

8th Grade Algebra
West Aurora School District
State Goal 6 – Number Sense

STATE GOAL 6: Demonstrate and apply a knowledge and sense of numbers, including numeration and operations (addition, subtraction, multiplication, division), patterns, ratios and proportions.

Concepts: Need to Know About Number Sense

- Rational Number
 - Fractions
 - Decimals
 - Mixed Numbers
 - Percents
 - Roots
- Problems and Number Sentences
 - Fractions
 - Decimals
 - Percents
 - Increase/Decrease
 - Tax
 - Tips
 - Interest Rates
 - Discounts
- Order of Operations
 - Integers (Including Exponents and Roots)
 - Fractions
 - Decimals
- Proportional Reasoning

Skills: Be Able to Do

- **Recognize** (Rational Numbers)
- **Translate between** (Rational Numbers)
- **Apply** (Rational Numbers and Order of Operations)
- **Solve** (Proportional Reasoning Problems, Problems and Number Sentences)
- **Identify** (Order of Operations)
- **Simplify** (Order of Operations)
- **Use** (Proportional Reasoning)
- **Model** (Proportional Reasoning)

Topics or Contexts:

Big Ideas

Essential Questions

8th Grade Algebra
West Aurora School District
State Goal 7 – Measurement

STATE GOAL 7: Estimate, make and use measurements of objects, quantities and relationships and determine acceptable levels of accuracy.

Concepts: Need to Know about Measurement

- Perimeter/Circumference and Area Problems
 - Polygons
 - Composite Figures
 - Circles
- Volume and Surface Area
 - Right Rectangular Prism
 - Right Circular Cylinder
 - Composite Shape

Skills: Be Able to Do

- **Solve** (Perimeter/Circumference and Area Problems, Volume and Surface Area Problems)
- **Use** (Diagrams, Models, Grids, Appropriate Formula or Strategy for Perimeter, Area, Volume, and Surface Area Problems)
- **Measure** (Perimeter/Circumference and Area)

Topics or Contexts: Review identifying and describing circle relationships.

Review unit conversions within the same measurement system.

Big Ideas

Essential Questions

8th Grade Algebra
West Aurora School District
State Goal 8 – Algebra

STATE GOAL 8: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

Concepts: Need to Know about Algebra

- Algebraic Expressions
 - One or More Rational Variable Values
- Representations of Whole Number Relationships and Linear Expressions
 - Table
 - Written
 - Graphical
 - Pictorial
- Linear Equations and Inequalities
 - One Variable over Rational Numbers
- Word Problems Involving Unknown Quantities

Skills: Be Able to Do

- **Evaluate** (Algebraic Expressions)
- **Simplify** (Algebraic Expressions)
- **Translate** (Representations of Whole Number Relationships and Linear Expressions)
- **Solve** (Word Problems Involving Unknown Quantities, Linear Equations and Inequalities)

Topics or Contexts: Include representing linear equations and the interpretations of their graphs.

Review graphing points on coordinate plane and identifying coordinates.

Big Ideas

Essential Questions

8th Grade Algebra
West Aurora School District 129
State Goal 10 – Data Analysis, Statistics, and Probability

STATE GOAL 10: Collect, organize and analyze data using statistical methods; predict results; and interpret uncertainty using concepts of probability.

Concepts: Need to Know about Data Analysis, Statistics, and Probability

- Graphs from a Given Set of Data
 - Bar
 - Chart/Table
 - Line Graph
 - Circle Graph
- Problems Using Data in a Graph for a Given Set of Data
- Probability
 - Compound Event
 - Repeated Trials
 - Future Events

Skills: Be Able to Do

- **Create** (Graphs from a Given Set of Data)
- **Solve** (Problems Using Data in a Graph and Probability)
- **Represent** (Probability as a Fraction, Decimal and Percent)

Topics or Contexts: Review reading, interpreting and making predictions from data.
(Add stem-and-leaf plots to previous graphs.)

Review measures of central tendency.

Big Ideas

Essential Questions