**Geometry in Construction UNIT 4 Lesson Plans**

**Day 78**

1) Classwork: Final Exam Review

2) Classwork: Classwork: Install Drip Edging

3) Classwork: Roofing Felt

4) Classwork: Shingles

5) Classwork: Cut Out for Windows and Exterior Doors

6) Classwork: Install House Wrap

**Day 79**

1) Lesson: Translations, Reflections, & Rotations

*Objective:* Students will perform transformations of line segments and shapes in the coordinate plane

2) Activity: Students will use software to determine definitions of translations, reflections, and rotations. Students will discuss what is congruent in each of the shapes

3) Activity: Students will use software and coordinates to determine rules and procedures for performing a transformation in the coordinate plane.

4) Classwork: Transformations W.S.

[CCSS.MATH.CONTENT.HSG.CO.A.2](http://www.corestandards.org/Math/Content/HSG/CO/A/2/)

Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).

[CCSS.MATH.CONTENT.HSG.CO.A.3](http://www.corestandards.org/Math/Content/HSG/CO/A/3/)

Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.

[CCSS.MATH.CONTENT.HSG.CO.A.4](http://www.corestandards.org/Math/Content/HSG/CO/A/4/)

Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

[CCSS.MATH.CONTENT.HSG.CO.A.5](http://www.corestandards.org/Math/Content/HSG/CO/A/5/)

Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

**Day 80**

1) Classwork: Classwork: Install Drip Edging

2) Classwork: Roofing Felt

3) Classwork: Shingles

4) Classwork: Cut Out for Windows and Exterior Doors

5) Classwork: Install House Wrap

6) Classwork: Install Windows and Exterior Doors

7) Classwork: Install Window Wrap

8) Classwork: Install Z Channel

9) Classwork: Install Corner Boards and Trim

**Day 81**

1) Lesson: Translations, Reflections, & Rotations

*Objective:* Students will determine the transformations occurring in the coordinate plane between two shapes.

2) Activity: Students will be given a shape and the final result; students will determine the series of transformations needed for the shapes to lay on top of each other.

3) Activity: Students will be given a house design and neighborhood design; they will need to determine the positions of key construction elements for the same house designed, but transformed to a new plot of land.

4) Classwork: Transformations W.S.

[CCSS.MATH.CONTENT.HSG.CO.A.2](http://www.corestandards.org/Math/Content/HSG/CO/A/2/)

Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).

[CCSS.MATH.CONTENT.HSG.CO.A.3](http://www.corestandards.org/Math/Content/HSG/CO/A/3/)

Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.

[CCSS.MATH.CONTENT.HSG.CO.A.4](http://www.corestandards.org/Math/Content/HSG/CO/A/4/)

Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

[CCSS.MATH.CONTENT.HSG.CO.A.5](http://www.corestandards.org/Math/Content/HSG/CO/A/5/)

Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

**Day 82**

1) Classwork: Cut Out for Windows and Exterior Doors

2) Classwork: Install House Wrap

3) Classwork: Install Windows and Exterior Doors

4) Classwork: Install Window Wrap

5) Classwork: Install Z Channel

6) Classwork: Install Corner Boards and Trim

7) Classwork: Install Siding

8) Classwork: Caulking and Prep for Paint

**Day 83**

1) Activity: House & neighborhood design activity continued

2) Activity: Pipe Fitting: Students will be given two disconnected pipes; students will need to determine the sequence of transformations needed to fit the two pipes together.

3) Classwork: Transformations Review Packet

[CCSS.MATH.CONTENT.HSG.CO.A.2](http://www.corestandards.org/Math/Content/HSG/CO/A/2/)

Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).

[CCSS.MATH.CONTENT.HSG.CO.A.3](http://www.corestandards.org/Math/Content/HSG/CO/A/3/)

Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.

[CCSS.MATH.CONTENT.HSG.CO.A.4](http://www.corestandards.org/Math/Content/HSG/CO/A/4/)

Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

[CCSS.MATH.CONTENT.HSG.CO.A.5](http://www.corestandards.org/Math/Content/HSG/CO/A/5/)

Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

**Day 84**

1) Classwork: Install Windows and Exterior Doors

2) Classwork: Install Window Wrap

3) Classwork: Install Z Channel

4) Classwork: Install Corner Boards and Trim

5) Classwork: Install Siding

6) Classwork: Caulking and Prep for Paint

**Day 85**

1) Lesson: Dilations in the Coordinate Plane

*Objective:* Students will perform a dilation and will discuss the relationships of parallel lines in the shape as well as its scale factor

2) Activity: Students will perform dilations with various scale factors in the coordinate plane; students will discuss relationships of lines that are parallel, angle measures, and side length

3) Activity: Plot of Land; students will use overhead view of plot of land and will relate zooming in on picture to a dilation

4) Classwork: Dilations W.S.

5) Transformations Review Packet

[CCSS.MATH.CONTENT.HSG.SRT.A.1](http://www.corestandards.org/Math/Content/HSG/SRT/A/1/)

Verify experimentally the properties of dilations given by a center and a scale factor:

[CCSS.MATH.CONTENT.HSG.SRT.A.1.A](http://www.corestandards.org/Math/Content/HSG/SRT/A/1/a/)

A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.

[CCSS.MATH.CONTENT.HSG.SRT.A.1.B](http://www.corestandards.org/Math/Content/HSG/SRT/A/1/b/)

The dilation of a line segment is longer or shorter in the ratio given by the scale factor.

**Day 86**

1) Classwork: Install Windows and Exterior Doors

2) Classwork: Install Window Wrap

3) Classwork: Install Z Channel

4) Classwork: Install Corner Boards and Trim

5) Classwork: Install Siding

6) Classwork: Caulking and Prep for Paint

7) Classwork: Locate and Mark Out Electrical Boxes

8) Classwork: Drill Holes for Electrical Boxes

**Day 87**

1)Assessment: Transformations Assessment

2) Review for Final Exam

**Day 88**

1) Classwork: Install Windows and Exterior Doors

2) Classwork: Install Window Wrap

3) Classwork: Install Z Channel

4) Classwork: Install Corner Boards and Trim

5) Classwork: Install Siding

6) Classwork: Caulking and Prep for Paint

7) Classwork: Locate and Mark Out Electrical Boxes

8) Classwork: Drill Holes for Electrical Boxes

**Day 89**

1) Final Exam Review

**Day 90**

1) Final Exam