

CURRICULUM OVERVIEW

Mathematics 800



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Mathematics 800 Course Overview

Mathematics 800 is an introductory algebra course designed to prepare junior-high school students for Algebra I. The course focuses on strengthening needed skills in problem solving, integers, equations, and graphing. Students will begin to see the "big picture" of mathematics and learn how numeric, algebraic, and geometric concepts are woven together to build a foundation for higher mathematical thinking.

- **The Real Number System:** Student will explore different properties of numbers, and how to use them to simplify expressions and formulas to make computations easier.
- **Modeling Problems in Integers:** Student will translate and solve one-step equations, or two-step equations in context, and check solutions for reasonableness, using the order of operations, and by substituting values for variables.
- **Modeling Problems with Rational Numbers:** Student will add, subtract, multiply, and divide decimals, fractions, and mixed numbers with variables, likes, and unlike denominators to solve one and two-step word problems.
- **Proportional Reasoning:** Student will convert between fractions, decimals, and percent's, and compare them, and identify similar and congruent figures and their corresponding parts and solve for missing measures.
- **More with Functions:** Student will identify the parts of a line or quadratic equation and be able to graph it, and explore arithmetic and geometric sequences, as well as exponential growth and decay.
- **Measurement:** Student will explore relationships between sets of lines and the angles they create, understand and use the Pythagorean theorem, and identify characteristics of polygons.
- **Plane Geometry:** Student will determine how to calculate areas of common polygons, identify different transformations and how to determine the type and original image location.
- **Measures of Solid Figures:** Student will calculate surface area and volume of different objects and solve for missing measures of 3 dimensional figures when given surface area or volume and explain the relationship between surface area and volume.
- **Data Analysis:** Student will identify the mean, median, mode, range, lower quartile, and upper quartile of different data sets and construct the best display of the information.
- **Probability:** Student will identify all the possible outcomes of a given situation using combinations, permutations, and probability, and determine if events are dependent or independent.

Unit 1: The Real Number System	
Assignments	
1. Course Overview	15. Alternate Quiz 2 - Form A: Other Forms*
2. Subsets of the Real Number System	16. Alternate Quiz 2 - Form B: Other Forms*
3. Using Variables	17. Square Roots
4. The Number Line	18. Order of Operations
5. Comparing Rational Numbers	19. Quiz 3: Simplifying
6. Decimal-Fraction Conversions	20. Alternate Quiz 3 - Form A: Simplifying*
7. Quiz 1: Relationships	21. Alternate Quiz 3 - Form B: Simplifying*
8. Alternate Quiz 1 - Form A: Relationships*	22. Performance Task
9. Alternate Quiz 1 - Form B: Relationships*	23. Special Project*
10. Properties of the Real Numbers	24. Review
11. Exponents	25. Test
12. Performance Task	26. Alternate Test - Form A*
13. Scientific Notation	27. Alternate Test - Form B*
14. Operations with Scientific Notation	28. Glossary and Credits
15. Quiz 2: Other Forms	

Unit 2: Modeling Problems in Integers	
Assignments	
1. Translating Expressions and Equations	18. Evaluating Expressions
2. Solving One-Step Equations	19. Quiz 3: Integers
3. Solving Two-Step Equations	20. Alternate Quiz 3 - Form A: Integers*
4. Solving Equations with Exponents	21. Alternate Quiz 3 - Form B: Integers*
5. Quiz 1: Equations with Real Numbers	22. Graphing
6. Alternate Quiz 1 - Form A: Equations with Real Numbers*	23. One-Step Equations
7. Alternate Quiz 1 - Form B: Equations with Real Numbers*	24. Two-Step Equations
8. Relations and Functions	25. Problem Solving
9. Functions	26. Performance Task
10. Analyzing Graphs	27. Quiz 4: Modeling with Integers
11. Performance Task	28. Alternate Quiz 4 - Form A: Modeling with Integers*
12. Quiz 2: Functions	29. Alternate Quiz 4 - Form B: Modeling with Integers*
13. Alternate Quiz 2 - Form A: Functions*	30. Special Project*
14. Alternate Quiz 2 - Form B: Functions*	31. Review
15. Addition of Integers	32. Test
16. Subtraction of Integers	33. Alternate Test - Form A*
17. Multiplying and Dividing Integers	34. Alternate Test - Form B*
	35. Glossary and Credits

Unit 3: Modeling Problems with Rational Numbers	
Assignments	
1. Prime Factorization and the GCF	17. One-Step Addition and Subtraction Equations
2. Simplifying Fractions	18. One-Step Multiplication and Division Equations
3. The LCM and the LCD	19. Two-Step Equations
4. Quiz 1: Number Theory	20. One-Step Inequalities
5. Alternate Quiz 1 - Form A: Number Theory*	21. Two-Step Inequalities
6. Alternate Quiz 1 - Form B: Number Theory*	22. Performance Task
7. Adding and Subtracting Like Fractions	23. Quiz 3: Solving Equations and Inequalities
8. Adding and Subtracting Unlike Fractions	24. Alternate Quiz 3 - Form A: Solving Equations and Inequalities*
9. Adding and Subtracting Decimal Numbers	25. Alternate Quiz 3 - Form B: Solving Equations and Inequalities*
10. Multiplying and Dividing Fractions	26. Special Project*
11. Multiplying and Dividing Decimal Numbers	27. Review
12. Irrational Numbers	28. Test
13. Performance Task	29. Alternate Test - Form A**
14. Quiz 2: Solving Problems with Rational Numbers	30. Alternate Test - Form B
15. Alternate Quiz 2 - Form A: Solving Problems with Rational Numbers*	31. Glossary and Credits
16. Alternate Quiz 2 - Form B: Solving Problems with Rational Numbers*	

Unit 4: Proportional Reasoning	
Assignments	
1. Proportions	18. Indirect Measure
2. Linear Applications	19. Models and Scales
3. Direct Variation	20. Performance Task
4. Quiz 1: Proportions	21. Quiz 3: Measurement/Similar Figures
5. Alternate Quiz 1-Form A: Proportions*	22. Alternate Quiz 3-Form A: Measurement/Similar Figures*
6. Alternate Quiz 1-Form B: Proportions*	23. Alternate Quiz 3-Form B: Measurement/Similar Figures*
7. Fraction, Percent, and Decimal Equivalents	24. Project: Proportional Reasoning
8. Solving Percent Problems	25. Alternate Project: Proportional Reasoning*
9. Application of Ratios and Percents	26. Special Project*
10. More Applications with Percents	27. Review
11. Performance Task	28. Test
12. Quiz 2: Percents	29. Alternate Test-Form A*
13. Alternate Quiz 2-Form A: Percents*	30. Alternate Test-Form B*
14. Alternate Quiz 2-Form B: Percents*	31. Glossary and Credits
15. Unit Conversion within Customary Units	
16. Unit Conversion within Metric Units	
17. Corresponding Parts	

Unit 5: More with Functions	
Assignments	
1. Rewriting Equations	23. Solving Systems of Linear Equations using Substitution
2. Combine Like Terms	24. Solving Systems of Linear Equations using Addition
3. Solving Equations by Combining Like Terms	25. Applications of Linear Systems
4. Distributive Property	26. Performance Task
5. Solving Equations with Distributive Property	27. Quiz 3: System of Equations
6. Solving Equations with Special Solutions	28. Alternate Quiz 3 - Form A: System of Equations*
7. Literal Equations	29. Alternate Quiz 3 - Form B: System of Equations*
8. Performance Task	30. Patterns and Arithmetic Sequences
9. Quiz 1: Solving Equations	31. Geometric Sequences
10. Alternate Quiz 1 - Form A: Solving Equations*	32. Exponential Sequences
11. Alternate Quiz 1 - Form B: Solving Equations*	33. Recursive Sequences
12. Slope	34. Quiz 4: Patterns
13. Comparing Functions	35. Alternate Quiz 4 - Form A: Patterns*
14. Using Intercepts	36. Alternate Quiz 4 - Form B: Patterns*
15. Slope-Intercept Form	37. Special Project*
16. More Slope-Intercept Form	38. Review
17. Applications of Linear Functions	39. Test
18. Non-Linear Functions	40. Alternate Test - Form A*
19. Quiz 2: Families of Functions	41. Alternate Test - Form B*
20. Alternate Quiz 2 - Form A: Families of Functions*	42. Glossary and Credits
21. Alternate Quiz 2 - Form B: Families of Functions*	
22. Graphing Systems of Linear Equations	

Unit 6: Measurement	
Assignments	
1. Classify and Measure Angles	13. Quiz 2: Polygons
2. Perpendicular and Parallel Lines, Part 1	14. Alternate Quiz 2 - Form A: Polygons*
3. Perpendicular and Parallel Lines, Part 2	15. Alternate Quiz 2 - Form B: Polygons*
4. Circles	16. Pythagorean Theorem, Part 1
5. Quiz 1: Angle Measures and Circles	17. Pythagorean Theorem, Part 2
6. Alternate Quiz 1 - Form A: Angle Measures and Circles*	18. Performance Task
7. Alternate Quiz 1 - Form B: Angle Measures and Circles*	19. Quiz 3: Indirect Measure
8. Classifying Polygons	20. Alternate Quiz 3 - Form A: Indirect Measure*
9. Interior and Exterior Measures of Polygons	21. Alternate Quiz 3 - Form B: Indirect Measure*
10. Classifying Triangles and the Triangle Inequality Theorem	22. Special Project*
11. Performance Task	23. Review
12. The Quadrilateral Family	24. Test
	25. Alternate Test - Form A*
	26. Alternate Test - Form B*
	27. Glossary and Credits

Unit 7: Plane Geometry		
Mathematics 800	Assignments	
	1. Perimeter and Circumference	17. Translations
	2. Area of Parallelograms	18. Tessellations
	3. Area of Triangles and Trapezoids	19. Rotations
	4. Area of Circles	20. Dilations
	5. Composite Figures	21. Angle Reflections, Translations, and Rotations
	6. Effects of Dimensional Changes	22. Performance Task
	7. Quiz 1: Perimeter and Area	23. Quiz 3: Other Transformations
	8. Alternate Quiz 1 - Form A: Perimeter and Area*	24. Alternate Quiz 3 - Form A: Other Transformations*
	9. Alternate Quiz 1 - Form B: Perimeter and Area*	25. Alternate Quiz 3 - Form B: Other Transformations*
	10. Symmetry	26. Special Project*
	11. Distance and Midpoint	27. Review
	12. Reflections	28. Test
	13. Performance Task	29. Alternate Test - Form A*
	14. Quiz 2: Symmetry and Reflections	30. Alternate Test - Form B*
	15. Alternate Quiz 2 - Form A: Symmetry and Reflections*	31. Glossary and Credits
	16. Alternate Quiz 2 - Form B: Symmetry and Reflections*	
Unit 8: Measures of Solid Figures		
Mathematics 800	Assignments	
	1. Solid Figures	16. Volume of Cones
	2. Euler's Formula	17. Volume of Spheres
	3. Surface Area of Rectangular Prisms	18. Changes to Volume
	4. Surface Area of Triangular Prisms	19. Volume of Composite Figures
	5. Performance Task	20. Performance Task
	6. Surface Area of Cylinders	21. Quiz 2: Volume
	7. Surface Area of Pyramids, Cones, and Spheres	22. Alternate Quiz 2 - Form A: Volume*
	8. Surface Area of Composite Figures	23. Alternate Quiz 2 - Form B: Volume*
	9. Quiz 1: Surface Area	24. Special Project*
	10. Alternate Quiz 1 - Form A: Surface Area*	25. Review
	11. Alternate Quiz 1 - Form B: Surface Area*	26. Test
	12. Volume of Rectangular Prisms	27. Alternate Test - Form A*
	13. Volume of Triangular Prisms	28. Alternate Test - Form B*
	14. Volume of Square Pyramids	29. Glossary and Credits
	15. Volume of Cylinders	

Unit 9: Data Analysis

Assignments

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|-----------------|-----|--|----------------------|--|
| Mathematics 800 | 1. | Collecting Data | 16. | Appropriate Displays |
| | 2. | Measures of Central Tendency and Dispersion | 17. | Application of Data Analysis |
| | 3. | Bar Graphs | 18. | Performance Task |
| | 4. | Circle Graphs | 19. | Quiz 2: More Data Displays |
| | 5. | Line Graphs | 20. | Alternate Quiz 2 - Form A: More Data Displays* |
| | 6. | Frequency and Histograms | 21. | Alternate Quiz 2 - Form B: More Data Displays* |
| | 7. | Two-Way Frequency Tables | 22. | Financial Responsibility |
| | 8. | Performance Task | 23. | Calculating Interest |
| | 9. | Quiz 1: Collecting and Representing Data | 24. | Educational Funding |
| | 10. | Alternate Quiz 1 - Form A: Collecting and Representing Data* | 25. | Quiz 3: Personal Finances |
| | 11. | Alternate Quiz 1 - Form B: Collecting and Representing Data* | 26. | Special Project* |
| | 12. | Constructing Box-and-Whisker Plots | 27. | Review |
| | 13. | Interpreting Box-and-Whisker Plots | 28. | Test |
| | 14. | Scatter Plots | 29. | Alternate Test - Form A* |
| | 15. | Misleading Graphs | 30. | Alternate Test - Form B* |
| | | 31. | Glossary and Credits | |

Unit 10: Probability

Assignments

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|-----------------|---|---|
| Mathematics 800 | 1. Tree Diagrams and the Counting Principle | 13. Performance Task |
| | 2. Permutations | 14. Quiz 2: Probability |
| | 3. Combinations | 15. Alternate Quiz 2 - Form A: Probability* |
| | 4. Mixed Review of Outcomes | 16. Alternate Quiz 2 - Form B: Probability* |
| | 5. Quiz 1: Outcomes | 17. Simulate a Problem |
| | 6. Alternate Quiz 1 - Form A: Outcomes* | 18. Quest: All That's Fair In... * |
| | 7. Alternate Quiz 1 - Form B: Outcomes* | 19. Special Project* |
| | 8. Probability and Odds | 20. Review |
| | 9. Experimental vs Theoretical Probability | 21. Test |
| | 10. Disjointed and Overlapping Events | 22. Alternate Test - Form A* |
| | 11. Independent and Dependent Events | 23. Alternate Test - Form B* |
| | 12. Performance Task | 24. Glossary and Credits |

Unit 11: Course Review and Exam

00800 Assignments

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|-------------|----|----------------------|----|---------------------|
| Mathematics | 1. | Review 1 | 6. | Performance Task 1* |
| | 2. | Review 2 | 7. | Performance Task 2* |
| | 3. | Final Exam | 8. | Performance Task 3* |
| | 4. | Final Exam - Form A* | 9. | Performance Task 4* |
| | 5. | Final Exam - Form B* | | |

M800	Unit 12: End of Course	
	Assignments	
	1. Exam*	3. Alternate Exam - Form B*
	2. Alternate Exam - Form A*	

(*) Indicates alternative assignment