

Dominican International School Grade 12 Computer Science SY: 2023-24



Grade Level 11/12 1 Year Teacher Tim Sampson Email: tsampson@dishs.tp.edu.tw

Course Description

Welcome to Computer Science 12 at Dominican International School. Computer Science 12 covers half of Code.org's Computer Science Discoveries, a rigorous, entry-level course that introduces high school students to the foundations of modern computing. The CS Principles course covers a broad range of foundational topics such as programming, algorithms, the Internet, big data, digital privacy and security, and the societal impacts of computing. For more details see, the code.org links in the references section. This course uses the fantastic Code.org's CS Principles Curriculum, for more details, please see the <u>2022-23 Curriculum Guide</u>.

Curriculum Overview and Goals

Computing affects almost all aspects of modern life and all students deserve access to a computing education that prepares them to pursue the wide array of intellectual and career opportunities that computing has made possible.

Content

The content covered in this year includes:

- Unit 3: Intro to App Design
- Unit 4 Variables, Conditionals, and Functions
- Unit 5 Lists, Loops, and Traversals
- Unit 7 Parameters, Return, and Libraries

Classroom Practices

In this course the teacher acts more as a facilitator in learning, as opposed to the expert providing facts to be memorized by the students. This course focuses heavily on the processes of discovery and how we engage with ideas and information. Students will be presented with problems for which they discover and apply their own solutions based on the skills learned in the unit.

Student Engagement and Learning

The materials provided by Code.org are designed with activities that are relevant to students' lives and provide them with authentic choice. Students will find success in this course when they engage with curiosity and creativity. Social activities include presentations, peer feedback and shared reflections.

ESLRs D'TORCH (Truthful, Organized, Reflective, Courageous and Helpful)

In CS classes the categories of the D'TORCH most practiced and assessed are:

- Organized Students utilize Google Classroom to edit, submit and keep track of their assignments.
- Reflective Students will regularly write activity reflections in their online journal.

• Helpful - Students are empowered to ask for and provide explanations and give examples to help classmates through particularly difficult problems.

Class Expectations

- Come to class on time and be prepared
- Have a positive attitude and be willing to learn.
- Respect yourself, others, and our school.
- Always complete your work and try your best.
- Actively participate, listen carefully, but don't speak out of turn.
- All assignments must be completed.

Homework and Quiz Rules

- All assignments must be turned in on the day they are due.
- 1 day late = Maximum of only 60%
- 2+ days late = Project-I & Only 60%
- If a student has been absent, it is his/her duty to find out what work is due, and hand it in a day later.
- All assignments must satisfactorily be completed.
- If you are absent on the day of a quiz, you will only be able to get a maximum of 60%.

Classroom Rules

- All students are expected to follow the rules. Consequences will follow if rules are broken.
- Read and follow the standard school rules.
- Be on time and neatly dressed, in full school uniform.
- Speak in ENGLISH ONLY.
- Respect your teachers, fellow students and their property.
- Keep your seating space and classroom clean and neat.
- No eating or drinking in the ICT Labs.
- Ask permission to leave the class.

<u>Academic Dishonesty</u> means employing a method or technique or engaging in conduct in an academic endeavor that contravenes the standards of ethical integrity expected at DIS. Academic dishonesty includes but is not limited to, the following:

- 1. Purposely incorporating the ideas, words of sentences, paragraphs, or parts thereof without appropriate acknowledgment and representing the product as one's own work; and
- 1. Representing another's intellectual work such as photographs, paintings, drawings, sculpture, or research or the like as one's own, including failure to attribute content to an AI.
- Employing a tutor, making use of Artificial Intelligence without acknowledgement, getting a parent to write a paper or do an assignment, paying for an essay to be written by someone else and presented as the student's own work.
- 3. Committing any act that a reasonable person would conclude, when informed of the evidence, to be a dishonest means of obtaining or attempting to obtain credit for academic work.

Any act of academic dishonesty will result in an automatic zero on the entire assignment

Discipline

- Verbal warning
- Write-Up, entered into the discipline system and then referral to the Discipline Office.
- Parent-Teacher conference as required.

Links, tools and references:

- <u>https://code.org/files/CSP_CurriculumGuide_2017_forWeb.pdf</u>
- <u>https://developer.mozilla.org/en-US/docs/Learn</u>
- <u>https://www.w3schools.com/</u>
- <u>App Lab</u> A browser-based JavaScript programming environment for creating interactive apps, with the ability to freely switch between programming in blocks or text

Schedule CS 12

(NB: Depending on time and interest, the teacher may delete and/or add other selections.)	
Week / Date	Topic / Projects / Assessments
Week 1 Aug 10 th to 11 th <u>Only 2 School Days</u> 10 ~ First Day / Orientation Day	Unit 3: Intro to App Design Students design their first app while learning both fundamental programming concepts and collaborative software development processes. Students work with partners to develop a simple app that teaches classmates about a topic of personal interest. Throughout the unit, they learn how to use Code.org's programming environment, App Lab, to design user interfaces and write simple event-driven programs. Along the way, students learn practices like debugging, pair programming, and collecting and responding to feedback, which they will be able to use throughout the course as they build ever more complex projects. The unit concludes with students sharing the apps they develop with their classmates.
Week 2 Aug 14 th to 18 th 15 ~ Opening Mass	lesson 2 Introduction to Design Mode lesson 3 Project - Designing an App Part 1
Week 3 Aug 21 st to 25 th	lesson 4 Project - Designing an App Part 2 lesson 5 The Need for Programming Languages
Week 4 Aug 28 th to Sep 1 st	lesson 6 Intro to Programming lesson 7 Debugging
Week 5 Sep 4 th to 8 th 8 ~ Holy Mass & VIP Induction	lesson 8 Project - Designing an App Part 3
Week 6 Sep 11 th to 15 th 12-14 ~ Pre-Exam Days	lesson 9 Project - Designing an App Part 4 lesson 10 Project - Designing an App Part 5
Week 7 Sep 18 th to 22 nd	Unit 4 - Variables, Conditionals, and Functions Students expand the types of apps they can create as they learn how to store information (variables), make decisions (conditionals), and better organize code (functions). Each programming topic is covered in a specific sequence of lessons that ask students to 'Explore' ideas through hands-on activities, 'Investigate' these ideas through guided code reading, 'Practice' with sample problems, and apply their understanding as they 'Make' a one-day scoped project. The entire unit concludes with a three-day open-ended project in which students must build an app that makes a recommendation about any topic they wish. lesson 1 Variables Explore lesson 2 Variables Investigate
Week 8	Final Exam

Week 9 Oct 2nd to 6th 3 Days of Class 5-6~Q1 Exams lesson 3 Variables Practice

<u>2nd OUARTER – TENTATIVE COURSE CONTENT</u>

(NB: Depending on time and interest, the teacher may delete and/or add other selections.)		
Week / Date	Topic / Projects / Assessments	
Week 1 (10) Oct 9 th to 13 th <u>3 Days of Class</u> 9-10 – Double 10 Holiday	lesson 4 Variables Make lesson 5 Conditionals Explore	
Week 2 (11) Oct 16 th to 20 th	lesson 6 Conditionals Investigate lesson 7 Conditionals Practice	
Week 3 (12) Oct 23 rd to 27 th	lesson 8 Conditionals Make lesson 9 Functions Explore / Investigate	
Week 4 (13) Oct 30 th to Nov 3 rd 1 - All Saint's Day Mass	lesson 10 Functions Practice lesson 11 Functions Make	
Week 5 (14) Nov 6 th to 10 th	lesson 12 Project - Decision Maker App Part 1 lesson 13 Project - Decision Maker App Part 2	
Week 6 (15) Nov 13 th to 17 th	lesson 14 Project - Decision Maker App Part 3	
Week 7 (16) Nov 20 th to 24 th	Final Exam	
Week 8 (17) Nov 27 th to Dec 1 st	Unit 5 - Lists, Loops, and Traversals Students learn to build apps that use and process lists of information. Like the previous unit, students learn the core concepts of lists, loops, and traversals through a series of EIPM lesson sequences. Later in the unit, students are introduced to tools that allow them to import tables of real-world data to help further power the types of apps they can make. At the conclusion of the unit, students complete a week-long project in which they must design an app around a goal of their choosing that uses one of these data sets.	
Week 9 (18) Dec 4 th to 8 th 8 - Foundation Day Celebrations	lesson 1 Lists Explore	
Week 10 (19) Dec 11 th to 15 th <u>3 Days of Class</u> 14-15 ~ Q2 Exams	lesson 2 Lists Investigate	
Dec 18 th to Jan 1 st	Christmas Holiday	

<u>3rd QUARTER – TENTATIVE COURSE CONTENT</u>

(NB: Depending on time and interest, the teacher may delete and/or add other selections.)

Week / Date	Topic / Projects / Assessments
Week 1 (20)	lesson 3 Lists Practice
Jan 3 rd to 5 th	lesson 4 Lists Make
<u>3 Days of Class</u> 4 ~ New Year Mass	
Week 2 (21)	lesson 5 Loops Explore
Jan 8 th to 12 th	lesson 6 Loops Investigate
Week 3 (22)	lesson 7 Loops Practice
Jan 15 th to 19 th	lesson 8 Loops Make
Week 4 (23)	lesson 9 Traversals Explore
Jan 22 nd to 26 th	lesson 10 Traversals Investigate
Week 5 (24)	lesson 11 Traversals Practice
Jan 29 th to Feb 2 nd	lesson 12 Traversals Make
Week 6 (25)	lesson 13 Project - Hackathon Part 1
Feb 5 th to 9 th	lesson 14 Project - Hackathon Part 2
<u>3 Days of Class</u> 8-9 ~ CNY	
Feb 8 th to 16 th	CNY Holiday
Week 7 (26)	lesson 15 Project - Hackathon Part 3
Feb 19 th to 23 rd	
19 ~ Lenten Mass 21-23 ~ Pre-Exam Davs	
Week 8 (27)	Final Exam
Feb 26 th to March 1 st	
<u>4 Days of Class</u> 28 ~ 228 Memorial Day Holiday	
Week 9 (28)	lesson 16 Project - Hackathon Part 4
March 4 th to 8 th	
<u>4 Days of Class</u> 8 ~ Q3 Exams	

4th QUARTER – TENTATIVE COURSE CONTENT

(NB: Depending on time and interest, the teacher may delete and/or add other selections.)		
Week / Date	Topic / Projects / Assessments	
Week 1 (29) March 13 th to 17 th <u>4 Days of Class</u> 13 – Q3 Exams 14~ Q4 Begins	lesson 17 Project - Hackathon Part 5 Project Sharing	
Week 2 (30) March 18th to 22 nd 18-21 ~ Fire Drill	Unit 7 - Parameters, Return, and Libraries lesson 1 Parameters and Return Explore lesson 2 Parameters and Return Investigate	
March 25 th to Apr 5 th	Easter Holiday	
Week 3 (31) Apr 8 th to 12 th 10 ~ Easter Mass	lesson 3 Parameters and Return Practice lesson 4 Parameters and Return Make	

Week 4 (33) Apr 15 th to 19 th	lesson 5 Libraries Explore lesson 6 Libraries Investigate
Week 5 (34) Apr 22 th to 26 th 22-26 ~ AP Mock Exams	lesson 7 Libraries Practice lesson 8 Project - Make a Library Part 1
Week 6 (35) Apr 29 th to May 3 rd 1-2 ~ Pre-Exam 1-10~ Final Exams (K, 5, 8, 12 only) 4/29 - 5/10 ~ AP Exams	lesson 9 Project - Make a Library Part 2 lesson 10 Project - Make a Library Part 3
Week 7 (36) May 6 th to 10 th 1-10~ Final Exams (K, 5, 8, 12 only) 4/29 - 5/10 ~ AP Exams	Final Exam Project Sharing
Week 8 (37) May 13 th to 17 th <u>2 Days of Class</u> 15-16 ~ Q4 Exams 17 ~ Record Day	Project Sharing
Week 9 (38) May 20 th to 24 th <u>ACTIVITIES</u> : Double check the school calendar and emails from the administration.	20-24 ~ Student Clearance Days 21 ~ Baccalaureate Mass for Graduating classes 22 & 23 ~ Middle & High School Sports Day 23 ~ Pre-Kindergarten & Gr. 1 - 4 Recognition/Kindergarten Graduation/Gr. 5 Promotion 24 ~ Gr. 6 – 7 Recognition and Gr. 8 Graduation 24 ~ Lower School Sports Day
Week 10 (39) May 27 th to 31 st <u>ACTIVITIES</u> : Double check the school calendar and emails from the administration.	27 ~ House Culminating Activity 28 ~ Gr. 9-11 Recognition and Gr. 12 Graduation 29 ~ Class Party 30 ~ Last Day of School & Report Card Distribution (half day) 31 ~ Teachers/Staff Meeting

The end ~ Have a great summer 😊