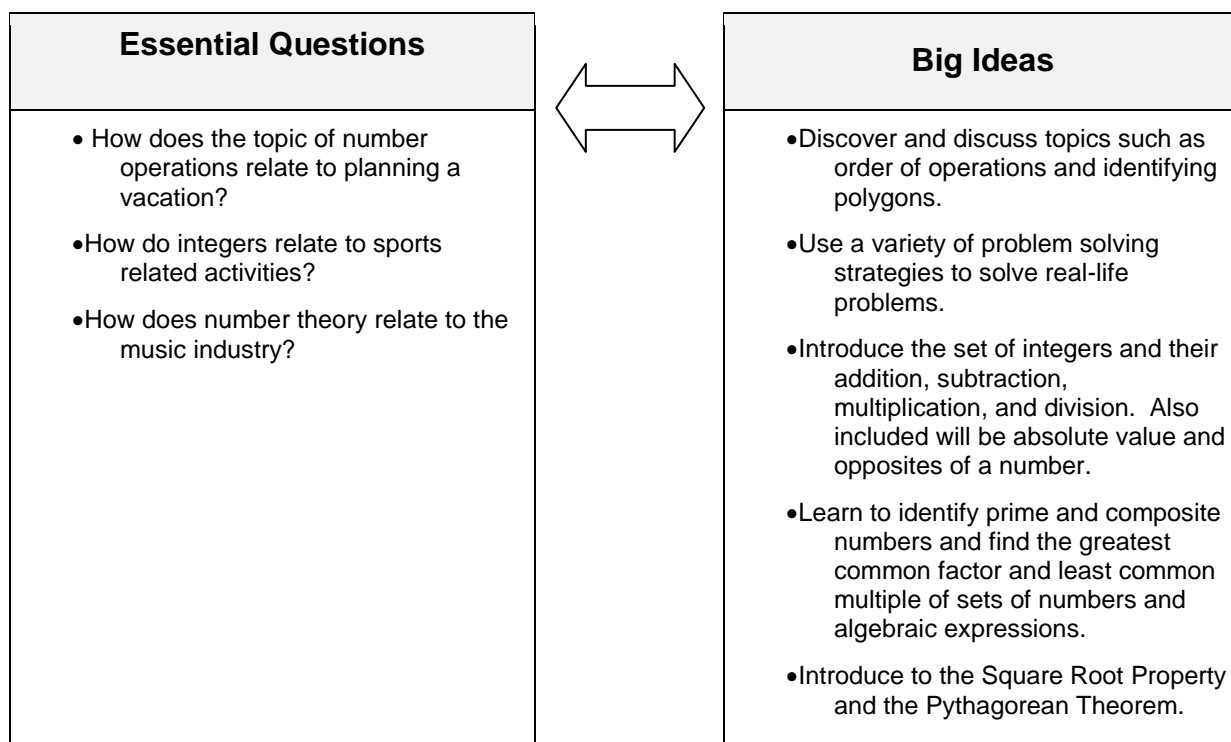


# Grade 7 Math

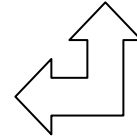
<b>Unit Title</b>	<b>Unit 1: Number Theory</b>
Time frame	12 weeks
21 <sup>st</sup> Century Themes	Critical Thinking and Problem Solving Communication and Collaboration ICT (Information, Communications and Technology) Literacy Flexibility and Adaptability Initiative and Self-Direction Productivity and Accountability Social and Cross-Cultural Skills
Interdisciplinary focus and technology integration	Technology: Use the Internet to practice order of operations, integers, and graphing inequalities. Social Studies: Explore the scholars in ancient Greece.

## Stage 1: Integrate essential questions, big ideas and learning targets, and ensure it can be differentiated and assessed





### Learning Targets-students will be able to;



- Use numbers to identify, recognize, and describe number patterns and measure objects.
- Use the four basic number operations.
- Evaluate powers and use square roots.
- Solve equations whose solutions are square roots.
- Use the Pythagorean Theorem to solve a right triangle.
- Classify real numbers as rational or irrational.
- Use order of operations and simplify expressions that have grouping symbols.
- Evaluate expressions that contain variables.
- Use a calculator to discover number patterns.
- Add, subtract, multiply, and divide integers.
- Use divisibility tests and factor natural numbers.
- Classify natural numbers as prime or composite.
- Find the greatest common factor (GCF) and least common multiple (LCM) of two or more numbers.
- Use scientific notation to represent numbers.
- Recognize number patterns.

### Assessment

- Formal and Informal Teacher Observations
- Formative checks for understanding and summative assessments
- Tests / Quizzes
- Study Island Assignments
- Supplemental NJ ASK Practice Questions from NJ ASK Workbooks

### Differentiation

- Hands-On Activities
- Diagnostic Assessment (based on content /skill pre-tests)
- Kinesthetic Activities
- Re-teach and Enrichment Activities
- Computer Activities
- Cooperative Learning (Flexible Grouping)
- Peer Tutoring
- Tiered Activities

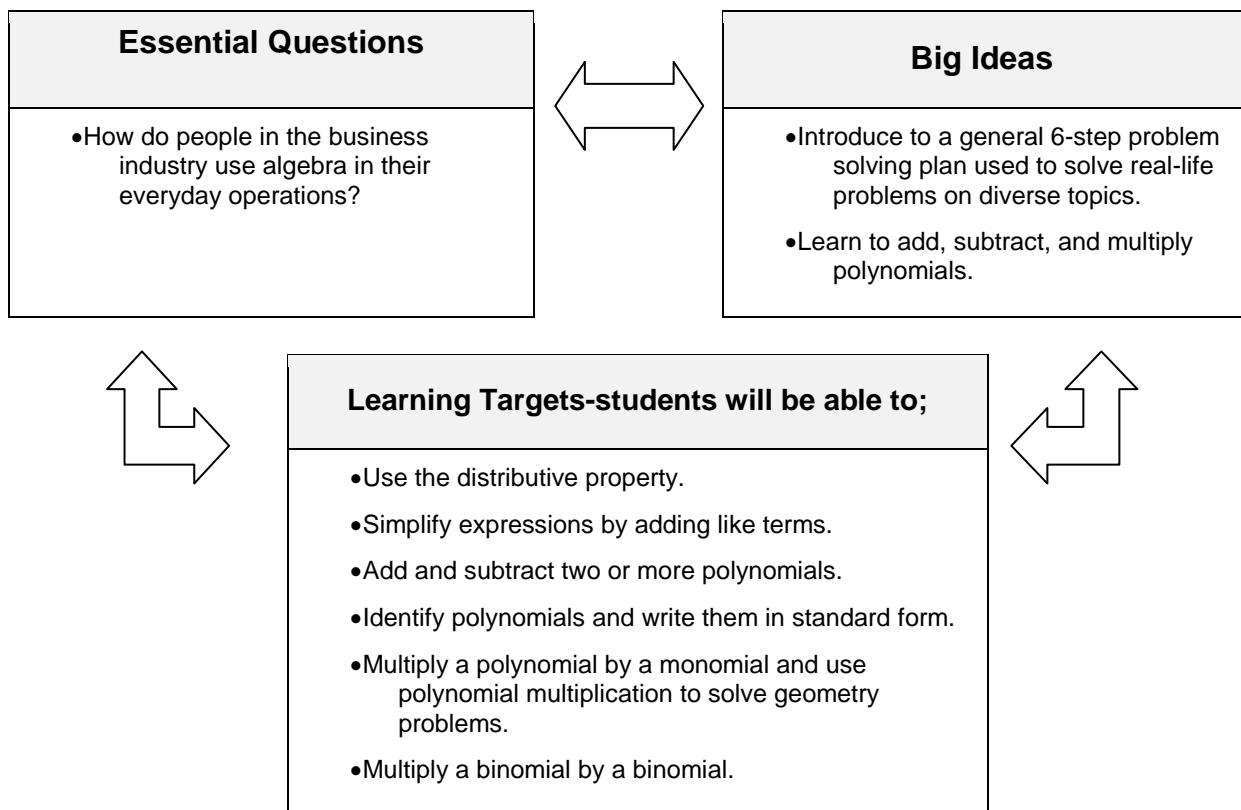
## Stage 2: Backward planning: from the assessment to the learning activities through inquiry

Content Standards	
OA 4.4 OA 5.1, 5.2, 5.3, 5.5, 5.6 NBT 5.7 EE 6.2 a, b, c NS 6.1, 6.2, 6.4, 6.6 a, b, c, 6.7 a, b, c, d G 7.1, 7.2 NS 7.1 a, b, c, d, 7.2 a, b, c, 7.3 EE 8.2, 8.3 G 8.6, 8.7, 8.8 NS 8.1, 8.2 MP 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8	
Approaches to Learning	
In this unit, students will acquire the knowledge to: <ul style="list-style-type: none"> <li>•Apply their understanding of integers to solve equations involving integers.</li> <li>•Solve problems involving radicals and exponents.</li> <li>•Apply their understanding of prime and composite numbers to simplifying fractions.</li> </ul>	
Learning Experiences	Teaching Strategies
<ul style="list-style-type: none"> <li>•Course of study</li> <li>•Notes and examples</li> <li>•Practice by homework</li> <li>•Cumulative review exercises</li> <li>•Test prep questions</li> <li>•Hands-on activities and use of manipulatives</li> <li>•Problem solving activities</li> </ul>	<ul style="list-style-type: none"> <li>•Direct instruction</li> <li>•Differentiated instruction</li> <li>•Interdisciplinary activities</li> <li>•Cooperative learning activities</li> <li>•Reinforcement and remediation</li> </ul>
Resources	
<ul style="list-style-type: none"> <li>• Passport to Algebra and Geometry. 1999: McDougal Littell, Inc.</li> <li>• Calculators: TI 83 Graphing</li> </ul>	

# Grade 7 Math

<b>Unit Title</b>	<b>Unit 2: Polynomials</b>
Time frame	4 weeks
21 <sup>st</sup> Century Themes	Critical Thinking and Problem Solving Communication and Collaboration ICT (Information, Communications and Technology) Literacy Flexibility and Adaptability Initiative and Self-Direction Productivity and Accountability Financial, Economic, Business and Entrepreneurial Literacy
Interdisciplinary focus and technology integration	Technology: Use the Internet to solve multiplication and division equations, and polynomials. Social Studies: Explore currency of foreign countries.

## Stage 1: Integrate essential questions, big ideas and learning targets, and ensure it can be differentiated and assessed



## Assessment

- Formal and Informal Teacher Observations
- Formative checks for understanding and summative assessments
- Tests / Quizzes
- Study Island Assignments
- Supplemental NJ ASK Practice Questions from NJ ASK Workbooks

## Differentiation

- Hands-On Activities
- Diagnostic Assessment (based on content /skill pre-tests)
- Kinesthetic Activities
- Re-teach and Enrichment Activities
- Computer Activities
- Cooperative Learning (Flexible Grouping)
- Peer Tutoring
- Tiered Activities

## Stage 2: Backward planning: from the assessment to the learning activities through inquiry

### Content Standards

EE 6.3, 6.4  
EE 8.7 b  
MP 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8

### Approaches to Learning

In this unit, students will acquire the knowledge to add, subtract, multiply and divide polynomials.

### Learning Experiences

- Course of study
- Notes and examples
- Practice by homework
- Cumulative review exercises
- Test prep questions
- Hands-on activities and use of manipulatives
- Problem solving activities

### Teaching Strategies

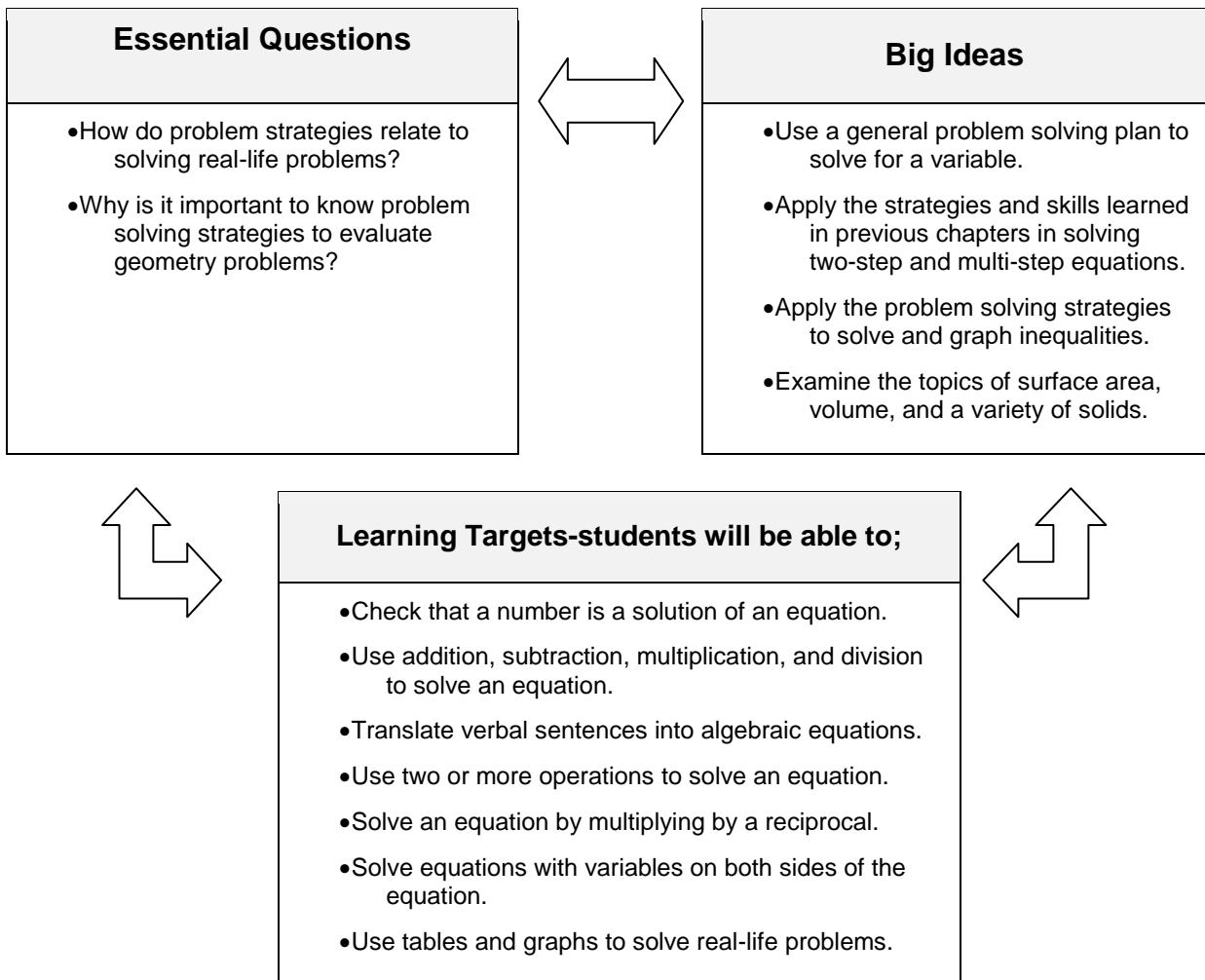
- Direct instruction
- Differentiated instruction
- Interdisciplinary activities
- Cooperative learning activities
- Reinforcement and remediation

## Resources

- Passport to Algebra and Geometry. 1999: McDougal Littell, Inc.
- Calculators: TI 83 Graphing

<b>Unit Title</b>	<b>Unit 3: Problem Solving</b>
Time frame	12 weeks
21 <sup>st</sup> Century Themes	Critical Thinking and Problem Solving Communication and Collaboration ICT (Information, Communications and Technology) Literacy Flexibility and Adaptability Initiative and Self-Direction Productivity and Accountability
Interdisciplinary focus and technology integration	Technology: Use the Internet to solve multi-step equations. Language Arts: Communicate about measuring angles (The Mall of America).

**Stage 1: Integrate essential questions, big ideas and learning targets, and ensure it can be differentiated and assessed**



- Solve and graph multi-step inequalities.
- Use a problem solving plan to solve percent problems.
- Find the area and perimeter of parallelograms and trapezoids.
- Find the circumference and area of a circle.
- Find the surface area of a prism and a cylinder.
- Find the volume of a prism.
- Find the volume of a cylinder.
- Find the volume of a pyramid and a cone and complicated volumes.
- Find the volume of a sphere.

### Assessment

- Formal and Informal Teacher Observations
- Formative checks for understanding and summative assessments
- Tests / Quizzes
- Study Island Assignments
- Supplemental NJ ASK Practice Questions from NJ ASK Workbooks

### Differentiation

- Hands-On Activities
- Diagnostic Assessment (based on content /skill pre-tests)
- Kinesthetic Activities
- Re-teach and Enrichment Activities
- Computer Activities
- Cooperative Learning (Flexible Grouping)
- Peer Tutoring
- Tiered Activities

## Stage 2: Backward planning: from the assessment to the learning activities through inquiry

### Content Standards

NS 7.3  
 EE 7.1, 7.2, 7.3, 7.4b  
 G 7.4, 7.6  
 MP 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8

## Approaches to Learning

In this unit, students acquire the knowledge to:

- Solve equations and inequalities using a variety of methods.
- Use the problem solving methods to solve problems involving Area, Perimeter, Surface Area and Volume.

### Learning Experiences

- Course of study
- Notes and examples
- Practice by homework
- Cumulative review exercises
- Test prep questions
- Hands-on activities and use of manipulatives
- Problem solving activities

### Teaching Strategies

- Direct instruction
- Differentiated instruction
- Interdisciplinary activities
- Cooperative learning activities
- Reinforcement and remediation

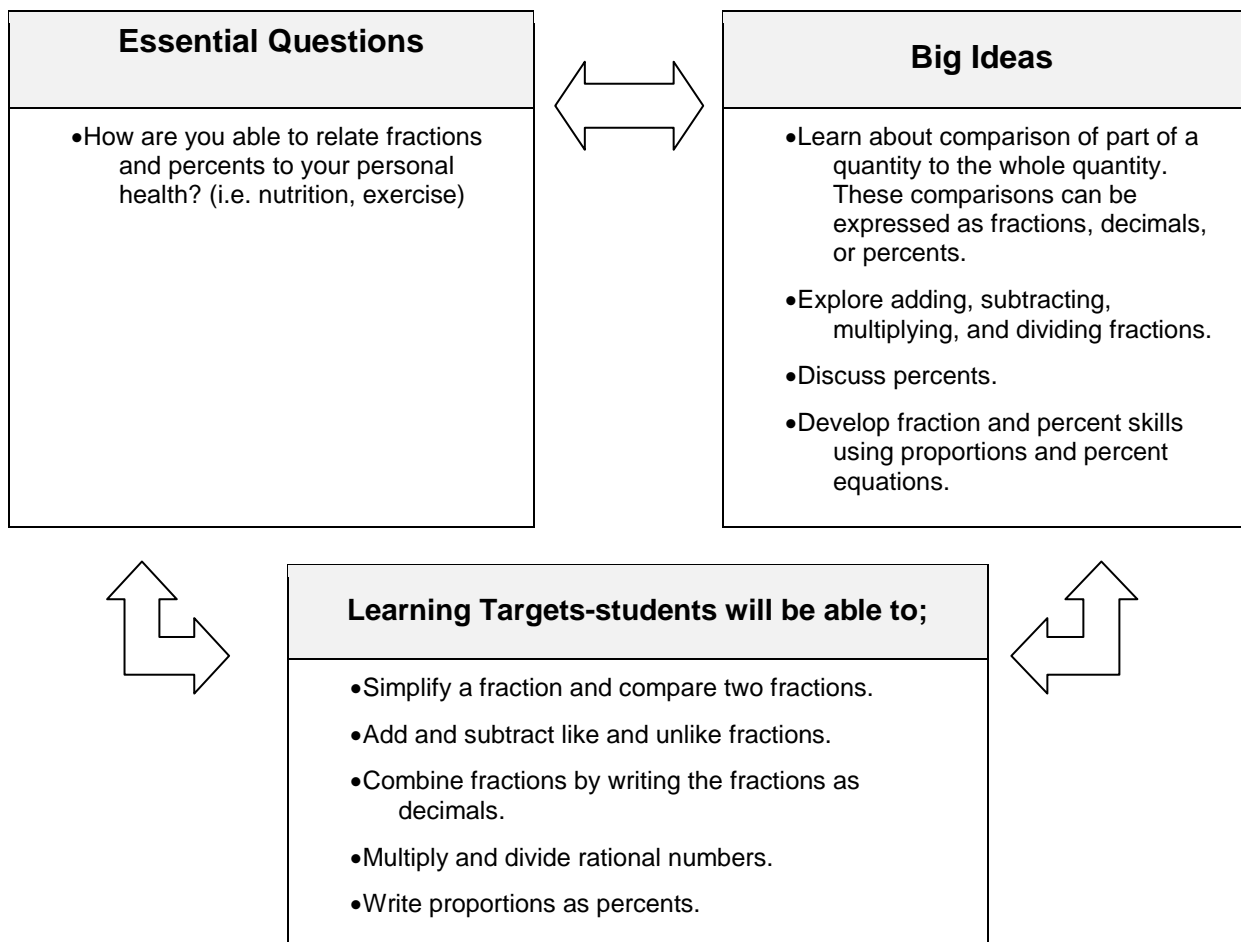
### Resources

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- Calculators: TI 83 Graphing

# Grade 7 Math

<b>Unit Title</b>	<b>Unit 4: Fractions and Percents</b>
Time frame	5 weeks
21 <sup>st</sup> Century Themes	Critical Thinking and Problem Solving Communication and Collaboration ICT (Information, Communications and Technology) Literacy Flexibility and Adaptability Initiative and Self-Direction Productivity and Accountability Health Literacy
Interdisciplinary focus and technology integration	Technology: Use calculators; use the Internet to practice turning fractions into percents and decimals. Health and Fitness: Read a nutrition label and calculate the percentage of calories that comes from the fat in each food item.

## Stage 1: Integrate essential questions, big ideas and learning targets, and ensure it can be differentiated and assessed



- Write percents as decimals and decimals as percents.
- Find the percent of a number.
- Find rates and ratios.
- Solve proportions.
- Use proportions to solve real-life problems and similar triangles.
- Find a percent of increase or decrease.

### Assessment

- Formal and Informal Teacher Observations
- Formative checks for understanding and summative assessments
- Tests / Quizzes
- Study Island Assignments
- Supplemental NJ ASK Practice Questions from NJ ASK Workbooks

### Differentiation

- Hands-On Activities
- Diagnostic Assessment (based on content /skill pre-tests)
- Kinesthetic Activities
- Re-teach and Enrichment Activities
- Computer Activities
- Cooperative Learning (Flexible Grouping)
- Peer Tutoring
- Tiered Activities

## Stage 2: Backward planning: from the assessment to the learning activities through inquiry

### Content Standards

NF 5.1, 5.2, 5.3, 5.4 a, b, 5.5 a, b, 5.6, 5.7 a, b, c  
 NS 6.1  
 RP 6.1, 6.2, 6.3 a, b, c, d  
 NS 7.1 a, b, c, d, 7.2, a, b, c  
 RP 7.1, 7.2 a, b, c, 7.3  
 MP 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8

## Approaches to Learning

In this unit, students will acquire the knowledge to:

- Add, subtract, multiply, and divide rational numbers.
- Solve real-life problems in the areas of percents, proportions, and ratios.

### Learning Experiences

- Course of study
- Notes and examples
- Practice by homework
- Cumulative review exercises
- Test prep questions
- Hands-on activities and use of manipulatives
- Problem solving activities

### Teaching Strategies

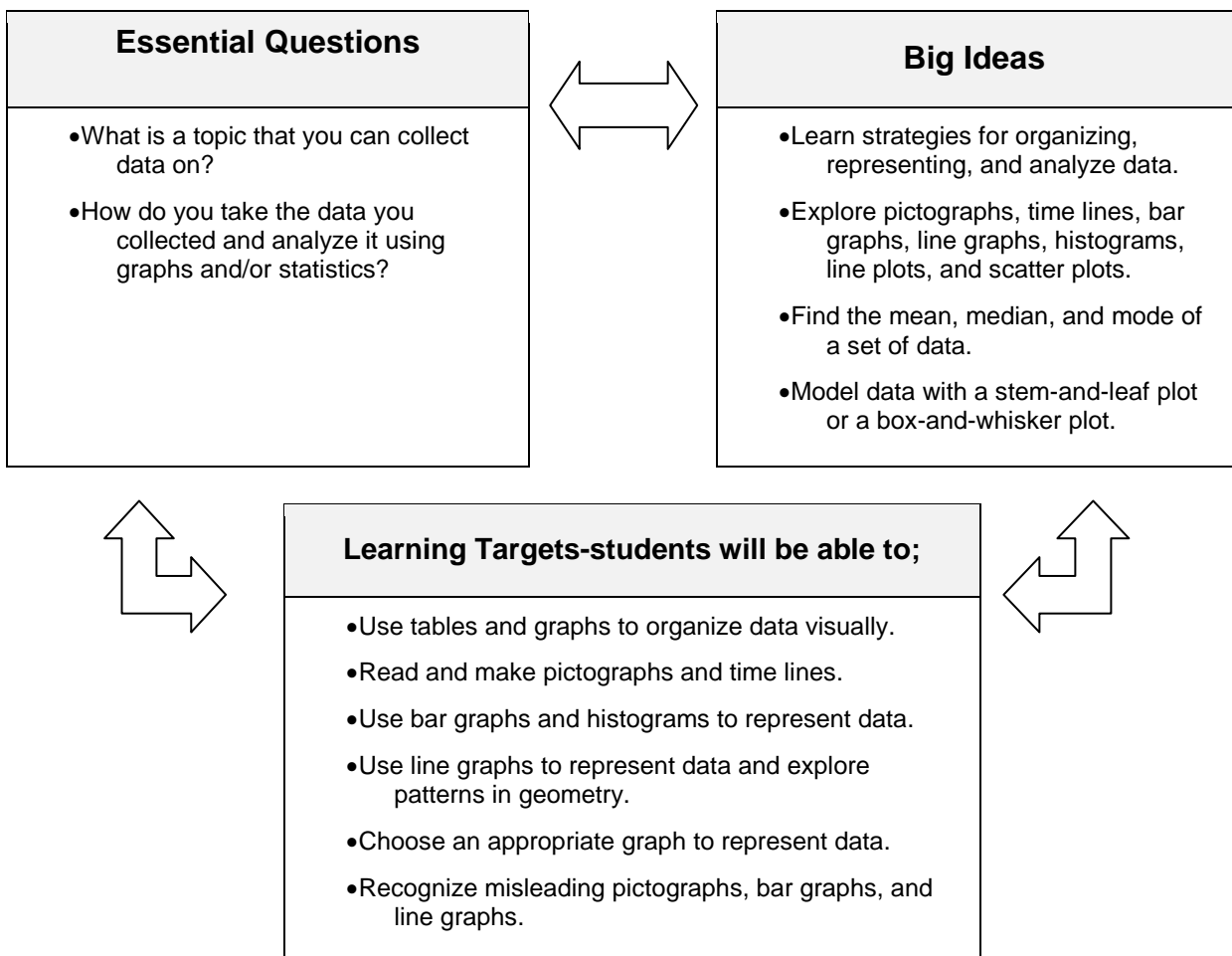
- Direct instruction
- Differentiated instruction
- Interdisciplinary activities
- Cooperative learning activities
- Reinforcement and remediation

### Resources

- Passport to Algebra and Geometry. 1999: McDougal Littell, Inc.
- Calculators: TI 83 Graphing

<b>Unit Title</b>	<b>Unit 5: Probability and Statistics</b>
Time frame	3 weeks
21 <sup>st</sup> Century Themes	Critical Thinking and Problem Solving Communication and Collaboration ICT (Information, Communications and Technology) Literacy Flexibility and Adaptability Initiative and Self-Direction Productivity and Accountability
Interdisciplinary focus and technology integration	Technology: Use calculators; use the Internet to compare graphs and misleading graphs. Science: Using the Periodic Table, create a histogram for the atomic weights of the elements in the table.

**Stage 1: Integrate essential questions, big ideas and learning targets, and ensure it can be differentiated and assessed**



- Use line plots to organize data.
- Use scatter plots to see patterns in data and help make decisions.
- Find measures of central tendency (mean, median, mode).
- Organize data with a stem-and-leaf plot.
- Organize data with a box-and-whisker plot and use the plots to interpret the data.

## Assessment

- Formal and Informal Teacher Observations
- Formative checks for understanding and summative assessments
- Tests / Quizzes
- Study Island Assignments
- Supplemental NJ ASK Practice Questions from NJ ASK Workbooks

## Differentiation

- Hands-On Activities
- Diagnostic Assessment (based on content /skill pre-tests)
- Kinesthetic Activities
- Re-teach and Enrichment Activities
- Computer Activities
- Cooperative Learning (Flexible Grouping)
- Peer Tutoring
- Tiered Activities

## Stage 2: Backward planning: from the assessment to the learning activities through inquiry

### Content Standards

SP 6.3, 6.4, 6.5 c

SP 7.8

MP 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8

### Approaches to Learning

In this unit, students will acquire the knowledge to organize, present, and analyze a given set of data.

<b>Learning Experiences</b>	<b>Teaching Strategies</b>
<ul style="list-style-type: none"> <li>•Course of study</li> <li>•Notes and examples</li> <li>•Practice by homework</li> <li>•Cumulative review exercises</li> <li>•Test prep questions</li> <li>•Hands-on activities and use of manipulatives</li> <li>•Problem solving activities</li> </ul>	<ul style="list-style-type: none"> <li>•Direct instruction</li> <li>•Differentiated instruction</li> <li>•Interdisciplinary activities</li> <li>•Cooperative learning activities</li> <li>•Reinforcement and remediation</li> </ul>
<b>Resources</b>	
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