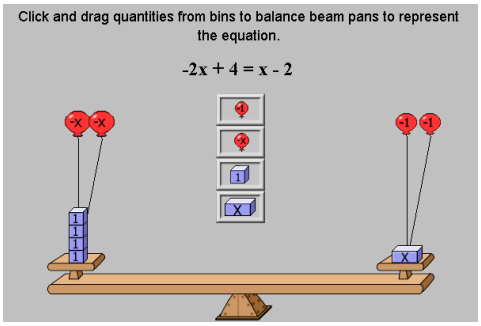
Virtual Manipulatives *revised 6/1/2009*



National Library of Virtual Manipulatives (English, Español, or Français)
http://nlvm.usu.edu/en/nav/vlibrary.html
This one is my favorite—the biggest and most complete. Try the equation balance beam: **nlvm.usu.edu/en/nav/frames_asid_324_g_3_t_2.html**
or the virtual geoboard: **nlvm.usu.edu/en/nav/frames_asid_172_g_2_t_3.html**

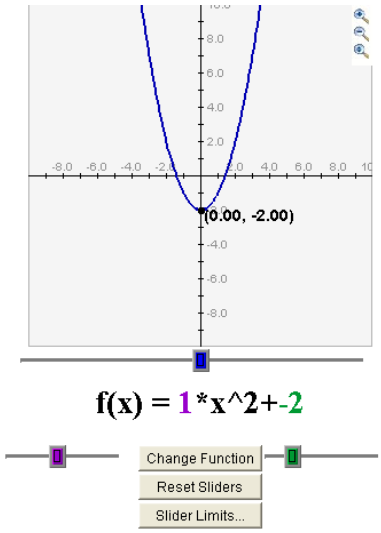
Shodor
www.shodor.org/interactivate/activities
Try the Function Flyer, a graphing applet where you type in the function and the applet graphs it, including sliders that allow you (or your students) to twiddle the knobs—and change the function and its graph **www.shodor.org/interactivate/activities/flyall**

Parabolas in Vertex Form
www.keypress.com/sketchpad/javasketchpad/gallery/pages/parabolas.php
This one, part of the Geometer's Sketchpad online Resource Center, is a good companion to Function Flyer.

"What Are Virtual Manipulatives?"
http://my.nctm.org/eresources/view_media.asp?article_id=1902
a great introductory article by Patricia S. Moyer, et al. at but you have to be an NCTM member to read it. Another good article, viewable by anybody, is at
www.ct4me.net/math_manipulatives.htm

Select Math
http://boston.k12.ma.us/teach/technology/select/index.html
SELECT Math has detailed scope-and-sequences for grades 6-8, Geometry, and Algebra II, including alignments with Massachusetts state standards, links to online manipulatives, and worksheets for students to use when working with online manipulatives.

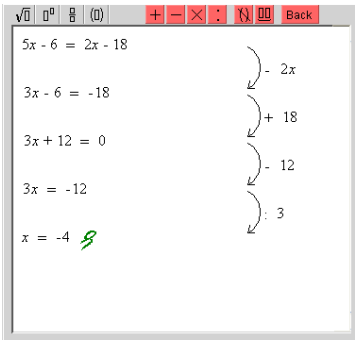
279 Math Applets
www.ies.co.jp/math/java
This is the Japanese site I was talking about. (No worries about language: these pages I'm referring to are in English.) Take a look at the 19-applet Pythagorean Theorem page:
http://www.ies.co.jp/math/java/geo/pythagoras.html



functon flyer at shodor.org

Arcytech
http://arcytech.org/java
There are a bunch of java applets, from telling time and counting money to base 10 blocks, the Pythagorean Theorem, and Pi. The pages on American money, Learning about Bills would be a good places to snag graphics.

The Freudenthal Institute
www.fi.uu.nl/fisme/en/ has an enormous selection of java applets. For primary, go to **www.fi.uu.nl/rekenweb/en/** For secondary, go to **www.fi.uu.nl/wisweb/en/**
"Solving Equations with balance strategy" is a good transition from the National Library of Virtual Manipulatives one, above, to paper and pencil, and the "Geometric Algebra 2D" are a lot like working with algebra tiles. For an animation that goes from a 2d net to a 3d object, visit **www.fi.uu.nl/toepassingen/00297/toepassing_wisweb.en.html**. An overview of all the WisWeb applets is at **www.fi.uu.nl/wisweb/en/**: click on Applets and pick all applets from the menu. "Algebra Arrows" **www.fi.uu.nl/toepassingen/02008/toepassing_wisweb.en.html** is a function machine you build yourself.



Pythagorean Theorem links
www.soesd.k12.or.us/files/pythagoreanlinks.doc
Here's a collection of online animations, explanations, and explorations of the Pythagorean Theorem.

Le Kangourou des Mathématiques (in French)
www.mathkang.org/swf/pythagore2.html and **www.mathkang.org/swf/archimede.html**
The compelling math and excellently realized animations should carry you—even if you don't know French.

Scribble Squares
www.amblesideprimary.com/ambleweb/mentalmaths/scribblesquare.html and
www.amblesideprimary.com/ambleweb/mentalmaths/scribbletable.html
Use the mouse to draw right on this hundreds grid or this 1-10 multiplication and show—and talk about—the patterns.

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