Homework: length measurement

1. Indirect comparison: use a side of the geoboard (square with a 5x5 array of pegs) in your math kit as a length to compare to:

a. Find something in your house that is a little longer than the geoboard. What is it?

b. Find something in your house that is a little shorter than the geoboard. What is it?

c. How can you use indirect comparison to tell which of your two objects is longer?

2. Measuring with non-standard units, choosing good objects: For this problem, you’ll be finding things to measure using the linking Unifix cubes in your math kit (things that would be appropriate for first graders to measure).

a. Find something in your house or classroom that would be too long to measure effectively with the linking cubes. What is it? Why did you decide it was too long?

b. Find something in your house or classroom that would be too short to measure effectively with linking cubes. What is it? Why did you decide it was too short?

c. Find 4 things with a variety of lengths that would be good choices to measure (or have first graders measure) with linking cubes. What are they? How many cubes long is each one?

3. For each of these objects, choose another object (non-standard length unit) to measure its length. Tell how long each object is measured in both non-standard and standard units:

|  |  |  |
| --- | --- | --- |
|  | Length in non-standard units (eg. 5 pencils long) | Length in standard units |
| width of your bedroom |  |  |
| length of your kitchen table |  |  |
| length of your shoe |  |  |
| length of your thumbnail |  |  |

4. Non-standard units, key concepts: what are the key concepts for understanding measurement with non-standard units?

5. Conservation of amount:

a. Describe an experience you could plan for children to help them learn conservation of number.

b. Describe an experience you could plan for children to help them learn conservation of length.

6. Standard units, key concepts:

a. Explain where 1 inch is/what 1 inch looks like on this ruler:



b. How should you line a ruler up with the object you are measuring?

c. What is something that would be easier to measure with a tape measure than a ruler?

d. Why is measuring with standard units more useful than measuring with non-standard units?

7. Benchmarks: Use your ruler to find good benchmarks to help you estimate. For each length unit find two benchmarks that could help you estimate lengths. Tell what each benchmark is and how many units it corresponds to

a. length in inches (eg. An inch is about the width of a quarter or my hand is about 3 inches wide)

benchmark 1:

benchmark 2:

Use one or both of your benchmarks to estimate the length of a side of your geoboard. Tell your estimate and how you used your benchmarks to get the estimate.

b. length in centimeters

benchmark 1:

benchmark 2:

Use one or both of your benchmarks to estimate the length of your hand. Tell your estimate and how you used your benchmarks to get the estimate.

c. length in feet

benchmark 1:

benchmark 2:

Use one or both of your benchmarks to estimate the length of your bed. Tell your estimate and how you used your benchmarks to get the estimate.

8. A book is 8 large paper clips long. If you measured the book with small paper clips, would you expect to need more, less or the same number of small paper clips as large paper clips? How do you know?

9. A plate is 22 cm across. If you measured the plate in inches, would you expect the plate to be more or less than 22 inches across? How do you know?

10. A room is 8 yards long. There are 3 feet in a yard. How many feet long is the room?

11. Write and solve a comparison word problem that uses length measurements

12. Write and solve a take away (separate) word problem that uses length measurements.

13. Write and solve a Part-Part-Whole or a Join problem that uses length measurement.