

Measurement and Measurement Error

MONT 106N
September 30, 2009

Names: _____ Paper # : _____

Directions: With your given wooden ruler and “special” ruler, make 10 measurements each of *the shorter side of* your purple paper sheet (in centimeters, to the nearest $1/10^{\text{th}}$) and record them. *Alternate using the two rulers, and have one team member make the measurement and another write it down, switching roles after each measurement. As much as possible, try not to think about what the numbers are each time and don't make any conscious effort to be “consistent.”* Compute the average and SD for each set of measurements and record them below. Then answer the questions on the back.

Wooden Ruler

“Special” Ruler

Measurement 1: _____ (cm) _____ (cm)

Measurement 2: _____ (cm) _____ (cm)

Measurement 3: _____ (cm) _____ (cm)

Measurement 4: _____ (cm) _____ (cm)

Measurement 5: _____ (cm) _____ (cm)

Measurement 6: _____ (cm) _____ (cm)

Measurement 7: _____ (cm) _____ (cm)

Measurement 8: _____ (cm) _____ (cm)

Measurement 9: _____ (cm) _____ (cm)

Measurement 10: _____ (cm) _____ (cm)

Average: _____ (cm) Average: _____ (cm)

SD: _____ (cm) SD: _____ (cm)

1. What are some possible sources of error in these measurements? Explain.

2. How well did the measurements with the “special” ruler match those with the wooden ruler? If there was a difference, how might you account for it?