Welcome Booklet

THE GEOMETER'S SKETCHPAD®

Version 5

Key Curriculum Press

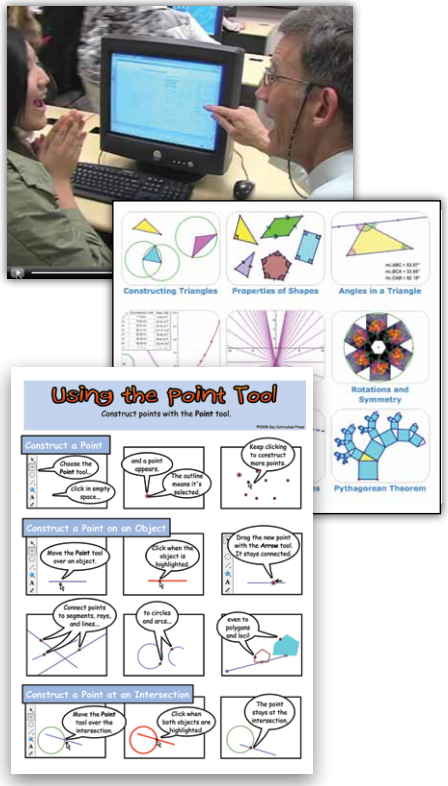
Visit the Learning Center

Find all the resources you need to learn and use Sketchpad—videos, tutorials, tip sheets, sample activities, and links to online resources, services, and professional development courses—in Sketchpad's Learning Center. Start with any of the activities featured on this poster!

Download Sketchpad 5 with the new Learning Center today: www.keypress.com/gsp/download

Access the Learning Center though Sketchpad's start-up window or the Help menu.

Welcome Videos
Learn about Sketchpad from students, teachers and developers.



Using Sketchpad
Work through step-by-step tutorials, and browse an extensive collection of comic strips and short videos about common Sketchpad skills.

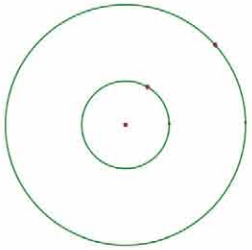
Teaching with Sketchpad
Explore sample activities and teaching resources for grades 3 to 12 and beyond.

Transform

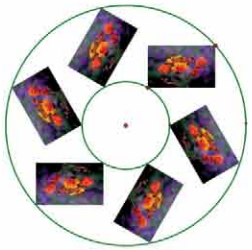
Apply transformations to make a rotation-based "kaleidoscope," and to explore angles, symmetry, and tessellations.

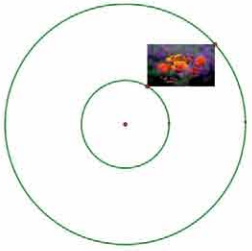
See the **Getting Started Tutorial** Rotations and Symmetry

Learning Center > Using Sketchpad > Getting Started Tutorials > Rotations & Symmetry



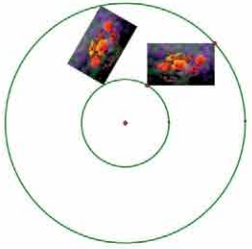
Construct concentric circles…



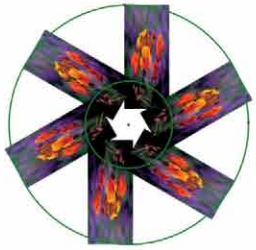


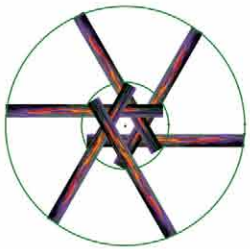
…and attach a picture to points.

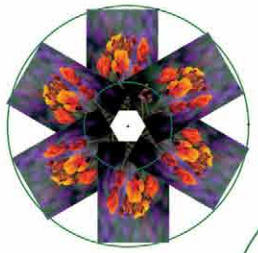
…and animate the points.

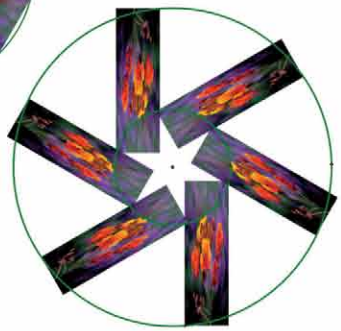


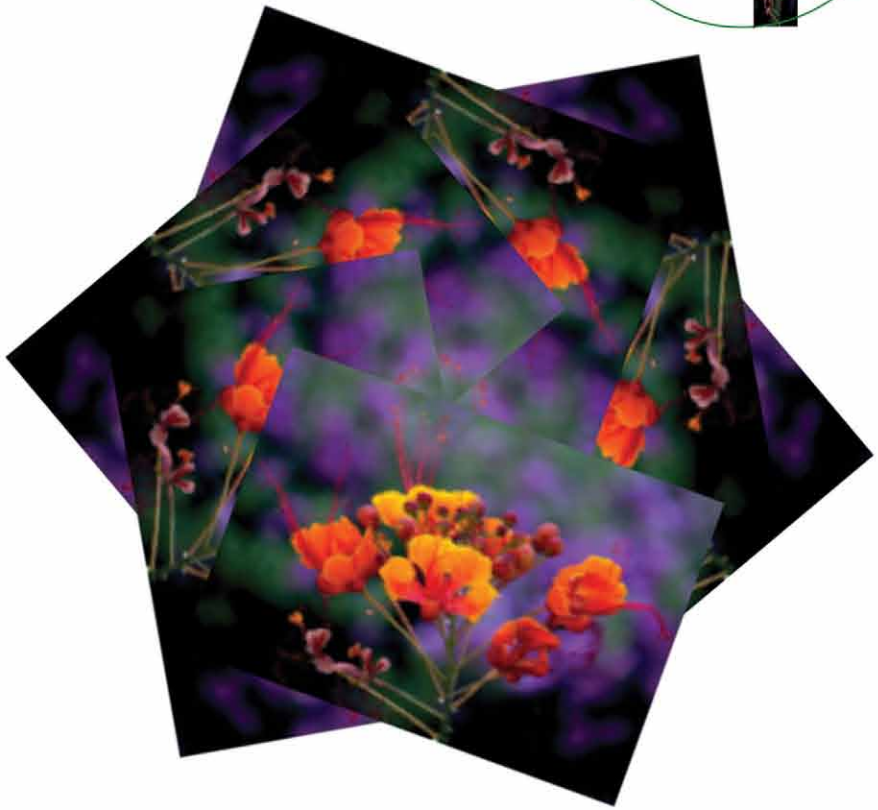
Rotate by 60° a few times…









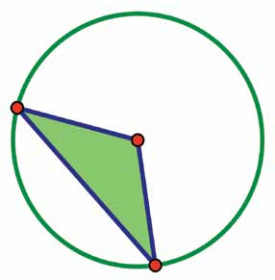


Construct

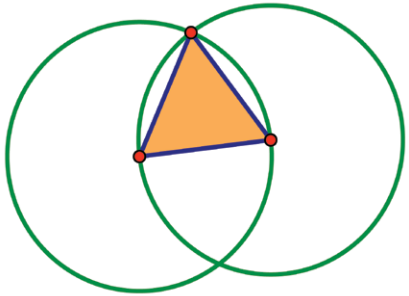
Define specific polygons by their geometric properties.

See the **Getting Started Tutorials** Constructing Triangles, Constructing Squares, and Pythagorean Theorem.

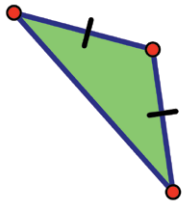
Learning Center > Using Sketchpad > Getting Started Tutorials > Constructing Triangles
Learning Center > Using Sketchpad > Getting Started Tutorials > Constructing Squares
Learning Center > Using Sketchpad > Getting Started Tutorials > Pythagorean Theorem

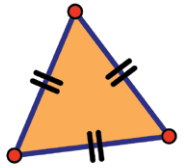


Use radii of a circle to construct an isosceles triangle.

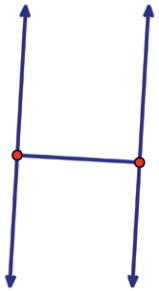


Use overlapping circles that share a radius to construct an equilateral triangle

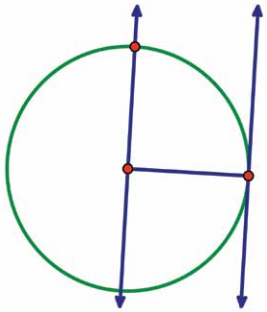




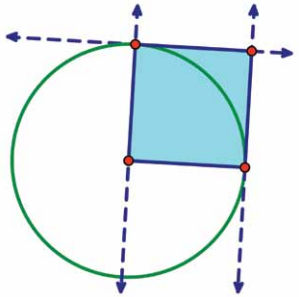
Hide the circles. Use the **Marker** tool to add congruency tick marks.



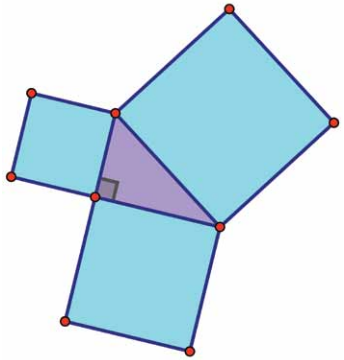
Use perpendicular lines to make right angles…



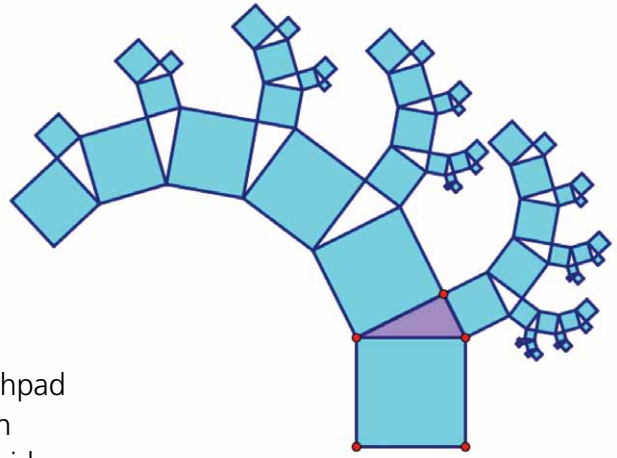
…and a circle to make segments of equal length.



Finish your square. Use the "drag test" to be sure it stays a square when you drag it.



Once you've taught Sketchpad to make a square, you can construct squares on the sides of a right triangle.



Use the **Iterate** command to create a Pythagorean tree.

Animate

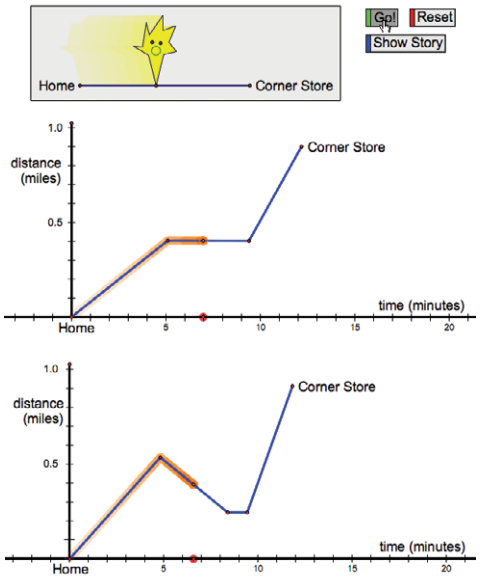
Put mathematics in motion by dragging, animating, and using action buttons.

See the **Sample Activity** Mellow Yellow
and the **Getting Started Tutorial** Tracing the Slope Function.

Learning Center > Teaching with Sketchpad > Sample Activities > Algebra

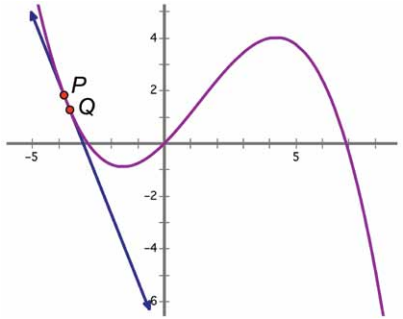
Learning Center > Using Sketchpad > Getting Started Tutorials > Tracing the Slope Function

In this prepared model, see a point move on a graph as an animation models the situation. Learn how to interpret what a graph tells you about the situation it represents…

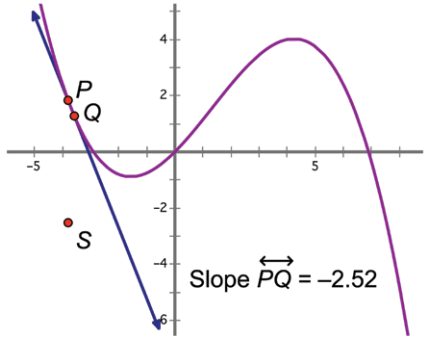


…and explore how changing the graph affects the motion of the animation…

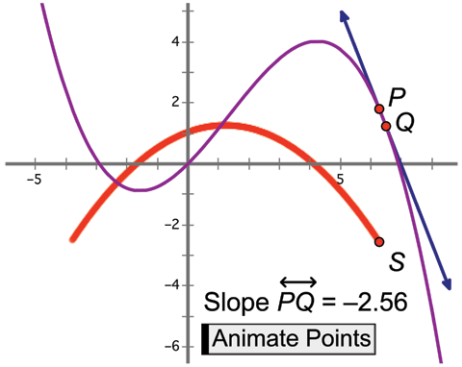
Plot a function. Construct a line through two nearby points *P* and *Q* on the function plot.



Measure the slope of the line and plot it as point *S*, directly below point *P*.



Animate points *P* and *Q*. The trace of point *S* approximates the graph of your function's derivative.



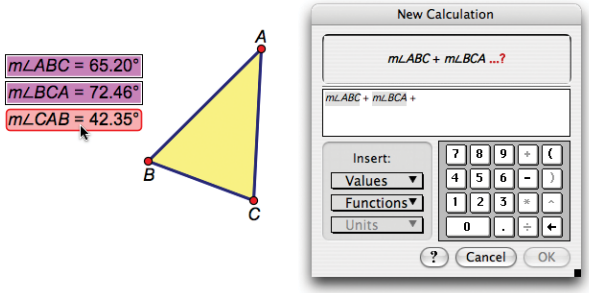
Communicate

Present mathematics easily using Hot Text™ and the Marker tool.

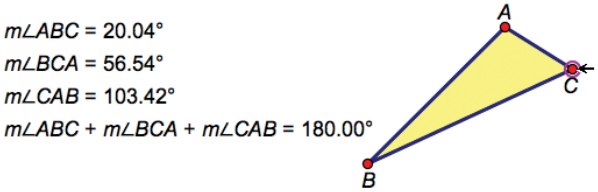
See the **Getting Started Tutorial** Angles in a Triangle.

Learning Center > Using Sketchpad > Getting Started Tutorials > Angles in a Triangle

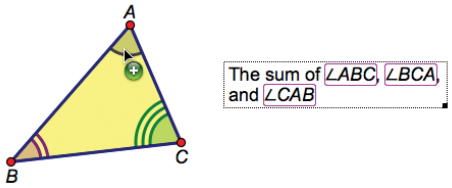
Using the calculator, add together the angle measures of a triangle. Just click an angle measurement to include it in your calculation.



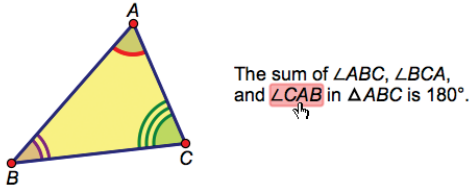
Drag the vertices. The angles always add up to 180°.



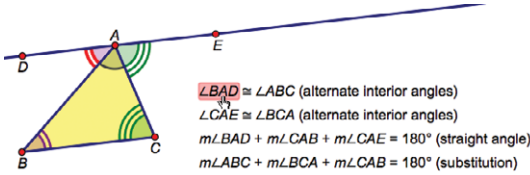
In a caption, click on a vertex and drag into the triangle to create an angle marker and to insert its name into your caption—this is Hot Text.



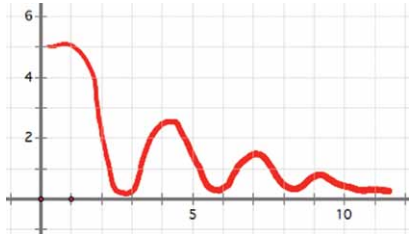
Roll over Hot Text to see the corresponding part of the triangle highlight. Hot Text links the visual and symbolic representations.



Construct a line parallel to a base and use the **Marker** tool to indicate congruent angles. Use your dynamic sketch to discuss, develop, or present a proof.



You can also use the **Marker** tool to emphasize parts of your sketch, add freehand notes and drawings, or to draw a function.



Work with Numbers

Explore prepared models that develop number and operation sense.

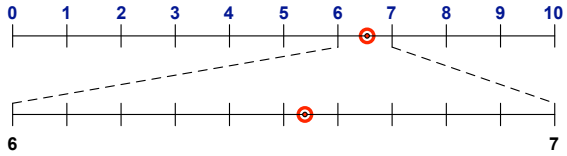
See the **Sample Activities** Jump Along and Zooming Decimals.

Learning Center > Teaching with Sketchpad > Sample Activities > Elementary Grades

Make sense of decimals. The red point looks like it's at 6.5.

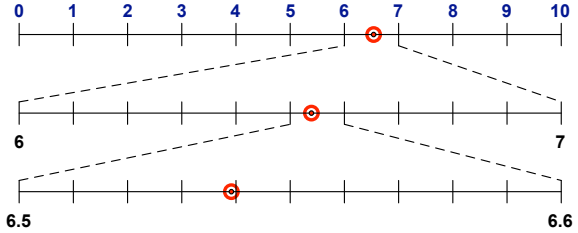
Magnify a section of the number line...

...and see that 6.55 is a better estimate.

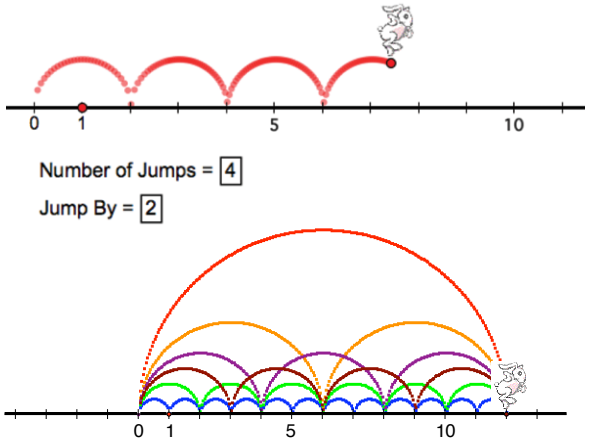


Zoom in more...

...and see that 6.54 is an even better estimate!



Use a dynamic model of a hopping rabbit to teach students about multiplication…



… factor families…

…negative numbers…

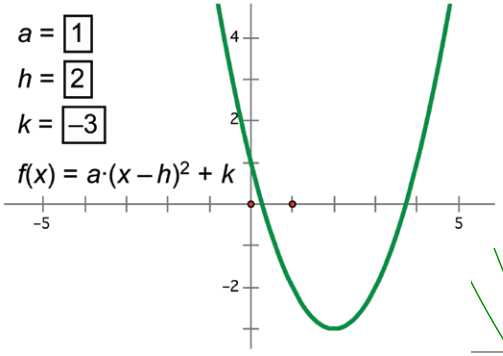
… and fractions.

Visualize Algebra

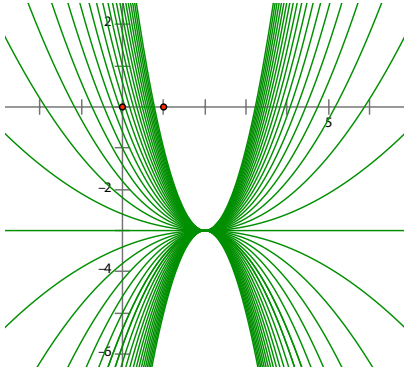
Use interactive models to solve algebraic problems, and understand how changing coefficients of an equation affects its graph.

See the **Sample Activity** Parabolas in Factored Form.

Learning Center > Teaching with Sketchpad > Sample Activities > Algebra



Define three parameters, use them to graph a parabola…



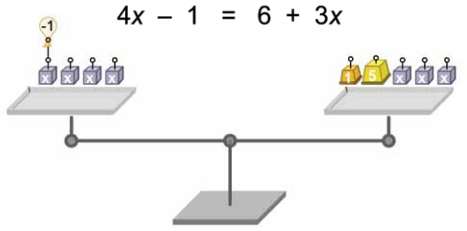
… and build the family of functions as *a* varies from –2 to 2.

See the **Sample Activity** Balancing with Balloons and the **Sample Sketch** Wave Dynamics.

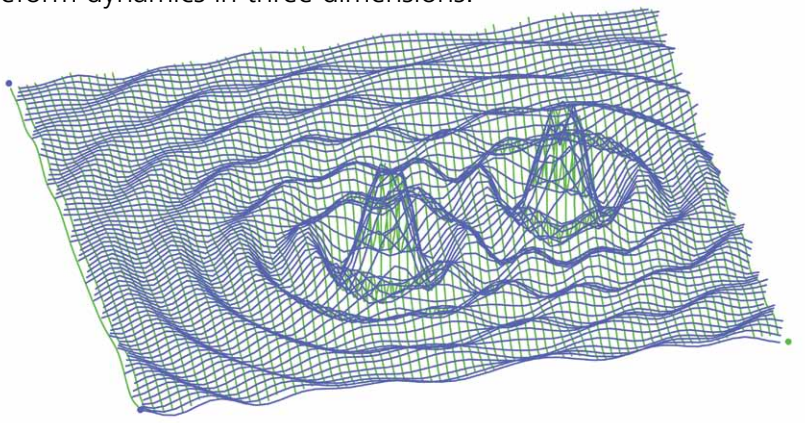
Learning Center > Teaching with Sketchpad > Sample Activities > Algebra

Learning Center > Using Sketchpad > Online Resource Center

Build or explore models that represent the full range of algebra, from solving linear equations…



… to waveform dynamics in three dimensions.



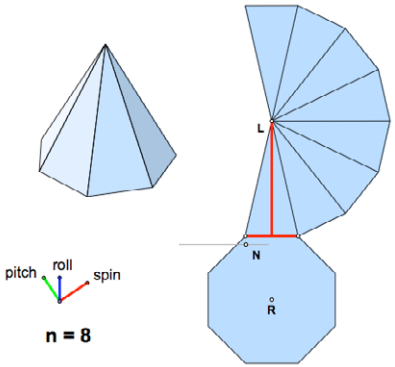
$$z = f(x, y) = \frac{\sin\left[k\sqrt{x^2 + y^2} - wn\right]}{\sqrt{x^2 + y^2}} + \frac{\sin\left[k\sqrt{(x - x_a)^2 + (y - y_a)^2} - wn\right]}{\sqrt{(x - x_a)^2 + (y - y_a)^2}}$$

Explore Advanced Topics

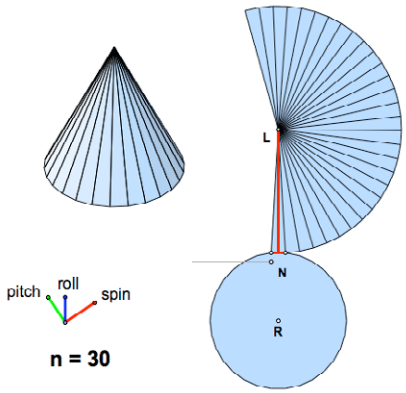
Use prepared sketches or build your own models to visualize and explore advanced mathematical topics.

See the **Sample Activity** Pyramid Dissection.

Learning Center > Teaching with Sketchpad > Sample Activities > Geometry



Use 3-dimensional models to investigate prisms and pyramids.

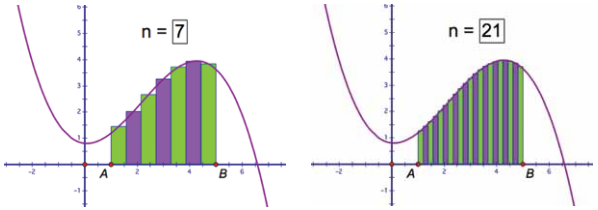


What happens when the number of sides increases?

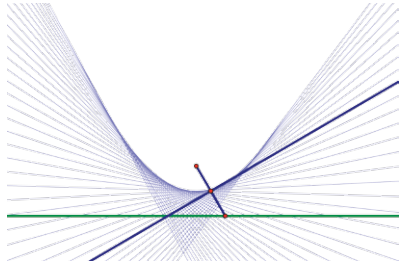
See the **Sample Sketches** Integration and Locus of Bisectors.

Learning Center > Using Sketchpad > Online Resource Center

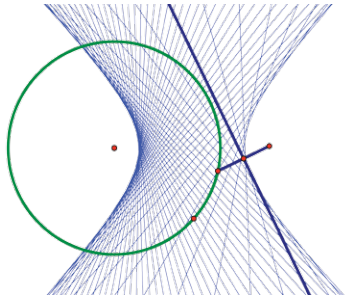
Increase the number of rectangles to explore Riemann sums, limits, and area under a curve.

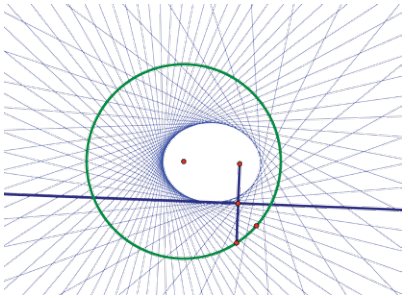


Bisect a segment with one endpoint constructed on a line. Use the **Locus** command to construct the "forest" of bisectors that form a parabola.



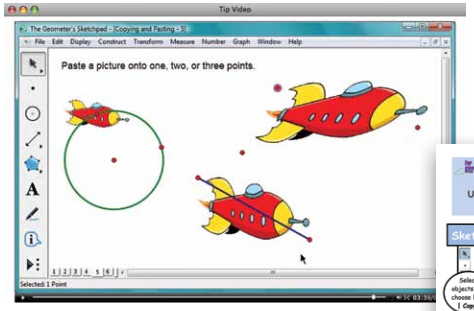
Or use a circle to form a hyperbola, then drag one focus to form an ellipse.



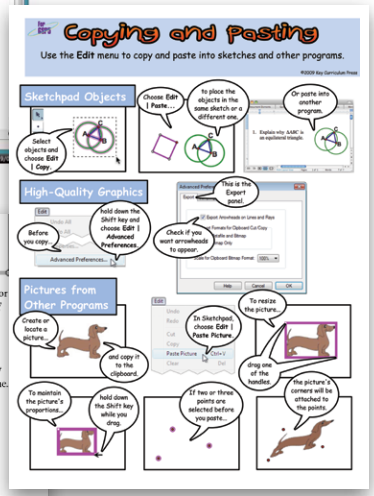


Connect to Resources

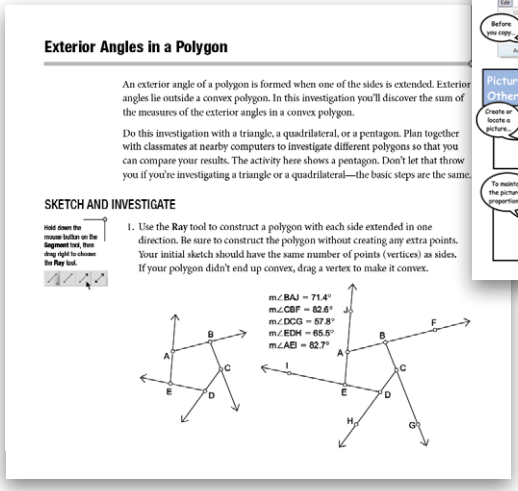
Find video and comic tips about common Sketchpad features, sample activities, and links to online resources, services, and professional development courses.



Video Tip

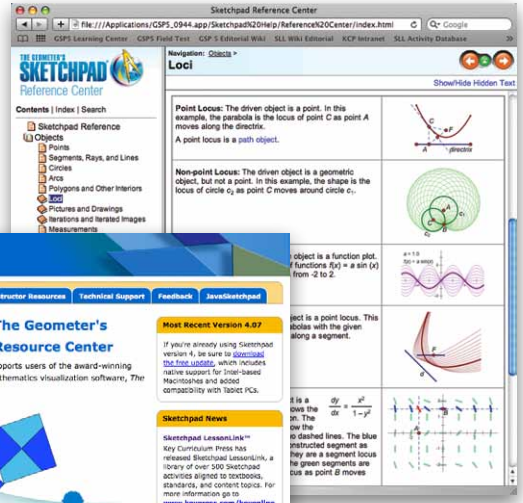


Comic Tip

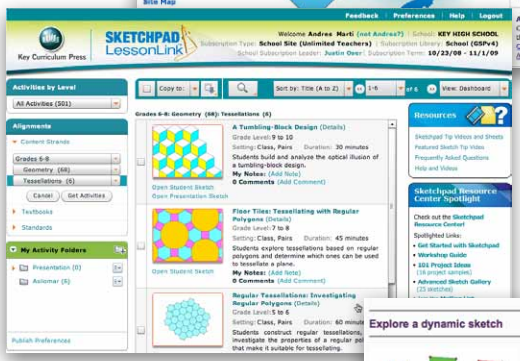


Sample Activity

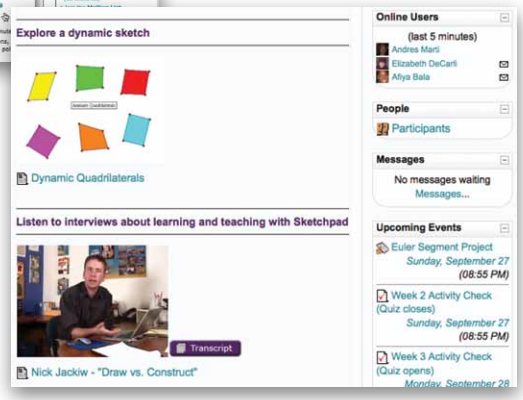
Resource Center



Online Reference Center



Sketchpad LessonLink



Online Course

WARNING: YOUR STUDENTS MAY DEVELOP A SUDDEN, INCURABLE INTEREST IN MATHEMATICS.