

## *Light Wave Communication System*

Using simple equipment, your students can transmit voice and music over a beam of light. First attach a red LED to the earphone jack of a radio, tape or CD player. This may be accomplished by using a cord with a mini-plug on one end and alligators clips at the other. The signal from any of these devices will cause the LED to flicker. (Note: The LED will not light if the output of the electronic entertainment device is insufficient. Placing a 9 V battery and a 470ohm resistor as shown should remedy the problem.)

The modulated light from the LED contains information relating to the frequency and intensity of the audio signal. A photocell or photodiode, connected to an amplifier/loudspeaker, is used to receive the modulated signal. The quality of the received signal is quite amazing!

Students enjoy seeing how far the signal may be transmitted. They should be encouraged to experiment with various optical devices such as lenses and optical fibers in their attempt to extend the range.

