

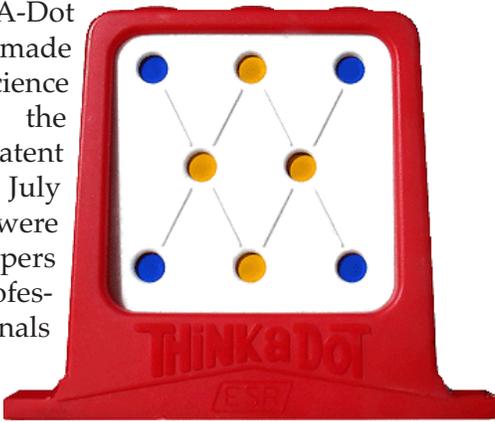
# Tech News

## Think-A-Dot

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Abe and I have worked on a series of Scratch programs that implement classic games. For example, we have an implementation of Mastermind at [http://scratch.mit.edu/projects/kevin\\_karplus/12236](http://scratch.mit.edu/projects/kevin_karplus/12236) I simulated a set of architectural rubber stamps at [http://scratch.mit.edu/projects/kevin\\_karplus/12280](http://scratch.mit.edu/projects/kevin_karplus/12280) and the classic Simon game at [http://scratch.mit.edu/projects/kevin\\_karplus/2158](http://scratch.mit.edu/projects/kevin_karplus/2158)

Our most recent addition to this series is a simulation of the Think-A-Dot toy, which was made by Education Science Research during the 1960s. (US patent 3,388,483, filed 21 July 1966). There were even a few papers published in professional math journals about Think-A-Dot! ESR Inc. made at least four fine mechanical digital toys, but seems to have gone out of business.



Since this scratch program was nearly equal work by both of us, we created a new user at [scratch.mit.edu](http://scratch.mit.edu/projects/kevin_and_abe/48878) for joint projects and shared the project at

[http://scratch.mit.edu/projects/kevin\\_and\\_abe/48878](http://scratch.mit.edu/projects/kevin_and_abe/48878)

Both Mastermind and Think-A-Dot are excellent thinking games in their own right, and we will play with them at Tech Club today.

## Ideas for Scratch Programs

There are many sources of ideas for scratch programs. Some programs, like the ones described above, are simulations of toys and games made by others. The games need not be video games or even electronic games to make good scratch programs.

Other programs are re-implementations of classic computer or video games. Mario games and space invaders games seem to be popular games to emulate, and there are many examples on the scratch web site. Occasionally, someone comes up with a new idea for a

computer game in scratch, but most of the games are variants on just a few themes.

Many of the scratch programs are not games at all, but animations. The easy movement and synchronization of sprites makes scratch a great way to put together a short animation. One good way to create such a movie is to draw (or select) each of the characters, make a “storyboard” with each of the scenes of the story, write dialog for the characters (which can be recorded or can be done as speech balloons with the “say” block), then animate each scene separately.

It helps to have the storyboard of the full story before you start the animation, as many of the projects get stuck after the first scene if the whole story hasn’t been worked out. Sometimes it is faster and easier to do stick drawings on paper to make the storyboard, rather than dealing with the limitations of computer drawing tools.

Animations do not have to be stories, of course. For example, one can choreograph dances (synchronizing to music is easy in scratch if you use the built-in music synthesis, rather than playing prerecorded music). The dancers can be humans with multiple costumes for different body positions, robots, flowers, or any other sprites. The dancing can be done by moving sprites around, changing costumes, using various graphical effects (whirl, fisheye, color, brightness, ...), or any combination of effects.

Animations can also be how-to videos, like the one I have created for counting in binary on your fingers:

[http://scratch.mit.edu/projects/kevin\\_karplus/2162](http://scratch.mit.edu/projects/kevin_karplus/2162)

I’m particularly fond of one type of animation for getting started in scratch: name animations. The idea is to take the letters of your name, make sprites out of them, and have them do some sort of dance or story. Abe and I did a fancy one at

[http://scratch.mit.edu/projects/kevin\\_karplus/2159](http://scratch.mit.edu/projects/kevin_karplus/2159)

but there are hundreds of others to use for inspiration in the Names Gallery:

<http://scratch.mit.edu/galleries/view/293>

Another class of programs are mathematical or interactive art programs. There the goal is to create beautiful and interesting images or sounds that would be difficult to create without a computer to help.

What ideas do **you** have for a new program?