

# **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.

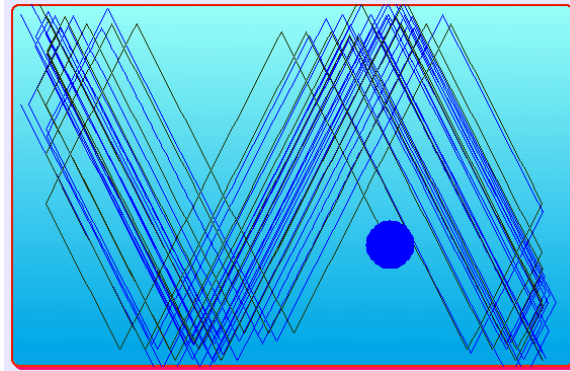
## **Section II**

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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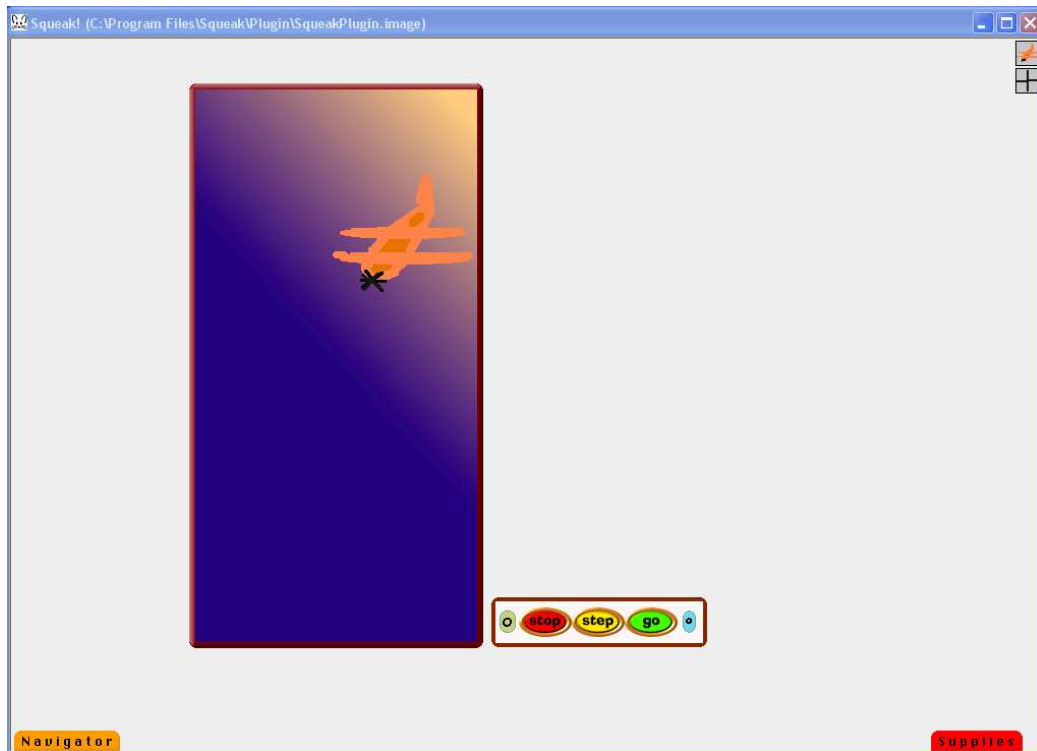
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## Playfield: playfieldnb

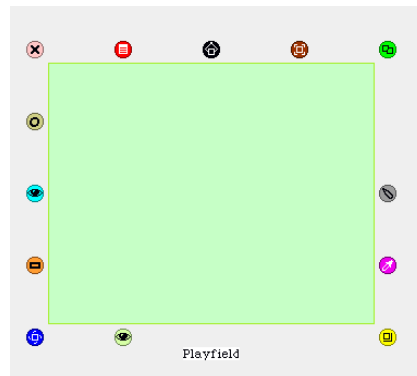
This project shows some of the changes it is possible to make to playfields. There are similar tool sets for Books and Holders too.



The airplane is on a playfield that has been modified. The shape, color and border were changed using the two additional halo handles that are part of the playfield. The playfield contains a grid with its own set of coordinates. After a project has been built on the playfield the size can be changed bigger or smaller.

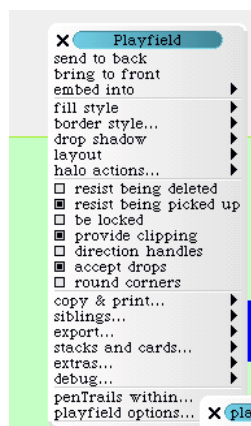
Drag a playfield out of the Supplies flap and drop it on the left side of screen away from the area where script viewer panels open. This way you can still access the scripting tiles for your project. Do not drop script tiles on the playfield, they will not turn into scripts that you can start and stop. Drop script tiles in an empty part of the world.

The playfield allows you to control where things are and where they stay. In this project the airplane is embedded into the playfield and so will always stay on top of the playfield whether the plane is clicked on or the playfield. On a world screen, the last object you clicked on is the one that is on top and this will be aggravating if there is a particular plan you have in mind.



Notice that the playfield has two additional handles in the halo; one is a pale green eye and the other a magenta paint tool.

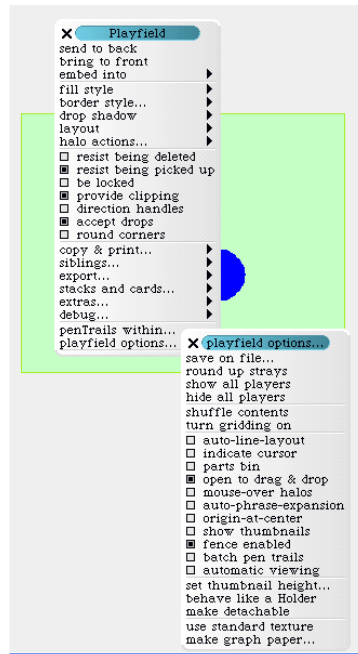
The pale green halo opens a menu of special features. There are additional menus that open from there. Some are duplicates of tiles found in the script viewers. For example, the fill style and border style can be modified in the color and border category of the script viewer panel. It is a matter of convenience which you choose to use.



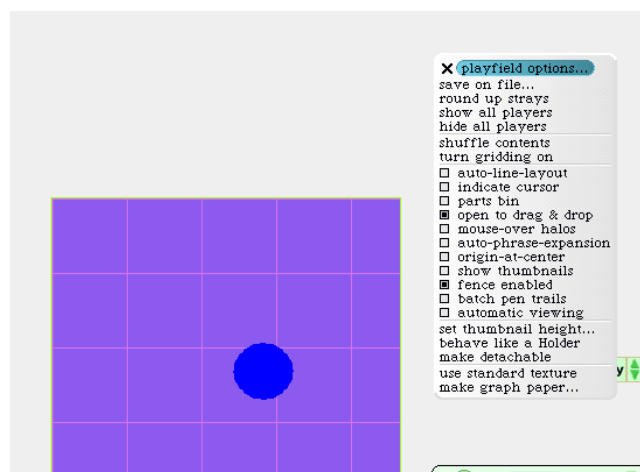
The last line on the menu is playfield options and this opens even more ways to make your project look and perform they way you want. The more you



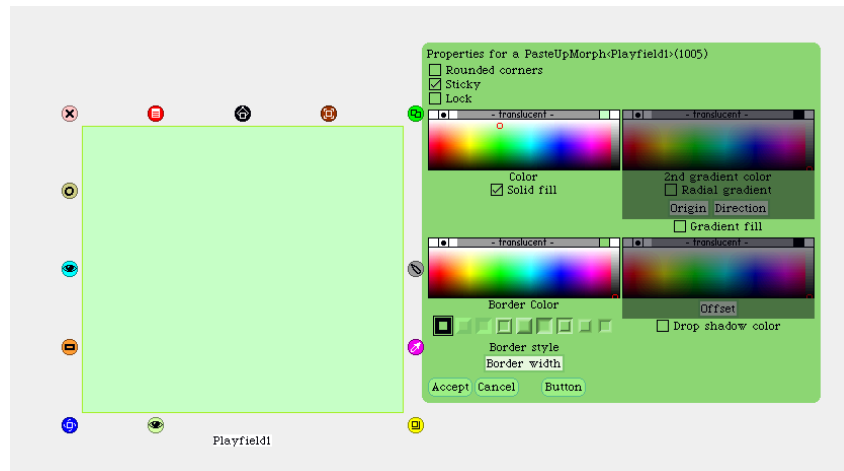
experiment with these tools, the more ways you will have to modify a project. These experiments are a way for you to build a vocabulary of ideas to draw from for future projects.



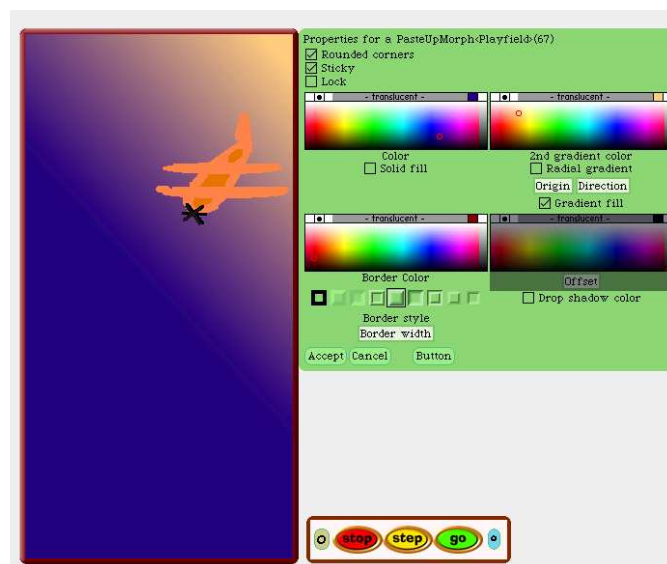
Here the graph grid options have changed the playfield. Clicking on make graph paper takes you through a series of questions that allows you to select the size of the grid squares, the color of the background and a color of the lines.



The playfield's magenta handle opens a set of tools that further change the playfield's appearance. Here are those tools.



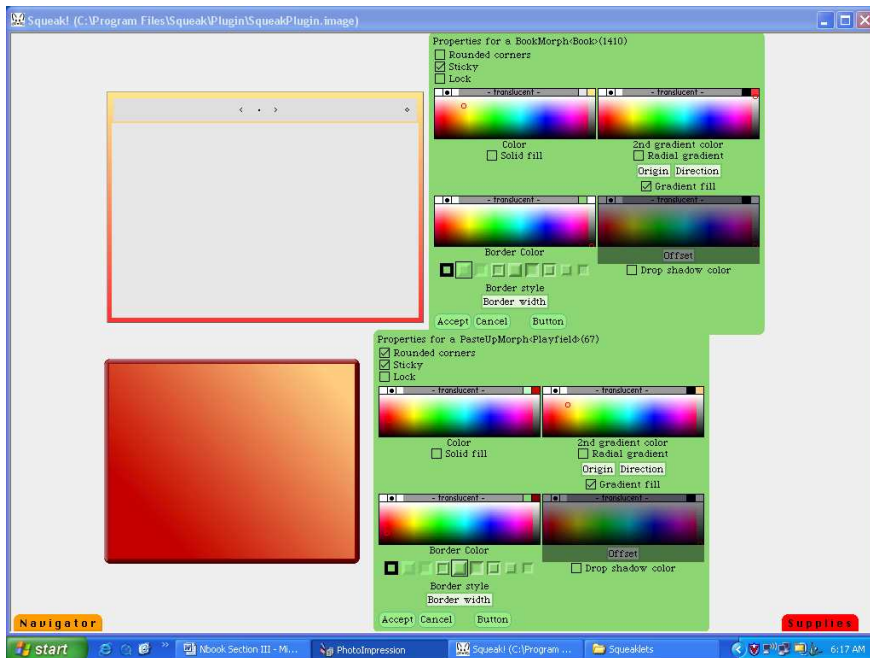
Click on the check mark/empty box to add or take away that effect. If solid fill is not checked then the 2<sup>nd</sup> gradient fill choices are available. The border color and style can be changed. The origin of the shading color can be selected and the amount of change by choosing colors. Here you see the result of choosing these two colors, rounded corners, changing the gradient fill's origin and direction, and changing the border style, color and size.



Many of these features are also found in the script viewer as tiles so they can

be added to scripts to effect change in action.

Notice that the Book from Supplies has similar tools and options.



Each tool can be combined with others so, many variations are possible. It is worth spending time experimenting with these tools so that a sense of the possibilities becomes part of your thinking about playfields and books.

These are playfields that have been modified to show a few of the variations.

