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.

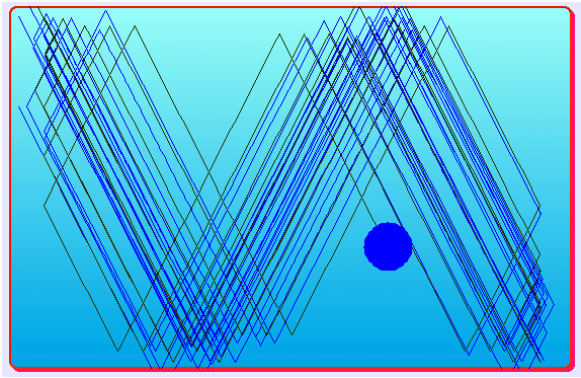
These projects can be explored on the computer by opening them from www.Squeakcmi.org. This dynamic experience of projects on the computer in conjunction with the written materials should give you a range of ideas and possibilities to combine in many ways and for many purposes.

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 atwww.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
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
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
Technical information for experienced programmers and developers

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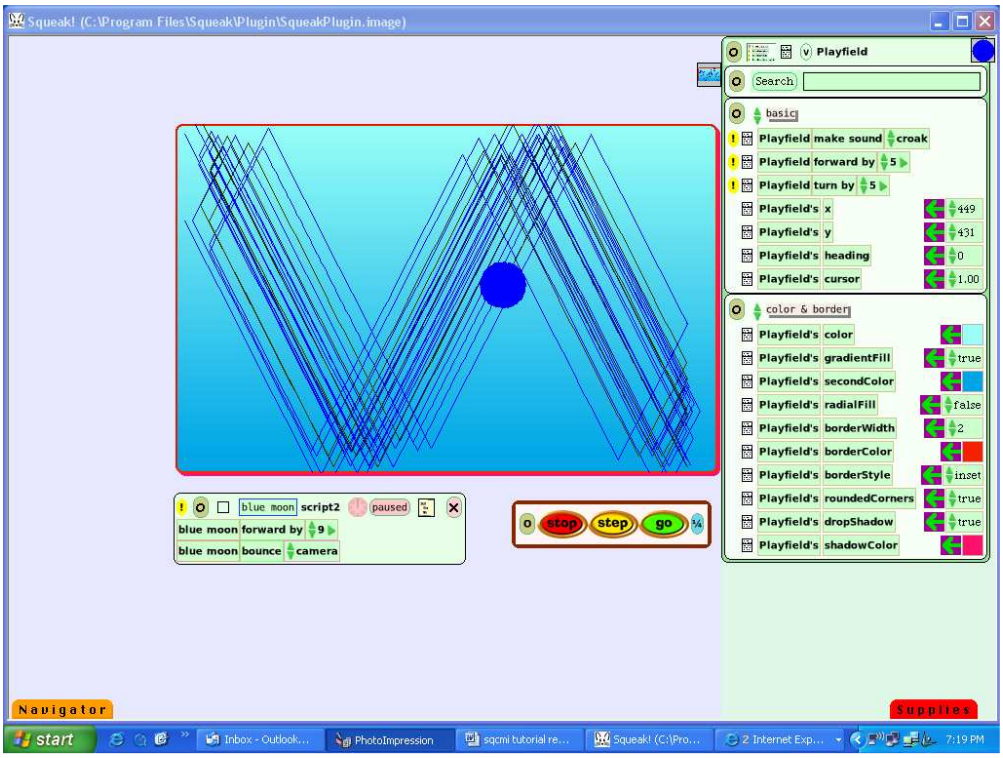
Bounce: bouncemoonnb

This project uses forward, motion/bounce, pen trails and a playfield.



Draw a circle with the paint tool and keep it or drag an ellipse from Supplies.

Get a halo for the object then click on the cyan handle to open the viewer panes.

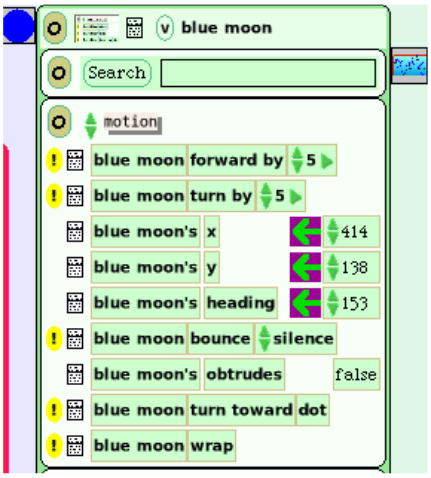
Highlight the word sketch in the top of the script panel and give the object a meaningful name. Here it is called blue moon. Press enter/return on the keyboard to get the name to take effect. Now every script tile is called blue moon; blue moon forward, blue moon turn, etc.

Naming each object a meaningful name the first time you open its viewer will help you keep track of your objects as you make more complex projects that contain many objects.

It will save time and confusion to make a habit of naming objects as soon as you create them.

Click and drag on the phrase blue moon forward by 5 and drag it onto the screen in an area away from the panel. Click to drop the tile onto the screen and it becomes a script box.

Click and hold down on the word basic to open the list of the other script panes. Click on ‘motion’ to choose it. This opens a new set of script tiles and the new behaviors and properties they carry.



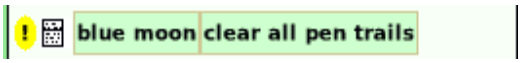
Drag a copy of the phrase tile blue moon bounce silence into the script box that is already open and includes the tile forward by 5. A bright green target area opens in the script box to show it will accept the tile you are holding on the tip of the cursor.

Next click on the word motion and open the list of other script panes again; select pen use by clicking on it.

Notice that the tiles in pen use do not need to be dragged into a script box as some other phrase tiles require. You can leave them where they are and make the changes there. The effect will happen for that object even though the tiles have not been dragged into a script box. This is also true for the effects in the color and border set of script tiles.

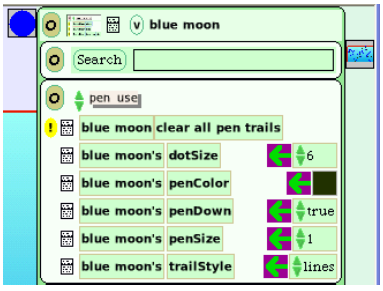
Pen use includes a set of choices about the color, size of the pen nib, style of trail (lines, dots, arrows, and arrowheads). There are many interesting and beautiful combinations of forward/turn/bounce/pen use.

Notice that the top phrase tile in this set of tiles is blue moon clear all pen trails; click on the yellow oval with the exclamation point in it to erase all the pen trails on the screen.



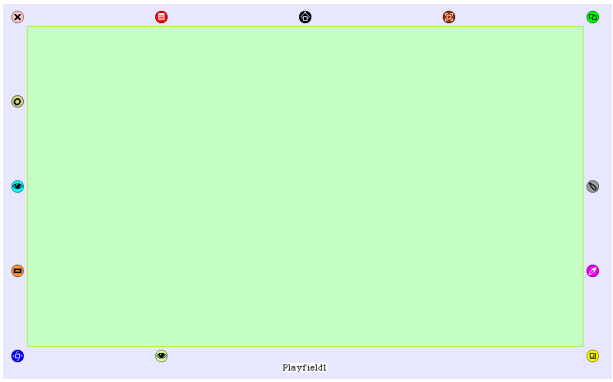
That means all pen trails are erased, even pen trails made by other objects in other scripts in the project.

The phrase blue moon's penDown false is in the script panel when you first open the pen use pane. Use the tiny green up/down arrow pointing up/ to scroll from false to true.



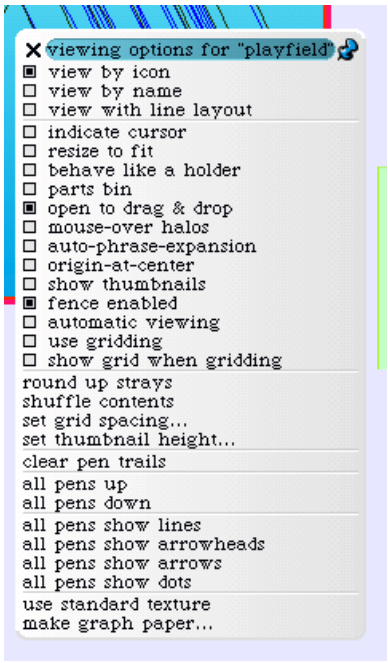
The project in this example used a playfield to contain the blue moon and its pen trails.

Open the Supplies Flap and drag out a playfield. The playfield has a halo of handles just like any other object in Squeak.



It has an additional handle that opens special options for playfields.

The halo's green eye near the lower left edge opens a menu of viewing options for playfields.



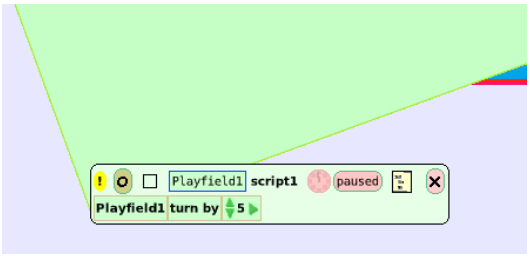
As you can see, there are many, many additional items in this menu. More information about each menu item will be found in the lexicon that is Section II of this Notebook.

Use the bright yellow halo handle to make the playfield the size you want. It can be as large as the whole computer screen or very small.

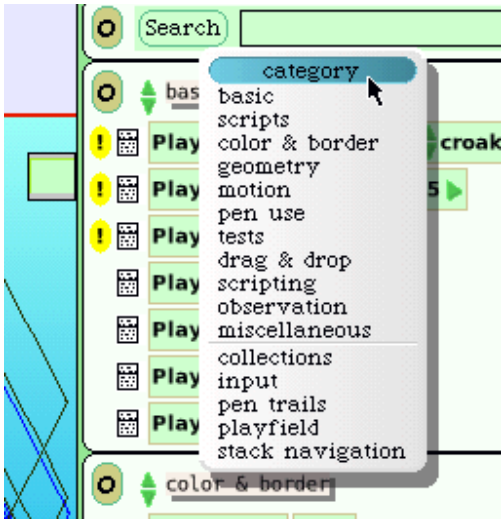
A playfield could contain many objects itself and it also be contained in another playfield, book, or holder.

Click on the cyan handle to open a viewer pane of scripts.

It is possible to write a script that moves the playfield around too. Make it go.

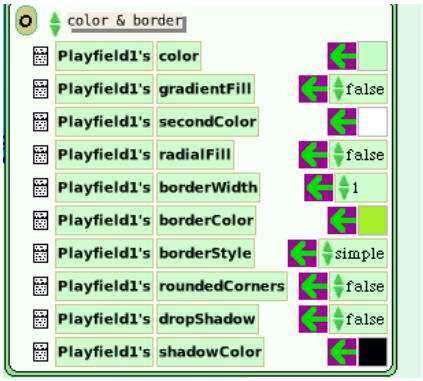


Playfields also have additional categories of script tiles. Click and hold down on the word basic and the list opens to show the additions are: collections, input, pen trails, playfield, and stack navigation.



It is also possible to change the color of the playfield to make it suit the purpose you have in mind.

Click and hold down on basic and then choose color and border.



Changes are the result of choices. The color and border tiles can remain in place in the viewer pane but the changes will still affect the playfield project's appearance.

The halo for playfields also has an extra handle that is magenta. Click on it to open the panel Properties for a PasteUpMorph<Playfield>. There are many options in this panel that will help make your project look exactly like you want it to look.

There is a Notebook Section III project called Properties for a

PasteUpMorph<Playfield>kh to show some of these option's effects.