towel rolls*
- Drinking straws**
- Paper clips, (2 different sizes but using only one size at a time)
- Popsicle Sticks or tongue depressors*

Possible Things To Measure

- The length of the longest (shortest) side of a sheet of paper
- The length of one side of the table
- The length of the free throw line
- The width of the chair
- Side length of a book or binder
- The length of your shoe
- The length of your forearm
- Height or your friend
- Height of a seat of a chair
- The height of the table leg

Tips: * Put different stickers on the ends of wands to help keep track of the number of objects as you are counting.

** Use different colored straws to help keep track while counting. Students can also form patterns with the straws (they will do this naturally; don't prompt them to do so).

Have the students work in groups of two. Place all the measuring tools in the middle of the table. Let groups choose two different types of measuring wands. Hold the measuring wands next to each other and compare them.

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