**Lesson Plan Outline Geometry in Construction**

**Title:**

Parallelogram Proofs

**Objective(s):**

Students will prove that a quadrilateral is a parallelogram

**Learning Standard(s):**

[CCSS.MATH.CONTENT.HSG.CO.B.7](http://www.corestandards.org/Math/Content/HSG/CO/B/7/)

Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

[CCSS.MATH.CONTENT.HSG.CO.B.8](http://www.corestandards.org/Math/Content/HSG/CO/B/8/)

Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.

[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*.

**Activities:**

Students will be given different types of triangles and will determine how congruent triangles form different types of parallelograms

Students will be given different types of parallelograms and will determine what types of triangles they can be broken into; students will list which parts of the triangles are congruent based on knowledge of parallelograms

**Materials:**

Students will complete fill in the blank parallelogram proofs