

Dear Beakman,  
How does the quartz crystal in a watch work?  
Billy Dellvow  
Bath, Michigan

Dear Billy,  
I love this question because **You Can** have such a great time getting the answer.  
A quartz watch is the opposite of a Lifesaver™ sparking in your mouth! Isn't that cool?

You'll have to go into the closet for this – but just until you see the light.

*Beakman*  
Beakman Place

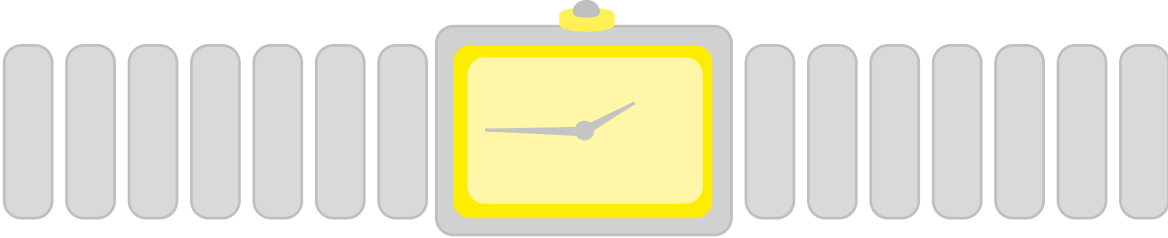
## experiment #1

### WHAT YOU NEED:

Mirror - roll of *Cryst-O-Mint* flavor Lifesaver™ candy - closet - towel

### WHAT TO DO:

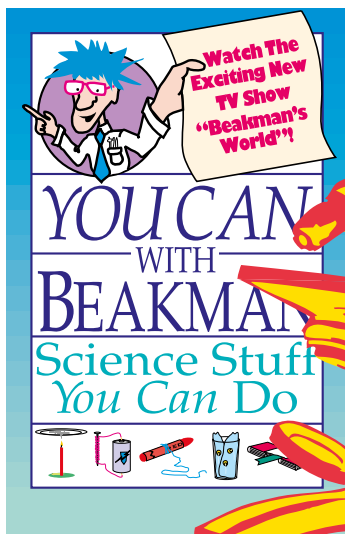
Go into the closet and stuff the towel under the door so no light at all gets in. Look around for several minutes to adjust your eyes to the darkness. Pop one of the Lifesavers into your mouth. Look into the mirror and crunch down. You'll see your mouth light up with a white flash. Cool, huh?



### WHAT IS GOING ON:

You just created *piezo electricity* (pee-AY-zo). Here's what it is: If you put *physical energy* into some crystals, they change it into electrical energy. The reverse is true, too. If you put *electrical energy* into these crystals, you get physical energy back out. That's how a quartz crystal watch works. A battery puts electrical energy into the quartz crystal, which vibrates at controlled speeds – such as 30,000 times a second. A computer chip then counts the vibrations to figure out the time. 30,000 vibrations equals 1 second.

*You Can* still win a Tasco microscope or a copy of my fabulous book. Send us a report on something you're figuring out or doing this summer.



Name, address, phone & photo to:  
Summer Vacation Contest,  
P.O. Box 30177, Kansas City, MO 64112.

Deadline:  
August 1, 1993