MATHEMATICS

Mathematics is broadly defined as the study of numbers. The San Diego Unified School District’s mathematics program is designed to provide fundamental skills and to educate each student to his or her optimum potential by developing his or her ability to understand and use mathematics. The curriculum is planned to present the content and structure of mathematics to meet the needs of a career-oriented society.

Across grades TK–12, students build an understanding of the content, the conceptual strands of mathematics: number sense and operations; functions and algebra; measurement, geometry, and data analysis; and statistics and probability. In addition, they develop proficiency in the mathematical practices: quantitative literacy, computational fluency, problem solving, using representations, using reason and proof, communicating, making connections, and justification. The processes are the tools and habits of mind people use when solving problems.

STANDARDS

Educational standards describe what students should know and be able to do in each subject in each grade. In California, the State Board of Education decides on the standards for all students, from kindergarten through grade 12. In 2010, California joined with what is now a group of 44 other states to adopt the same standards for mathematics and English language arts. These standards are called the Common Core State Standards (CCSS). Having the same standards helps all students get a good education, even if they change schools or move to a different state. Teachers, parents, and education experts designed the CCSS to prepare students for success in college and the workplace. The San Diego Unified School District began full implementation of the CCSS in the 2014–15 school year.

The California Common Core State Standards for mathematics are available at: www.cde.ca.gov/re/cc/

CONTENTS

This section is divided into the following subsections:

• Elementary courses (grades TK–6), arranged by grade level, p. MATH-2
• Secondary Mathematics Course Sequence, p. MATH-4
• Middle-level courses (grades 5–8), arranged alphabetically, p. MATH-5
• Senior high courses (grades 9–12), arranged alphabetically, p. MATH-8
**Elementary Mathematics Courses (Grades TK–6)**

Strands (Themes) Emphasized, All Grades

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>TK</th>
<th>K</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<tbody>
<tr>
<td>Number Sense</td>
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<td></td>
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<td>Algebra and Functions</td>
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<tr>
<td>Measurement and Geometry</td>
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<td></td>
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<tr>
<td>Data Analysis, Statistics, and Probability</td>
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<td></td>
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<tr>
<td>Mathematical Reasoning</td>
<td></td>
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</tr>
</tbody>
</table>

**TRANSITIONAL KINDERGARTEN**

Transitional Kindergarten students build an understanding of small numbers, quantities, and simple shapes in their everyday environment. They develop number sense and learn simple operations and classification. Students make decisions about how to set up and solve problems in reasonable ways.

**BASIC INSTRUCTIONAL MATERIALS**

*enVision Math 2.0, Pearson, 2016.*

District units.

**Supplemental Resource**

*ST Math*

**KINDERGARTEN**

Kindergarten students build an understanding of small numbers, quantities, and simple shapes in their everyday environment. They count, compare, describe, and sort objects, and develop a sense of properties and patterns. Students make decisions about how to set up and solve problems in reasonable ways and justify their reasoning.

**BASIC INSTRUCTIONAL MATERIALS**

*enVision Math 2.0, Pearson, 2016.*

District units.

**Supplemental Resource**

*ST Math*

**GRADE 1**

First grade students build an understanding of ones and tens in the place value number system. Students add and subtract small numbers with ease. They measure with simple units and locate objects in space. They describe data. Students make decisions about how to set up and solve problems and justify their reasoning. Students note connections between one problem and another.

**BASIC INSTRUCTIONAL MATERIALS**

*enVision Math 2.0, Pearson, 2016.*

District units.

**Supplemental Resource**

*ST Math*

**GRADE 2**

Second grade students build an understanding of place value and number relationships in addition and subtraction, and they use simple concepts of multiplication. They measure quantities with appropriate units. They classify shapes and see relationships among them by paying attention to their geometric attributes. They collect and analyze data and verify their answers. Students make decisions about how to set up and solve problems and justify their reasoning. Students note connections between one problem and another.

**BASIC INSTRUCTIONAL MATERIALS**

*enVision MATH 2.0, Pearson, 2016.*

District units.

**Supplemental Resource**

*ST Math*
GRADE 3
Third grade students deepen their understanding of place value and their understanding of and skill with addition, subtraction, multiplication, and division of whole numbers. Students estimate, measure, and describe objects in space. They use patterns to help solve problems. They represent number relationships and conduct simple probability experiments. Students make decisions about how to approach problems; use strategies, skills, and concepts in finding solutions; and generalize to other problem situations.

BASIC INSTRUCTIONAL MATERIALS
District units.

Supplemental Resource
ST Math

GRADE 4
Fourth grade students build an understanding of large numbers and addition, subtraction, multiplication, and division of whole numbers. They describe and compare simple fractions and decimals. They understand the properties of, and the relationships between, plane geometric figures. They collect, represent, and analyze data to answer questions. Students make decisions about how to approach problems; use strategies, skills, and concepts in finding solutions; and generalize to other problem situations.

BASIC INSTRUCTIONAL MATERIALS
District units.

Supplemental Resource
ST Math

GRADE 5
Fifth grade students increase their facility with the four basic arithmetic operations applied to fractions and decimals. They also learn to add and subtract positive and negative numbers. They know and use common measuring units to determine length and area and know and use formulas to determine the volume of simple geometric figures. Students work with angle measurement and use a protractor and compass to solve problems. They use grids, tables, graphs, and charts to record and analyze data. Students make decisions about how to approach problems; use strategies, skills, and concepts in finding solutions; and generalize to other problem situations.

BASIC INSTRUCTIONAL MATERIALS
District units.

Supplemental Resource
ST Math

GRADE 6
Grade 6 math addresses the Common Core State Standards. Instruction focuses on (1) connecting ratio and rate to whole-number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing an understanding of division and fractions and extending the notion of number to the system of rational numbers, including negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing an understanding of statistical thinking.

BASIC INSTRUCTIONAL MATERIALS
Secondary Mathematics Course Sequence

**MIDDLE SCHOOL**
- 6th: Math 6th (4133)
- 7th: Math 7th (4134) → Math 8th (4135)
- 8th: Accelerated Math 8th (4136) → Accelerated Math 9th (4137) → Integrated Math Advanced (4165, 4166)

**HIGH SCHOOL**
- 9th: Integrated Math (4157, 4150)
- 10th: Integrated Math II (4157, 4150) → Integrated Math II Advanced (4165, 4166)
- 11th: Integrated Math III (4167, 4160) → Precalculus
  - Precalculus Honors
  - AP Calculus AB/BC
  - Statistics AP

- 12th: Math 250 Honors Calc Topics in Discrete Math

* Indicates weighted grades
** Community College course

Multiple measures for site to use when determining placement into accelerated or advanced:
1. SBAC
2. End of Course or Readiness Test (Advanced level)
3. Grades
4. Teacher recommendation per principal request

Support Courses for Middle School:
1. Step Up to Middle School Math (Pair with Math 6, 7, or 8)

Support Courses for High School:
1. Power Up I (Pair with Integrated Math I)
2. Power Up II (Pair with Integrated Math II)
3. Power Up III (Pair with Integrated Math III)
### Middle-level Mathematics Courses (Grades 5–8)

**Sequence of Districtwide Courses***

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>5th</th>
<th>6th</th>
<th>7th</th>
<th>8th</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grade-level Sequence</strong></td>
<td>Mathematics 5th (4004)*</td>
<td>Math 6th (4133)**</td>
<td>Math 7th (4134)</td>
<td>Math 8th (4135)</td>
</tr>
<tr>
<td><strong>Support Course</strong></td>
<td></td>
<td>Step Up to Middle School Math (4144)</td>
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<td></td>
</tr>
<tr>
<td><strong>Advanced Sequence‡</strong></td>
<td></td>
<td>Accelerated Math 6th (4136)</td>
<td>Accelerated Math 7th (4137)**</td>
<td>Integrated Math I Advanced (4165, 4166)§</td>
</tr>
</tbody>
</table>

* Pilot courses and courses approved by the Board of Education to be offered at specific sites only are also described below. Please note that other schools may not offer these courses without prior approval from the Interdivisional Curriculum Committee.

† For students in grades 5 at schools that use a secondary-type master schedule.

§ This course is currently accepted by the University of California as meeting its c (mathematics) subject-area requirement. However, each district high school seeking recognition by the university of this course for its students must include the course on its individual UC-approved list.

‡ Placement of students into the advanced sequence is based on the following measures: (1) SBAC scores, (2) End-of-course or readiness test results at the advanced level, (3) grades, and (4) recommendations.

** ** Movement from Common Core Math 6th (4133) to Accelerated Math 7th (4137) is possible if students meet the criteria in the note above.

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The following course descriptions are arranged **alphabetically**. Refer to the chart above for guidance.

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**ACCELERATED MATH 6TH • 4136**

**Grade level:** 6  
**Prerequisites:** Student meets the district’s recommended criteria for placement  
**Course duration:** One year

**COURSE DESCRIPTION**

Accelerated Math 6th is the first of two courses for advanced learners in the Common Core State Standards math curriculum at the middle level. It begins an advanced or accelerated pathway that allows students to complete a three-year sequence of grade-level curriculum in two years. The course differs from the standard grade 6 math course (Math 6th [4133]) in that it addresses all of the grade 6 standards plus half of those from grade 7, which demands a faster pace for instruction and learning.

**BASIC INSTRUCTIONAL MATERIALS**


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**ACCELERATED MATH 7TH • 4137**

**Grade level:** 7  
**Prerequisites:** Student meets the district’s recommended criteria for placement  
**Course duration:** One year

**COURSE DESCRIPTION**

Accelerated Math 7th is the second of two courses for advanced learners in the Common Core State Standards math curriculum at the middle level. It completes an advanced or accelerated pathway that allows students to complete a three-year sequence of grade-level curriculum in two years. The course differs from the standard grade 7 math course (Math 7th [4134]) in that it contains the second half of the content from grade 7 and all of the content from grade 8, which demands a faster pace for instruction and learning.

**BASIC INSTRUCTIONAL MATERIALS**

INTEGRATED MATH I A-B ADVANCED
(P) • 4165, 4166
Grade level: 8–10
Prerequisites: Student meets the district’s recommended
criteria for placement
Course duration: One year
Graduation credit: Mathematics
UC subject area satisfied: c (mathematics)

COURSE DESCRIPTION
Integrated Math I Advanced is the first course in the
accelerated pathway to calculus. The course includes the
content of the standard Integrated Math I course
(Integrated Math I A-B [4157, 4158]) plus an additional
two units that will provide opportunities for students to
begin working with the advanced + Common Core State
Standards.

BASIC INSTRUCTIONAL MATERIALS

MATH 6TH • 4133
Grade level: 6
Prerequisites: None
Course duration: One year

COURSE DESCRIPTION
Math 6th is the first middle-level core math course that
addresses the Common Core State Standards. Instruction
focuses on (1) connecting ratio and rate to whole-number
multiplication and division and using concepts of ratio
and rate to solve problems; (2) completing an
understanding of division and fractions and extending
the notion of number to the system of rational numbers,
including negative numbers; (3) writing, interpreting,
and using expressions and equations; and (4) developing
an understanding of statistical thinking.

BASIC INSTRUCTIONAL MATERIALS
Big Ideas Math Course 1: A Common Core Curriculum, CA,
Big Ideas Learning, 2015.

MATH 7TH • 4134
Grade level: 7
Prerequisites: Math 6th (4133)
Course duration: One year

COURSE DESCRIPTION
Math 7th is the second middle-level core math course.
Instruction focuses on (1) developing an understanding
of proportional relationships and their applications; (2)
developing an understanding of operations with rational
numbers and working with expressions and linear
equations; (3) solving problems involving scale drawings
and informal geometric constructions, and working with
two- and three-dimensional shapes to solve problems
involving area, surface area, and volume; (4) drawing
inferences about populations based on samples. Students
apply the concepts they have learned in previous grades
to increasingly complex problems and situations that
model real-world math challenges.

BASIC INSTRUCTIONAL MATERIALS
Big Ideas Math Course 2: A Common Core Curriculum, CA,
Big Ideas Learning, 2015.

MATH 8TH • 4135
Grade level: 8
Prerequisites: Math 7th (4134)
Course duration: One year

COURSE DESCRIPTION
Math 8th is the third and culminating middle-level core
math course. Instruction focuses on the study of
expressions and equations, functions, and two- and
three-dimensional figures. Students apply concepts they
have learned previously to increasingly complex and
abstract problems that model real-world math
challenges. The course lays the groundwork for students
to master higher-level high school mathematics.

BASIC INSTRUCTIONAL MATERIALS
Big Ideas Math Course 3: A Common Core Curriculum, CA,
Big Ideas Learning, 2015.
MATHEMATICS 5TH (4004)
Grade level: 5
Prerequisites: None
Course duration: One year

COURSE DESCRIPTION

Site-adopted Course. Approved for Dana Middle School. Other schools may not offer this course without prior approval from the Interdivisional Curriculum Committee.

This course offers grade 5 students assigned to classes within a secondary school master-scheduling environment a standards-based curriculum. The course emphasizes the following strands: Number Sense and Operations; Functions and Algebra; Measurement and Geometry; Data Analysis, Statistics and Probability; Problem Solving, Mathematical Reasoning, and Communication.

In Mathematics 5th, students increase their facility with the four basic arithmetic operations applied to fractions, decimals, and positive and negative numbers. They know and use common measuring units to determine length and area and know and use formulas to determine the volume of simple geometric figures. Students work with angle measurement and use a protractor and compass to solve problems. They use grids, tables, graphs, and charts to record and analyze data. Students make decisions about how to approach problems; use strategies, skills, and concepts in finding solutions; and generalize to other problem situations.

Basic Instructional Materials
District concept guides.

STEP UP TO MIDDLE SCHOOL MATH • 4144
STEP UP TO MIDDLE SCHOOL MATH 6TH • 4646
STEP UP TO MIDDLE SCHOOL MATH 7TH • 4647
STEP UP TO MIDDLE SCHOOL MATH 8TH • 4648

Grade level: 6–8
Prerequisites: Concurrent enrollment in Math 6th (4133), Math 7th (4134), or Math 8th (4135)
Course duration: One or two semesters; may be repeated for credit

COURSE DESCRIPTION

Step Up to Middle School Math is an elective support courses for students in grades 6–8 and is taken concurrently with their grade-level math course, at the recommendation of the teacher. It is designed for students whose placement indicators show a need for targeted support to ensure success. The course provides remediation for gaps in students’ learning, front loads crucial concepts, and provides parallel lessons to build prerequisite skills. This course replaces the district’s math Advancement Academy courses.

Basic Instructional Materials
Big Ideas Math Course 1: A Common Core Curriculum, CA, Big Ideas Learning, 2015, or
Big Ideas Math Course 2: A Common Core Curriculum, CA, Big Ideas Learning, 2015, or
Big Ideas Math Course 3: A Common Core Curriculum, CA, Big Ideas Learning, 2015
Senior High Mathematics Courses (Grades 9–12)
Sequence of Districtwide Courses*

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>9</th>
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<th>11</th>
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<tr>
<td><strong>Grade-level Sequence</strong></td>
<td></td>
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<td></td>
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<tr>
<td>9</td>
<td>Integrated Math I (4157, 4158)†</td>
<td></td>
<td>Integrated Math II (4159, 4160)†</td>
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<tr>
<td>10</td>
<td>Integrated Math III (4163, 4164)†</td>
<td>Power Up I (4763, 4764)</td>
<td>Power Up II (4765, 4766)</td>
<td>Power Up III (4767, 4768)</td>
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<tr>
<td>12</td>
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<tr>
<td><strong>Support Courses</strong></td>
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</tr>
<tr>
<td>9</td>
<td>Power Up I (4763, 4764)</td>
<td>Power Up II (4765, 4766)</td>
<td>Power Up III (4767, 4768)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Integrated Math I Advanced (4165, 4166)†</td>
<td>Integrated Math II Advanced (4167, 4168)†</td>
<td>Integrated Math III Advanced (4169, 4170)†</td>
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</tr>
<tr>
<td>11</td>
<td>Integrated Math III Advanced (4169, 4170)†</td>
<td>AP Calculus AB (4189, 4190)†</td>
<td>AP Calculus BC (4197, 4198)†</td>
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</tr>
<tr>
<td>12</td>
<td>Integrated Math III Advanced (4169, 4170)†</td>
<td>PreCalculus (4161, 4162)†</td>
<td>Honors PreCalculus (4181, 4182)†</td>
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<tr>
<td></td>
<td>Integrated Math III Advanced (4169, 4170)†</td>
<td>Statistics and Data Analysis (4046, 4047)†</td>
<td>AP Statistics (4055, 4056)†</td>
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<tr>
<td></td>
<td>Integrated Math III Advanced (4169, 4170)†</td>
<td>Topics in Discrete Math (4185, 4186)†</td>
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</tbody>
</table>

* Pilot courses and courses approved by the Board of Education to be offered at specific sites only are also described below. Please note that other schools may not offer these courses without prior approval from the Interdivisional Curriculum Committee.

† This course is currently accepted by the University of California as meeting its mathematics subject-area requirement. However, each district high school seeking recognition by the university of this course for its students must include the course on its individual UC-approved list.

‡ Multiple measures for sites to use when determining placement into advanced courses include (1) SBAC scores, (2) End-of-course or readiness-test results at the advanced level, (3) grades, and (4) recommendation.

Districtwide Courses in Grades 8–12 that Meet SDUSD High School Graduation Requirements for Mathematics

**Beginning with the class of 2016:** six semester credits in courses that meet the University of California’s mathematics subject-area requirement, as follows:
- Two credits in Integrated Math I
- Two credits in Integrated Math II
- Two credits in Integrated Math III

<table>
<thead>
<tr>
<th>Integrated Math I</th>
<th>Integrated Math II</th>
<th>Integrated Math III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Math I (4157, 4158)</td>
<td>Integrated Math II (4159, 4160)</td>
<td>Integrated Math III (4163, 4164)</td>
</tr>
<tr>
<td>Integrated Math I Advanced (4165, 4166)</td>
<td>Integrated Math II Advanced (4167, 4168)</td>
<td>Integrated Math III Advanced (4169, 4170)</td>
</tr>
</tbody>
</table>
The following course descriptions are arranged alphabetically. Refer to the chart on page MATH-8 for guidance.

**BRINGING MATH TO LIFE; SOFTWARE DESIGN AND DATA SCIENCE AB 1-2 (P) • 4620, 4621**

*Grade level:* 9–12  
*Prerequisites:* None  
*Co-requisites:* Integrated Mathematics I  
*Course duration:* Two semesters  
*Type of graduation credit earned:* Elective  
*UC subject area satisfied:* g (elective)

**Course Description**
The course seeks to introduce students to computer and data science-including computer programming, game design, and data analysis-while reinforcing mathematical concepts. There are two main themes: Using applied algebra and geometry, students design and create computer game that demonstrates the relevance of mathematics in software application. Using applied statistics, students design and write a report analyzing a real-world dataset. Throughout the course, students will integrate algebraic, geometric, and statistical concepts in a software development environment to develop and strengthen technical and workplace skills and communication. Students use information and communication technology (ICT) practices to share their activities and final project with each other, teachers and others. Upon the completion of the course, students will be familiar with the variety of ways that mathematics is used in software development, game design, and data science.

**Basic Instructional Materials**
https://cseweb.ucsd.edu/~jpolitz/integrated-math/algebra-pyretext/english/. Creative Commons 4.0 Unported License. Based on a work at www.BootstrapWorld.org. Permissions beyond the scope of this license may be available by contacting schanzer@BootstrapWorld.org.

**CALCULUS AB 1-2 AP (HP) • 4189, 4190**

*Grade level:* 11–12  
*Prerequisites:* Integrated Math III A-B Advanced or Precalculus 1-2 Honors; student must meet district’s recommended criteria for placement  
*Course duration:* One year  
*Graduation credit:* Mathematics; weighted  
*UC subject area satisfied:* c (mathematics)

**Course Description**
This course follows the standard syllabus of Advanced Placement Calculus AB as described in the College Board’s most recent Advanced Placement Course Description: Calculus. It provides students the opportunity to sit for an advanced placement examination and earn college credit if they obtain a score of 3, 4, or 5 on the exam.

**Basic Instructional Materials**

**CALCULUS BC 1-2 AP (HP) • 4197, 4198**

*Grade level:* 11–12  
*Prerequisites:* Calculus AB 1-2 AP  
*Course duration:* One year  
*Graduation credit:* Mathematics; weighted  
*UC subject area satisfied:* c (mathematics)

**Course Description**
This course offers students a full academic year of work in calculus comparable to a college-level course in the subject. It contains all the content of Calculus AB 1-2 AP and provides students with additional experience in the methods and applications covered in that course, expressing concepts, problems, and results geometrically, numerically, analytically and verbally.

**Basic Instructional Materials**
FINANCIAL MATH I,II (P) • 0760, 0762
Grade level: 12
Prerequisites: Integrated Mathematics III (Required)
Course duration: One year
Graduation credit: Mathematics
UC subject area satisfied: g (Elective)

COURSE DESCRIPTION
Site Adopted Course. Approved for Mira Mesa High School. Other schools may not offer this course without prior approval from the Interdivisional Curriculum Committee.

Financial Math explores saving and investing, credit and debt, financial responsibility and money management, insurance and risk management, and income and careers. Common Core standards for mathematical practice as well as algebra and statistics/probability standards are incorporated to increase fluency in personal finance and consumer awareness.

BASIC INSTRUCTIONAL MATERIALS
Pending

INTEGRATED MATH I A-B (P) • 4157, 4158
Grade level: 9-10
Prerequisites: None
Course duration: One year
Graduation credit: Mathematics
UC subject area satisfied: c (mathematics)
Online Equivalent: EDG CC MATH I A-B (P) 4742, 4743

COURSE DESCRIPTION
Integrated Math I is the first of three high school-level courses that integrate the content of algebra, geometry, and intermediate algebra, as defined by the Mathematics Framework for California Public Schools, under the Common Core State Standards. This course formalizes and extends the mathematics that students learned in middle school.

BASIC INSTRUCTIONAL MATERIALS

MATHEMATICS I: INTEGRATED CME PROJECT, PEARSON, 2013.

SUPPLEMENTAL MATERIALS

INTEGRATED MATH I A-B ADVANCED (P) • 4165, 4166
Grade level: 8-10
Prerequisites: Completion of Accelerated Math 7th or Math 8th with a grade of B or better
Course duration: One year
Graduation credit: Mathematics
UC subject area satisfied: c (mathematics)

COURSE DESCRIPTION
Integrated Math I Advanced is the first course in the accelerated pathway to calculus. The course is designed for advanced grade 8 students. It includes the content of the standard Integrated Math I course (Integrated Math I A-B) plus an additional two units that will provide opportunities for students to begin working with the advanced + Common Core State Standards.

BASIC INSTRUCTIONAL MATERIALS

INTEGRATED MATH II A-B (P) • 4159, 4160
Grade level: 9-11
Prerequisites: Integrated Math I A-B or Integrated Math I A-B Advanced
Course duration: One year
Graduation credit: Mathematics
UC subject area satisfied: c (mathematics)
Online Equivalent: EDG CC MATH II A-B (P) 4744, 4745

COURSE DESCRIPTION
Integrated Math II is the second of three high school-level courses that integrate the content of algebra, geometry, and intermediate algebra, as defined by the Mathematics Framework for California Public Schools, under the Common Core State Standards. This course
focuses on quadratic expressions, equations, and functions while comparing their characteristics and behavior to those of linear and exponential relationships as encountered in Integrated Math I A-B.

**Basic Instructional Materials**

**Integrated Math II A-B Advanced (P) • 4167, 4168**

*Grade level: 9–11*

*Prerequisites*: Integrated Math I A-B Advanced or student meets the district’s recommended criteria for placement

*Course duration*: One year

*Graduation credit*: Mathematics

*UC subject area satisfied*: c (mathematics)

**Course Description**
Integrated Math II Advanced is the second course in the accelerated pathway to calculus. The course integrates the Common Core State Standards as outlined in the Mathematics Framework for California Public Schools with additional higher-level standards. The intent of the course is to prepare students for Integrated Math III Advanced.

Students will be exposed to the content of the standard Integrated Math II course (4159, 4160) with the expectation that they will explore that content more deeply, including studying and analyzing conic sections and vectors and their relationships to complex numbers.

**Basic Instructional Materials**

**Integrated Math III A-B Advanced (P) • 4169, 4170**

*Grade level: 10–12*

*Prerequisites*: Integrated Math II A-B Advanced or student meets the district’s recommended criteria for placement

*Course duration*: One year

*Graduation credit*: Mathematics

*UC subject area satisfied*: c (mathematics)

**Course Description**
Integrated Math III Advanced is the third course in the accelerated pathway to calculus. The course integrates the Common Core State Standards as outlined in the mathematics framework with additional higher-level standards. The intent of the course is to prepare students for an AP calculus course.

Students will be exposed to the content of the standard Integrated Math III course (4163, 4164) with the expectation that they will explore that content more deeply. They will bring together all their experiences with data, functions, and geometry to create models and solve contextual problems. They relate combinations and permutations to the binomial theorem. They expand their knowledge of complex numbers using trigonometry.

**Basic Instructional Materials**
MATH ANALYSIS AND APPROACHES SL1
1-2 IB (P) • 4690, 4691

Grade level: 11–12
Prerequisites: Integrated Math II or Integrated Math II Advanced
Course duration: One year
Graduation credit: Mathematics, weighted
UC subject area satisfied: c (mathematics)

COURSE DESCRIPTION

Pilot Course. Approved for San Diego International Studies. This course is specific to this schools’ International Baccalaureate magnet program and is not available to other sites.

Math Analysis and Approaches SL IB is an International Baccalaureate Diploma Programme course for students in grades 11-12 who want to become fluent in the constructions of mathematical arguments and develop strong skills in mathematical thinking. It is aimed at students who will go on to study subject with substantial math content at the college level (e.g. engineering, physical sciences.) The course emphasizes calculus and algebraic, graphical and numerical approaches. It prepares students for the IB SL exams in this subject.

BASIC INSTRUCTIONAL MATERIALS
Site selected IB materials.

MATHEMATICAL STUDIES SL 1-2 IB (P) • 4291, 4292

Grade level: 11-12
Prerequisites: None
Course duration: One year
Graduation credit: Mathematics
UC subject area satisfied: c (mathematics)

COURSE DESCRIPTION

Site-adopted Course. Approved for San Diego International Studies and Mission Bay High Schools. This course is specific to these schools’ International Baccalaureate magnet program and is not available to other sites.

This course is available only at standard level, and is equivalent in status to mathematics SL, but addresses different needs. It has an emphasis on applications of mathematics, and the largest section is on statistical techniques. It is designed for students with varied mathematical backgrounds and abilities. It offers students opportunities to learn important concepts and techniques and to gain an understanding of a wide variety of mathematical topics. It prepares students to be able to solve problems in a variety of settings, to develop more sophisticated mathematical reasoning, and to enhance their critical thinking. Each student completes an individual project, which is an extended piece of work based on personal research involving the collection, analysis, and evaluation of data. Students taking this course are well prepared for a career in social sciences, humanities, languages or arts. These students may need to utilize the statistics and logical reasoning that they have learned as part of this course in their future studies.

Math Analysis and Approaches HL1 IB is the first year of a two-year International Baccalaureate Diploma Programme course for students in grades 11-12 who want to become fluent in the constructions of mathematical arguments and develop strong skills in mathematical thinking. It is aimed at students who will go on to study subject with substantial math content at the college level (e.g. engineering, physical sciences.) The course emphasizes calculus and algebraic, graphical and numerical approaches. It prepares students for the IB SL exams in this subject.

BASIC INSTRUCTIONAL MATERIALS
Site selected IB materials.

MATH ANALYSIS AND APPROACHES HL1
1-2 IB (HP) • 4692, 4693

Grade level: 11-12
Prerequisites: Integrated Math II or Integrated Math II Advanced
Course duration: One year
Graduation credit: Mathematics, weighted
UC subject area satisfied: c (mathematics)

COURSE DESCRIPTION

Pilot Course. Approved for San Diego International Studies. This course is specific to this schools’ International Baccalaureate magnet program and is not available to other sites.

Math Analysis and Approaches HL1 IB is the first year of a two-year International Baccalaureate Diploma Programme course for students in grades 11-12 who want to become fluent in the constructions of mathematical arguments and develop strong skills in mathematical thinking. It is aimed at students who will go on to study subject with substantial math content at the college level (e.g. engineering, physical sciences.) The course emphasizes calculus and algebraic, graphical and numerical approaches. It prepares students for the IB SL exams in this subject.
Mathematics HL1 1-2 IB (P) • 4195, 4196

Grade level: 11–12

Prerequisites: Concurrent enrollment in or completion of (grade B or better) Precalculus 1-2 Honors

Course duration: One year

Graduation credit: Mathematics

UC subject area satisfied: c (mathematics)

COURSE DESCRIPTION

Site-adopted Course. Approved for San Diego International Studies and Mission Bay High Schools. This course is specific to these schools’ International Baccalaureate magnet program and is not available to other sites.

Mathematics HL1 IB 1-2 is the first course in a two-year course of study that prepares students to take the IB Higher Level (HL) exam in mathematics and satisfies the Group 5 (Mathematics) requirement for the International Baccalaureate diploma. It includes instruction in seven core topics—algebra, functions and equations, circular functions and trigonometry, matrices, vectors, statistics and probability, and calculus—and one optional topic (series and differential equations).

Mathematics HL2 1-2 IB (HP) • 4173, 4174

Grade level: 11–12

Prerequisites: A grade of B or better in Precalculus 1-2 Honors and successful completion of Topics in Discrete Mathematics 1,2

Course duration: One year

Graduation credit: Mathematics; weighted

UC subject area satisfied: c (mathematics)

COURSE DESCRIPTION

Site-adopted Course. Approved for San Diego International Studies and Mission Bay High Schools. This course is specific to these schools’ International Baccalaureate magnet program and is not available to other sites.

This course continues instruction begun in Mathematics HL1 IB on seven core topics (algebra, functions and equations, circular functions and trigonometry, matrices, vectors, statistics and probability, and calculus) and one option topic (series and differential equations), and includes preparation of the IB-required portfolio of two pieces of work: an investigation and a mathematical modeling assignment.

Mathematics SL 1-2 IB (P) • 4295, 4296

Grade level: 11–12

Prerequisites: None

Course duration: One year

Graduation credit: Mathematics

UC subject area satisfied: c (mathematics)

COURSE DESCRIPTION

Site-adopted Course. Approved for San Diego International Studies and Mission Bay High Schools. This course is specific to these schools’ International Baccalaureate magnet program and is not available to other sites.

This course is designed for students who already possess knowledge of basic mathematical concepts and who are equipped with the skills needed to apply simple mathematical techniques correctly. The majority of students in this course are looking for a sound mathematical background as they prepare for future studies in subjects such as chemistry, economics, psychology, or business administration.

Power Up I A,B • 4763, 4764

Grade level: 9-10

Prerequisites: Concurrent enrollment in Integrated Math I

Course duration: Two semesters

Graduation credit: Elective

COURSE DESCRIPTION

Power Up I is an elective support course for students in grades 9–12 and must be taken concurrently with the first course in the Integrated Math series. The course is designed to fill gaps in knowledge for students who need targeted remediation. The course uses direct
instruction and computer-based learning to build students’ skill sets, help them master requisite skills, and front load concepts. This course replaces the district’s math Advancement Academy courses.

**Basic Instructional Materials**

District scope and sequence.

**Power Up II A,B • 4765, 4766**

**Grade level:** 10–11  
**Prerequisites:** Concurrent enrollment in Integrated Math II  
**Course duration:** Two semesters  
**Graduation credit:** Elective

**Course Description**

Power Up II is an elective support course for students in grades 10–11 and must be taken concurrently with the second course in the Integrated Math series. The course is designed to fill gaps in knowledge for students who need targeted remediation. The course uses direct instruction and computer-based learning to build students’ skill sets, help them master requisite skills, and front load concepts. This course replaces the district’s math Advancement Academy courses.

**Basic Instructional Materials**

District scope and sequence.

**Power Up III A,B • 4767, 4768**

**Grade level:** 10–12  
**Prerequisites:** Concurrent enrollment in Integrated Math III  
**Course duration:** Two semesters  
**Graduation credit:** Elective

**Course Description**

Power Up III is an elective support course for students in grades 10–12 and must be taken concurrently with the third course in the Integrated Math series. The course is designed to fill gaps in knowledge for students who need targeted remediation. The course uses direct instruction and computer-based learning to build students’ skill sets, help them master requisite skills, and front load concepts. This course replaces the district’s math Advancement Academy courses.

**Basic Instructional Materials**

District scope and sequence.

**Precalculus 1-2 (P) • 4161, 4162**

**Grade level:** 11–12  
**Prerequisites:** Integrated Math III A-B or Integrated Math III A-B Advanced  
**Course duration:** One year  
**Graduation credit:** Mathematics  
**UC subject area satisfied:** c (mathematics)  
**Online Equivalent:** EDG CC PRECAL 1-2 (P) 4263, 4264

**Course Description**

This course is normally offered only to grade 12 students and well-prepared grade 11 students. The course includes two semesters of integrated concepts of trigonometry and advanced algebra in such a form as to make them most useful for later study of analytic geometry and calculus. This course also includes an introduction to topics in discrete mathematics.

**Basic Instructional Materials**


**Precalculus 1-2 Honors (HP) • 4181, 4182**

**Grade level:** 11–12  
**Prerequisites:** Integrated Math III A-B or Integrated Math III A-B Advanced  
**Course duration:** One year  
**Graduation credit:** Mathematics, weighted  
**UC subject area satisfied:** c (mathematics)

**Course Description**

This course is offered to grade 11 students who have demonstrated superior achievement and motivation in mathematics. The course is designed to be a third-year course in algebra. It includes a strong treatment of trigonometry, limits, and algebraic functions. After
successful completion of this course, the student will be prepared for the first course of calculus.

**Basic Instructional Materials**

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**Statistics 1-2 AP (HP) • 4055, 4056**

**Grade level:** 11–12  
**Prerequisites:** Integrated Math III A-B or Integrated Math III A-B Advanced  
**Course duration:** One year  
**Graduation credit:** Mathematics; weighted  
**UC subject area satisfied:** c (mathematics)

**Course Description**
AP Statistics is equivalent to an introductory, non-calculus-based college course in statistics. The course introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. It is built around four themes: exploring data, sampling and experimentation, anticipating patterns, and statistical inference. Students use technology, investigations, problem solving, and writing as they build conceptual understanding.

**Basic Instructional Materials**

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**Statistics and Data Analysis 1-2 (P) • 4046, 4047**

**Grade level:** 11–12  
**Prerequisites:** Integrated Math III A-B or Integrated Math III A-B Advanced  
**Course duration:** One year  
**Graduation credit:** Mathematics  
**UC subject area satisfied:** c (mathematics)

**Course Description**
This course provides students in grades 11–12 with another mathematics course option. In this course, students will be introduced to the major concepts of probability, interpretation of data, and statistical problem solving. Students will learn the course concepts through hands-on experimentation and investigation. They will analyze existing data as well as data collected through a survey, observational study or experiment. They will then display the data in different ways, analyze it, and draw conclusions based on the results. The four main components of the course are: exploring data, data collection, probability, and inference.

**Basic Instructional Materials**