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 at 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.

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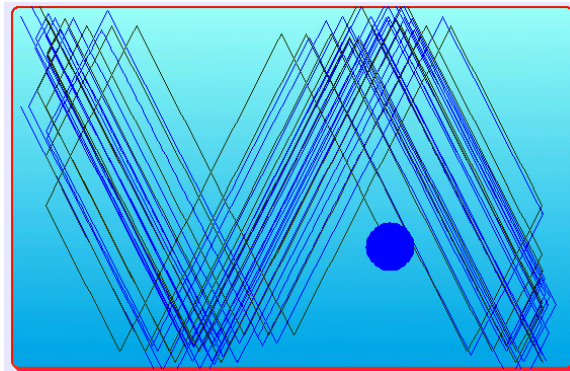
www.SqueakCMI.org

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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Animation: eyeblinkernb

This project shows how to make an animation project. It uses a holder, a book, and a stop-step-go button. The Eyeblinker blinks. Squeakland.org has the original tutorial for this project http://squeakland.or:8080/super/211
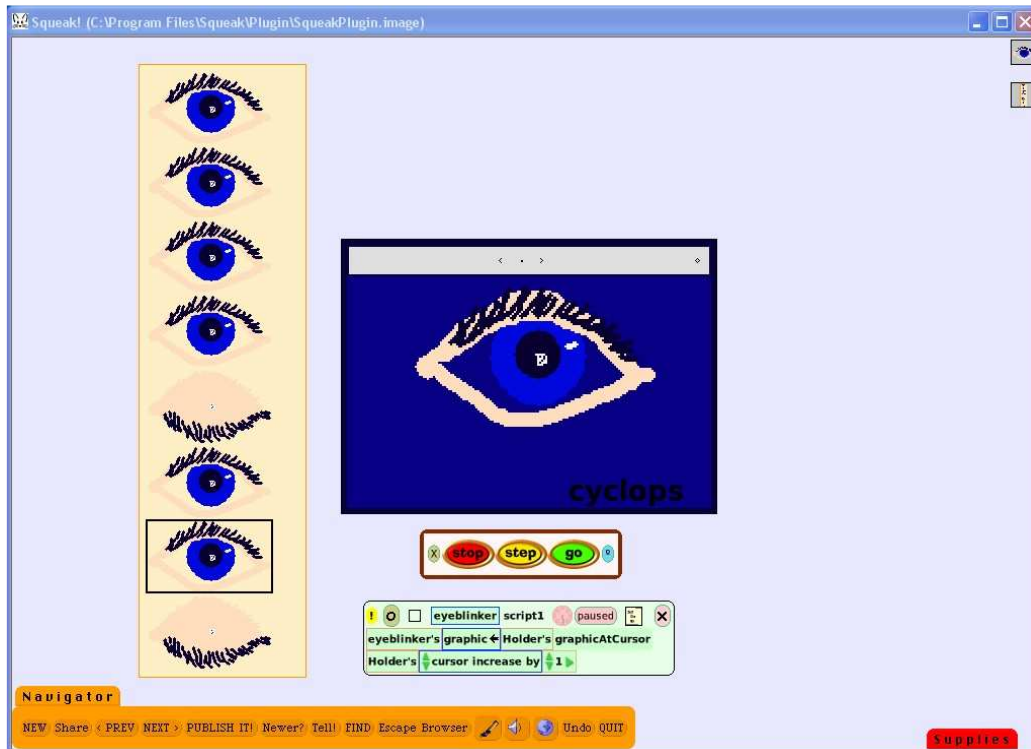

Draw two views of the eye. One view is the open eye and the other is the closed eye. Each view is an object so draw and click keep for each as you finish drawing it.

Put the drawings in a holder that you drag out of Supplies and drop onto the screen.

Paint and keep a spot of color on the screen (not in the holder area). This will become the location of the animation. The location of an animation can be scripted so that it moves just as any other object does.
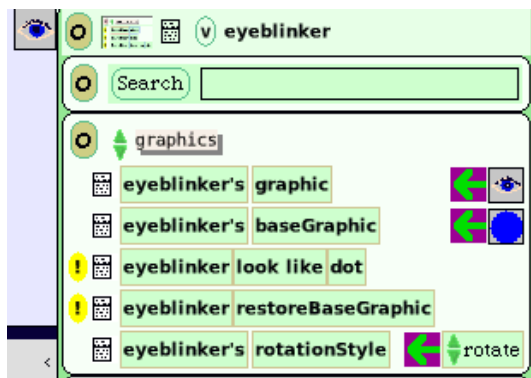
Open a viewer pane of scripts for the spot of color and name it what it will become; eyeblinker is this example.
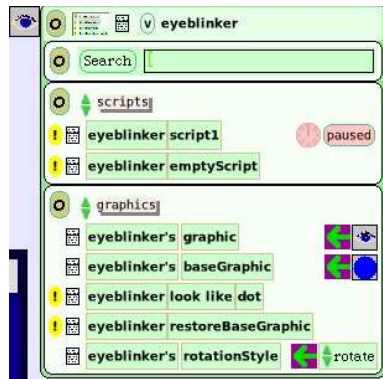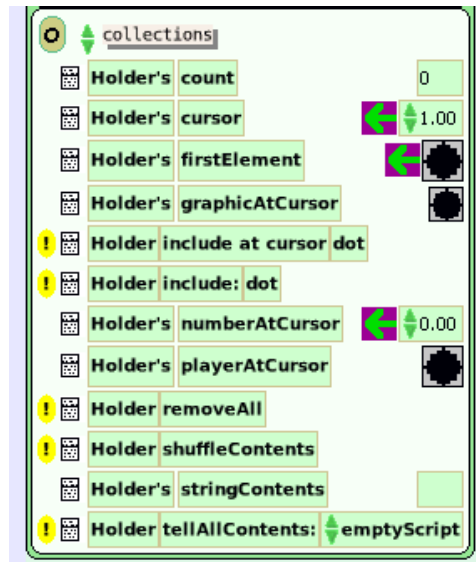

Click on basic and select graphics from the list that appears.

Graphics is a category that is only available for an object that you draw. Graphics is not available for objects from Supplies. Try it. Pull an object from the Supplies and look for a graphics category. The supplies objects do not have a graphics category. They never do.

Choose the phrase eyeblinker's graphic, drag it by its green/purple arrow onto the screen and drop it to form a script box.

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Get a halo for the holder and open a viewer pane. Click and hold down on basic then select collections.

Find the phrase holder's graphic at cursor and drop it into the eyeblinker Script1 box where a tiny drawing of the spot of color shows. By doing this you tell the spot of color to look like the first drawing of the eye that is in the holder.

Next select the phrase holder's cursor by dragging the phrase by the green/purple arrow into eyeblinker Script1.

Click on the tiny green up/down arrow and scroll through the choices and select increase. Now the script will cycle through each of the drawings in the holder.

Close the holder by clicking on the tan oval in the halo. Do not close the holder by clicking on the X in the top right corner because, if you do, it will destroy the holder and all the drawings there.

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The screen shot of this animation shows it in a Squeak book that has been modified. It includes a stop-step-go button and the timing of the blink of the eye animation has been slowed down to a more natural pace. These additions affect the look of the project but the basic animation is finished.

The animation was placed into a book dragged from Supplies. Get the halo of handles for the book and chose the cyan eye to open a viewer. The book was modified by opening the book's color and border panel and choosing among the options there. Click and hold down on basic to open a menu of choices. Click on color and border.
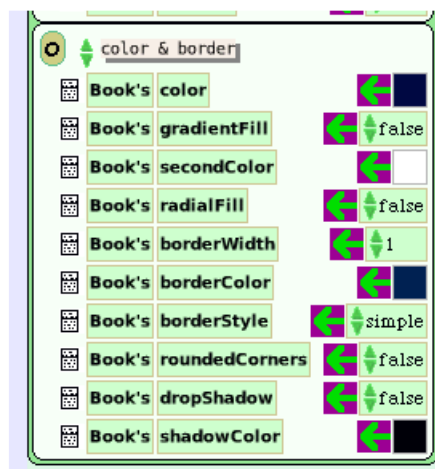
These script tiles can be left where they are for this project and they will still affect the book. Change the color of the book by clicking the box of color and opening a pallet of colors. The cursor becomes a chooser tool and by clicking on the color you want it will fill the box and change the color of the outline of the book.

The color of the page can be changed too. Get the halo for the book (at the bottom of the halo you will see the word book in faint lettering) and then click again until you see the word page.

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The halo for the page has two extra handles:

a light green eye and a magenta color chooser.

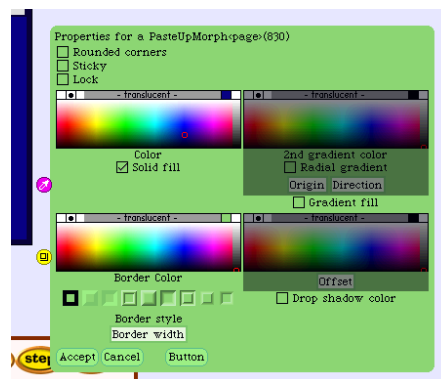These add many more options. The light green eye opens a menu of viewing options for page.

The light green handle was not used in this project but it seems unfair to say there are two extra handles and then not give a little more information about both of them.
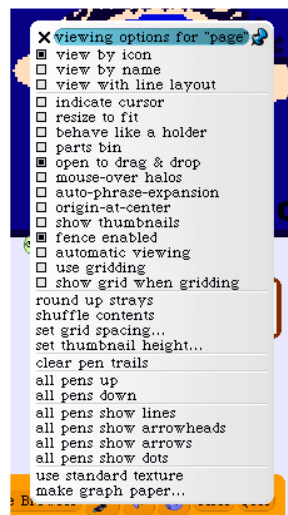
As you see there are many ways to change the appearance and behaviors of the page and what it will do when someone is reading the interactive book.
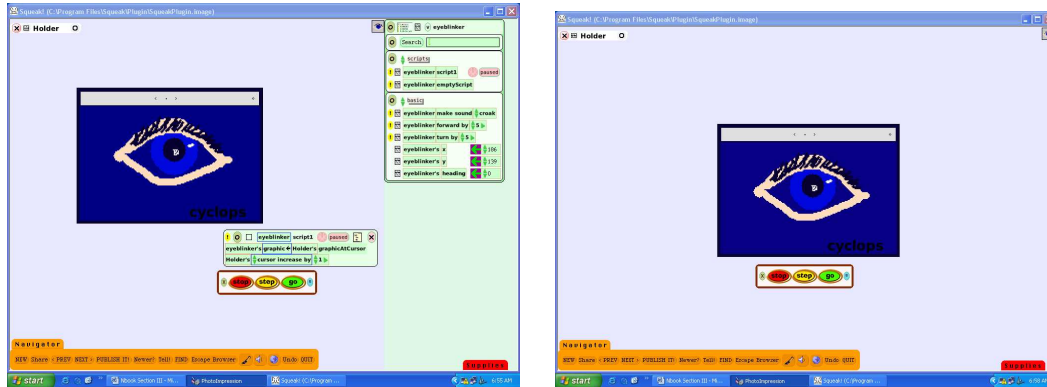
This project used the magenta handle to change the color of the page for the eyeblinker animation. The properties for the page include whether it will have rounded corners, a solid color or shade from one color to another and whether there will be a border and shadow.

Click on magenta handle in the page halo and this panel opens. Just click on the color you want the page to be and then click on Accept to make your choices stay with the project page.

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The appearance of the project is improved if the scripts and viewer panels are closed.

Close the viewer panel by clicking on the tab. You can also completely hide the viewer panel and its flap by clicking on the tan oval at the top of the viewer panel. You might not want people looking at your project to be distracted by the presence of the tools you have used to make the project.

You can always get the viewer panel back by clicking on the cyan eye in the halo around an object.

Before closing the script box, look to see if the word paused is in the script. If it says normal, then start the script by clicking on the pink circle to start. Stop the script by clicking on the blue circle by the word ticking. The circle is a stop and go button.
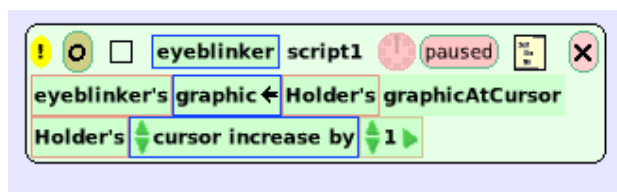
Close any open script boxes. Click on the tan oval with the black O .

Do not try to close the script with the black X on a pink oval because this will destroy the script rather than just closing it.

Drag a stop-step-go button from the Supplies. Click on go to start the

animation. Stop will stop the animation and step will make the cursor hidden in the holder move one position at a time.
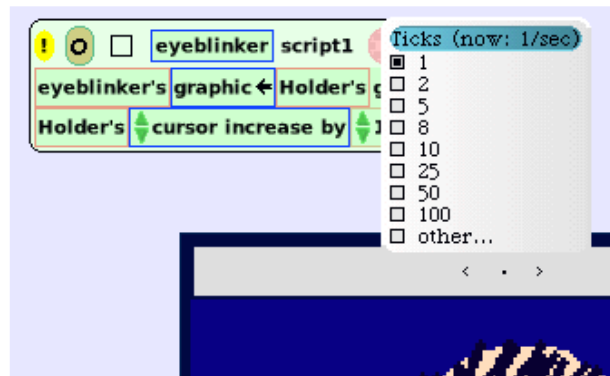

Two ways to change the flow and pace of the animation are by changing the ticks per second speed or by adding copies of one phase of the animation to the holder so one stage of the animation shows longer.
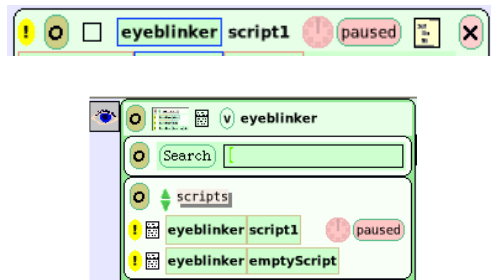
The copies of a drawing of the open and closed eye can be made using the halo's bright green handle and dropping the copies into the holder where they will make the effect you want. The holder will open to accept the copies if the cursor point is inside the holder. If the object is in the holder but the cursor is outside of it, the holder may not open. The holder will get bigger as you add objects to it or, you can use the halo for the holder and make it bigger by clicking on the yellow handle.

Change the ticks per second speed for scripts by clicking and holding down on the circle that looks like a timer.

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You will see the timer in the scripts boxes and also in the viewer pane.

The menu of ticks opens and shows the default choice box for 8 darkened. This animation has 1 selected so that the motion is slower. This means this script is run one time every clock second.

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