Physics Lab Set-up

Thomas More College

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Download the PDF here

A PDF of this document can be found at http://physics.thomasmore.edu/PHY121Lab/TMC-lab-setup.pdf.

Contents

Chapter 1

PHY121L: General Physics (algebra-based, fall)

1.1 Meaningful Measurements

Location	Equipment	Notes
For Each Lab Station		
AF34-14	1 metric ruler	could be a 1-foot ruler or a 0.25-meter stick
AA13	1 Vernier caliper (Figure 1.1.2)	Ask faculty if they want digit or analog before and after lab, verify digital calipers are turned off
AA14	1 micrometer (Figure 1.1.2)	before and after lab verify jaws are not tight
AE82	3 objects to measure	Ask faculty which objects they want (smooth sphere, rough sphere, cube, block of metal, irregular shape, etc)
AE21	string	sufficient string to tie onto the objects in order to immerse them in the cylinder and retrieve them
AF55-19	1 tall, skinny, graduated cylinder	at least 2 of the 3 objects should fit inside the graduated cylinder
At the front for students to share		
S224 AF36-4	at least 1 digital scale	the available scale(s) should be able to weigh the chosen objects

Table 1.1.1: Equipment Needed: Meaningful Measurements

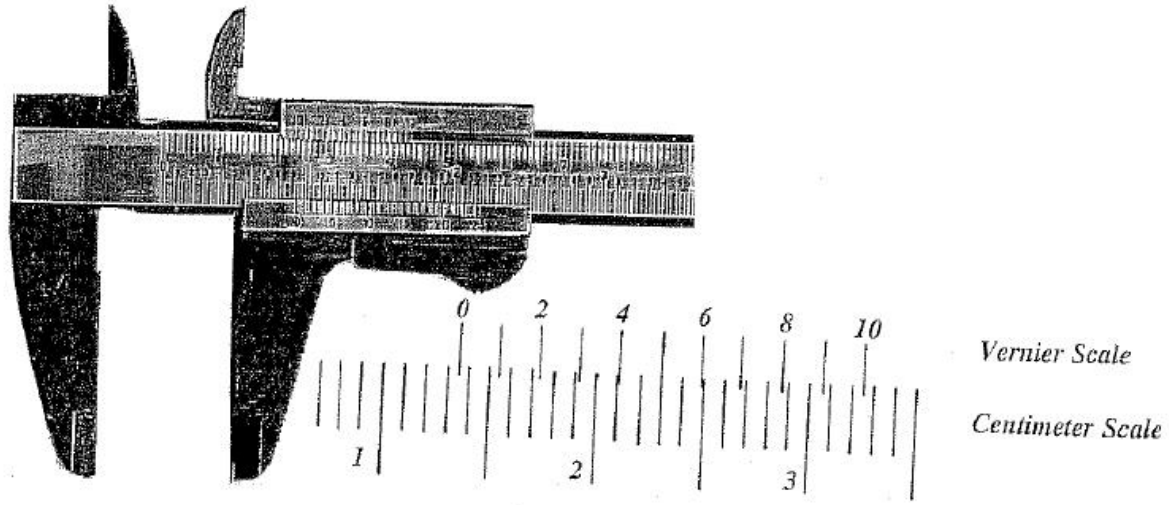

Figure 1.1.2: The Vernier Caliper

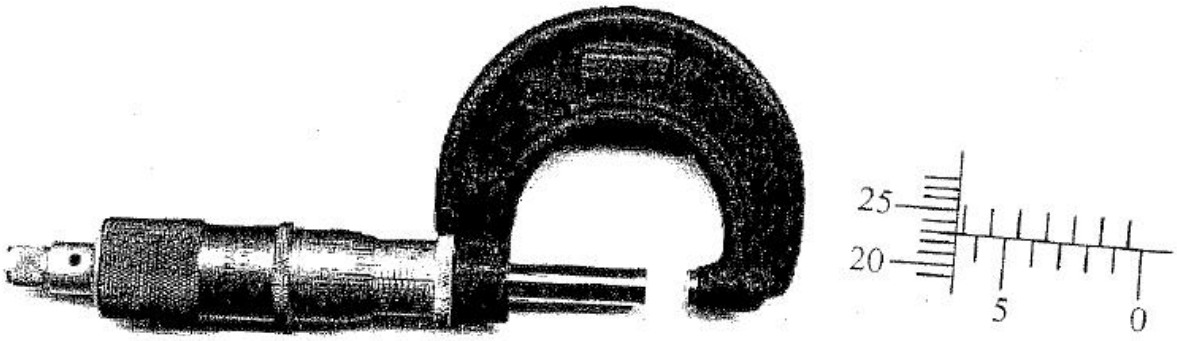

Figure 1.1.3: The Micrometer Caliper

(Updated: September 6, 2017)

A digital version of the lab should be found at http://physics.thomasmore.edu/PHY121Lab/c-meaningful-measurements.html

A PDF version of the write-up might be found at Measurement.pdf (291 kB)

1.2 Standard Deviation

Location	Equipment	Notes
At the front for students to share		
AL32-5	several boxes/bags of pennies	in sufficient number for each student to have up to 50 pennies

Table 1.2.1: Equipment Needed: Standard Deviation

(Updated: September 6, 2017)

A digital version of the lab should be found at http://physics.thomasmore.edu/PHY121Lab/c-standard-deviation.html

A PDF version of the write-up might be found at StDev.pdf (232 kB)

1.3 Constant Acceleration

Verify Are the carts at AF22 or AF32?

Location	Equipment	Notes
For Each Lab Station		
AF12 (tube)	1 track	.
S224	1 motion sensor (same as "sonic ranger")	Should have a black-yellow plug
AF22-2-13	1 cart with "sail"	these are in a large box labelled "DYNAMIC CARTS AF22-2-13"
AF15	Wood Squares	probably 2-3, used to prop up one end of track
either AF35 (shelf) or AE82 (drawer)	1 metal ball (any size)	used to level the track
AF34-14	ruler	used to level the track
-	Pasco	Computer
At the front for students to share		
AA41 or AA42 (drawers)	1 gravity protractor	This is the large yellow protractor
AF44	1 pendulum bob	.

Table 1.3.1: Equipment Needed: Acceleration

Verify Are the protractors at AA41 or AL14-2?

2-sized blocks??? (AF151-1)

(Updated: September 6, 2017)

A digital version of the lab should be found at http://physics.thomasmore.edu/PHY121Lab/c-acceleration.html

A PDF version might be found at Acceleration.pdf

1.4 Newton's 2nd Law on a Linear Track with the Sonic Ranger

Location	Equipment	Notes
For Each Lab Station		
AF12 (tube)	1 track	.
S224	1 motion sensor (same as "sonic ranger")	Should have a black-yellow plug
AF22-2-13	1 cart	these are in a large box labelled "DYNAMIC CARTS AF22-2-13"
AF22-2-13	2 wooden cart-block	these are in a large box labelled "DYNAMIC CARTS AF22-2-13"
AF22-2-13	1 pulley	these are in a large box labelled "DYNAMIC CARTS AF22-2-13"
???	string	There should be pre-cut string that is long enough to reach from the cart, over the pulley and to a hanging mass. About one meter long
AF22-2-13	light plastic bucket	These might already be attached to the string
either AF35 (shelf) or AE82 (drawer)	1 metal ball (any size)	used to level the track
-	Pasco	Computer
AF44	weights	these are to ride the cart. Should be an assortment of 100-500 grams to ride the cart and an assortment of very small masses (1-2 grams); pennies work well for the small masses.
AF34-14	ruler	used to level the string
At the front for students to share		
.	.	.

Table 1.4.1: Equipment Needed: Newton's 2nd Law on a Linear Track with the Sonic Ranger

(Updated: September 8, 2017)
A digital version of the lab should be found at http://physics.thomasmore.edu/PHY121Lab/c-Newton.html
A PDF version might be found at Newton.pdf

1.5 Next Lab

Location	Equipment	Notes
For Each Lab Station		
AF12	1 track	.
At the front for students to share		
.	.	.

Table 1.5.1: Equipment Needed: Next Lab

(Updated: September 8, 2017)
A digital version of the lab should be found at http://physics.thomasmore.edu/PHY121Lab/c-labname.html
A PDF version might be found at labname.pdf

Chapter 2

PHY122L: General Physics (algebra-based, spring)