

# COMMUNITY UNIT SCHOOL DISTRICT 200

## Introduction to Algebra 1 (1<sup>st</sup> Year) High School Intermediate Level - Two Semesters

- 1. Subject Expectation (State Goal 7)**      **The student will estimate, make and use measurements of objects, quantities and relationships and determine acceptable levels of accuracy.**

<b>Essential Learning 1 (Learning Standard A)</b>	<b>Measure and compare quantities using appropriate units, instruments and methods</b>
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| Critical Content | 7.A.4b | a. apply formulas in a wide variety of theoretical and practical real-world measurement applications involving perimeter, area, volume, angle, time, temperature, mass, speed, distance, density and monetary values <ul style="list-style-type: none"><li>• explore and apply relationship between area and perimeter</li></ul> |
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<b>Essential Learning 2 (Learning Standard B)</b>	<b>Estimate measurements and determine acceptable levels of accuracy</b>
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| Critical Content | 7.B.3 | a. select and apply instruments including rulers and protractors and units of measure to the degree of accuracy required <ul style="list-style-type: none"><li>• estimate measurements of angles and segments</li><li>• use appropriate instruments to determine accurate measurements</li></ul> |
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<b>Essential Learning 3 (Learning Standard C)</b>	<b>Select and use appropriate technology, instruments and formulas to solve problems, interpret results and communicate findings.</b>
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| Critical Content | 7.C.4a | a. make indirect measurements, including heights and distances, using proportions (e.g., finding the height of a tower by its shadow) <ul style="list-style-type: none"><li>• set up and solve application problems using proportions</li></ul> |
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- 2. Subject Expectation (State Goal 8)**      **The student will use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.**

<b>Essential Learning 1 (Learning Standard A)</b>	<b>Describe numerical relationships using variables and patterns</b>
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| Critical Content | 8.A.3a | a. apply the basic properties of commutative, associative, distributive, transitive, inverse, identify, zero, equality and order of operations to solve problems <ul style="list-style-type: none"><li>• recognize and use the distributive, associative and commutative properties</li><li>• identify like terms and their leading coefficients</li><li>• simplify expressions by combining like terms including adding and subtracting two or more polynomials</li><li>• simplify expressions that have grouping symbols</li><li>• apply order of operations</li><li>• translate written expressions that involve multiple operations into algebraic expressions</li><li>• multiply polynomials</li></ul> |
|                  | 8.A.3b | b. solve problems using linear expressions, equations and inequalities <ul style="list-style-type: none"><li>• solve one-step equations using the four basic operations</li><li>• solve and graph one-step inequalities</li><li>• solve multiple step equations including variables on both sides</li></ul>   |
|                  | 8.A.4a | c. use algebraic methods to convert repeating decimals to fractions <ul style="list-style-type: none"><li>• convert repeating decimals to fractions</li></ul>   |

<b>Essential Learning 2 (Learning Standard B)</b>	<b>Interpret and describe numerical relationships using tables, graphs and symbols</b>
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| Critical Content | 8.B.3 | a. use graphing technology and algebraic methods to analyze and predict linear relationships and make generalizations from linear patterns <ul style="list-style-type: none"><li>• find best-fit line from data and make predictions</li><li>• explore geometric and numeric patterns and sequences</li><li>• use scatter plots to recognize patterns in data</li><li>• graph and write equations for horizontal and vertical lines</li><li>• graph linear functions using a variety of strategies</li></ul> |
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<b>Essential Learning 3 (Learning Standard D)</b>	<b>Use algebraic concepts and procedures to represent and solve problems.</b>
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| Critical Content | 8.D.3c | a. apply properties of powers, perfect squares and square roots <ul style="list-style-type: none"><li>• apply laws of exponents</li><li>• evaluate perfect squares and square roots</li><li>• solve quadratic equations using inverse operations</li></ul> |
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**3. Subject Expectation (State Goal 9)**      **The student will use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space.**

<b>Essential Learning 1 (Learning Standard B)</b>	<b>Identify, describe, classify and compare relationships using points, lines, planes and solids</b>
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| Critical Content | 9.B.3 | <p>a. identify, describe, classify and compare two- and three-dimensional geometric figures and models according to their properties</p> <ul style="list-style-type: none"> <li>• classify and name triangles</li> <li>• identify different types of quadrilaterals</li> <li>• name types of polygons</li> <li>• identify parts of a right triangle</li> <li>• classify, name and measure angles</li> <li>• find the circumference and area of circles</li> <li>• using given formulas calculate volume of rectangular solids</li> </ul> |
|                  | 9.B.4 | <p>b. recognize and apply relationships within and among geometric figures</p> <ul style="list-style-type: none"> <li>• find unknown side lengths of triangles using Pythagorean Theorem</li> <li>• using properties of parallel lines to determine alternate interior angles, alternate exterior angles, vertical angles and corresponding angles</li> <li>• name and label points, lines and planes</li> </ul>   |

**4. Subject Expectation (State Goal 10)**      **The student will collect, organize and analyze data using statistical methods; predict results; and interpret uncertainty using concepts of probability.**

<b>Essential Learning 1 (Learning Standard A)</b>	<b>Organize, describe and make predictions from existing data.</b>
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| Critical Content | 10.A.3a | <p>a. construct, read and interpret tables, graphs (including circle graphs) and charts to organize and represent data.</p> <ul style="list-style-type: none"> <li>• interpret pictographs and time lines</li> <li>• use bar graphs, line graphs and histograms to represent data</li> <li>• use scatter plots to recognize patterns in data</li> </ul> |
|                  | 10.A.3c | <p>b. test the reasonableness of an argument based on data and communicate their findings</p> <ul style="list-style-type: none"> <li>• determine appropriate graph for a given set of data</li> </ul>   |

<b>Essential Learning 2 (Learning Standard C)</b>	<b>Develop the concept of probability</b>
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| Critical Content | 10.C.3a | <p>a. determine, describe and apply the probabilities of events</p> |
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- compute odds of simple events
  - find measures of central tendency (mean, median and mode)
  - determine all possible outcomes
  - calculate probability of events
  - experimental probability by predictions, collections and making conclusions
- 10.A.3c b. test the reasonableness of an argument based on data and communicate their findings
- determine appropriate graph for a given set of data