**Lesson Plan Outline Geometry in Construction**

**Title:**

Proving a Quadrilateral is a Parallelogram

**Objective(s):**

The students will prove that a quadrilateral is a parallelogram, square, rhombus, or a rectangle using properties of parallelograms and coordinate geometry

**Learning Standard(s):**

[CCSS.MATH.CONTENT.HSG.CO.C.11](http://www.corestandards.org/Math/Content/HSG/CO/C/11/)Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals*.

[CCSS.MATH.CONTENT.HSG.CO.C.9](http://www.corestandards.org/Math/Content/HSG/CO/C/9/)Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints*.

**Activities:**

The students will use their iPads for pictures of shapes and will use properties of quadrilaterals to prove what type of quadrilateral their picture shows.

**Materials:**

iPad with Geometry Pad App

Coordinate Proof Outline