

# Shopping List for Unit #2: Mechanics of Motion

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## Velocity Experiments:

Vehicle with a licensed driver  
Small ball (ping pong, golf ball, tennis ball, etc.)  
Wagon or skateboard  
Friends  
Hardcover book  
Toilet paper tube  
Plastic cup  
A ball that is larger than the end of the toilet paper tube but smaller than the plastic cup  
Stop watch or clock with a second hand  
Feathers, small pieces of paper, plastic bag or anything light and fluffy (cotton or dust bunnies will work, too)  
Tape measure or ruler  
Calculator

*Optional: broom*

## Acceleration Experiments:

At least 3 feet of fairly smooth board (a slightly sloping driveway works well too)  
Books, wood chunks, something to prop one end of the board up on  
A hard smooth ball (a golf ball, racket ball, etc.)  
A timer  
Pencil, paper (or your journal)  
Measuring tape or yard stick  
Chalk or masking tape to mark off distances  
Empty 2-liter soda bottle  
Clean wine cork  
Water  
Hot glue gun with glue sticks  
Bicycle wheel  
Rope (about 3')  
Office chair that spins freely  
10 balloons (get a pack that has the round 7-9" ones as well as the long balloon-animal kind)  
6 straws  
6 thin, round, wooden skewers  
1 sheet of copy paper  
1 index card  
Scotch tape and scissors

8 small, round film canister or milk-jug lids (anything round about the size of a quarter that you can punch a hole through the center and use for wheels)  
Small piece of stiff cardboard (about 4" x 6")  
2 foam cups  
Fishing line (or heavy thread) - you'll need to span a room in your house, so about 20' is typically a good estimate  
Heaviest rock you can throw safely  
Baking soda (about 1/4 cup)  
Distilled white vinegar (about 1/4 cup)  
Alka seltzer (get a pack of 24 tablets)  
Film canister or small M&M container with the snap-on lid (or use a plastic bottle with a tight-fitting cork)  
Campbell's Chicken broth soup in a can - make sure there's no pieces, just broth (unopened - you won't be eating this)  
Campbell's Clam chowder soup in a can (unopened - you won't be eating this one, either)  
Long (4'+) table or slightly slanted driveway

## Additional Items for Grades 9-12:

1/2" or larger clear diameter tubing, 18" long  
Nylon barbed union (plumbing aisle)  
Food coloring (3 drops, any color)  
Permanent marker  
1 car tire valve (visit your local car tire repair shop and ask for one - usually about \$0.25 each)  
empty 2L soda bottle (NOT water bottle!)  
Bicycle pump  
Drill and 1/8", 1/4", 3/8" and 1/2" bit (or just use a single 1/2" spade bit and you won't need to pre-drill using all those other drill bits listed)  
Razor (must be sharp)  
Goggles or face shield  
Vice grips (if you have a vice, we'll be using it as well)

*Optional: foam craft sheet*