Activity 3:
Length Measurements with the Four-Sided Meter Stick

OBJECTIVE:

THEORY:

Error of measurement

Error
positive error

negative error

systematic   *random*   *systematic error*

random error   *erratic error*

a.m.

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accuracy   *meaningful*

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DATA

Table 1. Measurement of Length Using a Meterstick with No Graduation

Trial	1	2	3
Observed length			
Smallest scale division			
Smallest fractional part of the scale division that can be reasonably estimated			
Numerical uncertainty			

Table 4. Measurement of Length Using a Meterstick Calibrated in Millimeters

Trial	1	2	3
Observed length			
Smallest scale division			
Smallest fractional part of the scale division that can be reasonably estimated			
Numerical uncertainty			
Percentage uncertainty			

Table 5. Measurement of Length of a Block

Trials	Observed Length	Deviation from the Mean
1		
2		
3		
4		
5		
6		
Average		

Table 8. Propagation of errors during arithmetic manipulations

Volume	Calculated Value	Numerical Error	Percentage Error
Minimum			
Maximum			

GUIDE QUESTIONS FOR ANALYSIS: