

Materials at a Glance

Experiment 1	Experiment 2	Experiment 4	Experiment 5	Experiment 7
tennis ball paperclip yarn or string (about 3 meters [10 ft]) marble bouncing ball, 1 (or 2 or more of different sizes) Optional penknife, ice pick, awl, or other sharp tool pliers	electronic circuit kit (see next page Other)	small to medium size toy car stiff cardboard wooden board, smooth and straight (more than 1 meter [3 feet] long) straight pin or tack, several small scale or balance one banana, sliced 10 pennies meterstick, yardstick or tape measure tape	student-selected materials several sheets of paper	stopwatch compass an open space large enough to run (park, schoolyard, playground, backyard, etc.) 5 markers of students' choice to mark distances blank paper a group of friends
	Experiment 3		Experiment 6	
	Slinky several paperclips 1-2 apples 1-2 lemons or limes 1-2 oranges 1-2 bananas spring balance scale or food scale meterstick, yardstick, or tape measure tape		several glass marbles of different sizes several steel marbles of different sizes cardboard tube, .7-1 meter [2.5-3 ft] long scissors black marking pen ruler letter scale or other small scale or balance	
Experiment 8	Experiment 9	Experiment 10	Experiment 11	Experiment 12
pencil or pen marking pen thumbtack or pushpin 3 pieces of string — approximate sizes: 10 cm [4 in.]; 15 cm [6 in.]; 20 cm [8 in.] tape ruler (metric) large piece of white paper (bigger than 30 cm [12 in.] square — students may need to tape several sheets of paper together) firm surface at least as large as the paper and that a thumbtack can be pinned into	10-20 copper pennies (pennies made before 1982 have more copper and work best) aluminum foil paper towels salt water: 30-45 ml (2-3 Tbsp.) salt per 240 ml (1 cup) water voltmeter* 2 plastic-coated copper wires, each 10-15 cm (4"-6") long duct tape (or other strong tape) scissors wire cutters fine steel wool, plain (no soap), 1 pad 9 volt battery ovenproof pan or dish heatproof pad or surface Optional wire stripping tool bucket of water	small glass jar with lid aluminum foil (small piece) paperclip duct tape (or other strong tape) plastic or rubber rod (or balloon) silk fabric (or can use hair with a balloon) scissors ruler awl or other tool to make a hole several thin, bendable plastic straws (thick straws may not work well) paper tissues (Kleenex) or cloth made of silk or wool small piece of paper small piece of aluminum foil 1 or more books — thin pages preferable 1-2 plastic combs plastic cup shallow bowl or a plate	(2) D cell batteries and battery holder (2) 3.7 volt light bulbs and sockets (1) switch (4) alligator clip connectors (2) 5 ohm, 1/4 watt resistors (1) DC motor with propeller Materials are available as a kit from Home Science Tools (as of this writing): Product #: EL-KITBASC http://www.hometrainingtools.com/	metal rod (e.g., large nail 8.9 cm [3.5"] long, 16d flathead—or an unmagnetized screwdriver) electrical wire, .3-.6 meter (1'-2') 10-20 paperclips 6v or larger battery (12v battery if a screwdriver is used) electrical tape or 2 alligator clips scissors wire cutters bar magnet small plastic baggie small flat-bottomed clear plastic container with lid [about 5 cm x 8 cm x 1.5 cm (2" x 3" x 1/2") — a box straight pins come in would work) clear Karo syrup spoon 2 pencils or other props Optional wire stripping tool iron filings**

* An inexpensive voltmeter can be purchased at any store that supplies electrical equipment. Make sure the voltage scale is low enough to detect small voltages. A typical penny-cell produces about 0.5v.

** Available from Home Science Tools CH-IRON, <http://www.hometrainingtools.com/>

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