

Get on Board with GeoGebra!

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<http://padlet.com/harpersr/414>

Geometry Perspective:

- Explore each of the tool menus along the top bar. Each has a drop-down menu that enables additional tools.
- Structured Play: Drawing
Play with the toolbars and menus until you can create the following objects (in any order):
 - a. A point
 - b. A circle
 - c. A line, line segment, and a ray
 - d. A point at the intersection of objects
 - e. Parallel lines
 - f. Perpendicular lines
 - g. The midpoint of a line segment
 - h. An arc on the circle
- Structured Play: Measurement
Play with the toolbars and menus until you can measure/Calculate the following objects (in any order):
 - a. The length of a line segment
 - b. The distance between two points
 - c. The ratio of the circumference of a circle to its diameter.
 - d. The ratio of the lengths of two line segments
 - e. The area of a circle
 - f. The sum of any two angles of a triangle. (What happens when you drag the vertices?)
 - g. The angles made at the intersection of two diagonals of a quadrilateral.
- Drag-Proof Shapes
Create a drag-proof version of each shape. A drag-proof shape is one that remains true to the definition even if the vertices and edges are dragged.
 - a. Triangles: Right, Isosceles, and Equilateral.
 - b. Square
 - c. Parallelogram
 - d. Rectangle
 - e. Kite
 - f. Rhombus
 - g. Two circles with the same radius (as you move one, the other changes to match.)
 - h. A convex shape that incorporates both curved and straight lines.

Additional Challenges

- Can you create two congruent circles that are tangent to one another? How about three congruent circles that are all tangent to one another? Four circles such that each circle is tangent to two others? What polygon is formed by the four centers of those circles? If you were to create a shape that was made up of the minor arcs between tangent points, what would be the maximum area you could include inside that shape?
- While there is a button to construct polygons, including regular polygons, try to construct a regular hexagon, pentagon, or octagon without this button. Many strategies exist—can you find more than one way? How can you be sure your shape is regular?
- Construct a trapezoid with at least one right angle. Can you create one with exactly two right angles? Three?
- Create a drag-proof figure by constructing three congruent circles and three points at their intersections. What is the relationship between those three points?
 - How can you use "hide" and other constructions to create the "curvy triangle" at the center of that circle diagram?
 - Google "reuleaux triangle" and behold the awesomeness. Do you teach your students about these? What more can you find of interest?
- A few additional things to explore:
 - Explore the drop down menus at the top of the page. Can you figure out:
 - a. How can you add an "algebra view" to your page? What does it do?
 - b. What is a construction protocol?
 - c. What does the Input Bar do? What can you input?
 - d. How can you change the appearance of your points, lines and objects? What is possible?
 - e. How can you "hide" or "unhide" objects to make your sketch less messy?

Algebra Perspective

- What features does the Algebra Perspective have? How does the Algebra View (left hand side) work? What kinds of things can you type into the input bar?
- How many different ways can you graph a function in the Algebra perspective? Plot a point?
- Create a circle in the Graphics window—in what form does it show up in the algebra view?
- What does it mean to "trace" an object?
- Can you rescale the axes? Add or remove a grid?