



**Switched-On**  
SCHOOLHOUSE® 2011 EDITION

# Curriculum Catalog

Pre-Calculus

## Welcome to Switched-On Schoolhouse!

We are excited that you are including Switched-On Schoolhouse as part of your program of instruction, and we look forward to serving you and your students.

Switched-On Schoolhouse comes complete with a full, multimedia-rich curriculum for grades 3-12 in five core subjects and electives.

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## Pre-Calculus

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### UNIT 1: PRECALCULUS: RELATIONS AND FUNCTIONS

#### Assignment Titles

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|-------------------------------------------|----------------------------------------|
| 1. Ordered-Pair Numbers: Relations        | 7. Algebra of Functions: Composition   |
| 2. Ordered-Pair Numbers: Functions        | 8. Algebra of Functions: Inverse       |
| 3. Ordered-Pair Numbers: Rules of Corres. | 9. Quiz 2: Relations and Functions (2) |
| 4. Quiz 1: Relations and Functions        | 10. Special Project                    |
| 5. Algebra of Functions: Notation         | 11. TEST                               |
| 6. Algebra of Functions: Arithmetic       | 12. ALTERNATE TEST                     |

### UNIT 2: PRECALCULUS: FUNCTIONS

#### Assignment Titles

- |                                                 |                                  |
|-------------------------------------------------|----------------------------------|
| 1. Linear Functions: Graphs                     | 10. Quiz 3: Polynomial Functions |
| 2. Linear Functions: Equations                  | 11. Greatest Integer Function    |
| 3. Quiz 1: Linear Functions                     | 12. Exponential Function         |
| 4. 2 <sup>nd</sup> -Degree Functions: Solutions | 13. Logarithmic Function         |
| 5. Relationships Between Zeros and Coefficients | 14. Function Combinations        |
| 6. Quadratic Inequalities                       | 15. Quiz 4: Special Functions    |
| 7. Quiz 2: Second-Degree Functions              | 16. Special Project              |
| 8. Polynomial Functions                         | 17. TEST                         |
| 9. Nth-Degree Equations.                        | 18. ALTERNATE TEST               |

### UNIT 3: PRECALCULUS: TRIGONOMETRIC FUNCTIONS

#### Assignment Titles

- |                                              |                               |
|----------------------------------------------|-------------------------------|
| 1. Definition of the Trigonometric Functions | 10. Quiz 5: Quadrantal Angles |
| 2. Quiz 1: Trigonometric Functions           | 11. Special Angles            |
| 3. Evaluation of Functions                   | 12. Quiz 6: Special Angles    |
| 4. Quiz 2: Evaluation of Functions           | 13. Radian Measure            |
| 5. Angle Location                            | 14. Quiz 7: Radian Measure    |
| 6. Quiz 3: Angle Location                    | 15. Special Project           |
| 7. Reduction Formulas                        | 16. TEST                      |
| 8. Quiz 4: Reduction Formulas                | 17. ALTERNATE TEST            |
| 9. Quadrantal Angles                         |                               |

### UNIT 4: PRECALCULUS: CIRCULAR FUNCTIONS AND THEIR GRAPHS

#### Assignment Titles

- |                                                 |                                               |
|-------------------------------------------------|-----------------------------------------------|
| 1. Circular Functions                           | 11. Amplitude of Circular Functions           |
| 2. Quiz 1: Circular Functions                   | 12. Quiz 6: Amplitude of Circular Functions   |
| 3. Circular Functions of Special Angles         | 13. Period of Circular Functions              |
| 4. Quiz 2: Circular Functions of Special Angles | 14. Quiz 7: Period of Circular Functions      |
| 5. Graphs of Sin and Cos                        | 15. Phase Shift of Circular Functions         |
| 6. Quiz 3: Graphs of Sin and Cos                | 16. Quiz 8: Phase Shift of Circular Functions |
| 7. Other Graphs                                 | 17. Special Project                           |
| 8. Quiz 4: Other Graphs                         | 18. TEST                                      |
| 9. Applications                                 | 19. ALTERNATE TEST                            |
| 10. Quiz 5: Applications                        |                                               |

### UNIT 5: PRECALCULUS: IDENTITIES AND FUNCTIONS OF MULTIPLE ANGLES

#### Assignment Titles

- |                                             |                                                    |
|---------------------------------------------|----------------------------------------------------|
| 1. Reciprocal Relations                     | 12. Quiz 6: Additional Sum and Difference Formulas |
| 2. Quiz 1: Reciprocal Relations             | 13. Double- and Half-Angle Formulas                |
| 3. Pythagorean Relations                    | 14. Quiz 7: Double- and Half-Angle Formulas        |
| 4. Quiz 2: Pythagorean Relations            | 15. Identities                                     |
| 5. Quotient Relations                       | 16. Quiz 8: Identities                             |
| 6. Quiz 3: Quotient Relations               | 17. Trigonometric Equations                        |
| 7. Trigonometric Identities                 | 18. Quiz 9: Trigonometric Equations                |
| 8. Quiz 4: Trigonometric Identities         | 19. Special Project                                |
| 9. Cosine of the Sum of Two Angles          | 20. TEST                                           |
| 10. Quiz 5: Cosine of the Sum of Two Angles | 21. ALTERNATE TEST                                 |
| 11. Additional Sum and Difference Formulas  |                                                    |

## Pre-Calculus (cont.)

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### UNIT 6: PRECALCULUS: APPLICATION OF TRIGONOMETRIC FUNCTIONS

#### Assignment Title

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|-------------------------------------------------|---------------------------------------------|
| 1. Trigonometric Functions of Any Angle         | 10. More Applications                       |
| 2. Quiz 1: Trigonometric Functions of Any Angle | 11. Quiz 5: More Applications               |
| 3. More Trigonometric Functions of Any Angle    | 12. Inclined Plane Application              |
| 4. Quiz 2: Trigonometric Functions              | 13. Navigation Application                  |
| 5. Applied Problems                             | 14. Quiz 6: Additional Application Problems |
| 6. Law of Cosines                               | 15. Special Project                         |
| 7. Quiz 3: Law of Cosines                       | 16. TEST                                    |
| 8. Law of Sines                                 | 17. ALTERNATE TEST                          |
| 9. Quiz 4: Law of Sines                         |                                             |

### UNIT 7: PRECALCULUS: INVERSE TRIGONOMETRIC FUNCTIONS AND POLAR COORDINATES

#### Assignment Title

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|-----------------------------------------|---------------------------------------------------------------|
| 1. The Inverse Sine Function            | 13. Converting Coordinates                                    |
| 2. Quiz 1: The Inverse Sine Function    | 14. Quiz 7: Converting Coordinates                            |
| 3. The Inverse Cosine Function          | 15. Converting Cartesian Equations to Polar Equations         |
| 4. Quiz 2: The Inverse Cosine Function  | 16. Quiz 8: Converting Cartesian Equations to Polar Equations |
| 5. The Inverse Tangent Function         | 17. Converting Polar Equations to Cartesian Equations         |
| 6. Quiz 3: The Inverse Tangent Function | 18. Quiz 9: Converting Polar Equations to Cartesian Equations |
| 7. Other Inverse Functions              | 19. Graphing Polar Equations                                  |
| 8. Quiz 4: Other Inverse Functions      | 20. Quiz 10: Graphing Polar Equations                         |
| 9. Graphs of Inverse Functions          | 21. Special Project                                           |
| 10. Quiz 5: Graphs of Inverse Functions | 22. TEST                                                      |
| 11. Graphing Polar Coordinates          | 23. ALTERNATE TEST                                            |
| 12. Quiz 6: Graphing Polar Coordinates  |                                                               |

### UNIT 8: PRECALCULUS: QUADRATIC EQUATIONS

#### Assignment Title

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|---------------------------------------|---------------------------------|
| 1. The Circle                         | 13. The Parabola Applied        |
| 2. The Circle Continued               | 14. The Hyperbola               |
| 3. Equation from Three Points         | 15. Quiz 2: Quadratic Equations |
| 4. Equation from Three Points Applied | 16. Translation                 |
| 5. The Ellipse                        | 17. Translation of Equations    |
| 6. The Ellipse: Standard Form         | 18. Rotation                    |
| 7. The Ellipse: General Form          | 19. Rotation of Equations       |
| 8. The Ellipse Applied                | 20. Quiz 3: Quadratic Equations |
| 9. Quiz 1: Quadratic Equations        | 21. Special Project             |
| 10. The Parabola                      | 22. TEST                        |
| 11. The Parabola Continued            | 23. ALTERNATE TEST              |
| 12. The Parabola: Standard Form       |                                 |

### UNIT 9: PRECALCULUS: PROBABILITY

#### Assignment Title

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|------------------------------------------------|--------------------------|
| 1. Definitions, Sample Spaces, and Probability | 8. Circular Permutations |
| 2. Addition of Probabilities                   | 9. Combinations          |
| 3. Multiplication of Probabilities             | 10. Quiz 2: Probability  |
| 4. Quiz 1: Probability                         | 11. Special Project      |
| 5. Definitions                                 | 12. TEST                 |
| 6. Permutation of N Things: Different          | 13. ALTERNATE TEST       |
| 7. Permutation of N Things: Not All Different  |                          |

### UNIT 10: PRECALCULUS: CALCULUS AND REVIEW

#### Assignment Title

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|-------------------------------------|----------------------------------------|
| 1. Summation                        | 11. Review Pre Calculus Units 1 and 2  |
| 2. Proofs by Mathematical Induction | 12. Review Pre Calculus Units 3 and 4  |
| 3. Quiz 1: Calculus                 | 13. Review Pre Calculus Units 5 and 6  |
| 4. Functional Notation              | 14. Review Pre Calculus Units 7 and 8  |
| 5. Difference Quotient              | 15. Review Pre Calculus Units 9 and 10 |
| 6. Limits                           | 16. Quiz 4: Calculus                   |
| 7. Quiz 2: Calculus                 | 17. Special Project                    |
| 8. Slope of a Line                  | 18. TEST                               |
| 9. Slope of a Curve                 | 19. ALTERNATE TEST                     |
| 10. Quiz 3: Calculus                |                                        |

