

**Unit Title: “Convincing Your team: Beginning Proofs”**

**Course: Geometry**

**Subject Area: Mathematics**

**Time Frame: 11 days**

**Standards**

| DCPS Geometry Standards  | Sunshine State Standards Benchmarks   | NCEE New Standards   |
|--|---|--|
| <p>The student Will:<br/>10.2 Use inductive reasoning to observe data, recognize patterns, and make generalizations.</p> <p>Algebra I<br/>The student will:<br/>4.1 Solve equations using the addition property of equality or subtraction property of equality.<br/>4.2 Solve equations using the multiplication property of equality or division property of equality.<br/>5.2 Use the addition property of order and multiplication property of order to solve simple inequalities.<br/>5.3 Graph solution sets of inequalities on the number line.<br/>6.1 Simplify expressions involving exponents.<br/>6.2 Add and subtract polynomials.<br/>6.3 Multiply polynomials.<br/>10.1 Solve systems of linear equations by</p> | <p>MA.C1.4.1<br/>The student will use properties and relationships of geometric shapes to construct formal and informal proofs.</p> <p>Algebra I<br/>MA.D.1.4.2<br/>The student will determine the impact when changing parameters of given functions.</p> <p>MA.D.2.4.1<br/>The student will represent real-world problem situations using finite graphs, matrices, sequences, <i>series</i>, and <i>recursive relations</i>.</p> <p>MA.D.2.4.2<br/>The student will use systems of equations to solve real-world problems graphically, algebraically, and <i>with matrices</i>.</p> | <p>The student:<br/>M2c Uses congruence and similarity in describing relationships between figures.<br/>M2p Analyzes geometric figures and proves simple things about them using deductive methods.<br/>M3a Discovers, describes, and generalizes patterns, including linear, exponential, and simple quadratic relationships, i.e., those of the form <math>f(n) = n^2</math> or <math>f(n) = cn^2</math>, for constant <math>c</math>, including <math>A = \pi r^2</math>, and represents them with variables and expressions.<br/>M3b Represents relationships with tables, graphs in the coordinate plane, and verbal or symbolic rules.<br/>M3c Analyzes tables, graphs, and rules to determine functional relationships.<br/>M3d Finds solutions for unknown quantities in linear equations and in simple equations and inequalities.<br/>M6g Reads and organizes data on charts and groups, including scatter plots, bar,</p> |

| <b>DCPS Geometry Standards</b>       | <b>Sunshine State Standards Benchmarks</b> | <b>NCEE New Standards</b>  |
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| substitution and linear combination. |  | line, circle graphs, and Venn diagrams,<br>calculates mean and median. |

## Desired Results

| <b>Enduring Understanding</b>   | <b>Essential Questions</b>  | <b>Knowledge and Skills</b>   |
|---|---|---|
| <p>Students will understand:</p> <ul style="list-style-type: none"><li>• The development of the proof system involves drawing conclusions and justifying the reasoning.</li><li>• In many cases, the development of the proof system means explaining how one step in a solution leads to the next one.</li></ul> | <ul style="list-style-type: none"><li>• What is the difference in explaining how one step in a solution leads to the next one and simply describing the process used from one step to the next one?</li></ul> | <p>Students will know</p> <ul style="list-style-type: none"><li>• Key terms (e.g., conjecture, justify, conditional (if-then) statement, bisect).</li></ul> <p>Students will be able to</p> <ul style="list-style-type: none"><li>• Use inductive reasoning to observe data, recognize patterns, and make generalizations.</li><li>• Solve equations using the addition property of equality or subtraction property of equality.</li><li>• Solve equations using the multiplication property of equality or division property of equality.</li><li>• Use the addition property of order and multiplication property of order to solve simple inequalities.</li><li>• Graph solution sets of inequalities on the number line.</li><li>• Simplify expressions involving exponents.</li><li>• Add and subtract polynomials.</li><li>• Multiply polynomials.</li><li>• Solve systems of linear equations by substitution and linear combination.</li></ul> |

## Acceptable Evidence

| Performance Tasks   | Quizzes, Test, and Work Samples                           | Observations and Dialogues   |
|---|---|--|
| <ul style="list-style-type: none"><li>• <b>The Digit Place Game</b><br/>A number version of the commercially available logic game called Master Mind. Student figure out a secret number using as few guesses as possible, The purpose of the game is to have students give logical arguments to support conjectures leading to finding the secret number.</li><li>• <b>The Color Square Game</b><br/>The object of the game is to figure out the arrangement of colored square on a 3 x 3 grid or a 4 x 4 grid using as few clues as possible. The emphasis on playing the game is on deducing as much as possible from each clue and justifying each conclusion.</li><li>• <b>Algebraic Inequalities</b><br/>Students review finding solutions for linear inequalities in one variable and graphing solutions on the number line.</li><li>• <b>Systems of Linear Equations</b><br/>Students review finding solutions for systems of linear equations by graphing, linear combination, and substitution.</li></ul> | Check-Up 1<br>Quiz A<br>Check-Up 2<br>Quiz B<br>Unit Test | Teacher observations of students during work on performance tasks.<br>Accountable talk during work on performance tasks. |