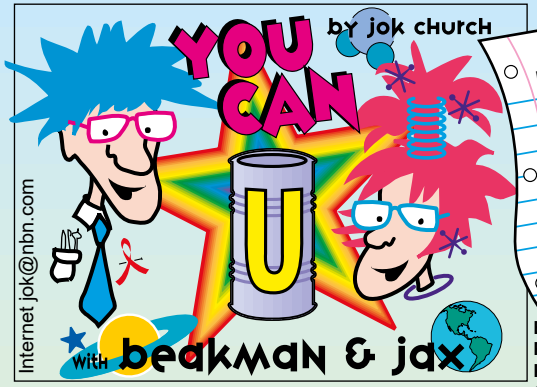
8-1-93 You Can CMYK
Universal Press Syndicate



Dear Beakman,

How does a computer work?

Arthur Bond
Cockeysville, Maryland

Beakman or Jax,
P.O. Box 30177
Kansas City, MO
64112

Dear Arthur,

Computers are very complicated things. How they work is really hard to explain in the space of a comic strip. But, I can give you a new way to think about computers. *You Can* think about them and they cannot think about you!

Computers are just machines that follow instructions we give them. We call the instructions a *program.* That means a computer is like a program-*player.* And the computer turns into anything – any kind of machine – we can tell it to.

With the right program, a computer can be a typewriter, a game, a musical instrument, or even a telescope. It can be any kind of machine we can program it to be. This is why the job of being a computer programmer is such a big deal.

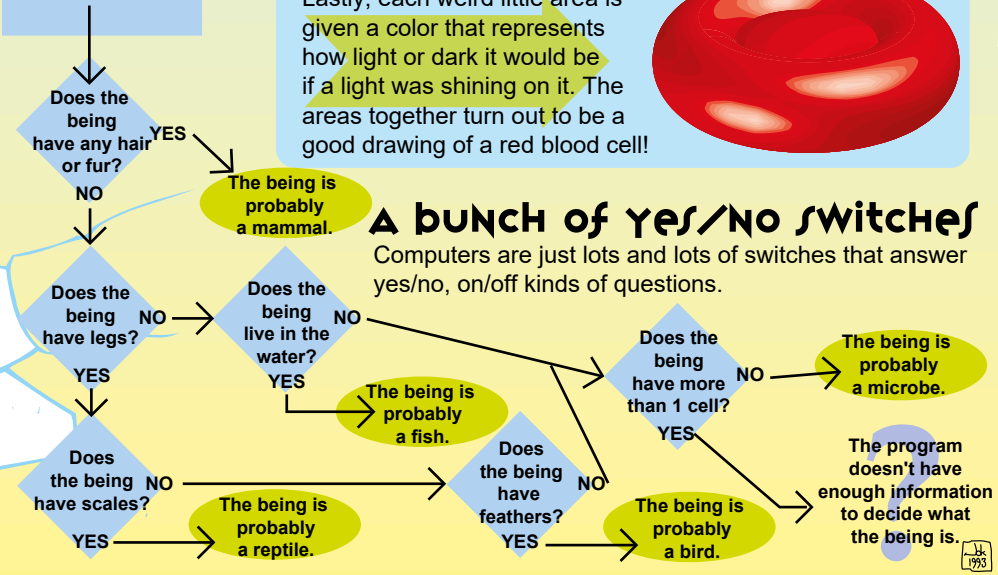
Here's a secret: I don't use a pencil to draw this comic. I use a computer that has been turned into a drawing machine by the programs I play on it.

Beakman

Beakman Place

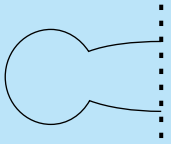
My computer program names kinds of animals. Think of an animal and try it out.

I have a living being here. What kind of creature is it?

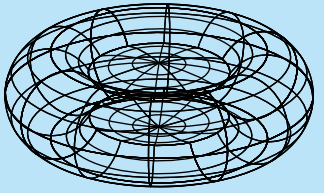


computer art

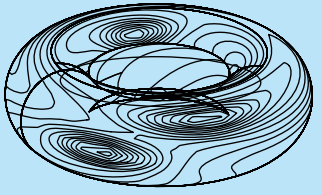
I want to draw a red blood cell. I start by drawing this shape on the computer. It's really a bunch of math that describes this curvy thing.



Next, I tell the computer program to spin the shape around the dotted line. I get this thing that looks like a bagel-shaped bird cage.



Now I tell the program to pretend the bird-cage-thing has a shiny surface and that there are 2 lights shining on it. What does it look like now?



Lastly, each weird little area is given a color that represents how light or dark it would be if a light was shining on it. The areas together turn out to be a good drawing of a red blood cell!

a bunch of yes/no switches

Computers are just lots and lots of switches that answer yes/no, on/off kinds of questions.

P.S. from Jax: When a mistake is written into a program, it's called a *bug*. The first *bug* was really a bug. A moth got caught in a switch in an early computer. Beakman's program has bugs. Try it with a snake or moth.

Electronic color separations by MarinStat, Mill Valley, CA