

# **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.

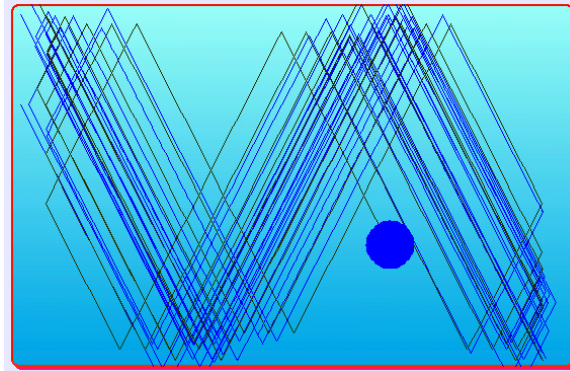
## **Section II**

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  
University of Illinois Urbana-Champaign





[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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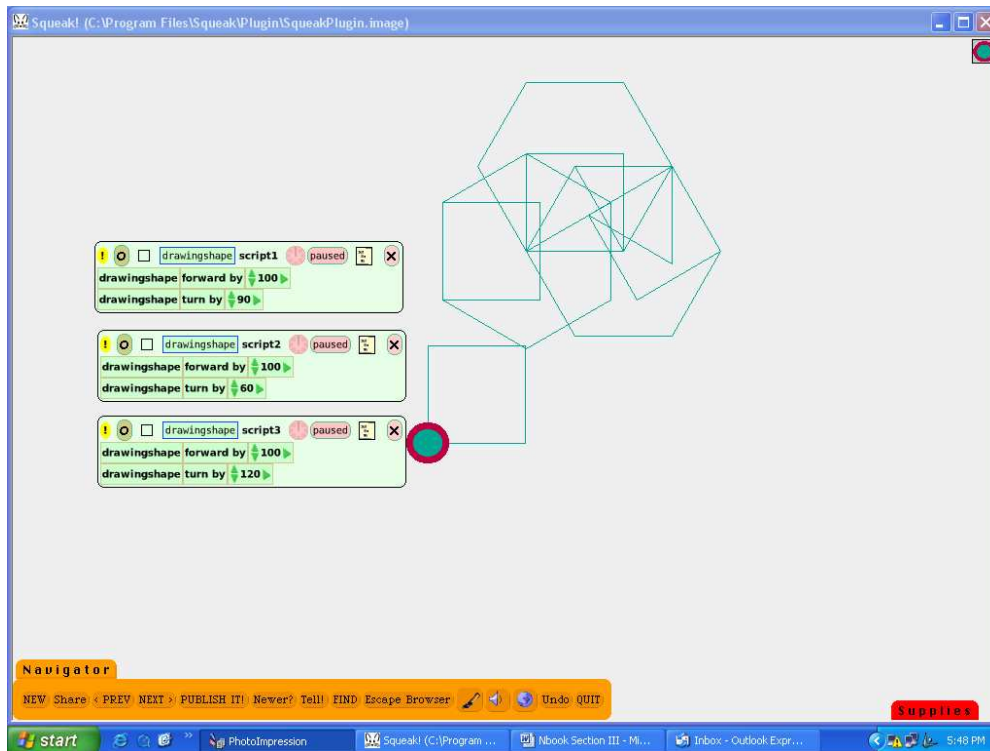
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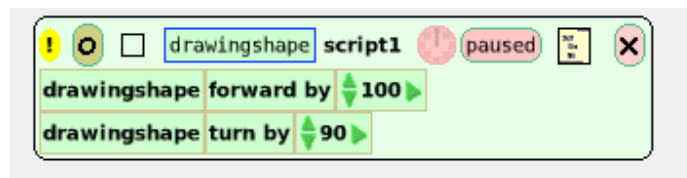
## Pen Use: drawingShapesnb

This project shows how to use the pen trail feature to draw geometric shapes. There are three examples in the project but only the first script is explained.



Draw an object and keep it. Click on the cyan eye of the halo and open a viewer of script panel. Draw out a tile with forward by 5; drop it on the screen.

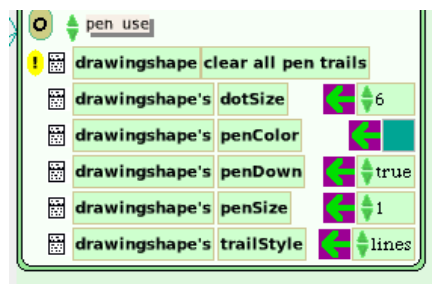
Change the forward by 5 to forward by 100 by clicking on the number and highlighting it.



When there is a green background behind the number it means you can type in any new number without having to erase the number that is there. The reason the number is made so large is so the pen trail will be easier to see.

Change the turn by 5 to read turn by 90.

Open a new category of script tiles by clicking on the word basic. This opens a menu. Choose pen use from this menu by clicking on it.



Change the penDown phrase from false to true by clicking on the tiny green up/down arrow. There are only two choices, true and false, in this kind of script box.

These script tiles do not need to be dragged into the script box that has the forward and turn tiles. The pen use tiles will still act in the script when it is running.

When the statement reads penDown true the object will leave a trail matching the color you selected.

Try changing the trailStyle by clicking on the tiny green up/down arrow.

Change the penSize.

Change the turn by number.