

McDonough High School
COMPUTER SCIENCE PRINCIPLES
COURSE SYLLABUS

COURSE TITLE.....COMPUTER SCIENCE PRINCIPLES

TERM..... SEMESTER

TEACHER.....MRS. M. MARSH, ED.S.

ROOM..... #442

Email Address	maxine.marsh@henry.k12.ga.us
Teacher Web Page	http://schoolwires.henry.k12.ga.us/Page/18713
Teacher Support	Help sessions are available by appointment

COURSE DESCRIPTION

How can computing change the world? What is computer science? Engage your creativity. Demonstrate and build your problem-solving ability all while connecting the relevance of computer science to society! Computer Science (CS) Principles is an intellectually rich and engaging course that is focused on building a solid understanding and foundation in computer science.

This course emphasizes the content, practices, thinking, and skills central to the discipline of computer science. Through both its content and pedagogy, this course aims to appeal to a broad audience. The focus of this course will fall into these computational thinking practices: connecting computing, developing computational artifacts, abstracting, analyzing problems and artifacts, communicating, and collaborating. Various forms of technologies will be used to expose students to resources and applications of computer science. Professional communication skills and practices, problem-solving, ethical and legal issues, and the impact of effective presentation skills are enhanced in this course to prepare students to be college and career ready.

Employability skills are integrated into activities, tasks, and projects throughout the course standards to demonstrate the skills required by business and industry. Competencies in the co-curricular student organizations are integral components of both the employability skills standards and content standards for this course.

Computer Science Principles is the second course in the Programming, Game Design, Internet of Things, Web Development, Cloud Computing, and Computer Science pathways in the Information Technology Cluster. Students enrolled in this course should have successfully completed Introduction to Software Technology.

COURSE CURRICULUM CONTENT

COURSE STANDARDS	UNITS/TOPICS
<p>IT-CSP-1 Demonstrate employability skills required by business and industry.</p> <p>IT-CSP-2 Create digital artifacts that foster creative expression including programs, digital music, videos, images, documents, and combinations of these such as infographics, presentations, and web pages.</p> <p>IT-CSP-3 Apply abstractions in digital data to explain how bits are grouped to represent higher-level abstractions such as numbers and characters.</p> <p>IT-CSP-4 Design and create computer programs to process and extract information to gain insight and knowledge.</p> <p>IT- CSP-5 Develop, express, implement, and analyze algorithms analytically and empirically.</p> <p>IT- CSP-6 Create programs that translate human intention into computational artifacts including music, images, visualizations, and more while exploring the concepts, techniques and development used in writing programs.</p> <p>IT- CSP-7 Gain insight into the operation of the Internet, study characteristics of the Internet and systems built upon it, and analyze important concerns, such as cybersecurity.</p> <p>IT- CSP-8 Develop a logical argument from the many ways in which computing enables innovation and our methods for communicating, collaborating, problem-solving, and doing business, and analyze the potential benefits and harmful effects of computing on the way people think, work, live, and play.</p> <p>IT-CSP-9 Explore how related student organizations are integral parts of career and technology education courses through leadership development, school and community service projects, entrepreneurship development, and competitive events.</p>	<p>Unit 1 – The Internet Ch. 1 – Representing and Transmitting Info Sending Binary Messages. Encoding and Sending Numbers. Encoding and Sending Text</p> <p>Ch. 2 – Inventing the Internet, IP Addresses, Packets and Redundancy, Routing, DNS, Protocols, and Abstraction</p> <p>Unit 2 – Digital Information Ch. 1 – Encoding and Compressing Complex Info., Text Compression, Encoding Images</p> <p>Ch. 2 – Manipulating and Visualizing Data Interpreting Visual Data, Communicating with Visualization, Cleaning Data and Making Summary Tables</p> <p>Unit 3 – Algorithms and Programming Ch. 1 - Programming languages and Algorithms, Procedural Abstraction, Top-down Design, Writing Functions, Loops and Documentation</p> <p>Unit 4 - Big Data and Privacy Ch. 1 - Implications of Big Data Big Data in the real world Identifying People and the cost of “free” Foundation of Encryption Asymmetric and Public Key Encryption</p> <p>Unit 5 - Building Apps Ch. 1 Event-driven Programming, Designing Event-Driven Apps, User Input and Variables Boolean Logic and conditionals</p> <p>Ch. 2 - Programming with Data Structures, While loops, Simulations, Arrays, Functions with return values, Processing Arrays</p>

INSTRUCTIONAL MATERIALS AND SUPPLIES

Instructional Supplies
3-ring binder, paper, pen or pencil, headphones

EVALUATION AND GRADING

Assignments	Grade Weights			Grading Scale
Classwork & Homework Quizzes, Labs & Work Ethic Projects/ Unit Tests Final Exam	Practice Work – Daily Assignments/ Classwork/ Homework /Formative assessments/Quizzes/ Work Ethic	40%	Course Final Average 80%	A: 90 and above B: 80 – 89 C: 74 – 79
	Assessment Tasks - Projects/Tests/Summative unit assessments	40%		D: 70 – 73
	Semester Summative Assessment Tasks	20%	EOCT/Final Exam 20%	F: 69 or below

OTHER INFORMATION

Expectations for Academic Success	Additional Requirements/Resources
1) Complete daily classwork assignments	<input type="checkbox"/> Acceptable Computer Use Policy <input type="checkbox"/> Tutoring Available <input type="checkbox"/> Follow Work Ethic Guidelines and “Dress for Success”
2) Participate in class discussions and ask questions	
3) Participate constructively as a team member	
4) Problem-solve and accept challenges	
5) Challenge yourself to continuously improve	

**The syllabus may be updated as needed throughout the semester.*

ELECTRONICS POLICY

Electronic devices are to be used in the classroom for educational purposes only with the express permission of the teacher. All other uses are prohibited during instructional time. For the protection of your personal property, please keep all electronic devices secured and out of sight when not being used for instructional purposes.

BEHAVIOR EXPECTATION:

Class Rules

Be Polite
Be Prompt
Be Positive
Be Prepared
Be Productive

CLASS POLICIES:

- 1) Computers are for classroom instruction only – email, forums, *Facebook*, *Myspace*, *Twitter*, chat, games, material of pornographic nature, drug-related content, or any material not specified by the instructor as class-related must not be accessed with the school's computers. Violation of this will cause you to lose computer access privileges. Students must follow all rules in the Henry County Schools Acceptable Use Policies for computer use.
 - 2) Be on time! Students are expected to be in their seats when the bell rings and are expected to stay there, otherwise a tardy will be recorded. See Tardy Policy
 - 3) Respect the property of others while in the classroom.
 - 4) Do not touch anything on the teacher's desk without permission.
 - 5) Participate in class! Nothing will help you to understand the material better than to engage actively in all activities, discussions, and projects – you will get out of this class what you put into it!
 - 6) There shall be NO EATING OR DRINKING in this Computer Lab – this includes gum, candy, cookies, chips, etc. Students may have a bottle of water as long as they set it on the floor away from the computers.
 - 7) Students may not leave the Lab without an approved pass.
 - 8) DO NOT work on assignments or coursework from any other class. Your complete attention will be required during every class period.
 - 9) DO NOT roll around on the chairs.
 - 10) Horse playing in the Lab is strictly prohibited.
 - 11) Cell phones, iPads, iPods, and other electronics are not to be seen or heard in class unless assigned (see Electronics Policy).
 - 12) Academic honesty is paramount! CHEATING WILL NOT BE TOLERATED and will result in an AUTOMATIC ZERO. This includes homework, quizzes, projects, tests, and exams. Please read the Plagiarism Policy.
- Students are expected to conform to all rules and regulations of the Henry County Schools Student Handbook.

CONSEQUENCES:

Consequences of failing to follow these policies may include a phone call/e-mail home to a parent/guardian; teacher detention; administrative detention; and administrative referrals.

Discipline Policy for Rule Violation:

- ✓ 1st Offense: Warning
 - ✓ 2nd Offense: Parent Contact
 - ✓ 3rd Offense: Detention and Parent Contact
 - ✓ 4th Offense: Referral to Administrator
- Serious violations will result in immediate office referral or other appropriate response based on students' actions.

A note to students-

I look forward to working with each of you. I hope that you find this to be an interesting class and learn a lot from the course. I encourage you to see me at any time if you have questions or concerns about the course or any of the material. I will always be glad to schedule a time to help you if you are ever struggling with anything in the class. Please do not hesitate to ask for help!

A note to parents/guardians-

Please feel free to contact me to discuss any questions or concerns about your child's progress in this class.

COMMITMENT AND CONTACT INFORMATION:

By signing below, I am stating that I have read, understood, and I will encourage my student to adhere to the class syllabus and behavioral expectations. I also understand that I am encouraged to contact the instructor if I have questions or concerns about my student's performance in this course.

By signing below, I am stating that I have read, understood, and will adhere to the class syllabus and behavioral expectations. I also understand that if at any time during the semester I have questions or concerns about this course I will ask the instructor.

Parent/Guardian Name(s)

Student Name

Parent/Guardian Signature

Student Signature

Parent/Guardian Home Telephone Number

Student E-mail address

Parent/Guardian Cell Phone Number

Student Cell Phone Number

Parent/Guardian Work Phone Number

Class Period

Parent/Guardian E-Mail address

Date

Date

Parent Comments: _____

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Date

Date

Parent Comments: _____

(Complete and Return this page only to your teacher)