

8th Grade Math
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
 - Addition, Subtraction, Multiplication, and Division
 - Rational Numbers
 - Exponents
 - Roots
- 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

1. Rational numbers can take on many equivalent forms.

Essential Questions

1. How do we know which form best fits the situation?

8th Grade Math
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: Must review unit conversions within the same measurement system.

Big Ideas

1. Students should understand the different forms and formulas of measuring different geometric shapes.

Essential Questions

1. Which formula is appropriate for each geometric shape?

8th Grade Math
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
- 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)
- **Solve** (Word Problems Involving Unknown Quantities, Linear Equations and Inequalities)

Topics or Contexts:

Big Ideas

1. Students should be able to translate and solve algebraic expressions and equations.

Essential Questions

1. What are the steps to solve equations?

8th Grade Math
West Aurora School District 129
State Goal 9 – Geometry

STATE GOAL 9: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space.

Concepts: Need to Know about Number Sense

- Geometric Figures
 - Transformations
- Angle Relationships
 - Intersecting Lines
 - Including Parallel Lines Cut by a Transversal
 - Radii of a Circle

Skills: Be Able to Do

- **Represent** (Geometric Figures)
- **Identify** (Geometric Figures and Angle Relationships)
- **Use** (Coordinate Geometry with Geometric Figures)
- **Analyze** (Angle Relationships)

Topics or Contexts: Also include vertical, complementary, and supplementary angles.

Big Ideas

1. Students should be able to understand geometric concepts as they apply to two and three-dimensional shapes.

Essential Questions

1. What are the differences between two and three-dimensional shapes?

8th Grade Math
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 Number Sense

- Graphs from a Given Set of Data
 - Bar
 - Chart/Table
 - Line Graph
 - Circle Graph
- Problems Using Data in a Graph
- 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 mean, median, mode, and range.

When doing compound events, include independent events.
In future events, do with and without replacement.

Big Ideas

1. Students should be able to analyze data from various graphs.

Essential Questions

1. What conclusions can I draw from this graph?