**COURSE DESCRIPTION**

**Course Title:** SAT Math

**Course Number:** 00295

**Course Prerequisites:** Completion of a full Algebra 1 Course

**Course Description:** SAT Math is an elective math credit. It is designed to give students practice in types of Algebra, Geometry, Trigonometry, Data Analysis, Probability, and Problem-Solving problems that would be found on the Scholastic Aptitude Test (SAT). Test taking strategies and problems solving skills will be emphasized. Scientific calculator use will be developed. Students are expected to have developed a knowledge base in mathematics and Algebra 1 before taking this course. District mid-term exam and final exam required.

**Suggested Grade Level**: Grades 10-12

**Length of Course:** One Semester

**Units of Credit:** .5

**PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:**

CSPG #50 Mathematics (7-12)

To find the CSPG information, go to [CSPG](https://www.education.pa.gov/Educators/Certification/Staffing%20Guidelines/Pages/default.aspx)

**Certification verified by the WCSD Human Resources Department:** [x] Yes [ ] No

**WCSD STUDENT DATA SYSTEM INFORMATION**

**Course Level:** Academic

**Mark Types:** Check all that apply.

[x] F – Final Average [x] MP – Marking Period [x] EXM – Final Exam

**GPA Type**: [ ]  GPAEL-GPA Elementary [ ]  GPAML-GPA for Middle Level [x]  NHS-National Honor Society

[x]  UGPA-Non-Weighted Grade Point Average [x]  GPA-Weighted Grade Point Average

**State Course Code**: 02993

To find the State Course Code, go to [State Course Code](https://nces.ed.gov/forum/sced.asp), download the Excel file for *SCED*, click on SCED 6.0 tab, and choose the correct code that corresponds with the course.

**TEXTBOOKS AND SUPPLEMENTAL MATERIALS**

**Board Approved Textbooks, Software, and Materials:**

**Title:**  *SAT 2022*

**Publisher:** McGraw-Hill Education (Professional Publishing)

**ISBN #:**  9781264266524

**Copyright Date:** 2021

**WCSD Board Approval Date:** 6/28/2020

**Supplemental Materials:** Kuta Software, Khan Academy, pdesas.org

**Curriculum Document**

**WCSD Board Approval:**

**Date Finalized:** 5/23/2022

**Date Approved:**  6/13/2022

**Implementation Year:** 2022-2023

**SPECIAL EDUCATION, 504, and GIFTED REQUIREMENTS**

The teacher shall make appropriate modifications to instruction and assessment based on a student’s Individual Education Plan (IEP), Chapter 15 Section 504 Plan (504), and/or Gifted Individual Education Plan (GIEP).

**SCOPE AND SEQUENCE OF CONTENT, AND CONCEPTS**

**Marking Period 1: Algebra 1, Problem Solving, and Data Analysis**

* Word Problems
* Order of Operations and Laws of Arithmetic
* Algebraic Expressions
* Conversions
* Linear Equations and Graphs
* Linear Inequalities and Graphs
* Absolute Value
* Linear Systems: Graphing and Solving
* Measures of Central Tendency and Data Spread
* Direct and Inverse Variations
* Rate and Ratio Problems
* Percentages and Percent Change
* Proportions and Scaling
* Tables and Venn Diagrams
* Conditional Probabilities from Tables
* Relations Analysis from Tables
* Scatterplots
* Nonlinear Relationships
* Inferences from Graphs and Data Displays
* Mid-Term Review and Assessment

**Marking Period 2: Algebra 2, Geometry, Trigonometry, and More Algebra 2**

* Functions
* Compositions and Transformations
* Quadratics: Expressions, Equations and Graphs
* Higher Order Equations and Systems
* Exponential Expressions and Equations
* Radical Expressions and Equations
* Rational Expressions and Equations
* Angles and Parallel Lines
* Triangles
* Coordinate Plane Geometry
* The Pythagorean Theorem
* Circles
* Areas and Volume
* Similarity
* Basic Trigonometry
* Imaginary and Complex Numbers
* Final Exam Review and Assessment

**Marking Period 3: Algebra 1, Problem Solving, and Data Analysis**

* Word Problems
* Order of Operations and Laws of Arithmetic
* Algebraic Expressions
* Conversions
* Linear Equations and Graphs
* Linear Inequalities and Graphs
* Absolute Value
* Linear Systems: Graphing and Solving
* Measures of Central Tendency and Data Spread
* Direct and Inverse Variations
* Rate and Ratio Problems
* Percentages and Percent Change
* Proportions and Scaling
* Tables and Venn Diagrams
* Conditional Probabilities from Tables
* Relations Analysis from Tables
* Scatterplots
* Nonlinear Relationships
* Inferences from Graphs and Data Displays
* Mid-Term Review and Assessment

**Marking Period 4: Algebra 2, Geometry, Trigonometry, and More Algebra 2**

* Functions
* Compositions and Transformations
* Quadratics: Expressions, Equations and Graphs
* Higher Order Equations and Systems
* Exponential Expressions and Equations
* Radical Expressions and Equations
* Rational Expressions and Equations
* Angles and Parallel Lines
* Triangles
* Coordinate Plane Geometry
* The Pythagorean Theorem
* Circles
* Areas and Volume
* Similarity
* Basic Trigonometry
* Imaginary and Complex Numbers
* Final Exam Review and Assessment

**Standards/Eligible Content and Skills**

| **Performance Indicator** | **PA Core Standard and/or Eligible Content** | **Marking Period Taught**  |
| --- | --- | --- |
| Analyze word problems | CC.2.1.HS.F.2 | MP1/MP3 |
| Apply the order of operations and the Laws of Arithmetic to expressions | CC.2.2.HS.D.3A1.1.1.3.1 | MP1/MP3 |
| Simplify expressions | A1.1.1.3.1 | MP1/MP3 |
| Use conversions in real-world and mathematical problem solving | CC.2.2.HS.D.2A1.1.1.5.3 | MP1/MP3 |
| Create and interpret linear equations | A1.1.2.1.1A1.1.2.1.2A1.1.2.1.3 | MP1/MP3 |
| Solve linear equations | A1.1.2.1.1 | MP1/MP3 |
| Create and analyze linear graphs | CC.2.2.HS.D.7CC.2.2.HS.D.10 | MP1/MP3 |
| Solve and interpret absolute value | A1.1.3.1.1 | MP1/MP3 |
| Solve and interpret inequalities | A1.1.3.1.1A1.1.3.1.2A1.1.3.1.3 | MP1/MP3 |
| Graph inequalities | CC.2.2.HS.D.7CC.2.2.HS.D.10 | MP1/MP3 |
| Create, graph, and interpret linear systems | A1.1.3.2.1A1.1.3.2.2 | MP1/MP3 |
| Solve linear systems | A1.1.3.2.1 | MP1/MP3 |
| Calculate and use statistics of average, median, and mode | A1.2.3.1.1A1.2.3.2.1A1.2.3.2.2 | MP1/MP3 |
| Analyze and draw inferences data spread and variations | A1.2.3.1.1 | MP1/MP3 |
| Use rates and ratios to solve real-world and mathematical problems | A1.1.2.1.1A1.1.2.1.3A1.2.2.1.1 | MP1/MP3 |
| Solve real-world and mathematical problems involving percentages and percent of change | CC.2.4.HS.B.1A1.1.2.1.1A1.1.2.1.3A1.2.3.2.1A1.2.3.2.2 | MP1/MP3 |
| Use proportions and scaling to solve real-world and mathematical problems | A1.1.2.1.1A1.1.2.1.3 | MP1/MP3 |
| Analyze scatterplots, pie graphs, tables, histograms, and other graphs | A1.2.3.2.2 | MP1/MP3 |
| Explore and draw inferences from linear and nonlinear relationships in data | A1.2.3.2.3 | MP1/MP3 |
| **Mid-Term Review and Assessment** |  | MP1/MP3 |
| * Review and extend knowledge of Algebra 1
 |  | MP1/MP3 |
| * Review and extend knowledge of Problem Solving and Data Analysis
 |  | MP1/MP3 |
| Define and represent functions | CC.2.2.HS.C.1CC.2.2.HS.C.2A2.2.1.1.3A2.2.1.1.4A2.2.2.1.1 | MP2/MP4 |
| Use compositions and transformations of functions | CC.2.2.HS.C.1CC.2.2.HS.C.2A2.2.2.1.1A2.2.2.1.4 | MP2/MP4 |
| Add, subtract, multiply, and factor polynomials | A2.1.2.2A2.1.2.2.1 | MP2/MP4 |
| Solve quadratic equations | A2.1.3.1.1 | MP2/MP4 |
| Analyze the graphs of quadratic equations | CC.2.2.HS.C.2CC.2.2.HS.C.5 | MP2/MP4 |
| Solve and analyze polynomial equations | A2.1.3.1.2 | MP2/MP4 |
| Use and apply the Laws of Exponentials  | A2.1.2.1.1A2.1.2.1.2A2.1.2.1.3 | MP2/MP4 |
| Sove exponential equations | A2.1.3.1.2 | MP2/MP4 |
| Use and apply the Laws of Radicals | A2.1.2.1.1A2.1.2.1.2 | MP2/MP4 |
| Solve radical equations | A2.1.3.1.2 | MP2/MP4 |
| Calculate with and simplify rational expressions. | A2.1.2.2.2 | MP2/MP4 |
| Solve rational equations | A2.1.3.1.2 | MP2/MP4 |
| Use properties of angles formed by intersecting and parallel lines to find the measures of missing angles. | G.2.2.1.1G.2.2.1.2 | MP2/MP4 |
| Identify and use properties of triangles | G.1.2.1.1G.1.2.1.3 | MP2/MP4 |
| Apply coordinate geometry to prove geometric theorems algebraically | G.2.1.2.1G.2.1.2.3 | MP2/MP4 |
| Use the Pythagorean Theorem to write and solve real-world and mathematical problems involving right triangles | G.2.1.1.1 | MP2/MP4 |
| Calculate the distance and mid-point between two points | G.2.1.2.1G.2.1.2.3 | MP2/MP4 |
| Analyze graphs of circles in the coordinate plane | G.1.1.1.1CC.2.3.HS.A.11 | MP2/MP4 |
| Calculate the area and circumference of circles | G.2.2.2.1G.2.2.2.2 | MP2/MP4 |
| Use tangents of circles to find indicated measures | G.1.1.1.3 | MP2/MP4 |
| Use chords, arcs, and sectors to analyze areas and circumferences of circles | G.1.1.1.1G.1.1.1.2G.1.1.1.3 | MP2/MP4 |
| Determine and describe the measures of perimeter, circumference, and area of two-dimensional, irregular figures, and circles  | G.2.2.2.1G.2.2.2.2G.2.2.2.3G.2.2.2.4G.2.2.2.5 | MP2/MP4 |
| Determine and describe the measures of surface area and/or volume of three-dimensional shapes and figures | G.2.3.1.1G.2.3.1.2G.2.3.1.3 | MP2/MP4 |
| Identify and use the properties of congruent and similar polygons or solids | G.1.3.1.1 | MP2/MP4 |
| Identify and use proportional relationships in similar figures | G.1.3.1.2 | MP2/MP4 |
| Use trigonometric ratios to write and solve real-world and mathematical problems involving right triangles | G.2.1.1.2 | MP2/MP4 |
| Use the Pythagorean and Cofunction Identifies to solve real-world and mathematical problems involving right triangles | G.2.1.1.1G.2.1.1.2CC.2.2.HS.C.9 | MP2/MP4 |
| Simplify imaginary and complex numbers | A2.1.1.1.1A2.1.1.1.2 | MP2/MP4 |
| Add, subtract, multiply, and divide complex numbers | A2.1.1.2.1A2.1.1.2.2 | MP2/MP4 |
| **Final Exam Review and Assessment** |  | MP2/MP4 |
| * Review and extend knowledge of Algebra 1
 |  | MP2/MP4 |
| * Review and extend knowledge of Problem Solving and Data Analysis
 |  | MP2/MP4 |
| * Review and extend knowledge of Algebra 2
 |  | MP2/MP4 |
| * Review and extend knowledge of Geometry
 |  | MP2/MP4 |
| * Review and extend knowledge of Trigonometry
 |  | MP2/MP4 |
| * Review and extend knowledge of more Algebra 2
 |  | MP2/MP4 |

**ASSESSMENTS**

**PDE Academic Standards, Assessment Anchors, and Eligible Content:** The teacher must be knowledgeable of the PDE Academic Standards, Assessment Anchors, and Eligible Content and incorporate them regularly into planned instruction.

**Formative Assessments:** The teacher will utilize a variety of assessment methods to conduct in-process evaluations of student learning.

**Effective formative assessments for this course include:
Suggested but not limited to:**

* Pre-assessments of prior knowledge (e.g., Entrance cards or KWL chart)
* Bellringers/Problems of the Day (PODs)
* Discussions
* Exit ticket
* Teacher observations/Questioning
* Graphic organizers (e.g., Venn Diagrams, word mapping, webbing, KWL chart, etc.)
* Outlining
* Cooperative learning
* Written work
* Quizzes
* Oral response
* Self-evaluation
* Homework
* Summarizing
* Note-taking

**Summative Assessments:** The teacher will utilize a variety of assessment methods to evaluate student learning at the end of an instructional task, lesson, and/or unit.

**Effective summative assessments for this course include:
Suggested but not limited to:**

* Performance assessment
* Chapter/unit tests
* Quizzes
* Mid-term exam
* Final exam
* Projects
* Student presentations