

EXPERIMENTING THE EDISON WAY

Thomas Edison is remembered best for his invention of the electric light. However, this was only one of Edison's many achievements. In fact, Edison gave us 1,093 inventions. His experimentation led to many things we now take for granted like the phonograph and motion picture camera.

Here are three experiments which show the scientific principles that Edison used in his inventions.

EXPERIMENT # 1

Making a Magnet

You Will Need:

Bar magnet
Large, heavy-duty sewing needle
Steel wool clipped into small bits
Several pins and paper clips

Hold the needle by its "eye" (Figure 1). Stroke the point of the needle over the magnet a dozen times. *Always move it across the magnet in the same direction (not back and forth).* This process magnetizes the needle. Now use your "needle magnet" to pick up fragments of steel wool, pins and paper clips.

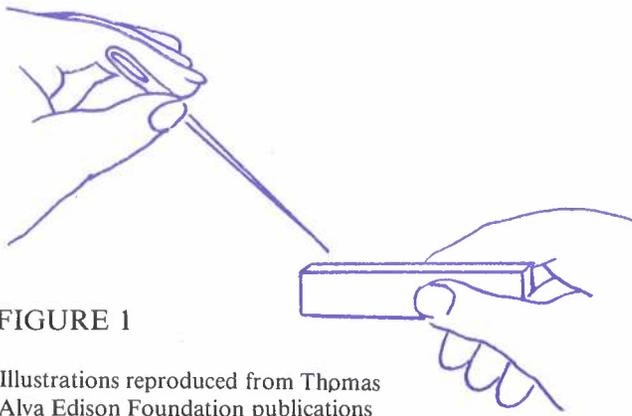


FIGURE 1

Illustrations reproduced from Thomas Alva Edison Foundation publications

EXPERIMENT # 2

Making a Phonograph Pick - Up

Edison spent many years experimenting with sound. Eventually these experiments led to his invention of the phonograph in 1877. Edison's phonograph reproduced sound using a pick - up like this one.

You Will Need:

Frozen juice can (12 ounce size)
Can opener
Aluminum foil
Cork
Small needle
Heavy rubber band
Glue or cement
Record (don't use a good one)
Record player

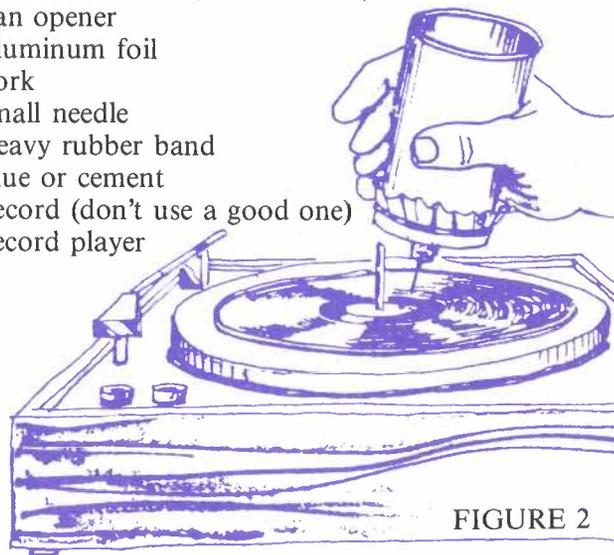


FIGURE 2

Remove both the top and bottom from a juice can. Cover one end of the can with a piece of aluminum foil. Stretch it tightly across the opening and hold it in place with a heavy rubber band. Carefully push the "eye" end of a small needle into the end of a cork until one third of the needle has disappeared. Glue the back of the cork to the middle of the aluminum foil "diaphragm" (Figure 2). Let the glue dry.

Now get permission from your teacher or parents to use a record player and an old record. Put the record on the turntable and turn the record player on. Holding the can at a slight angle, allow the needle to lightly touch the grooves of your record. It may surprise you to hear music coming out of the can. *Note: You may have to adjust the angle of the juice can for the experiment to work properly.*

EXPERIMENT # 3

Moving Pictures

History's first motion picture show was the result of Edison's experiments with a device he called the kinetoscope. Even the movies we watch today work on the same principle of the eye blending a series of pictures so they appear to move.

You Will Need:

One piece of string 12 inches long

Glue or cement

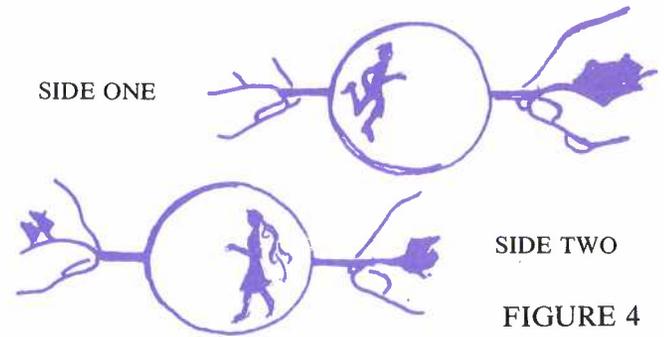
Scissors

Cardboard

Compass

Trace a two inch circle onto a piece of cardboard with a compass. With a pair of scissors, cut out the cardboard circle and the discs in Figure 3. (You may want to make a copy of Figure 3 so you don't have to cut up the page.) Smear glue on one side of the cardboard circle. Lay the string across it as though it were dividing the circle into two halves. Then, before the glue dries, attach one of the two discs cut from Figure 3 by pressing it firmly in place over the string. Flip the circle over. Now spread glue over the other side of the cardboard circle and place the other cut-out disc on it. Let both sides dry thoroughly. (Instead of using the pictures provided you can draw your own right on the cardboard circle.)

Hold one end of the string in each hand (Figure 4). Twirl the cardboard circle rapidly back and forth with the string. Because our eyes continue to see objects for a fraction of a second after the objects disappear, our eyes will combine the pictures on both sides of the circle into one picture (Figure 5).



SIDE TWO

FIGURE 4



FIGURE 3



FIGURE 5