**Lesson Plan Outline Geometry in Construction**

**Title:**

Midpoints and Midsegments of Triangles & Trapezoids

Geometric Constructions

**Objective(s):**

The students will apply the midsegments of triangles and trapezoids in problem solving situations

The students will perform the construction of an angle and segment bisector as well as copying an angle and segment

**Learning Standard(s):**

[CCSS.MATH.CONTENT.HSG.SRT.B.4](http://www.corestandards.org/Math/Content/HSG/SRT/B/4/)Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.*

[*CCSS.MATH.CONTENT.HSG.CO.C.10*](http://www.corestandards.org/Math/Content/HSG/CO/C/10/)

*Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*

[CCSS.MATH.CONTENT.HSG.CO.D.12](http://www.corestandards.org/Math/Content/HSG/CO/D/12/)Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).*Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line*.

**Activities:**

The students will explore the angles and midsegments of a trapezoidal bay window

The students will complete packet on geometric constructions and will create a design using basic constructions

**Materials:**

Ruler, Compass, Protractor

Constructions with Compass & Straightedge

Construction Instruction Packet