

AP Computer Science Principles Syllabus

Course Title: AP Computer Science Principles

Teacher's Name: Mr. Crodelle

Textbooks:

5 Steps to a 5 by Julie Schacht Sway

Blown to Bits by Hal Abelson, Ken Ledeen, and Harry Lewis

<http://www.niemanlab.org/pdfs/blowntobits.pdf>

Workbook: We will do some work out of 5 Steps to a 5

Objective: This course seeks to provide students with a foundation in computing principles so that they are adequately prepared with both the knowledge and skills to live and meaningfully participate in our increasingly digital society, economy, and culture. The course starts with learning about what is involved in sending a single bit of information from one place to another and ends with students considering the implications of a computing innovation of their own design. Along the way students learn:

- How the Internet works and its impacts on society.
- How to program and rapidly prototype small JavaScript applications both to solve problems and to satisfy personal curiosity.
- How to collect, analyze and visualize data to gain insight and knowledge.
- How to evaluate the beneficial and harmful effects to people and society brought on by computing innovations.

Necessary Materials: Each student needs to bring to class pens/pencils, a notebook, and looseleaf paper. Each student will create an account on www.edhesive.com and this website will be used for assignments, projects, videos, and more.

Homework Assignments: Homework will be assigned each night. The student's name and the assignment should be visible at the top of the page. Homework is to be done neatly. Homework will be checked each day. To be a successful student in this class it is extremely important that homework is done nightly. **Late homework will not be accepted.** If a student is absent they can check the class web site for the assignment and the assignment can be turned in when they return.

Textbook and website: Students will have online access to the textbook **Blown to Bits** and the website we will use www.edhesive.com.

Calculation of Classroom Grade:

45% - Tests

35% - Quizzes

15% - Homework

5% - Participation/Preparedness

Calculation of AP Exam Grade:

60% Multiple Choice Final Exam

24% AP Create Task

16% AP Performance Task

(Over)

Testing: Exams are cumulative and given on a regular basis. Testing includes all exams, quizzes, and pop-quizzes. If a student misses an exam, it is his/her responsibility to see me regarding a time and place to schedule a makeup exam. Since every student is required to have a calculator, sharing a calculator during an exam is not permitted. Similarly, students are responsible to have their calculators with them on testing days, no excuses! If a student does not have a calculator on a test day then the student will have to take the exam without a calculator.

Classroom Policies:

Every student is expected to come to class on time. After 3 lates a student will serve detention with the teacher.

Each student is expected to come to class prepared to work with the necessary materials each day.

Every student will receive a progress report midway through each quarter.

Extra help will be given before or after school. A schedule will be set up that is agreeable to both students and teacher.

Conduct: Students are expected to respect each other, the teacher and the classroom. Students are expected to be in their assigned seats when the bell rings. Once seated, the student is expected to begin the work on the board.

Attendance: Attendance is very important in order for students to fully learn the material. In the case of an absence, it is the **student's responsibility** to obtain any missed class notes and homework from a classmate, the class web site or myself. It would be helpful if the student exchanged phone numbers with someone in class.

Classroom Website: www.edhesive.com is the website that we will use for videos, assignments, and activities. To keep track of assignments that are due, I have my personal website <https://josephcrodelles.wixsite.com/stjohnsmath>. It will contain homework assignments, resources and important documents. It is updated on a daily basis.

Home Logic: Information will be sent home regarding the use of the online grading system. Home Logic will be updated on a weekly basis. I would ask that you give me a week to grade any tests or quizzes. It is extremely important that you check home logic on a weekly basis. If you have any concerns they can be addressed right away. If you have any concerns regarding the system or are having trouble please do not hesitate to ask.

Contact:

I will be using the student's school email account to communicate with them. I am asking for a parent email address so that I can contact you by email as well. I would like to have the opportunity to use email as well as the telephone. Please print your email address on the next page and check whether you check your email regularly. **Please Note:** if you have the letter O in your email address write it as an O if you have a zero in your email address put a diagonal line through the zero. If you have the letter L in your email please write it like L and if you have the number 1 in your email please write it like 1. To contact me during the day, call (718) 721 – 7200 and leave a message. I will return it as soon as possible. You can also e-mail me at jcrodelles@stjohnsprepschool.org if that is more convenient. I look forward to working with you and your child this year. I know it will be a successful year!

Course Outline

Semester 1

Unit 0: Course Introduction

1. Enter the world of computer science by learning about the field itself and the goals of this AP-level course.

Unit 1: Computational Thinking

1. Study the iterative development process, and start applying it to build your own programs in Scratch.

Unit 2: Programming

1. Examine computational logic structures and problem solving capabilities for programs in text-based algorithms, AP-style Pseudocode, and Scratch.

Unit 3: Data Representation

1. Explore the different means of representing information digitally.

Mini Create Task Module

1. Learn about the Create Performance Task component of the AP exam, and practice the skills required for it.

Unit 4: Digital Media Processing

1. Use Processing to programmatically manipulate digital images and audio.

Create Performance Task

1. Students demonstrate their learning by creating a portfolio of their work for submission to the College Board.

Unit 5: Big Data

1. Discover new knowledge through the use of large data sets.

Unit 6: Innovative Technologies

1. Assess the current state of technology and investigate its role in our everyday lives.

Explore Performance Task

1. Students demonstrate their learning by creating a portfolio of their work for submission to the College Board.

Unit 7: The AP Exam

1. Students review and prepare for all components of the AP Exam.