Math Planned Course: Essential Mathematics

Unit: **Spatial Organization**

Content Standard: **Draw and analyze diagrams to solve real-world problems.**

State Curriculum Standards:
2.1.11A Use operations.
2.2.11A Develop and use computation concepts, operations and procedures with real numbers in problem-solving situations.
2.5.11A Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems.
2.5.11B Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.
2.5.11C Present mathematical procedures and results clearly, systematically, succinctly and correctly.
2.5.11D Conclude a solution process with summary of results and evaluate the degree to which the results obtained represent an acceptable response to the initial problem and why the reasoning is valid.
2.6.5A Organize and display data using pictures, tallies, tables, charts, bar graphs and circle graphs.

ISTE Standards:
1 Basic operations and concepts
3 Technology productivity tools
6 Technology problem-solving and decision-making tools

PSSA Anchors:
M11.A.2.1.2 Solve problems using direct and inverse proportions.
M11.A.2.1.3 Identify and/or use proportional relationships in problem solving settings.
M11.A.3.1.1 Simplify expressions using the order of operations to solve problems.
M11.A.3.2.1 Use estimation to solve problems.

Pacing Guide: **6 days**

Course Content	Student Performance	Resources	Assessments
A. Diagrams	• List real-world uses of diagrams (blueprints, graphs, etc.) • Explain how using diagram presents a visual representation of a problem • Draw diagrams to calculate answers to problems • Solve problems in groups and present solutions • Explain various methods for solving one problem • Solve text problem sets • State how diagrams are used in other disciplines in a journal entry • Write a diagram problem	• Problem Solving Strategies (Key Curriculum Press, 2001) • Punchline Problem Solving 2nd Edition (Marcy Mathworks, 2001) • Problem Solving 1 and 2 (Globe Fearon, 2000) • Teaching resources • Calculators • CPS • Spiral review and project binder • Appendix	• Problem presentations • Problem-solving sets • Teacher made quizzes • Journal entries • Cooperative group problem solving • Teacher observations • Bell ringers **Remediation:** • Punchline sheets • Peer tutoring **Enrichment:** • Problem Set B

Math Planned Course: Essential Mathematics

Unit: **Spatial Organization**

Content Standard: **Solve problems using physical representations and manipulatives.**

State Curriculum Standards:
2.1.11A Use operations.
2.2.11A Develop and use computation concepts, operations and procedures with real numbers in problem-solving situations.
2.5.11A Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems.
2.5.11B Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.
2.5.11C Present mathematical procedures and results clearly, systematically, succinctly and correctly.
2.5.11D Conclude a solution process with summary of results and evaluate the degree to which the results obtained represent an acceptable response to the initial problem and why the reasoning is valid.

ISTE Standards:
1 Basic operations and concepts
3 Technology productivity tools
6 Technology problem-solving and decision-making tools

PSSA Anchors:
M11.A.3.1.1 Simplify expressions using the order of operations to solve problems.
M11.A.3.2.1 Use estimation to solve problems.

Pacing Guide: **5 days**

Course Content	Student Performance	Resources	Assessments
A. Physical Representations • Act it out • Manipulatives and models	• Re-create problems using physical representations • Solve problems in groups using student actors/actresses • Illustrate problems using manipulatives • List careers that use models on a daily basis • Explain why shape, relative size, or orientation can be critical elements in using models • Solve problem sets in cooperative groups • Present a solution to the class by acting it out • Act out a student problem	• Problem Solving Strategies (Key Curriculum Press, 2001) • Punchline Problem Solving 2nd Edition (Marcy Mathworks, 2001) • Problem Solving 1 and 2 (Globe Fearon, 2000) • Teaching resources • Calculators • CPS • Spiral review and project binder • Appendix	• Problem presentations • Problem-solving sets • Teacher made quizzes • Journal entries • Cooperative group problem solving • Student created problems • Teacher observations • Bell ringers **Remediation:** • Punchline sheets • Peer tutoring **Enrichment:** • Problem Set B • Internet research

Unit: **Spatial Organization**

Content Standard: **Illustrate and solve problems using Venn Diagrams.**

State Curriculum Standards:
2.1.11A Use operations.
2.2.11A Develop and use computation concepts, operations and procedures with real numbers in problem-solving situations.
2.5.11A Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems.
2.5.11B Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.
2.5.11C Present mathematical procedures and results clearly, systematically, succinctly and correctly.
2.5.11D Conclude a solution process with summary of results and evaluate the degree to which the results obtained represent an acceptable response to the initial problem and why the reasoning is valid.
2.6.5 C Sort data using Venn diagrams.

ISTE Standards:
1 Basic operations and concepts
3 Technology productivity tools
6 Technology problem-solving and decision-making tools

PSSA Anchors:
M11.A.2.1.2 Solve problems using direct and inverse proportions.
M11.A.2.1.3 Identify and/or use proportional relationships in problem solving settings.

Pacing Guide: **8 days**

Math Planned Course: Essential Mathematics

Course Content	Student Performance	Resources	Assessments
A. Venn Diagrams	• Define terms • Examine relationships of elements in a situation • Draw several types of Venn Diagrams and explain the relationships of the regions • Write a question to survey students of the class • Construct a Venn Diagram displaying survey data • Present problem solutions • Solve problems using Venn Diagrams • Solve text problems	• Problem Solving Strategies (Key Curriculum Press, 2001) • Punchline Problem Solving 2nd Edition (Marcy Mathworks, 2001) • Problem Solving 1 and 2 (Globe Fearon, 2000) • Teaching resources • Calculators • CPS • Spiral review and project binder • Appendix	• Problem presentations • Problem-solving sets • Teacher made quizzes • Journal entries • Student surveys • Student diagrams • Cooperative group problem solving • Teacher observations • Bell ringers **Remediation:** • Punchline sheets • Peer tutoring **Enrichment:** • Problem Set B • Multi-region Venn Diagram

Math Planned Course: Essential Mathematics

Unit: **Spatial Organization**

Content Standard: **Construct graphs, charts, and scale drawings to solve problems.**

State Curriculum Standards:
2.1.11A Use operations.
2.2.11A Develop and use computation concepts, operations and procedures with real numbers in problem-solving situations.
2.3.8 F Use scale measurements to interpret maps or drawings.
2.3.8 G Create and use scale models.
2.5.11A Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems.
2.5.11B Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.
2.5.11C Present mathematical procedures and results clearly, systematically, succinctly and correctly.
2.5.11D Conclude a solution process with summary of results and evaluate the degree to which the results obtained represent an acceptable response to the initial problem and why the reasoning is valid.
2.6.5A Organize and display data using pictures, tallies, tables, charts, bar graphs and circle graphs.
2.7.8B Present the results of an experiment using visual representations (e.g., tables, charts, graphs)
2.8.11Q Represent functional relationships in tables, charts, and graphs.

ISTE Standards:
1 Basic operations and concepts
3 Technology productivity tools
6 Technology problem-solving and decision-making tools

PSSA Anchors:
M11.A.2.1.2 Solve problems using direct and inverse proportions.
M11.A.2.1.3 Identify and/or use proportional relationships in problem solving settings.
M11.A.3.1.1 Simplify expressions using the order of operations to solve problems.
M11.A.3.2.1 Use estimation to solve problems.
M11.E.1.1.1 Create and/or use appropriate graphical representations of data, including box-and-whisker plots, stem-and-leaf plots, scatter plots, line/double line, bar/double bar and circle graphs.
M11.E.1.1.2 Answer questions based on displayed data.

Pacing Guide: **8 days**

Course Content	Student Performance	Resources	Assessments
A. Graphs B. Scale Drawings C. Slope	• Represent problems visually using graphs • Determine independent and dependent variables of a problem • Use algebra and graphs to find the maximum value of a problem • Discuss modern day uses of scale drawings • Create a scale drawing of their future home • Determine the distance between two cities using a scale • Analyze tree diagrams used for NCAA basketball schedules • Calculate the probability of an event by using tree diagrams • Solve and present problems	• Problem Solving Strategies (Key Curriculum Press, 2001) • Punchline Problem Solving 2nd Edition (Marcy Mathworks, 2001) • Problem Solving 1 and 2 (Globe Fearon, 2000) • Teaching resources • Calculators • CPS • Spiral review and project binder • Appendix	• Problem presentations • Problem-solving sets • Teacher made quizzes • Journal entries • Scale drawings • Cooperative group problem solving • Teacher observations • Bell ringers **Remediation:** • Punchline sheets • Peer tutoring **Enrichment:** • Problem Set B • Scale drawing project

Unit: **Organizing Information**

Content Standard: **Organize information in a methodical way to solve problems.**

State Curriculum Standards:
2.1.11A Use operations.
2.2.11A Develop and use computation concepts, operations and procedures with real numbers in problem-solving situations.
2.5.8 D Determine pertinent information in problem solving situations and whether any further information is needed for solution.
2.5.11A Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems.
2.5.11B Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.
2.5.11C Present mathematical procedures and results clearly, systematically, succinctly and correctly.
2.5.11D Conclude a solution process with a summary of results and evaluate the degree to which the results obtained represent an acceptable response to the initial problem and why the reasoning is valid.

ISTE Standards:
1 Basic operations and concepts
3 Technology productivity tools
6 Technology problem-solving and decision-making tools

PSSA Anchors:
M11.A.3.1.1 Simplify expressions using the order of operations to solve problems.
M11.A.3.2.1 Use estimation to solve problems.
M11.E.3.2.1 Determine the number of permutations and/or combinations or apply the fundamental counting principle.

Pacing Guide: **10 days**

Course Content	Student Performance	Resources	Assessments
A. Systematic Lists • Tree diagrams • Fundamental counting principle • Permutations • Combinations	• Explain how to create lists using columns and rows • Solve problems using lists • Write a journal entry explaining how to solve a problem using various techniques • Discuss careers that use systematic lists • Write a problem that requires a systematic list to be used to solve it • Interview a professional using systematic lists	• Problem Solving Strategies (Key Curriculum Press, 2001) • Punchline Problem Solving 2nd Edition (Marcy Mathworks, 2001) • Problem Solving 1 and 2 (Globe Fearon, 2000) • Teaching resources • Calculators • CPS • Spiral review and project binder • Appendix	• Problem presentations • Problem-solving sets • Teacher made quizzes • Journal entries • Cooperative group problem solving • Student made problems • Teacher observations • Bell ringers **Remediation:** • Punchline sheets • Peer tutoring **Enrichment:** • Problem solving 1 activities

Math Planned Course: Essential Mathematics

Unit: **Organizing Information**

Content Standard: **Eliminate possibilities and place in matrix form to solve problems.**

State Curriculum Standards:
2.1.11A Use operations.
2.2.11A Develop and use computation concepts, operations and procedures with real operations and procedures with real numbers in problem-solving situations.
2.4.11A Use direct proofs, indirect proofs or proof by contradiction to validate conjectures.
2.4.11B Construct valid arguments from stated facts.
2.5.11A Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems.
2.5.11B Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.
2.5.11C Present mathematical procedures and results clearly, systematically, succinctly and correctly.
2.8.11I Use matrices to organize and manipulate data.

ISTE Standards:
1 Basic operations and concepts
3 Technology productivity tools
6 Technology problem-solving and decision-making tools

PSSA Anchors:
M11.A.3.1.1 Simplify expressions using the order of operations to solve problems.
M11.A.3.2.1 Use estimation to solve problems.

Pacing Guide: **13 days**

Course Content	Student Performance	Resources	Assessments
A. Eliminate Possibilities B. Matrices	• Breakdown a case study and use clues to eliminate possible suspects • Solve problems by eliminating possibilities and creating a matrix • Solve problems using a simple matrix • Construct a matrix demonstrating cross-correlating or bouncing to solve a problem • Rewrite clues by using substitution and combination methods • Make an assumption to solve a problem by proving it false • Create your own matrix logic problem	• Problem Solving Strategies (Key Curriculum Press, 2001) • Punchline Problem Solving 2nd Edition (Marcy Mathworks, 2001) • Problem Solving 1 and 2 (Globe Fearon, 2000) • Teaching resources • Calculators • CPS • Spiral review and project binder • Appendix	• Problem presentations • Problem-solving sets • Teacher made quizzes • Journal entries • Cooperative group problem solving • Student made problems • Student made cryptarithm • Teacher observations • Bell ringers **Remediation:** • Punchline sheets • Story problems • Peer tutoring **Enrichment:** • Problem solving Set B • Cryptarithm Project

Unit: Organizing Information

Content Standard: **Recognize and use patterns to solve problems.**

State Curriculum Standards:
2.1.11A Use operations.
2.2.11A Develop and use computation concepts, operations and procedures with real operations and procedures with real numbers in problem-solving situations.
2.2.11F Demonstrate skills for using computer spreadsheets and scientific and graphing calculators.
2.5.11A Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems.
2.5.11B Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.
2.5.11C Present mathematical procedures and results clearly, systematically, succinctly and correctly.
2.5.11D Conclude a solution process with a summary of results and evaluate the degree to which the results obtained represent an acceptable response to the initial problem and why the reasoning is valid.
2.8.11A Analyze a given set of data for the existence of a pattern and represent the pattern algebraically and graphically.
2.8.11B Give examples of patterns that occur in data from other disciplines.
2.8.11C Use patterns, sequences, and series to solve routine and non-routine problems.

ISTE Standards:
1 Basic operations and concepts
3 Technology productivity tools
6 Technology problem-solving and decision-making tools

PSSA Anchors:
M11.A.3.1.1 Simplify expressions using the order of operations to solve problems.
M11.A.3.2.1 Use estimation to solve problems.
M11.D.1.1.1 Analyze a set of data for the existence of a pattern and represent the pattern algebraically and/or graphically.
M11.D.1.1.2 Determine if a relation is a function given a set of points or a graph.
M11.D.1.1.3 Identify the domain, range or inverse of a relation.

Pacing Guide: **6 days**

Course Content	Student Performance	Resources	Assessments
A. Patterns B. Sequences C. Functions	• List where patterns can be found in everyday life • Define sequences and terms • Complete simple numerical patterns and discuss the rule for each of the patterns • Compare and contrast square and triangular numbers and use them in sequences • Define functions and draw representations of them • Research historical background on Fibonacci sequence and where it occurs in nature • Calculate problems involving the Fibonacci sequence • Solve problems in groups and present results • Complete spreadsheet problem from problem set A using proper technology	• Problem Solving Strategies (Key Curriculum Press, 2001) • Punchline Problem Solving 2nd Edition (Marcy Mathworks, 2001) • Problem Solving 1 and 2 (Globe Fearon, 2000) • Teaching resources • Calculators • CPS • Spiral review and project binder • Appendix	• Problem presentations • Problem-solving sets • Teacher made quizzes • Journal entries • Cooperative group problem solving • Spreadsheet project • Student made problems • Teacher observations • Bell ringers **Remediation:** • Punchline Sheets • Peer Tutoring **Enrichment:** • Problem solving Set B • Research Fibonacci

Unit: **Organizing Information**

Content Standard: **Apply the guess-and-check strategy to solve problems.**

State Curriculum Standards:
2.1.11A Use operations.
2.2.11A Develop and use computation concepts, operations and procedures with real operations and procedures with real numbers in problem-solving situations.
2.2.11B Use estimation to solve problems for which an exact answer is not needed.
2.5.11A Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems.
2.5.11B Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.
2.5.11C Present mathematical procedures and results clearly, systematically, succinctly and correctly.
2.5.11D Conclude a solution process with a summary of results and evaluate the degree to which the results obtained represent an acceptable response to the initial problem and why the reasoning is valid.

ISTE Standards:
1 Basic operations and concepts
3 Technology productivity tools
6 Technology problem-solving and decision-making tools

PSSA Anchors:
M11.A.3.1.1 Simplify expressions using the order of operations to solve problems.
M11.A.3.2.1 Use estimation to solve problems.

Pacing Guide: **5 days**

Course Content	Student Performance	Resources	Assessments
A. Guess-and-Check	• List the key points in using the guess-and-check strategy • Estimate solutions to problems and then check the solution • Present problems and solutions using the guess-and-check strategy • Incorporate other strategies to solve problems • Solve real-world problems using various strategies	• Problem Solving Strategies (Key Curriculum Press, 2001) • Punchline Problem Solving 2nd Edition (Marcy Mathworks, 2001) • Problem Solving 1 and 2 (Globe Fearon, 2000) • Teaching resources • Calculators • CPS • Spiral review and project binder • Appendix	• Problem presentations • Problem-solving sets • Teacher made quizzes • Journal entries • Cooperative group problem solving • Student made problems • Teacher observations • Bell ringers **Remediation:** • Punchline sheets • Peer tutoring **Enrichment:** • Problem solving Set B

Unit: **Organizing Information**

Content Standard: **Solve problems involving units.**

State Curriculum Standards:
2.1.11A Use operations.
2.2.11A Develop and use computation concepts, operations and procedures with real numbers in problem-solving situations.
2.3.5 D Convert linear measurements within the same system.
2.3.8 A Develop formulas and procedures for determining measurements.
2.3.8 B Solve rate problems.
2.5.11A Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems.
2.5.11B Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.
2.5.11C Present mathematical procedures and results clearly, systematically, succinctly and correctly.
2.5.11D Conclude a solution process with summary of results and evaluate the degree to which the results obtained represent an acceptable response to the initial problem and why the reasoning is valid.

ISTE Standards:
1 Basic operations and concepts
3 Technology productivity tools
6 Technology problem-solving and decision-making tools

PSSA Anchors:
M11.A.3.1.1 Simplify expressions using the order of operations to solve problems.
M11.A.3.2.1 Use estimation to solve problems.
M11.A.2.1.3 Identify and/or use proportional relationships in problem solving settings.

Pacing Guide: **7 days**

Course Content	Student Performance	Resources	Assessments
A. Ratios B. Conversions • Metric • English	• List examples of ways to write ratios • Combine equal ratios to create proportions • Solve proportions involving various units of measure • Use manipulatives to solve unit analysis problems • Present student created problems and solutions • Compare and contrast the metric and English units of measure • Convert units within each system and between two systems • State other disciplines that use compound units (physics and chemistry) • Solve problems involving units in cooperative groups	• Problem Solving Strategies (Key Curriculum Press, 2001) • Punchline Problem Solving 2nd Edition (Marcy Mathworks, 2001) • Problem Solving 1 and 2 (Globe Fearon, 2000) • Teaching resources • Calculators • CPS • Spiral review and project binder • Appendix	• Problem presentations • Problem-solving sets • Teacher made quizzes • Journal entries • Cooperative group problem solving • Teacher observations • Bell ringers **Remediation:** • Punchline sheets • Peer tutoring **Enrichment:** • Problem Set B • Triple conversion problems

Unit: **Changing Focus**

Content Standard: **Organize information by working backwards to solve problems.**

State Curriculum Standards:
2.1.11A Use operations.
2.2.11A Develop and use computation concepts, operations and procedures with real numbers in problem-solving situations.
2.5.11A Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems.
2.5.11B Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.
2.5.11C Present mathematical procedures and results clearly, systematically, succinctly and correctly.
2.5.11D Conclude a solution process with summary of results and evaluate the degree to which the results obtained represent an acceptable response to the initial problem and why the reasoning is valid.

ISTE Standards:
1 Basic operations and concepts
3 Technology productivity tools
6 Technology problem-solving and decision-making tools

PSSA Anchors:
M11.A.3.1.1 Simplify expressions using the order of operations to solve problems.
M11.A.3.2.1 Use estimation to solve problems.

Pacing Guide: **6 days**

Course Content	Student Performance	Resources	Assessments
A. Work Backwards	• Write directions to get from your house to the school • Work backwards to write the directions from the school to a friend's house • Combine other methods with working backwards to solve problems • Solve problems in cooperative groups and present solutions • Create a problem that can be solved by working backwards • Solve text problem sets	• Problem Solving Strategies (Key Curriculum Press, 2001) • Punchline Problem Solving 2nd Edition (Marcy Mathworks, 2001) • Problem Solving 1 and 2 (Globe Fearon, 2000) • Teaching resources • Calculators • CPS • Spiral review and project binder • Appendix	• Problem presentations • Problem-solving sets • Teacher made quizzes • Journal entries • Cooperative group problem solving • Student created problems • Teacher observations • Bell ringers **Remediation:** • Punchline sheets • Peer tutoring **Enrichment:** • Problem Set B

Unit: **Changing Focus**

Content Standard: **Use various techniques including complementary problems and points of view to solve problems**.

State Curriculum Standards:
2.1.11A Use operations.
2.2.11A Develop and use computation concepts, operations and procedures with real numbers in problem-solving situations.
2.5.11A Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems.
2.5.11B Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.
2.5.11C Present mathematical procedures and results clearly, systematically, succinctly and correctly.
2.5.11D Conclude a solution process with summary of results and evaluate the degree to which the results obtained represent an acceptable response to the initial problem and why the reasoning is valid.

ISTE Standards:
1 Basic operations and concepts
3 Technology productivity tools
6 Technology problem-solving and decision-making tools

PSSA Anchors:
M11.A.3.1.1 Simplify expressions using the order of operations to solve problems.
M11.A.3.2.1 Use estimation to solve problems.

Pacing Guide: **6 days**

Course Content	Student Performance	Resources	Assessments
A. Related Problems B. Point of View C. Complementary Problems D. Change Representation	• Discuss the use of changing focus in other fields (camera techniques, etc.) • Solve easier related problems to develop the process for solving harder problems • State methods to make problems easier • Rewrite a problem into easier sub-problems • Complete brainteasers that require you to think outside the box • Restate arguments from a different point of view • Explain how to use the complement to solve a problem • Present solutions to problems • Represent problems using various techniques	• Problem Solving Strategies (Key Curriculum Press, 2001) • Punchline Problem Solving 2nd Edition (Marcy Mathworks, 2001) • Problem Solving 1 and 2 (Globe Fearon, 2000) • Teaching resources • Calculators • CPS • Spiral review and project binder • Appendix	• Problem presentations • Problem-solving sets • Teacher made quizzes • Journal entries • Cooperative group problem solving • Teacher observations • Bell ringers **Remediation:** • Punchline sheets • Peer tutoring **Enrichment:** • Problem Set B

	• Relate problems solving techniques to real world situations		

Unit: **Statistics**

Content Standard: **Calculate Mean, Median, Mode, Range.**
Construct Box-and-Whisker plots.

State Curriculum Standards:
2.1.11A Use operations (e.g., opposite, reciprocal, absolute value, raising to a power, finding roots, finding logarithms).
2.2.11A Develop and use computation concepts, operations and procedures with real numbers in problem-solving situations.
2.5.11C Present mathematical procedures and results clearly, systematically, succinctly and correctly.
2.7.11A Compare odds and probability.
2.7.11C Draw and justify a conclusion regarding the validity of a probability or statistical argument.
2.7.11E Solve problems involving independent simple and compound events.
2.8.11I Use matrices to organize and manipulate data, including matrix addition, subtraction, multiplication, and scalar multiplication.

ISTE Standards:
1 Basic operations and concepts
3 Technology productivity tools
6 Technology problem-solving and decision-making tools

PSSA Anchors:
M11.A.3.1.1 Simplify expressions using the order of operations to solve problems.
M11.E.3.1.1 Find probabilities for independent, dependent or compound events and represent as a fraction, decimal, or percent.
M11.E.3.1.2 Find, convert, and/or compare the probability and/or odds of a simple event.
M11.E.3.2.1 Determine the number of permutations and/or combinations or apply the fundamental counting principal.
M11.E.4.1.2 Use probability to predict outcomes.

Pacing Guide: **5 days**

Course Content	Student Performance	Resources	Assessments
A. Central Tendency • Mean • Median • Mode • Range B. Box-and-Whisker Plot	• Discuss definitions and formulas for measures of central tendency • Calculate each measure of central tendency • Given measures of central tendency find missing data • Draw a box-and-whisker plot for a data set • Interpret a box-and-whisker plot	• Problem Solving Strategies (Key Curriculum Press, 2001) • Punchline Problem Solving 2nd Edition (Marcy Mathworks, 2001) • Problem Solving 1 and 2 (Globe Fearon, 2000) • Teaching resources • Calculators • CPS • Spiral review and project binder • Appendix	• Problem presentations • Problem-solving sets • Teacher made quizzes • Journal entries • Cooperative group problem solving • Teacher observations • Bell ringers **Remediation:** • Punchline sheets • Peer tutoring **Enrichment:** • Problem Set B

Unit: **Probability**

Content Standard: **Calculate Probability**

State Curriculum Standards:
2.1.11A Use operations (e.g., opposite, reciprocal, absolute value, raising to a power, finding roots, finding logarithms).
2.2.11A Develop and use computation concepts, operations and procedures with real numbers in problem-solving situations.
2.5.11C Present mathematical procedures and results clearly, systematically, succinctly and correctly.
2.7.11A Compare odds and probability.
2.7.11C Draw and justify a conclusion regarding the validity of a probability or statistical argument.
2.7.11E Solve problems involving independent simple and compound events.
2.8.11I Use matrices to organize and manipulate data, including matrix addition, subtraction, multiplication, and scalar multiplication.

ISTE Standards:
1 Basic operations and concepts
3 Technology productivity tools
6 Technology problem-solving and decision-making tools

PSSA Anchors:
M11.A.3.1.1 Simplify expressions using the order of operations to solve problems.
M11.E.3.1.1 Find probabilities for independent, dependent or compound events and represent as a fraction, decimal, or percent.
M11.E.3.1.2 Find, convert, and/or compare the probability and/or odds of a simple event.
M11.E.3.2.1 Determine the number of permutations and/or combinations or apply the fundamental counting principal.
M11.E.4.1.2 Use probability to predict outcomes.

Pacing Guide: **6 days**

Course Content	Student Performance	Resources	Assessments
A. Simple Probability B. Independent & Dependent Events C. Addition & Multiplication Rules D. Odds	• Discuss the use of changing focus in other fields (camera techniques, etc.) • Solve easier related problems to develop the process for solving harder problems • State methods to make problems easier • Rewrite a problem into easier sub-problems • Complete brainteasers that require you to think outside the box • Restate arguments from a different point of view • Explain how to use the complement to solve a problem • Present solutions to problems • Represent problems using various techniques	• Problem Solving Strategies (Key Curriculum Press, 2001) • Punchline Problem Solving 2nd Edition (Marcy Mathworks, 2001) • Problem Solving 1 and 2 (Globe Fearon, 2000) • Teaching resources • Calculators • CPS • Spiral review and project binder • Appendix	• Problem presentations • Problem-solving sets • Teacher made quizzes • Journal entries • Cooperative group problem solving • Teacher observations • Bell ringers **Remediation:** • Punchline sheets • Peer tutoring **Enrichment:** • Problem Set B

	• Relate problems solving techniques to real world situations		