Computer Science Investigations
Year-long Elective or Semester

Teacher:
Room:
Email:

Course Explanation:

The first semester of Computer Science Discoveries introduces students to computer science as a vehicle for problem-solving, communication, and personal expression. As a whole, this semester focuses on the visible aspects of computing and computer science. It encourages students to see where computer science exists around them, as well as how they can engage with it as a tool for exploration and expression.

Where the first semester centers on the immediate observable and personally applicable elements of computer science, the second semester asks students to look outward and explore the impact of computer science on society. Students will see how a thorough user-centered design process produces a better application, how data is used to address problems that affect large numbers of people, and how physical computing with bare circuit boards allows computers to collect input and return output in a variety of ways.

Materials needed daily:

- One spiral or composition book
- 1 basic pocket folder
- 2 pencils/pen
- A positive attitude

Course Units of Study:

Semester 1	
Computing Basics & Foundatoins	Students will learn about safe digital practices and how to maintain their safety in an online environment. They will learn about the input/output process model of a computer, and how computers help humans solve problems. During this unit, students will have an opportunity to dissect a computer to learn more about it's hardware and construction.
Animations and Games	Students learn fundamental programming constructs and practices in the JavaScript programming language while developing animations and games in Code.org's Game Lab environment. Students end the unit by designing their own animations and games.
App Development	Students will focus in more closely on the design process, learning how to create an app in Code.org's App Lab. This unit focuses closely on how teams work together through the design process and take in suggestions and responses from the user to make better iterations of their product.

Semester 2	
Physical Computing	Students use Code.org's App Lab environment in conjunction with the Adafruit Circuit Playground, to explore the relationship between hardware and software. Throughout the unit, students develop prototypes that mirror innovative computing platforms, before ultimately designing and prototyping one of their own.
Artificial Intelligence & Machine Learning	Students use Code.org's AI lab to explore how AI is being used today in its many iterations and then work to develop their own AI app using data sets provided. This project will focus on students working together through the design process.
Data and Society	Students explore different systems used to represent information in a computer and the challenges and trade-offs posed by using them. In the second half of the unit, students learn how the collection of data us used to solve problems and how computers help to automate the steps of this process.

What skills will students be learning?

* Effective Communication
* Creative Problem-Solving
* Critical Thinking and Logical Reasoning
* Teamwork
* Collaboration
* Strategic Application of Technology
* Computational Thinking Skills
* The use of a design process

Grades:

There will be one grading category in CSI called "**Assignments**." This category will house all course content that is graded and will equal 100% of the course grade.

Grading follows FCPS Regulation 500-05: Grading, Reporting, and Intervention and students will receive letter grades

- A 50% will be entered into the grade book when a teacher is communicating that an assignment has not been completed. In addition to the 50% entered the grade book a teacher will add the following comment: ***"This assignment has not yet been submitted for a grade. I am still willing to accept this work. Please contact me to discuss your options."***
- A 55% will be entered into the grade book when a teacher is communicating that an assignment was completed, but earned a score that was lower than a 55%. In addition to the 55% entered in the grade book, the teacher will add the following comment: ***"This assignment falls below mastery of the standard that was assessed. You have the opportunity to re-do this assignment. Please contact me to discuss your options."***

Classroom Expectations & Student Responsibilities:

- Respect one another in any synchronous learning environment
- Be on time to class and come prepared ready to learn. Class will begin on time.
- Own your learning. No one is the gatekeeper of all knowledge. Share willingly.
- Academic honesty is important. Do your own work that reflects your BEST effort.

Failure to behave appropriately will result in a consequence. Possible consequences include a verbal reminder, teacher-student conversation, parent contact, or removal from class with a student referral to administration.

School Wide Disciplinary Information: _____ is a **PBIS** school and students will demonstrate ethical and appropriate behavior at all times. The expectations are outlined below. In case of an infraction, teachers and administrators will follow a progressive discipline plan that includes two-way communication with parents/guardians. Maryland's law requires FCPS to place a letter recording any infractions that result in a suspension in the student's permanent file. Refer to the student handbook for more information.

Classroom Procedures: These are the things that you need to know for conducting business in my **CSI** classroom.

BYOD: Cell phones, ipads, or other technology may be used on occasion, but the expectation is these items are **off, away, and out of sight** unless directed by the teacher during synchronous instruction.

Supplies: Although we will be working in a digital environment, students are expected to have all necessary supplies with them in class each day. This includes their folder, writing utensils, lined paper, and any other regular supplies that might be used for the day.

Completing & Turning in Assignments: It is expected that all students will turn in assignments the day that they are due. All assignments for any and all classes should be seen in the Schoology calendar. This can be found in the upper right of your Schoology page. If you find keeping track of assignments challenging, write them down in your own planner.

- Make sure all work contains your name, class period, and date.
- All answers must be written in full sentences unless told otherwise. This is an expected practice for real-world communication.
- To be considered on time, work must be completed by the beginning of the period on the day it is due and submitted in Schoology.. Late work will be accepted for up to 90% one day after the original due date. Each day following the due date, late work will receive a 10% deduction for each day up to 50%. Work not turned in will receive 50% in Schoology. If students reach out and communicate with the teacher, overdue work will be accepted through midterm/end of term with 10% maximum reduction for late submission. Other deductions can occur based on meeting academic standards. Please contact your teacher to coordinate reassessment.

Make Up Work: It is expected that students will make every effort to come to class each and every day. If a student is absent for any reason, it is his or her responsibility to get any notes, assignments, or handouts that may have been missed. All handouts can be found in the "Weekly folders" in Schoology. Students will be given the number of days they were absent plus one extra day to complete makeup work. Please note: Many of the projects that students will work on in CSI are done in teams and small groups. Being present daily allows all team members to share the workload.

Ending Class: Class is dismissed by the teacher. Students should not pack up and get ready to leave until dismissed.

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Please read and review each of the expectations identified in the syllabus with your child. Complete the information below and submit through Schoology by _____.
Thank you, and I look forward to a wonderful year in Computer Science!

Student Name	
Guardian's Name(s)	
Best phone #s	1. 2.
Email Addresses	
I have reviewed the syllabus including the grading policy. **Guardian Signature:**	Sign here. _____