



Name _____
 Learner ID _____
 School/College/University _____

Computer Science

Career Cluster Plan of Study for ► Learners ► Parents ► Counselors ► Teachers/Faculty

This Career Cluster Plan of Study (based on the Information Technology cluster) can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. *This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Other Required Courses Other Electives Recommended Electives Learner Activities	*Career and Technical Courses and/ or Degree Major Courses for Business, Management and Administration	Occupations Relating to This Career Cluster	
Interest Inventory Administered and Plan of Study Initiated for all Learners									
SECONDARY	9	English 9 Language Arts 1	Algebra I Geometry	Earth / Life Physical Science	World History	1 year World Language, and minimum 1 year CTE course(s) Certain local student organization activities are also important including public speaking, record keeping and work-based experiences.	Programming 1 and 2 AP Computer Science Principals AP Computer Science A Internship opportunity for application of learning	<ul style="list-style-type: none"> ► Animator ► Database Administrator ► Data Systems Designer ► E-Business Specialist ► Game Developer ► Information Technology ► Engineer ► Media Specialist ► Network Administrator ► Network Security Analyst ► PC Support Specialist ► Programmer ► Software Applications Specialist ► Systems Administrator ► Telecommunications ► Network Technician ► User Support Specialist ► Virtual Reality Specialist ► Web Architect/Designer 	
	10	English 10 Language Arts II	Geometry or Algebra II	Biology	U.S. History				
	11	English Language Arts III	Algebra 2 or Pre Calc or Trig	Chemistry or Physics	American Government Economics				
	College Placement Assessments-Academic/Career Advisement Provided								
	12	English 12	Dependent on chosen pathway	AP Physics					
Articulation/Dual Credit Transcribed-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.									
POSTSECONDARY	Year 13	English Composition English Literature	Calculus	Chemistry	American Govt. Psychology	All plans of study need to meet learners' career goals with regard to required degrees, licenses, certifications or journey worker status. Certain local student organization activities may also be important to include.	Continue courses pertinent to the pathway selected.		
	Year 14	Speech/ Oral Communication Technical Writing	Computer Applications	Physics Biological Science	American History Geography				
	Year 15	Continue courses in area of specialization							
	Year 16								

**See course descriptions on page 2.



PROGRAMMING 1**LENGTH: 20 WEEKS****GRADES: 9-12****PREREQUISITE: ALGEBRA 1 OR CURRENTLY ENROLLED IN ALGEBRA 1**

This course is an introduction to structured programming languages. A problem solving approach is emphasized. Topics include decision making, loops, arrays, graphics, strings, files, sound, functions, subroutines and special topics. The course is taught through a combination of individual programming problems, reports, lectures, videos and projects. Students use **Scratch**, **Visual BASIC** and one higher level programming language.

PROGRAMMING 2**LENGTH: 20 WEEKS****GRADES: 9-12****PREREQUISITE: PROGRAMMING 1 OR INSTRUCTOR APPROVAL**

This course is a continuation of object oriented programming. Topics include using variables, controlling program flow, functions, using classes and objects, arrays, files and graphics. Students work individually at the beginning and in groups toward the end of the course. Applications from the following areas are included: business, mathematics, science and game theory and mobile app development. Students use **Python** and **Java** as the

Advanced Placement(AP) Computer Science Principles #04444**LENGTH: 40 WEEKS****GRADES: 10-12**

PREREQUISITE: NONE

AP Computer Science Principles is an introductory computing course. Students cultivate their understanding of computer science through working with data, collaborating to solve problems, and developing computer programs as they explore concepts like creativity, abstraction, data and information, algorithms, programming, the internet, and the global impact of computing. It also allows students the opportunity to investigate the innovations in other fields that computing has made possible and examines the ethical implications of new computing technologies.

***Students are encouraged, but not required to take the Advanced Placement exam for this course in May.*

Advanced Placement (AP) computer Science A #04434**LENGTH: 40 WEEKS****GRADES: 11-12****PREREQUISITE: COMPUTER PROGRAMMING 1,2,OR INSTRUCTOR APPROVAL**

AP Computer Science A is an introductory college-level computer science course. Students cultivate their understanding of coding through analyzing, writing, and testing code as they explore concepts like modularity, variables, and control structures. Students use the standard Java library from the AP Java subset delineated by College Board. The responsible use of these systems is reinforced throughout the course.

***Students are encouraged, but not required to take the Advanced Placement exam for this course which takes place in May.*





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