Principles of Physics I and Lab

The following materials and equipment are **required** for this course. Please read this document carefully and thoroughly.

- Free items

The following items can be obtained without purchase, although a store-bought ruler, protractor, or meter stick may be preferred. Some substitutions may be allowed.

Item	Source	Note
30 cm Ruler	Paper 30 cm ruler pdf file	For best results, print the file on heavier paper such as card stock.
Protractor	Paper protractor pdf file	For best results, print the file on heavier paper such as card stock.
Meter-long Tape	paper cut-out meter tape pdf file	There are two meter-long measuring tapes per page. Cut out and tape together the sections carefully. The finished product can be attached to a yardstick or wooden slat to make a 'meter stick'.
Timer	Link to an on-line stopwatch	Choose the 'stopwatch' option.
Logger Pro Graphing Software	www.vernier.com	Your instructor will provide instructions for downloading and installing this software. Please watch the tutorial - How to use Logger Pro.

- Office Supplies

The following items can be purchased at any office supply store, or a store that has a Home and Office section. Examples are given.

Item	Dollar Tree	Dollar General	Walmart
30 cm Ruler	'Jot' brand, 2-pk	DG brand, $0.50	plastic, $0.32
Protractor	'Jot' brand, with a compass		'Fiskars' brand, $2.97, with a compass

String or Thread	'Craftsman's square' brand, thread 3-pk.	'Sewing Patch' brand, thread 3-pk, $1.00	'Prym' brand, sewing kit, $1.00
Paper Clips	'Jot' brand, 250-ct	DG brand, $1.00	'Casemate' brand, 100 ct, $1.24
Rubber Bands	'Jot' brand, 3.5 oz	DG brand, $1.00	'Advantage' brand, $0.67
Tape	'Jot' brand, invisible	DG brand, $1.00	'Casemate' brand, $0.97
Marbles	A bag of 50 marbles and a shooter	'Imperial' brand, $1.00 50 plus a shooter	
Slinky	plastic Magic Spring	plastic Rainbow Spring, $1.00	original metal slinky(TM) $3.00

- Specialty Items

The following items are required for certain experiments but are less likely to be found locally or in a general store.

Items	Source(s)	Note
0.5 N Spring Scale	Amazon purchase link	A spring scale is needed for five of the experiments, beginning with Lab #2.
Meter Stick/Yard Stick (x2)	Lowe's Purchase Link $0.98 ea. Walmart $1.42 ea. in the sewing section	Two yardsticks may be used to make a ramp by taping them together with a cardboard backing. A groove down the middle will guide the marble down the ramp. One yardstick is needed for Lab # 11. The meter-long measuring tape can be attached to a yard stick to make a 'meter stick'.
Slinky (TM)	Amazon Purchase Link	If a Slinky(TM) can't be found locally, here is a link to one at Amazon.

- Common Items

Some of the experiments require common items typically found around the home. Special purchase is not required: for example, any small item about the size of a house key can be used to make a plumb bob.

Item	Experiment(s)	Note
A small weight, such as a house key	• Lab #1:Graphing Data • Lab #10:Collisions in Two dimensions	The weight attached to a string serves as a pendulum for Lab #1 and a plumb line for Lab # 10.

Thread or twist tie	• Lab #2: Vector Addition	The thread is used to tie three rubber bands together.
Large-size book, at least 8.5" x 11"	• Lab #2: Vector Addition	The book is the frame to stretch the rubber bands.
CD case or paperback book	• Lab #5:Frictional Force	The case or book is dragged across a flat surface.
Three 12-oz plastic water bottles	• Lab #5:Frictional Force • Lab #9: Energy Conservation	The bottles are used as weights; other objects of similar mass may be used instead.
Medium-sized book	• Lab #9: Energy Conservation	Any objects suitable for dragging against friction or hanging from a rubber band can be used.
Can of soda, paperback book, etc.	• Lab #11: Static Equilibrium	Any objects suitable for hanging may be used.
Any grocery item in a can	• Lab #12: The Rolling Can	This is the rolling can.