

Project #21: Oscilloscope, courtesy of Mrs. Pat Kranz, Cub Scout
Pack 690, Alexandria, Va.

Materials:

metal orange juice can
balloon
rubber band
piece of broken mirror
glue

Cost:

Nominal

Instructions:

- A.* Open both ends of a metal orange juice can (small size).
- B. Blow up a sturdy balloon (a cheap one won't work), pop it and stretch a piece of the rubber over the end of the can. Secure with the rubber band.
- C. Glue a piece of broken mirror, reflecting side up, to the rubber. Make sure the mirror is off center.
- D. Now you need a strong source of light. Sunlight is best, but a high intensity light might work. Let the sun shine on the mirror so that a spot of light is reflected on a dark surface. Press the open end of the can against your mouth and say your own name or some other sound. A sound pattern will appear on the dark surface.

Time: About 15 minutes to make

Note: This is a good Cub Scout science project, to see what sounds look like. Voice vibrations travel down the metal can and vibrate the stretched rubber and the mirror. The reflections on the black surface are greatly amplified so that you can see the characteristic pattern made by each sound.

*Scouts should wear canvas or other protective gloves when working with metal, to prevent cuts.