

# Physics Lab Set-up

Thomas More College



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**Website:** [TMC Physics](#)

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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>.





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# Class 1

## PHY 121L: 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 ( <a href="#">Figure 1.1.2</a> )	Ask faculty if they want digit or analog before and after lab, verify digital calipers are turned off
AA14	1 micrometer ( <a href="#">Figure 1.1.2</a> )	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	at least 1 digital scale	the available scale(s) should be able to weigh the chosen objects
AF36-4		

**Table 1.1.1:** Equipment Needed: Meaningful Measurements

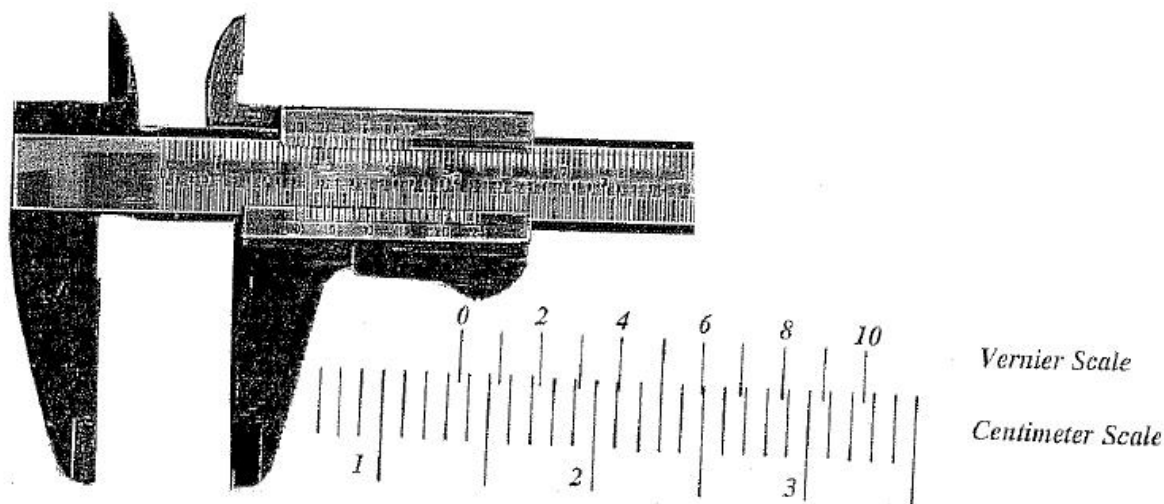


Figure 1.1.2: The Vernier Caliper

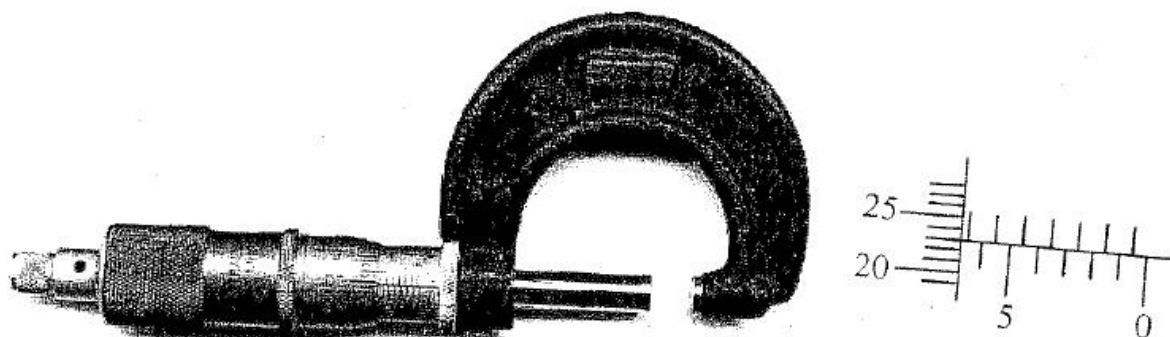


Figure 1.1.3: The Micrometer Caliper

(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: [Constant 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 2<sup>nd</sup> Law on a Linear Track with the Sonic Ranger

Location	Equipment	Notes
For Each Lab Station		
S224	1 motion sensor (AKA “sonic ranger”)	Should have a black-yellow plug
AF12 (tube)	1 track	.
AF22-2-13	1 cart	these are in a large box labelled “DYNAMIC CARTS AF22-2-13”
AF22-2-13	1 wooden cart-block	these are in a large box labelled “DYNAMIC CARTS AF22-2-13”
AF22-2-13	light plastic bucket	These might already be attached to the string
(attached to plastic bucket?)	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	1 pulley	these are in a large box labelled “DYNAMIC CARTS AF22-2-13”
AF34-14	ruler	used to level the string
either AF35 (shelf) or AE82 (drawer)	1 metal ball (any size)	used to level the track
AF44	larger weights	These are to ride the cart. <b>Check with instructor: EITHER</b> an assortment of 100-500 gram, cylindrical masses <b>OR</b> 2 black rectangular masses that fit into the cart (like the 1-wooden block above).
AF44 or AL32-5	tiny weights	These are to transfer between the cart and the basket. <b>Check with instructor: EITHER</b> an assortment of 7-10 very small masses (2-5 grams) <b>OR</b> 10 pennies.
-	Pasco	Computer
At the front for students to share		
S224	functioning digital scales	(please verify that these function and are set to metric)

**Table 1.4.1:** Equipment Needed: [Newton's 2<sup>nd</sup> Law on a Linear Track with the Sonic Ranger](#)

(Updated: September 13, 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](#)

Class 2

PHY122L: General Physics  
(algebra-based, spring)