

Shopping List for 8th Grade: Physics of Forces, Motion & Energy

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How many of these items do you already have? We've tried to keep it simple for you by making the majority of the items things most people have within reach (both physically and budget-wise).

- 1/2" PVC pipe
- 12v DC motor
- 2L soda bottle, 2
- 3/4" pipe foam insulation (NOT neoprene and NOT with built in adhesive)
- 3V DC motors, 2 (one smaller, one larger)
- 4-ounce item (or about 100 grams like an apple)
- 9V battery
- 9V battery clip (with wires)
- 9V battery holder
- [acrylic tube](#)
- Alka-Seltzer tablets (generic brand work)
- aluminum foil
- baking soda
- balloons (7-9")
- balls (several of different weights/sizes, one small, one hard and smooth like a racket ball, pool ball, etc.)
- [barrel roof template](#)
- battery (D cell)
- bicycle inner tube
- bicycle wheel
- blocks
- board (OR book OR car track)
- board (OR tray OR large book - 15" to 2' long)
- boards, 2 (12' x 12" or whatever is handy)
- books
- books (OR gallons of water OR anything heavy but not fragile)
- bowl (for mixing)
- bowl of cereal with milk
- brass fasteners
- brick (OR thick book OR smaller piece of wood for fulcrum)
- bucket
- can (with lid)
- caps, 4 (like for milk jugs, film canisters, etc.)
- car (with licensed driver)
- CD (old)
- chain link fence (OR broom)
- chicken broth (can)
- clam chowder (can)
- clay
- clothespins (wooden)
- coins (OR poker chips)
- column or pillar
- compass
- cups (disposable - both paper and plastic)
- doughnut magnets, 4
- dowel (short - or cardboard tube from a coat hanger)
- dowels (strong, like broomstick handles)
- dowels, 4-10 (OR round pencils)
- drill (with small drill bits)
- duct tape
- feathers (OR small pieces of paper, plastic bag, etc.)
- film canister (OR small container with a tight lid - M&M Minis work)
- fishing line (or dental floss)
- flexible tubing (5' and a diameter to fit over nose of syringes)
- flour (OR corn starch OR other light powder)
- garden hose (connected to faucet)
- glass jar
- golf ball
- hamburger container (foam)
- head (with hair)
- helpers
- hot glue gun
- index cards
- laser pointer
- LED (bi-polar)
- long tube (gift wrapping tube or similar)
- magnet wire
- magnets, 6 (at least - 2 rare earth, 2 business card type, thin and flat)
- marbles
- masking tape
- measuring tape
- meat tray (foam)
- mirror, 2 (small)
- nylon filament (OR thin nylon thread)
- nylon or metal barbed union
- nylon rope (50' at least)
- office chair

- OPTIONAL: more cans of soup
- OPTIONAL: roller skates (four wheels)
- OPTIONAL: scale that measures small amounts, like a kitchen scale
- OPTIONAL: small funnel
- OPTIONAL: toy car (small)
- outdoor area
- paper (8.5 x 11")
- paperclips
- partner to assist
- pen (old one)
- pen or pencil
- pencil (cheap, mechanical)
- pencils, 2
- pennies
- pennies (OR quarters OR washers - many small objects with the same mass)
- ping pong ball
- plastic cup
- plastic spoon
- popsicle sticks (tongue depressor sized)
- potatoes
- propellers, 2
- pulley, 3 (from hardware store - small ones that spin freely OR a double pulley)
- razor (with adult help)
- rock (heavy OR large nut)
- rope (3' will do)
- rope (nylon - 10' or longer)
- rubber bands
- ruler
- rulers (OR paint sticks)
- sandpaper
- scissors
- shoes, 5 (different ones)
- skateboard
- skewers (that fit inside straws)
- sloping driveway
- spool (OR eraser OR pencil -something to act as a fulcrum)
- spoon (large)
- SPST switch
- stopwatch
- straws
- string (4')
- Styrofoam cup (16 oz.)
- syringes (3-10 mL)
- table (long)
- tape
- tape measure
- thread
- thread spool

- toilet paper tube
- toy car
- toy cars (OR anything that rolls like a skate)
- tubing (clear, 12-18")
- vice grips
- vinegar
- wagon
- wall
- washer
- wine cork
- wire coat hanger
- wires (speaker wire, alligator clips, etc.)
- wood (3-8' ideal if you have it - a strong piece)
- wood (6" long piece of 2x4 OR heavy book)
- wood skewer
- yardstick (or meter stick)

OPTIONAL: Trebuchet project

- hammer
- hand saw (with clamp OR miter box)
- screwdriver (flathead OR wood chisel)
- wood stock, 7 pieces (1/2" x 1/2" x 24")
- wood, 2 pieces (3/4"x 24")
- wood, (3" x 24" piece)
- dowel (18" wooden)
- screw eye
- nails
- string
- clear tube
- rubber mesh

from wood stock, cut these:

- 5" long, 3
- 9" long, 2
- 3 1/2" long, 3
- 5 1/2" long, 4

from the dowel cut:

- 7" long, 2
- 4" long

from the 3" x 24" flat piece cut:

- 3" long, 2 (one with 1" square notch)
- 5" long, 2

- 4 1/2" long
- string should be cut into 2 pieces, 14-16"
- pouch is cut from rubber mesh, is 5" x 1 1/2 "