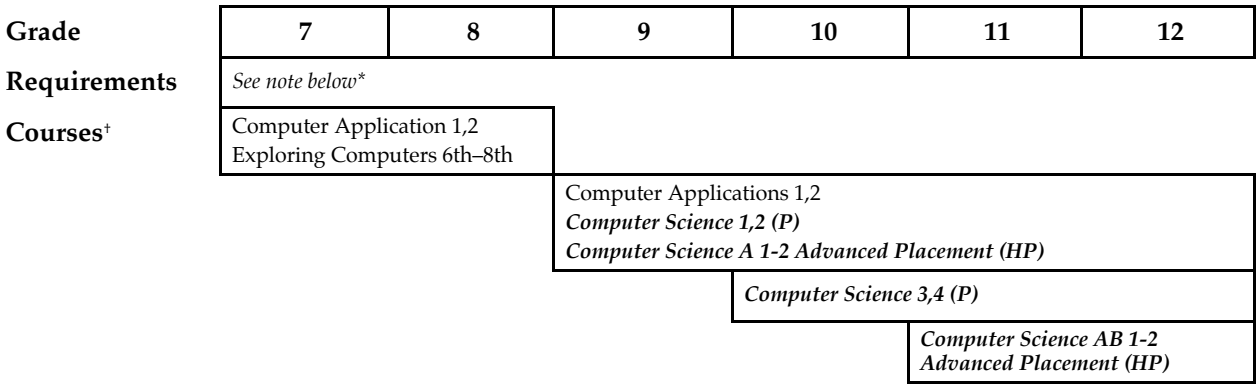
COMPUTER EDUCATION

At the elementary school level, computer instruction occurs primarily as computer-assisted instruction (CAI) within the various content areas. For example, many schools use computers to assist in teaching writing and editing skills during English/language arts instruction.

At the secondary school level, computer-assisted instruction is also a part of many content area classes. In addition, however, there are a growing number of separate computer-related courses that are equipment-dependent. These separate courses were formerly located in this document under the subject-area heading to which the individual course was most closely related; for example, Computer Science was found in the mathematics section.

In response to requests from school sites, this computer education section was added to the *Course of Study* to aid staff in locating computer education courses. Some computer-related courses carry business education credit and may be found in the Business Education section of this guide. Others may be found in *District Pilot and Site-Adopted Courses: A Supplement to Course of Study, K–12,* Item No. 3470.

DIAGRAM OF COURSE SEQUENCE, GRADES 7–12



* The district's computer literacy high school graduation requirement was traditionally required of all students in grade 7; however, there are now several courses available from grade 6 to grade 12 that provide students with the opportunity to meet the requirement.

† Courses that appear in boldface italic are currently listed by the University of California as meeting its subject requirement *g* for admission. Such courses must appear on the individual UC-approved list for each district high school seeking acceptance of the courses for its students.

COURSES OFFERED BY OTHER DEPARTMENTS THAT MEET THE DISTRICT'S COMPUTER LITERACY REQUIREMENT

Course Title	Course Number(s)	Department
Computer Applications in Business 1,2	0723, 0724	Business Education
Keyboarding and Computer Literacy	0722	Business Education
Science 7th—Computers and Technology 1,2	6008, 6009	Science
Business and Computer Applications 1,2; 3,4 (site-adopted course)	8651, 8652, 8653, 8654	Regional Occupation Program
Computerized Accounting 1,2; 3,4 (site-adopted course)	8603, 8604, 8605, 8606	Regional Occupation Program
Information Technology and Networking 1,2; 3,4; (1-2), (3-4), CC 5,6 (site-adopted course)	8474, 8475, 8476, 8477, 8478, 8479, 8487, 8488	Regional Occupation Program
Web Site Design 1,2; 3,4; (1-2), (3-4), CC 5,6	8931, 8932, 8933, 8934, 8935, 8936, 8937, 8938	Regional Occupation Program

COMPUTER APPLICATION 1,2 (4423, 4424)

Grade level: 7–8

Prerequisites: None

Course duration: Two-semester course

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

Note: Students who complete this course successfully will meet the district's computer literacy graduation requirement.

COURSE DESCRIPTION

This course provides instruction in understanding the following:

- word processing
- graphics
- page layout
- spreadsheets
- databases
- telecommunications
- Internet research
- multimedia and presentation software
- computer history, trends, and careers
- buying computers
- reading and understanding computer ads and periodicals
- computer networks
- Web design, development, and publishing
- audio file formats
- GIF animations
- keyboarding
- computer hardware (scanners, optical character readers, projection, etc.)

BASIC TEXTS AND TEACHING GUIDES

Discovering Computers 2003: Concepts for a Digital World, Thompson Learning, 2003.

Learning Microsoft Office 2000, DDC, 2000.

Software: *Microsoft Office 2001,* Microsoft, 2001.

Software: *Photoshop,* Adobe, 2002.

Software: *Dreamweaver*, Macromedia, 2002.

Software: *Office XP Pro Front Page*, Microsoft, 2002.

COMPUTER APPLICATIONS 1,2 (4421, 4422)

Grade level: 9–12

Prerequisites: None

Course duration: Two semesters

Subject area in which graduation credit is given: Elective

Note: Students who complete this course successfully will meet the district's computer literacy graduation requirement.

Note: An identical course for special education students (7793, 7794) also is offered, which provides these students with access to the core curriculum while allowing for accommodations in the pacing of course content.

COURSE DESCRIPTION

This course provides instruction in understanding the following:

- word processing
- graphics
- page layout
- spreadsheets
- databases
- telecommunications
- Internet research
- multimedia and presentation software
- computer history, trends, and careers
- buying computers
- reading and understanding computer ads and periodicals
- computer networks
- Web design, development, and publishing
- audio file formats
- GIF animations
- keyboarding
- computer hardware (scanners, optical character readers, projection, etc.)

BASIC TEXTS AND TEACHING GUIDES

Discovering Computers 2003: Concepts for a Digital World, Thompson Learning, 2003.

Learning Microsoft Office 2000, DDC, 2000.

Software: *Microsoft Office 2001,* Microsoft, 2001.

Software: *Photoshop*, Adobe, 2002.

Software: *Dreamweaver*, Macromedia, 2002.

Software: *Office XP Pro Front Page*, Microsoft, 2002.

COMPUTER SCIENCE 1,2 (4411, 4412)

Grade level: 9–12

Prerequisites: Successful completion of Pre-Algebra recommended.

Course duration: Two semesters

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

- Cluster: 4411C, 4412C

Subject area in which graduation credit is given: Elective

Note: Students who complete this course successfully will meet the district's computer literacy graduation requirement.

Note: An identical course for special education students (7791, 7792) also is offered, which provides these students with access to the core curriculum while allowing for accommodations in the pacing of course content.

COURSE DESCRIPTION

College Preparatory Course (P). In Computer Science 1,2 students will increase their problem-solving skills and be able to differentiate between problems that computers can and cannot solve. Students will use a high-level programming language, which will expose them to the structured approach and object-oriented programming technique. In addition, this course will introduce students to the basic components of a computer, plus an individual computer's role in the functions of a computer system. Computer Science 1,2 will provide a basic understanding of how a computer works as well as how and where computers are used in today's society. Related careers will be explored. This course may be taught in the regular education setting as well as in a cluster setting.

BASIC TEXTS AND TEACHING GUIDES

Lambert and Osborne, *Fundamentals of Java, Comprehensive Course*, 2nd. ed., Thompson Course Technology, 2003.

COMPUTER SCIENCE 3,4 (4413, 4414)

Grade level: 10–12

Prerequisites: Computer Science 1,2 or consent of the instructor

Course duration: Two semesters

Subject area in which graduation credit is given: Elective

Note: Students who complete this course successfully will meet the district's computer literacy graduation requirement.

COURSE DESCRIPTION

College Preparatory Course (P). In Computer Science 3,4 students will write computer programs using data files and high-resolution graphics that require the construction and use of shape tables. They will also design programs that use animation in graphics as well as use machine language routines in a high-level computer language program. An emphasis will be placed on learning and developing programming techniques needed to solve more complicated problems on the computer. Students are taught to structure their programs as a set of modules, with each module performing a particular function. This course provides students with the necessary background for taking Advanced Placement Computer Science.

BASIC TEXTS AND TEACHING GUIDES

Horstmann, *Computing Concepts with Java Essentials*, 3rd. ed., Wiley, 2003.

COMPUTER SCIENCE A 1-2 ADVANCED PLACEMENT (4461, 4462)

Grade level: 9–12

Prerequisites: Grade of A or B in Computer Science 1,2; grade of A or B in Algebra 1-2 and Geometry 1-2, or grade of A or B in Algebra 1-2 Advanced and Geometry 1-2 Advanced; recommendation of AP computer science instructor.

Course duration: Year course

Subject area in which graduation credit is given: Elective, weighted (see note below)

Note: Students who complete this course successfully will meet the district's computer literacy graduation requirement.

COURSE DESCRIPTION

Honors Preparatory Course (HP). This course covers the writing of structured code in a procedural language using data types and algorithms. Designing and implementing computer-based solutions as well as learning well known algorithms and data structures will be included. Another component of the class will incorporate reading and understanding of a large program in addition to understanding the description of the design and development process of such a program. Students will be able to identify the major hardware and software components of a computer system, their relationship to one another, and the roles of these components within the system. In addition, students will develop and select appropriate algorithms and data structures to solve problems as well as to code fluently in a well-structured fashion. Recognizing the ethical and social implications of computer use will be stressed.

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

BASIC TEXTS AND TEACHING GUIDES

Horstmann, *Computing Concepts with Java Essentials*, 3rd. ed., Wiley, 2003.

COMPUTER SCIENCE AB 1-2 ADVANCED PLACEMENT (4498, 4499)

Grade level: 11–12

Prerequisites: Grade of A or B in Computer Science 1,2; grade of A or B in Algebra 1-2 and Geometry 1-2, or grade of A or B in Algebra 1-2 Advanced and Geometry 1-2 Advanced; recommendation of AP computer science instructor.

Course duration: Year course

Options for Instructional Settings: This course may also be taught in the following settings:
- Seminar: 4498S, 4499S

Subject area in which graduation credit is given: Elective, weighted (see note below)

Note: Students who complete this course successfully will meet the district's computer literacy graduation requirement.

COURSE DESCRIPTION

Honors Preparatory Course (HP). In this course, students will design and implement computer-based solutions to problems as well as explain and use several commonly used algorithms and types of data structures. Students will be able to select the most appropriate algorithms and data structures to solve these problems. This course will provide well-structured methods in the coding of programs in Java or other computer languages.

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

BASIC TEXTS AND TEACHING GUIDES

Weiss, *Data Structures and Problem Solving Using Java*, 2nd. ed., Prentice Hall/Addison Wesley, 2002.

EXPLORING COMPUTERS 5TH–8TH (4403)

Grade level: 5–8

Prerequisites: None

Course duration: One semester. Also, six-, nine-, or 12-week portion of an 18-week (one-semester) wheel; multiple credit allowed

Options for Instructional Settings: This course may also be taught in the following settings:
- Sheltered: 4403L

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

Note: Students who complete this course successfully will meet the district's computer literacy graduation requirement.

Note: An identical course for special education students (7790N) also is offered, which provides these students with access to the core curriculum while allowing for accommodations in the pacing of course content.

COURSE DESCRIPTION

Exploring Computers 5th–8th covers the basics of computers, including ethics, vocabulary, hardware, and software. Word processing, databases, spreadsheets, draw and paint tools, and multimedia will be emphasized. Telecommunications (i.e., Internet and electronic mail) will be another component of the class. A hands-on, project-based approach will be utilized. This course may be taught in the regular education setting as well as in a sheltered setting.

BASIC TEXTS AND TEACHING GUIDES

Kurshan, *Understanding Computers through Applications,* Glencoe, 1996.

Exploring Computers 7–8, San Diego City Schools, 1998–1999 (formerly a stock item; now available on the district's computer network from the Educational Technology Unit).