

Shopping List for Unit #11: Magnetism

www.ScienceLearningSpace.com

Don't be afraid of this shopping list! The materials are broken down by availability and expense, and you can order most online from Radio Shack. The items in the first list are low-cost materials you already have or can easily add to your next grocery store list. The next lists include mid-priced equipment for more in-depth projects, and the last list of items is appropriate for upper grades. **We'll be reusing the electrical components again in Unit 12 and other future projects.**

Basic Magnetism

Compass (at least one, but more is better)
Needle or thin nail
Cork or foam piece
Cup (non-metal)
Shallow baking dish (non-metal)
Caps from water bottles or milk jugs
2 [strong magnets](#), both the same (RS #64-1895)
Assortment of [magnets](#), one larger than the rest
Iron filings (you can take a metal file to a nail)
Disposable plate
Paper and pencil
[Magnet wire](#) (RS #278-1345)
8 donut-shaped [magnets](#) (RS #64-1888)
Packing peanuts (about 10)
Film canisters (2)
Long nails (2)
Sand paper (small 2" x 2" piece, fine grit)
D-cell battery
Bare wire OR aluminum foil
2 large paper clips
1 rubber band
String (3')
Tape, scissors
Optional: Clay (small piece)

Ferrofluid

Old laser printer cartridge (get these for free from a place that recycles them, like an office supply store)
Oil – vegetable or baby oil (only a few teaspoons)
Popsicle stick and disposable cup

Ultra-Cool Magnet Projects

In addition to the items for Basic Magnetism, you'll need these items below from Unit 10: Electricity:

4 [AA battery packs](#) (RS #270-408)
8 AA batteries (preferably NOT alkaline but rather the cheap 'heavy duty' dollar-store type)
LEDs (Radio Shack part #[276-026](#), [276-012](#), [276-016](#), [276-311](#), or similar)
[Buzzer](#) (Radio Shack #273-053) or siren (#273-079)
[3VDC motor](#) (RS #273-223)
10 [alligator clip leads](#) (RS #278-1157)

AND YOU'LL ALSO NEED:

Small paper clips
Empty soup can or 2 large paper clips
6 large paper clips
4 brass fasteners
[12VDC motor](#) (RS #273-256)
Wooden ruler with groove down the center
8 strong rubber bands
9 nickel-plated ball bearings ([NSBA](#))
Four ½" gold plated cubes ([B888](#))
Screw (at least 1½" long)
5 disc magnets ([DC2](#))*
Aluminum sheet (like a cookie sheet)
[Reed switch](#) (RS #275-232)
Two large grapes
Straw
String (3')
Sticky tape (Scotch Magic tape works well)

***Order from KJ Magnetics at
www.kjmagnetics.com

Grades 9-12:

Buzzer: [DPDT Relay](#) (RS #275-206)

Curie Engine:

Two tiny bead magnets ([R211](#) and/or [R311](#))* **

One ceramic [magnet](#)

Thin wire (28-32g)

Votive candle and lighter (keep out of reach)

Rail Accelerator:

[9V battery clip](#) (RS #270-325) & 9V battery

Aluminum foil (3' length)

Posterboard

1 wire coat-hanger (not insulated)

Two disc magnets ([D21](#)) ***

Two gold-plated disc magnets ([D41G](#)) ***

Vice grips or cutters (to cut a wire coat hanger)

Listening to Magnetism

Bolt (2 ½" long and ¼" diameter) and 2 washers
and a nut that fits the bolt

[Mini Audio Amplifier](#) from the *Laser Communicator*
in *Unit 9*.

Strong magnet (borrow one of the ½" gold plated
cubes from above list)

Cookie sheet (made from steel, not aluminum)

Speakers

*You'll be making three different kinds of speakers
here. If you haven't made these yet from Unit 6,
NOW is the time to make them. Here's what you
need:*

Foam plate (paper and plastic don't work as well)

Sheet of copy paper

3 business cards

[Magnet wire](#) (RS #278-1345)

2 neodymium magnets ([DA4](#))

1" donut [magnet](#) (RS #64-1388)

Index cards or stiff paper

Plastic disposable cup (*not* paper)

Tape

Hot glue gun

Scissors

1 [audio plug](#) (RS #42-2420) or other cable that fits
into your boombox (iPODs and expensive stereos
are not recommended for this project, as they will
be damaged by the low resistance of the speakers)