

# **SqueakCMI Notebook: Projects, Tools, and Techniques**

## **Introduction**

Welcome to eToys/Squeak: an object-oriented programming language. This notebook was written to introduce Squeak to curious beginners with step-by-step descriptions of projects and how they were done.

Advice is freely given in the hope that the path you take to learning eToys/Squeak is quick and smooth. The Squeak community will be generous with their time, their knowledge, and their willingness to help newcomers. The Office for Mathematics, Science, and Technology Education at the University of Illinois Urbana-Champaign invites you to use these materials to the benefit of students everywhere.

These projects can be explored on the computer by opening them from [www.Squeakcmi.org](http://www.Squeakcmi.org). This dynamic experience of projects on the computer in conjunction with the written materials should give you a range of ideas and possibilities to combine in many ways and for many purposes.

## **Section I**

This section contains two easy projects designed to help you get started with Squeak. They are followed by an extensive description of the rich resources, tools, icons, supplies, and conventions that make Squeak what it is.

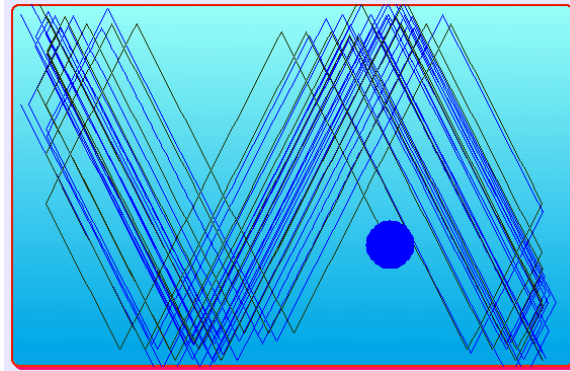
## **Section II**

This section explains more complicated projects. They are in alphabetical order by the name of a Squeak tool used predominantly in that project. The projects are not in sequential order by level of difficulty. The project's name can be used to locate that project at [www.Squeakcmi.org](http://www.Squeakcmi.org). So, if you wonder, "What is a scale factor and how could it be used in a Squeak project?" you can find out.

[www.Squeakcmi.org](http://www.Squeakcmi.org)

The Office for Mathematics, Science, and Technology Education  
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[www.SqueakCMI.org](http://www.SqueakCMI.org)

Resources, projects, tutorials, and standards-based lessons applying Squeak in math, science, language arts, social science, and art. Additional projects and essays can be found on the website. Tutorials developed by math specialists show the myriad ways Squeak enriches the study of geometry and trigonometry. The SqueakCMI community can answer questions, share ideas, and schedule workshops.



[www.squeakland.org](http://www.squeakland.org)

The origin of Squeak: software, tutorials, and example projects. Get the most current versions of the software at Squeakland. The site includes interesting essays about the nature of learning, about programming and thinking.

[www.squeak.org](http://www.squeak.org)

Technical information for experienced programmers and developers

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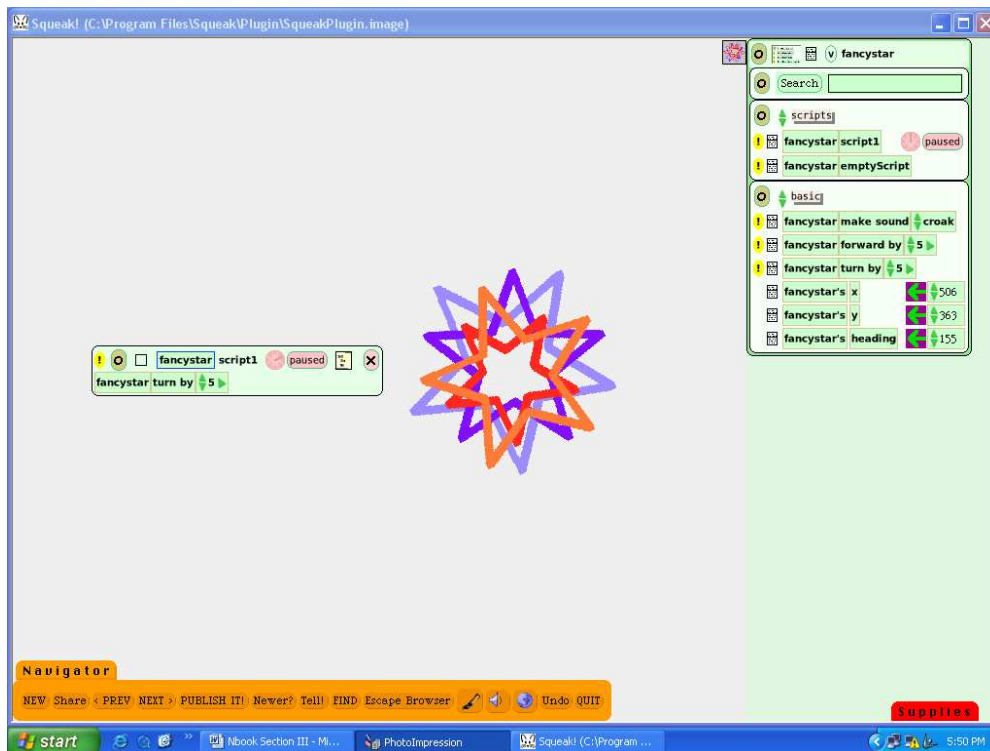
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## Fires per Tick: fancystarkh

This project shows how to change the number of times a script fires for every tick of the script. The clock can also be set to determine how many ticks per second the script will run. By combining fires per tick and ticks per second you can create a script that will not run on a typical home computer.



Do the math calculations before you click to start the script running. If your script says turn by 5 and you change the number of times the script clock will tick per second to 100 that means the object's script will run 100 times for every actual clock second. Then if you specify that the script fire 10,000 times for every tick of the script, the final number is one million operations per second. Choose numbers that are too big for your computer and it will lock up trying to do what you asked and you may have to quit Squeak and restart your computer.

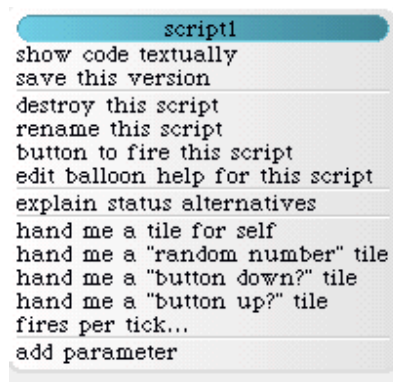
Draw an object and create a script that makes it turn by 5.



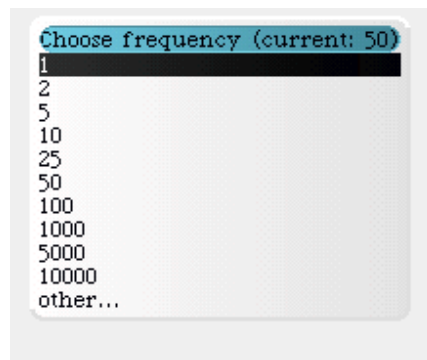
Then click and hold down on the name of the script to open a new menu of choices.



The name of this script is fancystar. This menu opens when the name is clicked on and held down.



Locate the phrase fires per tick and click on it to open a box where you can select how many times a script will fire for each tick you have specified.



Other opens a box in which you can choose any number.