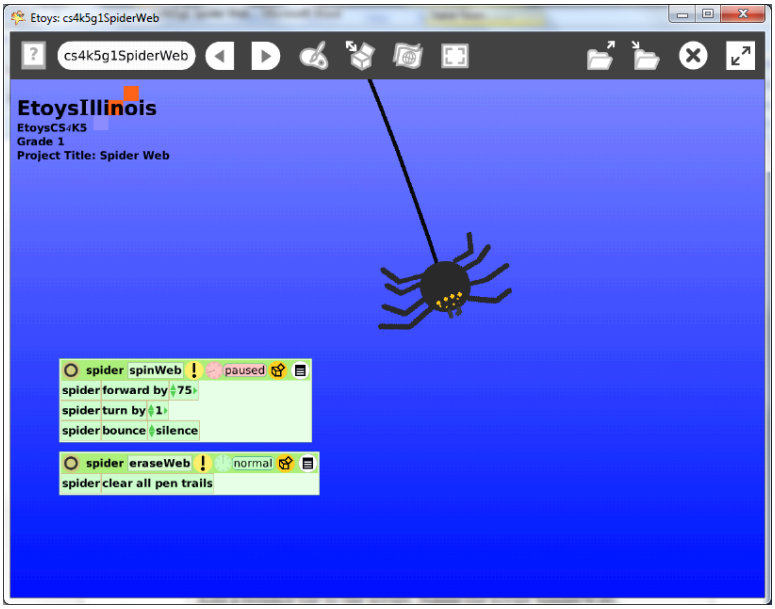
Grade 1
Spider Web

Description:	Students will: Draw a spider. Create a script with forward, turn, and bounce tiles. Change the forward and turn numbers to apply counting by fives, tens, twenties, and hundreds. Add a pen trail to reveal the path the spider's forward script makes. Rotate the spider to point different directions. Experiment with different starting points for the spider. Experiment with different width pen trails. Estimate how long it would take for pen trails to cover the background color and discuss why.
Project View	
Subject:	Mathematics, Science
Etoys Quick Guides	Click the question mark in Etoys to open the set of interactive tutorials for basic tools and techniques.
Vocabulary:	Spider, insect, direction, heading, rotate, number of legs, eyes
Lesson 1: Paints: Brushes	Ask students to paint a big spider making sure to give it eight legs and 6-8 eyes.

Halo Handles: Viewer Script Tiles: Bounce Script Tiles: Pen Use Halo Handles: Rotate Navigator Bar: Keep Find Projects	Open the spider's halo, click on sketch and rename it spider. Open a Viewer for the spider and make a script with the forward and turn tiles. Change the numbers; observe, discuss. Add a bounce tile to the script. Name the script SpiderWeb. Add a pen trail by changing false to true and choosing a color for the web. These two tiles can stay where they are. Make new script with the clear all pen trails tile so that it is on the screen and easy to use. Name this script eraseWeb. Use the blue halo handle to rotate the spider. Give students time to experiment with this script, with and without the pen trail showing. Ask students to change the forward number to 10, 15, and 20. Ask them to change forward counting by fives and turn counting by tens. This project is a good place for students to apply the new knowledge they have about the sequential order of numbers, adding, and counting by fives, tens, and hundreds. Keep the project call it: namespider for example katespider.
Lesson 2:	Students may want a wider line for the web. Show them how to change the width in the Viewer's pen use set of tiles. The tile can stay in the Viewer or be added to the script. Try many experiments with the blue handle and rotate the spider making new web lines until the screen is almost covered. Get an analog clock from the Object Catalog in Supplies. Click the Just for Fun category to find the clock. How long will it take to cover the screen with pen trails, is a good question to ask students. Students who have chosen large numbers for their trail width will have different estimates from those with a pen trail of 1. Ask students to choose a pen width and estimate what their screen will look like at the end of one minute of experiments and at the end of five

	minutes. They might say, mostly trails or mostly background or more than half, less than half. Use the blue halo handle to rotate the spider so its eyes point to different places and start the script to see the new pattern added to the old ones. Ask them to point toward the top right corner, lower right, top left, and other locations. If students are learning to tell time with an analog clock they can apply that knowledge in this project. Set the spider on the analog clock and rotate it to point at 2 o'clock. Give students time to try different clock times as headings. Ask students whether they see a difference in the web design if the spider always starts in the middle rather than stopping the script and rotating the spider in any location. Give students time to experiment and then show the resulting web to their neighbors. Ask their neighbors to estimate whether the spider script was started in one place or many places.
Lesson 3:	Make the web many colors by clicking on the white menu to the left of the pen color tile and choosing detailed watcher. Click on the small color sample and a palette of colors will show with a color picker. The color can be changed while the script it running. Click and drag across many colors to choose. Give students time to experiment and to look at class projects. Ask students to explain how something was done in their project and to estimate how something was done in their neighbor's project. Give them time to see if their estimate is correct by applying what they think in their own project. There will be differences, ask why?
Standards:	Common Core Standards Mathematics: 1.OA.5,6; 1NBT.1,2; 1.MD.3 Language Arts: SL.4 Bloom's Taxonomy/Cognitive Domain: Knowledge: describes, knows Comprehension: gives examples, reports, estimates Application: uses, changes, discovers

	Analysis: analyzes, experiments Synthesis: explains, modifies, plans Evaluation: describes, investigates NETS 1. a, b, c 4. a, b, c
Resources:	Etoys Help Quick Guides: always available in Etoys. Open Etoys and click the question mark to open a set of interactive tutorials of basic tools and techniques. www.etoysillinois.org projects, lesson plans, software download www.mste.Illinois.org more math, science, and technology resources www.corestandards.org Common Core Standards www.squeakland.org software and Etoys projects www.nctm.org Standards and Focal Points for each grade level
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