

# Shopping List for 7<sup>th</sup> Grade: Physics of Lights and Lasers

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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). NOTE: some materials (such as alligator wires, batteries and battery cases) can be used more than once if you dismantle previous experiments.

- 1.5-3v DC motors (can be taken from old toys or personal fans)
- 4.7k ohm resistor
- 9v battery
- AA battery case, 2 (with batteries)
- AA battery pack (with batteries)
- alligator wires, 10
- aluminum foil
- baking dish (shallow)
- balloon (9" round, white)
- books
- brass fasteners
- bright light source
- buzzer (3-6v)
- calculator
- camera (video or still)
- candle (votive)
- cardboard scrap
- cardboard tube
- CDs (old - or use diffraction grating)
- Cds cell, 2
- chocolate bar (extra large works best)
- clothespins
- [concave mirror](#)
- crayons
- [double convex lens, 2](#)
- epoxy (5-minute)
- feather
- fire extinguisher (with adult help)
- fishing line (12")
- flashlight
- frying pan (metal OR a cookie sheet)
- gear (to fit DC motor with a flat side to attach to mirror)
- [germanium diode \(1N34A\)](#)
- glass jar, 3
- gummy bears
- hair strands, 4
- highlighter (orange)
- hot glue gun
- index cards
- Ivory soap (bar)
- LED (any)
- lens (plastic biconvex)
- lenses (glass or plastic - magnifying lenses work)
- magnet wire
- magnifying glass
- marker (black)
- matches (OR lighter with adult help)
- meter sticks, 2
- microwave
- mirrors (small, round - mosaic type work well)
- nail (one that fits in a jar)
- optical bench
- OPTIONAL: drill
- paper
- paperclips (large)
- pencil
- penny
- plastic bag (clear)
- plastic film (clear)
- plate
- pliers
- pond water sample (make your own with grass clippings sitting in water on the windowsill for a week)
- popsicle sticks (tongue depressor sized)
- razor (with adult help)
- razor blades, 2 (new, with adult help)
- red laser
- remote control (for TV)
- rubber bands
- ruler (or yardstick)
- scissors
- sink
- skewer (wooden OR sharp wood pencil)
- stranded insulated wire (100')
- string (12")
- sunblock
- sunglasses, 2 (polarized)
- sunlight
- tape (3/4" glossy and clear works best)
- telephone handset (or a crystal earphone)
- thread (12")

- toilet paper tube
- trash bag (black)
- [true-color light sticks \(one each: red, blue, green\)](#)
- [UV beads](#)
- [UV black fluorescent light](#)
- wall (white)
- water
- wax paper
- window
- wood (old piece)
- [worksheet](#)
- yarn (12")

OPTIONAL (for advanced students):

- 3v DC motors
- gears, 2 (or corks)
- DPDT switches (with center off)
- potentiometers, 2
- AA battery packs, 2 (with batteries)
- zip tie
- alligator clip leads, 20 (use insulated wire if you know how to solder)
- $\frac{1}{2}$  " or  $\frac{3}{4}$  " metal conduit hangers (size to fit your motors from the hardware store)
- $\frac{1}{4}$  " x 2" bolts, nuts, and washers, 3 sets
- project container (at least 7" x 5") with lid
- tools (scissors, hot glue gun, drill, wire strippers, pliers, screwdriver)
- mirrors (small, round - mosaic type work well)