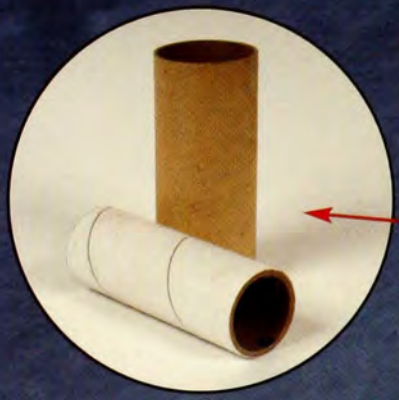
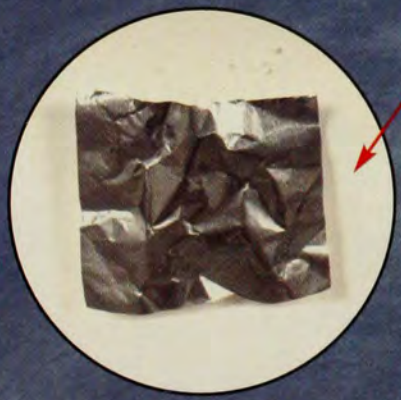
BUILD GALILEO'S

by Nick D'Alto





Galileo used a telescope to examine the craters on the moon, to discover more moons revolving around the planet Jupiter, and even to prove that the earth revolved around the sun. Galileo's telescope created a revolution in science back in 1609.

Now, you can build your own working replica of this remarkable scientific instrument. Here's how:

You Need:

- 2 lenses—one strong, one weak (You can use magnifying glasses, plastic magnifiers, or even reading glasses. Don't worry—there's no need to break them!)
- 2 cardboard tubes
- small piece of aluminum foil
- tape or glue

To Test the Lens:

1. Galileo devised a very simple experiment to understand how a telescope would work. To duplicate his procedure, all you need are two lenses. Identify which lens is stronger (makes print bigger) and which is weaker.
2. Hold the stronger lens near your eye (that's called the "eyepiece"). Hold the other lens about 12 inches away. Look across the room, while moving the far lens slowly in and out. Watch closely, and a large image will come into focus. You've created an "instant" telescope!
3. Notice that while your image is magnified, it may also be inverted (upside down).

TELESCOPE

To Construct the Telescope:

1. Galileo made his telescope by combining his lenses with a pair of sliding tubes called barrels. These barrels held the lenses in place and helped focus the light.
2. To construct your own barrel telescope, simply find two cardboard tubes (or roll paper to make the tubes) so that one tube slides inside the other.
3. Tape or glue one lens to the outside end of each tube.
4. Point your telescope toward an object 10 to 15 feet away. Slide the barrels in and out, and focus your telescopic image!

3. With a pin, make a small hole through the foil.
4. Look carefully through the pinhole, and point your telescope toward a brightly lit scene. When you slide the barrels, the magnified image "zooms" between bigger and smaller.

That's a telescope Galileo would have loved!

Nick D'Alto *builds replicas of historic machines for museums and learning centers.*

Add the Finishing Touches:

1. Galileo's telescope was richly finished with paint and lacquer. You can decorate your own telescope using wallpaper or paints.
2. You can even make your telescope zoom. Simply remove the "eyepiece" lens from the telescope you've already made, and tape on a piece of aluminum foil instead.