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# 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 K-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 processes: quantitative literacy, computational fluency, problem solving, using representations, using reason and proof, communicating, and making connections. The processes are the tools and habits of mind people use when solving problems.

In January 2001, the San Diego Unified School

District Board of Education formally adopted the state academic standards for mathematics for use in the district. The board made its decision to ensure clear links to the state assessment and accountability systems, the curriculum adoption process, and state-sponsored professional development. The state mathematics standards are available at the following Web site:

*[www.cde.ca.gov/be/st/ss/index.asp](http://www.cde.ca.gov/be/st/ss/index.asp)*

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## Elementary Mathematics Courses (Grades K–6)

Strands (Themes) Emphasized, All Grades

Grade Level						
Kindergarten	1	2	3	4	5	6
Number Sense						
Algebra and Functions						
Measurement and Geometry						
Statistics, Data Analysis, and Probability						
Mathematical Reasoning						

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### GRADE K

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 TEXTS AND TEACHING GUIDES

*Harcourt Math*, Harcourt School Publishers, 2002.

Instructional modules prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

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### 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 TEXTS AND TEACHING GUIDES

*Harcourt Math*, Harcourt School Publishers, 2002.

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### 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 TEXTS AND TEACHING GUIDES

*Harcourt Math*, Harcourt School Publishers, 2002.

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### 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 TEXTS AND TEACHING GUIDES**

*Harcourt Math*, Harcourt School Publishers, 2002.

Instructional modules prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

### **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 TEXTS AND TEACHING GUIDES**

*Harcourt Math*, Harcourt School Publishers, 2002.

Instructional modules prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

### **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 TEXTS AND TEACHING GUIDES**

*Harcourt Math*, Harcourt School Publishers, 2002.

Instructional modules prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html).

### **GRADE 6**

Sixth grade students use the four arithmetic operations with whole numbers, positive fractions, positive decimals, and positive and negative integers. They study statistics and probability and work with ratios and proportions. Students learn the circumference and area of a circle and develop beginning algebraic understanding. Students make decisions about how to approach problems; use strategies, skills, and concepts in finding solutions; and generalize to other problem situations.

#### **BASIC TEXTS AND TEACHING GUIDES**

*Harcourt Math*, Harcourt School Publishers, 2002.

Instructional modules prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

### Middle-level Mathematics Courses (Grades 5–8)

Districtwide Courses\*

	Grade Level			
	5 <sup>†</sup>	6 <sup>†</sup>	7	8
<b>At grade level</b>	Mathematics 5th Block (4009)	Mathematics 6th (4002) Mathematics 6th Block (4012)	Pre-Algebra 7th (4001) Pre-Algebra 7th Block (4013)	<b>Algebra 1-2 (4041, 4042)<sup>§</sup></b> <b>Algebra 1-2 Block (4021, 4022)**</b>
<b>Below grade level</b>		Mathematics Exploration 6th (4006) Mathematics Exploration 6th Block (4008)	Pre-Algebra Exploration 7th (4007) Pre-Algebra Exploration 7th Block (4018)	Algebra Readiness MS (4080)
<b>Support course</b>		Mathematics Advancement Academy 6th (4057)	Mathematics Advancement Academy 7th (4058)	Mathematics Advancement Academy 8th (4059) Algebra Readiness Advancement Academy (4060)
<b>Above grade level</b>			Pre-Algebra Advanced (4051) Pre-Algebra Advanced 7th Block (4050)	<b>Algebra 1-2 Advanced (4063, 4064)</b> <b>Algebra 1-2 Advanced Block (4061, 4062)**</b>

\* Pilot courses and courses approved by the Board of Education to be offered at specific sites only are described in *District Pilot and Site-Adopted Courses: A Supplement to the Course of Study, K–12*, PeopleSoft item number 3470.

<sup>†</sup> For students in grades 5 or 6 at schools that use a secondary-type master schedule.

<sup>§</sup> **Boldface** denotes courses that are currently accepted by the University of California as meeting its **c** (mathematics) entrance requirement. However, each district **high school** seeking recognition by the university of these courses for its students must include the courses on its individual UC-approved list.

\*\* These block courses combine the content of a college preparatory course with an extra period of mathematics instruction. Students who complete these courses successfully receive one unit of college preparatory mathematics credit and one unit of elective credit per semester.

The following course descriptions are arranged by **grade level**. Refer to the chart on page MATH-4 for guidance.

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## MATHEMATICS 5TH BLOCK (4009)

**Prerequisites:** None

**Course duration:** One year

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4009B
- Cluster: 4009C
- Sheltered: 4009L
- Seminar: 4009S

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### COURSE DESCRIPTION

This two-period block 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 Block, 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 TEXTS AND TEACHING GUIDES

*Harcourt Math*, Harcourt School Publishers, 2002.

Instructional modules prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

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## MATHEMATICS 6TH (4002)

**Prerequisites:** None

**Course duration:** One year

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4002B
- Cluster: 4002C
- Sheltered: 4002L
- Seminar: 4002S
- SPED Collaborative: 4002G

**Note:** Special education students are offered an identical course (7131) that provides access to the core curriculum while allowing for accommodations in the pacing of course content.

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### COURSE DESCRIPTION

This course is intended for grade 6 students at middle schools who are at or above grade level. In this course students use the four arithmetic operations with whole numbers, positive fractions, positive decimals, and positive and negative integers. They study statistics and probability and work with ratios and proportions. Students learn the circumference and area of a circle and develop beginning algebraic understanding. Students make decisions about how to approach problems; use strategies, skills, and concepts in finding solutions; and generalize to other problem situations.

### BASIC TEXTS AND TEACHING GUIDES

*Harcourt Math*, Harcourt School Publishers, 2002.

Instructional modules prepared by San Diego Unified School District Mathematics Department and available on-line at:

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## MATHEMATICS 6TH BLOCK (4012)

**Prerequisites:** None

**Course duration:** One year

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4012B
- Cluster: 4012C
- Sheltered: 4012L
- Seminar: 4012S
- Collaborative: 4012G

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### COURSE DESCRIPTION

This course is a two-period version of Mathematics 6th (4002). In this course students at or above grade level study the core course curriculum in greater depth. Students use the four arithmetic operations with whole numbers, positive fractions, positive decimals, and positive and negative integers. They study statistics and probability and work with ratios and proportions; learn the circumference and area of a circle and develop beginning algebraic understanding; make decisions about how to

approach problems; use strategies, skills, and concepts in finding solutions; and generalize to other problem situations.

#### BASIC TEXTS AND TEACHING GUIDES

*Harcourt Math*, Harcourt School Publishers, 2002.

Instructional modules prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

### MATHEMATICS EXPLORATION 6TH (4006)

**Prerequisites:** None

**Course duration:** One year

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4006B
- Sheltered: 4006L
- Collaborative: 4006G

#### COURSE DESCRIPTION

This course has been adopted as part of the district's targeted efforts to support student achievement for middle schools at entry-level grade 6. It offers those grade 6 students who perform below grade level 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.

#### BASIC TEXTS AND TEACHING GUIDES

*Harcourt Math*, Harcourt School Publishers, 2002.

Instructional modules prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

### MATHEMATICS EXPLORATION 6TH BLOCK (4008)

**Prerequisites:** None

**Course duration:** One year

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4008B
- Sheltered: 4008L
- Collaborative: 4008G

#### COURSE DESCRIPTION

This course is a two-period version of Mathematics Exploration 6th (4006). It has been adopted as part of the district's targeted efforts to support student achievement for middle schools at entry-level grade 6. It offers those grade 6 students who perform below grade level 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.

#### BASIC TEXTS AND TEACHING GUIDES

*Harcourt Math*, Harcourt School Publishers, 2002.

Instructional modules prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html).

### MATHEMATICS ADVANCEMENT ACADEMY 6TH (4057)

**Prerequisites:** None

**Course duration:** One or two semesters; multiple credit allowed

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Sheltered: 4057L
- Collaborative: 4057G

#### COURSE DESCRIPTION

Mathematics Advancement Academy 6th is designed to give an additional period of support to grade 6 students in middle schools who are achieving below grade level in mathematics. It parallels students' regular mathematics classes but provides additional opportunities to explore mathematical concepts while developing fluency in basic mathematical skills. It assists students in learning the fundamentals of problem solving that will prepare them for the demands of their regular – and future – math courses.

This course may be offered at any point during the school day and does not need to be scheduled as a block with students' regular mathematics courses.

**BASIC TEXTS AND TEACHING GUIDES**

*Harcourt Math*, Harcourt School Publishers, 2002.

Instructional modules prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

**PRE-ALGEBRA 7TH (4001)**

**Grade level:** 7

**Prerequisites:** None

**Course duration:** One year

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4001B
- Sheltered: 4001L
- Collaborative: 4001G

**Note:** Special education students are offered an identical course (7744, 7745) that provides access to the core curriculum while allowing for accommodations in the pacing of course content.

**COURSE DESCRIPTION**

This is the standard course required of all grade 7 students, except those enrolled in Pre-Algebra Advanced or Pre-Algebra Exploration 7th. The course lays the foundation for algebra.

**BASIC TEXTS AND TEACHING GUIDES**

*Pre-Algebra*, Prentice Hall, 2001.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

**PRE-ALGEBRA 7TH BLOCK (4013)**

**Grade level:** 7

**Prerequisites:** None

**Course duration:** One year

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4013B
- Sheltered: 4013L
- Collaborative: 4013G

**COURSE DESCRIPTION**

This is a two-period version of Pre-Algebra 7th (4001), the standard mathematics course required of all grade 7 students, except those enrolled in Pre-

Algebra Advanced or Pre-Algebra Exploration 7th. The course lays the foundation for algebra.

**BASIC TEXTS AND TEACHING GUIDES**

*Pre-Algebra*, Prentice Hall, 2001.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

**PRE-ALGEBRA EXPLORATION 7TH (4007)**

**Grade level:** 7

**Prerequisites:** None

**Course duration:** One year

**Subject area in which graduation credit is given:**

Does not apply

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4007B
- Sheltered: 4007L
- Collaborative: 4007G

**COURSE DESCRIPTION**

The course has been adopted as part of the school district's targeted efforts to support student achievement. It lays the foundation for algebra for students at middle or junior high schools with entry level grade 7 who are performing below grade level. The course provides a standards-based curriculum.

**BASIC TEXTS AND TEACHING GUIDES**

*Pre-Algebra*, Prentice Hall, 2001.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

**PRE-ALGEBRA EXPLORATION 7TH BLOCK (4018)**

**Grade level:** 7

**Prerequisites:** None

**Course duration:** One year

**Subject area in which graduation credit is given:**

Does not apply

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4018B
- Sheltered: 4018L

#### COURSE DESCRIPTION

This is a two-period version of Pre-Algebra Exploration 7th (4007), and has been adopted as part of the school district's targeted efforts to support student achievement. It lays the foundation for algebra for students at middle or junior high schools with entry-level grade 7 who are performing below grade level. The course provides a standards-based curriculum.

#### BASIC TEXTS AND TEACHING GUIDES

*Pre-Algebra*, Prentice Hall, 2001.

Materials prepared by the SDCS Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

### MATHEMATICS ADVANCEMENT ACADEMY 7TH (4058)

**Grade level:** 7

**Prerequisites:** None

**Course duration:** One or two semesters; multiple credit allowed

**Subject area in which graduation credit is given:** Does not apply

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Sheltered: 4058L
- Collaborative: 4058G

#### COURSE DESCRIPTION

Mathematics Advancement Academy 7th is designed to give an additional period of support to grade 7 students who are achieving below grade level in mathematics. It parallels students' regular mathematics classes but provides additional opportunities to explore mathematical concepts while developing fluency in basic mathematical skills. It assists students in learning the fundamentals of problem solving that will prepare them for the demands of their regular—and future—math courses.

This course may be offered at any point during the school day and does not need to be scheduled as a block with students' regular mathematics courses.

#### BASIC TEXTS AND TEACHING GUIDES

*Pre-Algebra*, Prentice Hall, 2001.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

### PRE-ALGEBRA ADVANCED (4051)

**Grade level:** 7

**Prerequisites:** Satisfactory achievement in previous math courses; recommendation of the teacher and/or counselor

**Course duration:** One year

**Subject area in which graduation credit is given:** Does not apply

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Cluster: 4051C
- Seminar: 4051S
- Spanish: 4051E
- French: 4051F
- Sheltered: 4051L

#### COURSE DESCRIPTION

This course is designed for students who have a better-than-average capacity for understanding abstract concepts and applying them to the achievement of meaningful and accurate computation skills. The properties of whole numbers are emphasized during the first quarter, then extended to include the rational numbers and finally to the set of real numbers. Introductions to percent, statistics, geometry, and the metric system are also included as topics of study. The concepts of relations and functions are developed in preparation for the study of algebra the following year.

#### BASIC TEXTS AND TEACHING GUIDES

Davidson et al., *Pre-Algebra*, Prentice Hall, 2001.

### PRE-ALGEBRA 7TH ADVANCED BLOCK (4050)

**Grade level:** 7

**Prerequisites:** Satisfactory achievement in previous math courses; recommendation of the teacher and/or counselor

**Course duration:** One year

**Subject area in which graduation credit is given:** Does not apply

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Cluster: 4050C
- Sheltered: 4050L
- Seminar: 4050S

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### COURSE DESCRIPTION

This is a two-period version of Pre-Algebra Advanced (4051), and is designed for students who have a better-than-average capacity for understanding abstract concepts and applying them to the achievement of meaningful and accurate computation skills. The properties of whole numbers are emphasized during the first quarter, then extended to include the rational numbers and finally to the set of real numbers. Introductions to percent, statistics, geometry, and the metric system are also included as topics of study. The concepts of relations and functions are developed in preparation for the study of algebra the following year.

### BASIC TEXTS AND TEACHING GUIDES

Davidson et al., *Pre-Algebra*, Prentice Hall, 2001.

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### ALGEBRA 1-2 (4041, 4042)

**Grade level:** 7-12

**Prerequisites:** None

**Course duration:** One year

**Subject area in which graduation credit is given:** Mathematics

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4041B, 4042B
- Sheltered: 4041L, 4042L
- Collaborative: 4041G, 4042G

**Note:** An identical course for special education students (7746, 7747) also is offered, which provides access to the core curriculum while allowing for accommodations in the pacing of course content.

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### COURSE DESCRIPTION

**College Preparatory Course (P).** In this course students learn the fundamentals of solving problems by methods that were not previously available to them at the arithmetic level.

### BASIC TEXTS AND TEACHING GUIDES

Larson et al., *Algebra 1: Concepts and Skills*, McDougal Littell, 2001.

Materials prepared by San Diego Unified School District Mathematics Department and available online at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

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### ALGEBRA 1-2 BLOCK (4021, 4022)

**Grade level:** 7-8

**Prerequisites:** None

**Course duration:** One year

**Subject area in which graduation credit is given:** Mathematics

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4021B, 4022B
- Sheltered: 4021L, 4022L

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### COURSE DESCRIPTION

**Note:** This block course combines the content of a **college preparatory course** with an extra period of mathematics instruction. Students who compete this course successfully receive one unit of **college preparatory** mathematics credit (for Algebra 1-2) and one unit of elective credit (for Extended Algebra 1,2) per semester. Thus, students' *schedules* will show Algebra 1-2 Block (4021, 4022) while their *transcripts* will show Algebra 1-2 (P) (4041, 4042) and Extended Algebra 1,2 (4019, 4020).

This is a two-period version of Algebra 1-2, in which students learn the fundamentals of solving problems by methods that were not previously available to them at the arithmetic level.

### BASIC TEXTS AND TEACHING GUIDES

Larson et al., *Algebra 1: Concepts and Skills*, McDougal Littell, 2001.

Materials prepared by San Diego Unified School District Mathematics Department and available online at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

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### ALGEBRA READINESS MS (4080)

**Grade level:** 8

**Prerequisites:** None

**Course duration:** One year

**Subject area in which graduation credit is given:** Does not apply

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**Options for Instructional Settings:** This course may also be taught in the following settings:

- Sheltered: 4080L
- Collaborative: 4080G

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### COURSE DESCRIPTION

Algebra Readiness MS (i.e., Middle School) is designed for grade 8 students who need additional time and support to build the foundational skills necessary for success in algebra. It reinforces the skills and concepts needed to meet the standards on which these students will be assessed. Students who take this course go on to take Algebra Exploration 1-2 in grade 9, which meets their algebra graduation requirement and leaves sufficient time to complete the remaining mathematics graduation requirements by the end of grade 11.

This course reinforces arithmetic and number skills in the context of meaningful problems, and emphasizes the following topics: probability; ratio, proportion, and percentages; variables and pattern; linear relationships; exponential relationships, Pythagorean theorem, and measurement in three dimensions. It also focuses on mathematical reasoning and communication.

### BASIC TEXTS AND TEACHING GUIDES

*Prentice Hall California Algebra Readiness*, Pearson, 2009.

District-prepared materials.

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## MATHEMATICS ADVANCEMENT ACADEMY 8TH (4059)

**Grade level:** 8

**Prerequisites:** None

**Course duration:** One or two semesters; multiple credit allowed

**Subject area in which graduation credit is given:** Does not apply

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Sheltered: 4059L
- Collaborative: 4059G

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### COURSE DESCRIPTION

Mathematics Advancement Academy 8th is designed to give an additional period of support to grade 8 students who are achieving below grade level in

mathematics. It parallels students' regular mathematics classes but provides additional opportunities to explore mathematical concepts while developing fluency in basic mathematical skills. It assists students in learning the fundamentals of problem solving that will prepare them for the demands of their regular – and future – math courses.

This course may be offered at any point during the school day and does not need to be scheduled as a block with students' regular mathematics courses.

### BASIC TEXTS AND TEACHING GUIDES

Larson et al., *Algebra 1: Concepts and Skills*, McDougal Littell, 2001.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

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## ALGEBRA READINESS ADVANCEMENT ACADEMY (4060)

**Grade level:** 8

**Prerequisites:** None

**Course duration:** One semester; multiple credit allowed

**Subject area in which graduation credit is given:** Does not apply

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Sheltered: 4060L
- Collaborative: 4060G

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### COURSE DESCRIPTION

Algebra Readiness Advancement Academy is a one- or two-semester elective course that gives additional support to students who are enrolled in Algebra Readiness MS (4080) and are functioning below grade level. It is meant to parallel and extend the learning already taking place in Algebra Readiness MS. Its purpose is to provide additional time for students to explore mathematical concepts, develop strategies to solve problems, and develop and practice strategies that enhance computational fluency and number sense. This course will support students in meeting standards called out in the General Mathematics California Standards Test.

**BASIC TEXTS AND TEACHING GUIDES**

Prentice Hall *California Algebra Readiness*, Pearson, 2009.

District-prepared materials.

**ALGEBRA 1-2 ADVANCED (4063, 4064)**

**Grade level:** 7–8

**Prerequisites:** A grade of B or better in Pre-Algebra 7th Advanced; recommendation of teacher and/or counselor. Progression to advanced courses is based on achievement of a B grade or better.

**Course duration:** One year

**Subject area in which graduation credit is given:**  
Mathematics

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4063B, 4064B
- Cluster: 4063C, 4064C
- Collaborative: 4063G, 4064G
- Sheltered: 4063L, 4064L
- Seminar: 4063S, 4064S
- Spanish: 4063E, 4064E
- French: 4063F, 4064F

**COURSE DESCRIPTION**

**College Preparatory Course (P).** This is a first-year algebra course for students who have demonstrated real interest, high achievement, good reading comprehension, and a desire to explore some basic mathematical ideas.

**BASIC TEXTS AND TEACHING GUIDES**

Smith, Charles, et al., *Algebra 1*, Prentice Hall, 2001.

Materials prepared by San Diego Unified School District Mathematics Department and available online at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

**ALGEBRA 1-2 ADVANCED BLOCK (4061, 4062)**

**Grade level:** 7–8

**Prerequisites:** A B grade or better in Pre-Algebra 7th Advanced; recommendation of teacher and/or counselor.

**Course duration:** One year

**Subject area in which graduation credit is given:**  
Mathematics

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Cluster: 4061C, 4062C
- Seminar: 4061S, 4062S
- Sheltered: 4061L, 4062L

**COURSE DESCRIPTION**

**Note:** This block course combines the content of a **college preparatory course** with an extra period of mathematics instruction. Students who complete this course successfully receive one unit of college preparatory mathematics credit (for Algebra 1-2 Advanced) and one unit of elective credit (for Extended Algebra 1,2) per semester. Thus, students' *schedules* will show Algebra 1-2 Advanced Block (4061, 4062) while their *transcripts* will show Algebra 1-2 Advanced (P) (4063, 4064) and Extended Algebra 1,2 (4019, 4020).

This is a two-period version of Algebra 1-2 Advanced for students who have demonstrated real interest, high achievement, good reading comprehension, and a desire to explore some basic mathematical ideas.

**BASIC TEXTS AND TEACHING GUIDES**

Smith et al., *Algebra 1*, Prentice Hall, 2001.

Materials prepared by San Diego Unified School District Mathematics Department and available online at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

## Senior High Mathematics Courses (Grades 9–12)

Districtwide Courses\*

Grade Level			
9	10	11	12
<b>Algebra 1-2 (4041, 4042)<sup>†</sup></b> <b>Geometry 1-2 (4141, 4142)</b>			
<b>Intermediate Algebra 1-2 (4151, 4152)</b> <b>Statistics and Data Analysis 1-2 (4046, 4047)</b>			
<b>Precalculus 1-2 (4161-4162)</b>			
<b>Algebra Exploration 9th 1-2 (4032, 4033)</b> Algebra Exploration 9th 1-2 Block (4025, 4026) <sup>§</sup> Algebra Exploration Advancement Acad. (4128, 4129)	Unifying Algebra and Geometry 1-2 (4121-4122)		
<b>Geometry 1-2 Advanced (4175, 4176)</b>	<b>Intermediate Algebra 1-2 Advanced (4065, 4066)</b>	<b>Precalculus 1-2 Honors (4181, 4182)</b>	<b>Topics in Discrete Math 1,2 (4185, 4186)</b> <b>Statistics 1-2 AP (4055, 4056)</b> Math 150-151 Honors Calculus (4191, 4192)** <b>Calculus AB 1-2 AP (4189, 4190)</b>

\* Pilot courses and courses approved by the Board of Education to be offered at specific sites only are described in *District Pilot and Site-Adopted Courses: A Supplement to the Course of Study, K–12*, PeopleSoft item 3470.

<sup>†</sup> **Boldface** denotes courses that are currently accepted by the University of California as meeting its **c** (mathematics) entrance requirement. However, each district high school seeking recognition by the university of these courses for its students must include the courses on its individual UC-approved list.

<sup>§</sup> This block course combines the content of a college preparatory course with an extra period of mathematics instruction. Students who complete this course successfully receive one unit of college preparatory mathematics credit and one unit of elective credit per semester.

\*\* Offered to qualified students as a course of the San Diego Community Colleges. This course does *not* earn units of SDUSD credit unless taken as part of a *board-approved* high school–community college partnership agreement. See *District Pilot and Site-Adopted Courses: A Supplement to the Course of Study, K–12*, for information on high school–community college partnerships.

### Courses in Grades 7–12 that Meet SDUSD High School Graduation Requirements for Mathematics

Six semester credits required: all students must pass an algebra course, a geometry course, and a third course chosen from the list below.

Algebra	Geometry	Third Course
Algebra 1-2 (P) (4041, 4042 or block 4021, 4022)	Geometry 1-2 (P) (4141, 4142)	Intermediate Algebra 1-2 (P) (4151, 4152)
Algebra 1-2 Advanced (P) (4063, 4064 or block 4061, 4062)	Geometry 1-2 Advanced (P) (4175, 4176)	Intermediate Algebra 1-2 Advanced (P) (4065, 4066)
Algebra Exploration 9th 1-2 (4032, 4033 or block 4025, 4026)	Interactive Math—Year 2 1-2 (P) (4073, 4074; site-adopted)	Unifying Algebra and Geometry 1-2 (4121, 4122) <b>Note:</b> Does not meet UC/CSU admission requirements
Interactive Math—Year 1 1-2 (P) (4105, 4106; site-adopted)		Statistics and Data Analysis 1-2 (4046, 4047)
		Interactive Math—Year 3 1-2 (P) (4075, 4076; site-adopted)

### Mathematics Placement, Grades 8–12

Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
Algebra Readiness MS (4080)*	Algebra Exploration 9th 1-2 (4032, 4033)	Geometry 1-2 (4141, 4142)	Intermediate Algebra 1-2 (4151, 4152) <i>or</i>	Precalculus 1-2 (4161, 4162) <i>or</i>
				Statistics and Data Analysis 1-2 (4046, 4047)
			Unifying Algebra and Geometry 1-2 (4121, 4122) <sup>†</sup>	Intermediate Algebra 1-2 (4151, 4152) <i>or</i>
				Statistics and Data Analysis 1-2 (4046, 4047)
Algebra 1-2 (4041, 4042)	Algebra Exploration 9th 1-2 (4032, 4033) <i>or</i>	Geometry 1-2 (4141, 4142)	Intermediate Algebra 1-2 (4151, 4152) <i>or</i>	Precalculus 1-2 (4161, 4162) <i>or</i>
				Statistics and Data Analysis 1-2 (4046, 4047)
			Unifying Algebra and Geometry 1-2 (4121, 4122) <sup>†</sup>	Intermediate Algebra 1-2 (4151, 4152) <i>or</i>
				Statistics and Data Analysis 1-2 (4046, 4047)
	Geometry 1-2 (4141, 4142)	Unifying Algebra and Geometry 1-2 (4121, 4122) <sup>†</sup> <i>or</i>	Intermediate Algebra 1-2 (4151, 4152) <i>or</i>	Precalculus 1-2 (4161, 4162) <i>or</i>
				Statistics and Data Analysis 1-2 (4046, 4047)
		Intermediate Algebra 1-2 (4151, 4152)	Statistics and Data Analysis 1-2 (4046, 4047) <i>or</i>	Statistics 1-2 AP (4055, 4056)
			Precalculus 1-2 (4161, 4162)	Statistics 1-2 AP (4055, 4056) <i>or</i>
			Topics in Discrete Math 1,2 (4185, 4186) <i>or</i>	
			Calculus AB 1-2 AP (4189, 4190)	

(continued)

\* This course does not meet high school graduation requirements for mathematics.

† This course does not meet the University of California's c (mathematics) admission requirement.

**Mathematics Placement, Grades 8–12 (continued)**

Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
Algebra 1-2 Advanced (4063, 4064)	Geometry 1-2 Advanced (4175, 4176)	Intermediate Algebra 1-2 Advanced (4065, 4066)	Precalculus 1-2 (4161, 4162) <i>or</i>	Statistics 1-2 AP (4055, 4056) <i>or</i>
			Precalculus 1-2 Honors (4181, 4182)	Topics in Discrete Math 1,2 (4185, 4186) <i>or</i>
Calculus AB 1-2 AP (4189, 4190)				
Statistics 1-2 AP (4055, 4056) <i>or</i>				
Topics in Discrete Math 1,2 (4185, 4186) <i>or</i>				
Geometry 1-2 Advanced (4175, 4176)	Intermediate Algebra 1-2 Advanced (4065, 4066)	Precalculus 1-2 Honors (4181, 4182)	Math 150-151 Honors Calculus (4191, 4192)§ <i>or</i>	Statistics 1-2 AP (4055, 4056)
			Calculus AB 1-2 AP (4189, 4190) <i>or</i>	Statistics 1-2 AP (4055, 4056)
			Topics in Discrete Math 1,2 (4185, 4186)	Math 150-151 Honors Calculus (4191, 4192)§ <i>or</i>
				Statistics 1-2 AP (4055, 4056)

§ This is a course of the San Diego Community College District and is offered to qualified students only; it does not earn high school graduation credit **except** when taken as part of a board-approved partnership agreement between a district school and a community college.

**Year-long Math Courses in a 4 x 4 Schedule**

If your school uses a 4 x 4 schedule, and you wish to “stretch out” a math course that would ordinarily take one term to complete to last the entire school year, use the arrangement shown in the following table.

Term 1		Term 2	
Quarter 1	Quarter 2	Quarter 3	Quarter 4
4069 Extended Math 1	4032 Algebra Exploration 9th 1	4070 Extended Math 2	4033 Algebra Exploration 9th 2
4069 Extended Math 1	4041 Algebra 1	4070 Extended Math 2	4042 Algebra 2
4069 Extended Math 1	4141 Geometry 1	4070 Extended Math 2	4142 Geometry 2
4069 Extended Math 1	4121 Unifying Algebra & Geometry 1	4070 Extended Math 2	4122 Unifying Algebra & Geometry 2
4069 Extended Math 1	4151 Intermediate Algebra 1	4070 Extended Math 2	4152 Intermediate Algebra 2

Extended Math 1,2 earns one unit of elective credit per quarter. Following this schedule, students will earn four units of credit—two elective and two math—for the entire school year.

**Note:** Be sure to schedule the Extended Math course numbers in quarters 1 and 3, and the core mathematics course numbers in quarters 2 and 4. There are two reasons for this: first, students should not earn credit for the core math course until they have completed the entire term; second, identification for standardized testing is based on a student’s enrollment in the core math course, not Extended Math.

The following course descriptions are arranged **alphabetically**. Refer to the chart on page MATH-12 for guidance.

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### ALGEBRA 1-2 (4041, 4042)

**Grade level:** 7–12

**Prerequisites:** None

**Course duration:** One year

**Subject area in which graduation credit is given:**  
Mathematics

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4041B, 4042B
- Sheltered: 4041L, 4042L
- Collaborative: 4041G, 4042G

**Note:** An identical course for special education students (7746, 7747) also is offered, which provides access to the core curriculum while allowing for accommodations in the pacing of course content.

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#### COURSE DESCRIPTION

**College Preparatory Course (P).** In this course students learn the fundamentals of solving problems by methods that were not previously available to them at the arithmetic level.

#### BASIC TEXTS AND TEACHING GUIDES

Larson et al., *Algebra 1: Concepts and Skills*, McDougal Littell, 2001.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

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### ALGEBRA EXPLORATION 9TH 1-2 (4032, 4033)

**Grade level:** 9

**Prerequisites:** None

**Course duration:** One year

**Subject area in which graduation credit is given:**  
Mathematics

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4032B, 40633B
- Sheltered: 4032L, 40633L
- Collaborative: 4032G, 4033G

#### COURSE DESCRIPTION

**College Preparatory Course (P).** This elementary algebra course has been adopted as part of the school district's targeted efforts to support student achievement. It offers students who perform below grade level a standards-based curriculum. The course assists students in learning the fundamentals of problem solving by using methods that were not available to them at the arithmetic level.

#### BASIC TEXTS AND TEACHING GUIDES

*Algebra Connections*, CPM, 2006.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

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### ALGEBRA EXPLORATION ADVANCEMENT ACADEMY 1,2 (4128, 4129)

#### DISTRICTWIDE PILOT

**Grade level:** 9

**Prerequisites:** None

**Course duration:** One or two semesters

**Subject area in which graduation credit is given:**  
Elective

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Collaborative: 4128G, 4129G
- Sheltered: 4128L, 4129L

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#### COURSE DESCRIPTION

Algebra Exploration Advancement Academy is designed to give an additional period of support, as needed, to students in Algebra Exploration 9th 1-2 (4032, 4033). It parallels Algebra Exploration while providing additional opportunities to explore mathematical concepts and develop fluency in basic algebraic skills.

This course may be offered at any point during the school day and does not need to be scheduled as a block with students' regular mathematics courses.

#### BASIC TEXTS AND TEACHING GUIDES

*Algebra Connections*, CPM, 2006.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

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## ALGEBRA EXPLORATION 9TH 1-2 BLOCK (4025, 4026)

**Grade level:** 9

**Prerequisites:** None

**Course duration:** One year

**Subject area in which graduation credit is given:** See note below

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4025B, 40626B
- Sheltered: 4025L, 40626L
- Collaborative: 4025G, 4026G

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### COURSE DESCRIPTION

**Note:** This block course combines the content of a **college preparatory course** with an extra period of mathematics instruction. Students who complete this course successfully receive one unit of college preparatory mathematics credit (for Algebra Exploration 9th 1-2) and one unit of elective credit (for Mathematics Exploration 9th 1-2) per semester. Thus, students' *schedules* will show Algebra Exploration 9th 1-2 Block (4025, 4026) while their *transcripts* will show Algebra Exploration 9th 1-2 (P) (4032, 4033) and Mathematics Exploration 9th 1-2 (4044, 4045).

This two-period elementary algebra course assists students in learning the fundamentals of problem solving by using methods that were not available to them at the arithmetic level.

This course has been adopted as part of the school district's targeted efforts to support student achievement. It offers students who perform below grade level a standards-based curriculum and a reduced student-teacher ratio.

### BASIC TEXTS AND TEACHING GUIDES

*Algebra Connections*, CPM, 2006.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

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## CALCULUS AB 1-2 ADVANCED PLACEMENT (4189, 4190)

**Grade level:** 12

**Prerequisites:** Precalculus 1-2 Honors or equivalent course; recommendation of teacher and/or counselor

**Course duration:** One year

**Subject area in which graduation credit is given:** elective; weighted (see note below)

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Seminar: 4189S, 4190S

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### COURSE DESCRIPTION

**Honors Preparatory Course (HP).** This course follows the standard syllabus of Advanced Placement Calculus AB as stated 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.

**Note:** Students who complete this course successfully but do not sit for the corresponding AP examination will receive *unweighted* credit, for course 4189U, 4190U. See Administrative Procedure 4770, section C.3.

### BASIC TEXTS AND TEACHING GUIDES

Finney et al., *Calculus: Graphical, Numerical, Algebraic*, Pearson/Prentice-Hall, 2003.

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## GEOMETRY 1-2 (4141, 4142)

**Grade level:** 8-12

**Prerequisites:** Completion of one year of algebra or recommendation by teacher and/or counselor

**Course duration:** One year

**Subject area in which graduation credit is given:** Mathematics

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4141B, 4141B
- Sheltered: 4141L, 4142L
- Collaborative: 4141G, 4142G

**Note:** An identical course for special education students (7748, 7749) also is offered, which provides access to the core curriculum while allowing for accommodations in the pacing of course content.

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**COURSE DESCRIPTION**

**College Preparatory Course (P).** This is the standard course in which students study geometric concepts and direct and indirect proof of geometric relationships.

**BASIC TEXTS AND TEACHING GUIDES**

Serra, *Discovering Geometry: An Inductive Approach*, Key Curriculum Press, 2003.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

**GEOMETRY 1-2 ADVANCED (4175, 4176)**

**Grade level:** 8–9

**Prerequisites:** A B grade or better in Algebra 1-2 Advanced or recommendation of teacher and/or counselor. Progression to advanced courses is based on achievement of B grade or better.

**Course duration:** One year

**Subject area in which graduation credit is given:** Mathematics

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Sheltered: 4175L, 4176L
- Cluster: 4175C, 4176C
- Seminar: 4175S, 4176S

**COURSE DESCRIPTION**

**College Preparatory Course (P).** This course is designed for grade 9 students with a very high achievement level. Students will learn Euclidean geometry, some coordinate and transformational geometry, measurement formulas, three-dimensional figures and formulas, and proofs. It is designed to acquaint students with the logical structure of mathematics as found in geometry and in some additional topics in algebra.

**BASIC TEXTS AND TEACHING GUIDES**

Larson, Boswell, and Stiff, *Geometry*, McDougal Littell, 2004.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

**INTERMEDIATE ALGEBRA 1-2 (4151, 4152)**

**Grade level:** 10–12

**Prerequisites:** Satisfactory completion of one year of algebra and one year of geometry; recommendation of teacher and/or counselor

**Course duration:** One year

**Subject area in which graduation credit is given:** Mathematics

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Bilingual: 4151B, 4152B
- Sheltered: 4151L, 4152L
- Collaborative: 4151G, 4152G

**Note:** Special education students are offered an identical course (7221, 7222) that provides access to the core curriculum while allowing for accommodations in the pacing of course content.

**COURSE DESCRIPTION**

**College Preparatory Course (P).** This second-year algebra course reviews and considerably extends the algebraic concepts developed in the previous algebra course, with emphasis on breadth and depth of understanding.

**BASIC TEXTS AND TEACHING GUIDES**

Schultz and Ellis, *Holt Algebra 2*, Holt, Rinehart and Winston, 2004.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

**INTERMEDIATE ALGEBRA 1-2 ADVANCED (4065, 4066)**

**Grade level:** 10

**Prerequisites:** A B grade or better in Geometry 1-2 Advanced (suggested); recommendation of teacher and/or counselor. Progression to advanced classes is based on achievement of a B grade or better.

**Course duration:** One year

**Subject area in which graduation credit is given:** Mathematics

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Sheltered: 4065L, 4066L

- Cluster: 4065C, 4066C
- Seminar: 4065S, 4066S

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#### COURSE DESCRIPTION

**College Preparatory Course (P).** This course reviews and considerably extends the algebraic concepts developed in the previous course, with emphasis on breadth and depth of understanding.

#### BASIC TEXTS AND TEACHING GUIDES

Holliday and Cuervas, *Algebra 2*, Glencoe, 2005.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

*www.sandi.net/depts/math/index.html*

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#### MATH CAHSEE SUPPORT (4088)

**Grade level:** 10–12

**Prerequisites:** None

**Course duration:** One semester; multiple credit allowed

**Subject area in which graduation credit is given:** Elective

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#### COURSE DESCRIPTION

In this course students study structure of the California High School Exit Examination (CAHSEE) and the requisite mathematics skills they will need to pass the mathematics portion, including tips for studying and taking a multiple-choice exam. Students receive explicit instruction, facilitated practice, and independent practice with feedback.

This course is designed to be offered within the regular school day.

#### BASIC TEXTS AND TEACHING GUIDES

None.

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#### MATH CAHSEE TUTORING SUPPORT (4087)

**Grade level:** 10–12

**Prerequisites:** None

**Course duration:** One semester

**Subject area in which graduation credit is given:** None

#### COURSE DESCRIPTION

In this course students study structure of the California High School Exit Examination (CAHSEE) and the requisite mathematics skills they will need to pass the mathematics portion, including tips for studying and taking a multiple-choice exam. Students receive explicit instruction, facilitated practice, and independent practice with feedback.

This course is designed to be offered outside the regular school day.

#### BASIC TEXTS AND TEACHING GUIDES

None.

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#### MATH 150-151 HONORS CALCULUS (4191, 4192)

**Grade level:** 12

**Prerequisites:** Two years of algebra, one year of precalculus, one year of geometry or equivalent, with a distinguished record of achievement and a passing grade on the entrance exam. See District Procedure No. 4320.

**Course duration:** One year

**Subject area in which graduation credit is given:**

None, unless taken as part of a *board-approved* high school–community college partnership agreement. Earns nine semester units of college credit. See *District Pilot and Site-Adopted Courses: A Supplement to the Course of Study, K–12*, for information on high school–community college partnerships.

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#### COURSE DESCRIPTION

**College Course.** This course is for selected seniors who have demonstrated their ability to handle advanced concepts with depth of understanding. Math 150-151 is a regular course offering of the San Diego Community Colleges.

#### BASIC TEXTS AND TEACHING GUIDES

Stewart, *Calculus, Early Transcendentals*, 4th ed., Brooks-Cole, 1999.

*Course Outline for Mathematics 150-51*, San Diego Community Colleges.

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**PRECALCULUS 1-2 (4161, 4162)****Grade level:** 11–12**Prerequisites:** Two years of algebra and one year of geometry; teacher and/or counselor recommendation**Course duration:** One year**Subject area in which graduation credit is given:** Mathematics

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**COURSE DESCRIPTION**

**College Preparatory Course (P).** 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 TEXTS AND TEACHING GUIDES**Blitzer, *Precalculus*, 2nd ed., Pearson Prentice Hall, 2004.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

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**PRECALCULUS 1-2 HONORS (4181, 4182)****Grade level:** 11–12**Prerequisites:** A B grade or better in Intermediate Algebra 1-2 Advanced; recommendation of teacher and/or counselor. Progression to advanced courses is based on achievement of a B grade or better.**Course duration:** One year**Subject area in which graduation credit is given:** Mathematics, weighted**Options for Instructional Settings:** This course may also be taught in the following settings:

- Cluster: 4181C, 4182C
- Seminar: 4181S, 4182S

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**COURSE DESCRIPTION**

**Honors Preparatory Course (HP).** 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 TEXTS AND TEACHING GUIDES**Demana et al., *Precalculus: Graphical, Numerical, Algebraic*, 6th ed., Pearson Prentice Hall.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

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**STATISTICS 1-2 ADVANCED PLACEMENT (4055, 4056)****Grade level:** 11–12**Prerequisites:** Satisfactory achievement in three previous, sequential years of math courses, and recommendation of the teacher and/or counselor.**Course duration:** One year**Subject area in which graduation credit is given:** elective; weighted (see note below)

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**COURSE DESCRIPTION**

**Honors Preparatory Course (HP).** In this non-calculus, college-level introductory course, students study descriptive and inferential statistics and take the Advanced Placement examination at the end of the year. The course provides students with the opportunity to continue their study of mathematics in an area other than calculus; it provides students who have completed calculus in their grade 11 year with an appropriate mathematics course for the grade 12 year. The course also provides students who will study the social sciences and humanities with a foundation course in statistics, which is required in almost every university and college.

**Note:** Students who complete this course successfully but do not sit for the corresponding AP examination will receive *unweighted* credit, for course 4055U, 4056U. See Administrative Procedure 4770, section C.3.

**BASIC TEXTS AND TEACHING GUIDES**Yates, Morre, and Starnes, *The Practice of Statistics*, Freeman Press, 2003.

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## STATISTICS AND DATA ANALYSIS 1-2 (4046, 4047)

**Grade level:** 10–12

**Prerequisites:** Satisfactory completion of one algebra course and one geometry course

**Course duration:** Year course

**Subject area in which graduation credit is given:** Mathematics

---

### COURSE DESCRIPTION

**College Preparatory Course (P).** This course provides students in grades 10–12 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 TEXTS AND TEACHING GUIDES

Rossmann, *Workshop Statistics: Discovery Data and the Graphing Calculator*, Key Curriculum Press, 2002.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

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## TOPICS IN DISCRETE MATHEMATICS 1,2 (4185, 4186)

**Grade level:** 11–12

**Prerequisites:** Satisfactory achievement in previous math courses; completion of Precalculus 1-2 or Precalculus 1-2 Honors; recommendation of teacher and/or counselor

**Course duration:** Two semesters

**Subject area in which graduation credit is given:** Elective

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### COURSE DESCRIPTION

**College Preparatory Course (P).** Topics in Discrete Mathematics covers aspects of functions, matrices, statistics, and introductory calculus. This course is designed for students who have completed Precalculus 1-2 Honors or Precalculus 1-2 and choose not to take a calculus course in the senior year.

### BASIC TEXTS AND TEACHING GUIDES

Lial, Miller, and Greenwell, *Finite Mathematics and Calculus with Applications*, Addison-Wesley, 2003.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

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## UNIFYING ALGEBRA AND GEOMETRY 1-2 (4121, 4122)

**Grade level:** 10–12

**Prerequisites:** Satisfactory completion of one year of algebra and one year of geometry; recommendation of teacher and/or counselor.

**Course duration:** Year course

**Subject area in which graduation credit is given:** Mathematics

**Options for Instructional Settings:** This course may also be taught in the following settings:

- Sheltered: 4121L, 4122L
- Collaborative: 4121G, 4122G

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### COURSE DESCRIPTION

This course is designed for students to further develop their understanding of algebra and geometry concepts prior to progression into sequential courses, Statistics and Data Analysis 1-2 or Intermediate Algebra 1-2.

### BASIC TEXTS AND TEACHING GUIDES

Lynch and Olmstead, *Math Matters 3*, National Textbook, 2001.

Materials prepared by San Diego Unified School District Mathematics Department and available on-line at:

[www.sandi.net/depts/math/index.html](http://www.sandi.net/depts/math/index.html)

### Special Education Mathematics Courses (Grades 5–12)

Diagram of Districtwide Course Sequence

		Grade Level			
Middle School		5*	6*	7	8
		Functional Mathematics 5th (7130)	Functional Mathematics 6th–8th (7132)		
				Applied Mathematics 7th–8th (7303)	
High School		9	10	11	12
		Functional Mathematics 9th–12th (7133)			
		Applied Mathematics 9th–10th (7313)		Applied Mathematics 11–12th (7314)	

\* For students in grades 5 or 6 at schools that use a secondary-type master schedule.

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

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#### APPLIED MATHEMATICS 7TH–8TH (7303)

**Grade level:** 7–8

**Prerequisites:** None

**Course duration:** Two-year course

**Subject area in which graduation credit is given:**

Elective; multiple credit allowed

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#### COURSE DESCRIPTION

This course helps students develop basic academic and daily living skills in areas of consumer responsibility, money sense, time and measurement, and career awareness.

It is the first of three two-year elective credit Applied Math courses.

#### BASIC TEXTS AND TEACHING GUIDES

*Basic Math Skills*, Pearson AGS, 2003.

Globe, *LifeSchool 2000/Consumer Economics*, Globe Fearon, 1995.

Hartley, *Using a Calendar* (software), Cambridge Development Lab, 1990.

Hartsoft, *The Coin Changer* (software), Cambridge Development Lab, 1992.

Koetke, *Survival Math* (software), Sunburst Communications, 1981.

*Stashing Your Cash* (video), DRW Education Systems, 1995.

MEEC, *Measure Works* (software), Cambridge Development Lab, 1995.

*Bank on It* (video), Pyramid Film & Video, 1995.

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#### APPLIED MATHEMATICS 9TH–10TH (7313)

**Grade level:** 9–10

**Prerequisites:** None

**Course duration:** Two-year course

**Subject area in which graduation credit is given:**

Elective; multiple credit allowed

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#### COURSE DESCRIPTION

This course continues to help students develop basic academic and daily living skills in areas of

consumer responsibility, money sense, time and measurement, and career awareness.

It is the second of three two-year elective credit Applied Math courses.

#### **BASIC TEXTS AND TEACHING GUIDES**

*Consumer Mathematics* (student texts and Teacher Resource Library CD-ROM), American Guidance Service, 2000.

*Applied Math 9-10: Teaching Modules*, San Diego Unified School District, 1992–1993, Item No. 3083.

### **APPLIED MATHEMATICS 11TH-12TH (7314)**

**Grade level:** 11-12

**Prerequisites:** None

**Course duration:** Two-year course

**Subject area in which graduation credit is given:** Elective; multiple credit allowed

#### **COURSE DESCRIPTION**

This course continues to help students develop basic academic and daily living skills in areas of consumer responsibility, money sense, and career awareness.

It is the third of three two-year elective credit Applied Math courses.

#### **BASIC TEXTS AND TEACHING GUIDES**

*Consumer Mathematics* (student texts and Teacher Resource Library CD-ROM), American Guidance Service, 2000.

*Janus Life Skills: Budgeting and Buying, Shopping and Caring for Cars, Understanding Schedules, and Living on Your Own* (student unit books and teacher's resource materials), Globe Fearon, 1999.

*Applied Math 11-12: Teaching Modules*, San Diego Unified School District, 1992–1993, Item No. 3084.

### **FUNCTIONAL MATHEMATICS 5TH (7130)**

**Grade level:** 5

**Prerequisites:** None

**Course duration:** Semester course; multiple credit allowed

#### **COURSE DESCRIPTION**

This course provides hands-on, functional activities that enhance a student's understanding of basic mathematical concepts. The instructional program emphasizes number sense, computation, money, time, measurement, and personal information. It incorporates community-based instruction, and uses meaningful and functional math activities to assist students in making connections to real-life experiences and to support students in making progress on alternate, standards-based goals and objectives. A variety of high- and low-tech individual adaptations may be utilized in order for students to access the content area. Generalization of functional math skills across school, home, and community environments is the desired outcome to maximize the student's independence and participation in all aspects of life.

#### **BASIC TEXTS AND TEACHING GUIDES**

Functional Math materials kit.

*Thematic Modules*, San Diego Unified School District, 2000.

### **FUNCTIONAL MATHEMATICS 6TH-8TH (7132)**

**Grade level:** 6–8

**Prerequisites:** None

**Course duration:** Multisemester course; multiple credit allowed

#### **COURSE DESCRIPTION**

Students develop age-appropriate, individualized math skills within the context of the California Standards for Students with Severe Disabilities, from which IEP goals are developed. A variety of high- and low-tech individual adaptations and modifications may be utilized in order for students to access the content area. Adaptations may be multi-sensory and multi-modality in nature.

Activities include being aware of numbers, using a functional communication system to make purchases, using time and calendars, participating in adapted thematic math-related literature units, participation in content area within the regular education school curriculum, and the exchange of money within the school and neighborhood community. Generalization of these skills across school, home, and community environments is the desired outcome to maximize

students' independence and participation in all aspects of their lives.

**BASIC TEXTS AND TEACHING GUIDES**

Functional Math 6th–8th materials kit.

*Thematic Modules*, San Diego Unified School District, 2000.

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**FUNCTIONAL MATHEMATICS 9TH-12TH (7133)**

**Grade level:** 9–12

**Prerequisites:** None

**Course duration:** Multisemester course

**Subject area in which graduation credit is given:**  
Elective; multiple credit allowed

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**COURSE DESCRIPTION**

Students develop age-appropriate, individualized math skills within the context of the California

Standards for Students with Severe Disabilities, from which IEP goals are developed. A variety of high- and low-tech individual adaptations and modifications may be utilized in order for students to access the content area. Adaptations may be multi-sensory and multi-modality in nature.

Activities include being aware of numbers, using a functional communication system to make purchases, using time and calendars, participating in adapted thematic math-related literature units, participating in content area within the regular education school curriculum, and exchanging of money within the school and neighborhood community. Generalization of these skills across school, home, and community environments is the desired outcome to maximize students' independence and participation in all aspects of their lives.

**BASIC TEXTS AND TEACHING GUIDES**

Functional Math 9th–12th materials kit.

*Thematic Modules*, San Diego Unified School District, 2000.