**Lesson Plan Outline Geometry in Construction**

**Title:**

Creating a Parallelogram

Distance Formula & Midpoint Formula

**Objective(s):**

Students will use properties of parallelograms to create different types of parallelograms

The students will use coordinates to prove that two segments are congruent and find the midpoint of a segment.

**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:**

Students will use properties of quadrilaterals to create the foundation of different building sites using strings and tape measures.

Students will use properties of quadrilaterals to determine if various shapes were properly built

The students will use a scale drawing to calculate distances of boards and midpoints; students will scale to actual sizes.

**Materials:**

String, Tape Measures, Chalk

House frame for parallelograms check

Parallelograms Properties Organizer