

## *Measurement*

1. Choose a “non-standard” measuring device to measure the length of the table/desk where you are sitting.

2. Write a description of what you did to make this measurement.

3. Exchange your description of how to measure the table with the people at another table. Try to follow the directions given to you without measuring the table. Discuss how the description could be improved. Modify your description.

4. Obtain a ruler. Following the new description of how to measure the length of the table in centimeters. Write the equivalences that you have measured/discovered.

1 table side = \_\_\_\_\_

1 table side = \_\_\_\_\_

\_\_\_\_\_ = \_\_\_\_\_

5. Choose another object in the room to measure. Measure one of the lengths using your non-standard measuring device.

6. Show how you can use your equivalences to find the length of the new object in centimeters without measuring the length again.

7. Use your equivalences sheet to convert the length to inches. Check your answer through measurement.

8. Now take the measurement of the Length of the same table at 10 different points using a ruler. Write ***one more estimated*** digit than what your ruler can measure.

Trial #	Measurements	Absolute Deviation from the mean: (difference between each measurement and the mean value of the entire set)

Mean value of the Measurement :

Mean Deviation: (Add the deviations and divide by the total number of trials)

Measured value of the length of the table = Mean Measurement +/- Mean Deviation

## 9. Error Analysis :

Write possible sources of error in the experiments you conducted:

- 1) Errors ( Non standard measurement – your way) :
- 2) Errors ( Non standard measurement – your classmate's way)
- 3) Errors (Using a standard Ruler ) : Could they be systematic or random errors or both? Explain.