

Discover

SCIENCE FOR THE CURIOUS
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Science Kits

TRY THIS
AT HOME



From Erector sets to chemistry kits, science toys have inspired curiosity for generations.

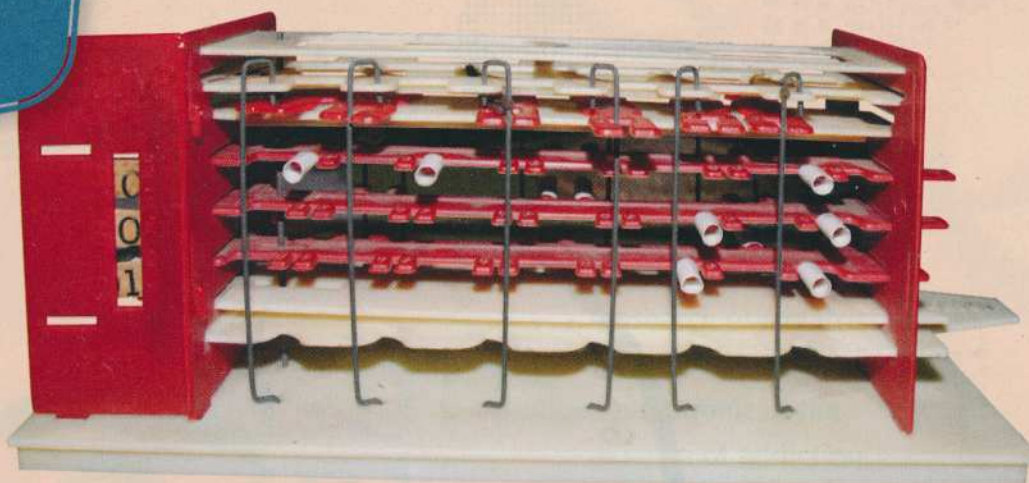
BY JIM SULLIVAN

DIGI-COMP

Edmund Berkeley designed the brilliantly named Geniac and Brainiac, early versions of computer toys. They used combinational logic, with output depending entirely on manual input (although the included booklets gave instructions for fashioning more complex machines).

However, first-generation computer wizards most fondly recall the Digi-Comp, a build-it-yourself digital mechanical computer. Beginning in 1963, ESR (Education Science Research) manufactured and sold it for \$4.99, a bargain for the educational value it imparted.

Users assembled styrene plates of red and white, wire rods, rubber bands and plastic tubes to create a sturdy contraption. They connected three simple mechanical "flip-flops," versions of the electronic circuits computers use to store RAM in a way that allowed cylindrical pegs to be either pushed or blocked from moving. When a tyro Steve Jobs or Bill Gates moved a lever back and forth, different configurations of those cylinders caused the Digi-Comp to compute Boolean logic operations. A 3-bit readout displayed the state of the flip-flops. Before manufacturing ceased some 40 years ago, Digi-Comp loyalists could demonstrate binary logic, perform simple



The original Digi-Comp mechanical computer set from 1963 allowed kids to experiment with digital mechanical computing and basic logic operations.

mathematical operations and play logic games.

For kids of the 1960s, whose entire knowledge of computers may have been derived from seeing room-size machines in futuristic movies, the Digi-Comp represented amazing possibilities. The principles it employed — such as AND/OR gates allowing multiple inputs but only one output — are still fundamental in digital circuitry applications.

Digi-Comp lovers abound online, with fan sites and message boards devoted to digital archives of photos, original instruction manuals and specs, as well as fond reminiscences of childhood and tales from fans concerning their subsequent careers in computing and related fields.

And for those who wish to recapture a treasured piece of their youth, Minds-On Toys (mindsontoy.com) offers a relatively inexpensive retro version for sale.