

# PHYS 221K

## Materials Checklist

### 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	<a href="#">Paper 30 cm ruler PDF file</a>	For best results, print the file on heavier paper such as card stock.
Protractor	<a href="#">Paper protractor PDF file</a>	For best results, print the file on heavier paper such as card stock
Meter-long Tape	<a href="#">Paper cut-out meter tape PDF file</a>	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	<a href="#">Link to an online stopwatch</a>	Choose the 'stopwatch' option
Logger Pro Graphing Software	<a href="http://www.vernier.com">www.vernier.com</a>	Your instructor will provide instructions for downloading and installing this software. Please watch tutorial - <a href="#">How to use Logger Pro</a>

# 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.

ITEM	SOURCE(S)	NOTE
0.5 N Spring Scale	<a href="#">Amazon Purchase Link</a>	A spring scale is needed for five of the experiments, beginning with Lab #2
Meter Stick/Yard Stick (x2)	<a href="#">Lowe's Purchase Link</a> \$1.98 each 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™	<a href="#">Amazon Purchase Link</a>	If a Slinky™ 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 the 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 12oz 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	<u>Lab #12: The Rolling Can</u>	This is the rolling can