# 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.

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

Kathleen Harness
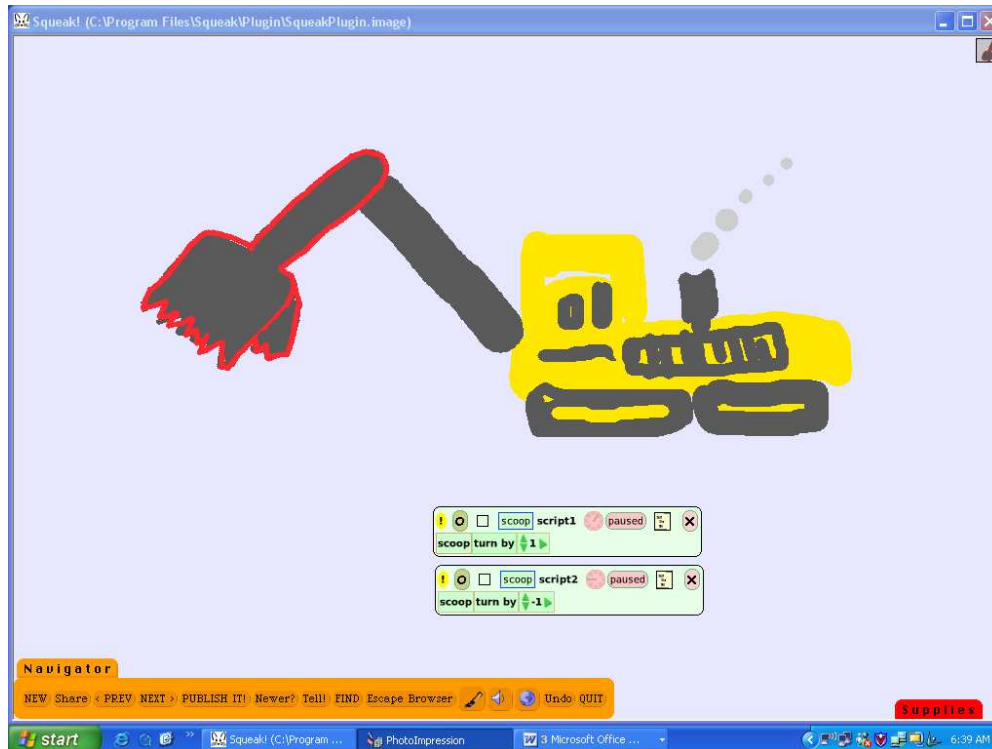[squeakcmi@uiuc.edu](mailto:squeakcmi@uiuc.edu)

The Office for Mathematics, Science, and Technology Education
University of Illinois Urbana-Champaign

## Center of Rotation: setRotationCenternb

This project changes the center of rotation of an object.



The drawing above is a composite of two separate drawings. The part outlined in red was drawn and outlined as a separate object from the rest of the machine.

The shovel object's default center of rotation is half way down its length but it needs to be at the top where it would attach and so work like a hinge with the other part of the shovel handle.

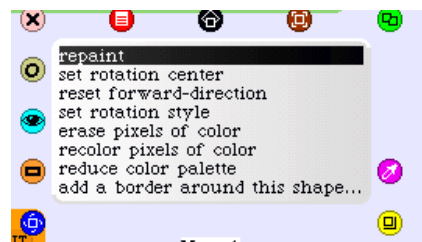Get the halo for the shovel part and click on the red  menu handle.

The Office for Mathematics, Science, and Technology Education
University of Illinois Urbana-Champaign

Select painting from the menu to change the center of rotation..
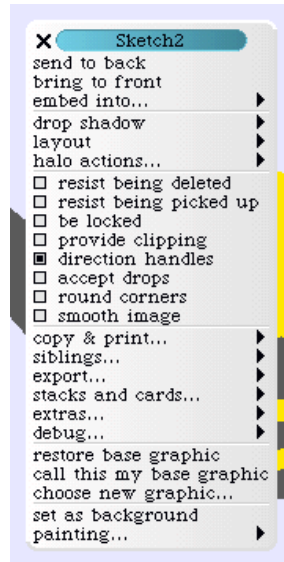


Click on the arrow by the word painting and a list of options opens:



Select the phrase set rotation center. Once you click that phrase, your cursor changes from its regular shape into a large plus ✛ and it is this that is used to set the new location.

Just click the cursor/plus down in the place you want the new center of location to be.

The cursor/plus will turn back into the familiar blue circle with green arrow.

The Office for Mathematics, Science, and Technology Education
University of Illinois Urbana-Champaign
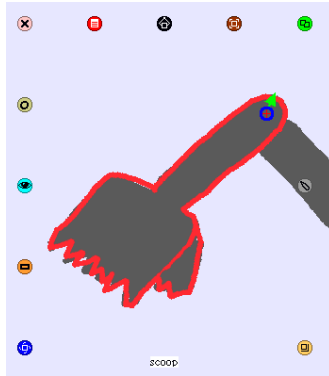
Here are some screen shots showing different positions of the shovel once the center of rotation has been changed.



The center of rotation can also be set outside of the object and this will give change how the turn and forward look when a script is running. Experiment.

The Office for Mathematics, Science, and Technology Education
University of Illinois Urbana-Champaign