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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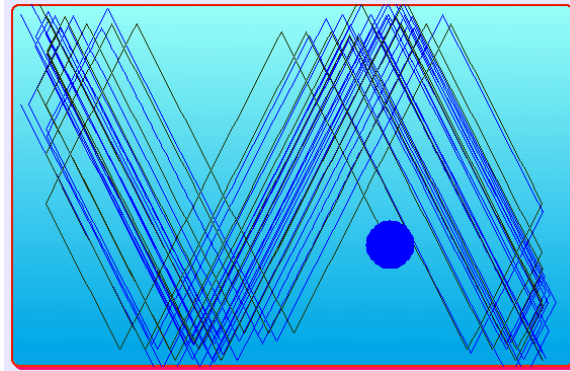
www.SqueakCMI.org

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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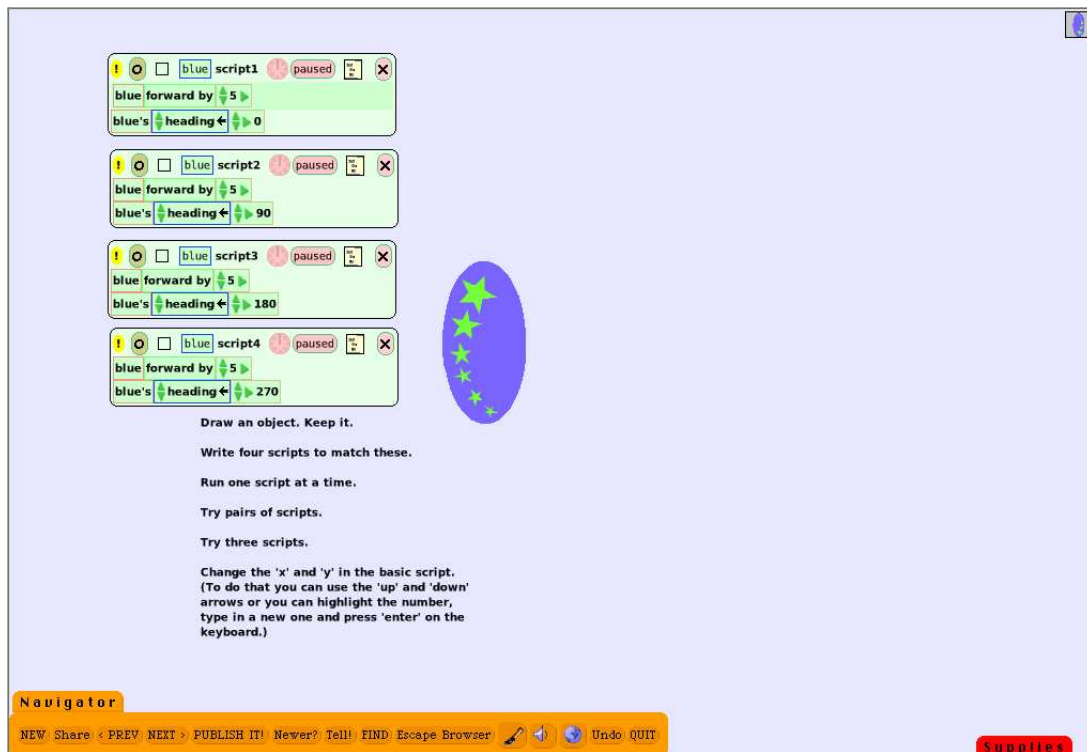
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Heading2: headingnb

This project experiments with combinations of forward scripts each having a different heading. This project also adds explanatory text to the screen.
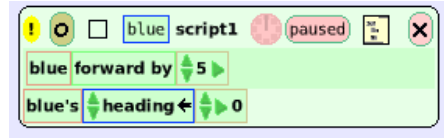

There are many effects possible by combining a few script commands.

Draw an object that will be part of the experiment. Part of the drawing should include some clue or design feature that will help show the original top of the object. After you keep the drawing, click on the halo's cyan handle and open a script viewer panel. Name your object a meaningful name and build script 1.

Since the purpose of this project is to explore the effects of combinations of script tiles, keep one script tile the same in each script and change the second tile.

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Here, forward speed by 5 is in each script but each script includes a different heading.


The heading tile is dragged by the purple/green horizontal arrow into a script box.
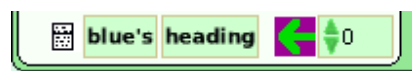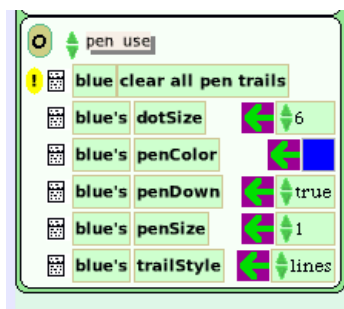

After the tile is in a script box, it changes appearance and loses the purple/green horizontal arrow. The little white rectangle just before the tile's name also vanishes.

The white rectangle opens a menu of choices. These choices include whether to include a simple watcher or a detailed watcher in a project. These show current information. So for example, a simple watcher for the heading would show the object's heading on the screen while the project is running even if the viewer panel of script tiles is closed.
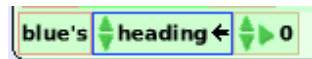
So that it is easy to see where the object has been, click and hold down on basic in the viewer panel and click on pen use.

Look for the phrase blue's penDown false and use the tiny green up/down

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arrow to change it to read true. This means when a script is running that the center of the object will have a pen and the pen will be drawing the trail/path that the script describes.

This project's scripts use four different headings.

Script 1 has a heading of 0
Script 2 has a heading of 90
Script 3 has a heading of 180
Script 4 has a heading of 270

Start and stop each script and see where the trail is. Once you see what is going on you will be able to make many geometric shapes and designs.

Trying combinations of scripts will be interesting. There are many possibilities in these experiments.

To add text to a project, open Supplies, click and drag out a copy of the word Text. Drop it on the screen where you want the text to be. Typing text is very much like it is in any word processing program except in Squeak the text is also an object and has a halo of handles which allow changes to be made.

There are three extra handles for text: light green, peach and rust.

: The light green handle opens new styles and sizes. Each black arrow head opens menus to choose the size of the font. There are standard sizes and there are also ways to specify a size that is not typical. As an example:

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Click on the arrow to the right of BitstreamVeraSerif and when the menu open choose new size. A box will open, type in 6 and you will see print this
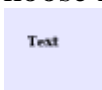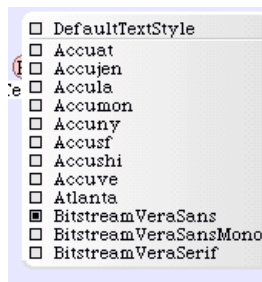
small.

The text box must be adjusted using the yellow halo handle to make space for the letters of a word. Text can also use the 'enter' feature, space feature, and tab of a regular keyboard.

 This handle opens a text style menu.

 The handle opens a menu with more text choices.

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