

École Windsor Secondary

931 Broadview Drive
North Vancouver, B.C. V7H 2E9
Tel: 604 903 3700 Fax: 604 903 3701



Computer Programming 11/12

Day 1, Period 4
Teacher: Mr. Gill
Email: ngill@sd44.ca
Room E211

COURSE DESCRIPTION

Computer Programming 11/12, a part of the Information and Communication Technology curriculum, builds an understanding of how computers operate and the process involved in creating your own programs. The course uses both visual and text-based programming languages and the applied design process to challenge students to think critically and creatively to plan, develop, and implement digital projects that consider personal, social, and global needs.

BIG IDEAS

Big Ideas are the key understandings that students will achieve by the end of the course. These Big Ideas cover the following concepts: Self-Awareness, Collaboration, Career Awareness, and Career Planning. Students will explore and understand the following Big Ideas throughout the Computer Programming 11/12 course:

The **design cycle** is an ongoing reflective process.

Personal design choices require self-exploration, collaboration, and evaluation and refinement of skills.

Tools and technologies can be adapted for specific purposes.

CORE COMPETENCIES

Core Competency is a skill that all learners need to have to be successful in all aspects of their life. In the British Columbia curriculum there are 3 core competencies: Communication, Thinking, and Personal and Social. Throughout the Computer Programming 11/12 course, students will focus on these competencies through the design process of program creation.

CURRICULAR COMPETENCIES

Students will have opportunities to try and succeed in the following...

Applied Design

- Conduct user-centred research to understand design opportunities and barriers
- Choose or create various economic scenarios, and identify potential issues, intended impact, and possible unintended negative consequences

- Establish a point of view for a chosen design opportunity
- Identify potential users, intended impact, and possible unintended negative consequences
- Make inferences about premises and constraints that define the design space
- Identify gaps to explore a design space
- Generate ideas and add to others' ideas to create possibilities, and prioritize them for prototyping
- Critically analyze how competing social, ethical, and sustainability considerations impact designed solutions to meet global needs for preferred futures
- Work with users throughout the design process
- Identify and apply sources of inspiration and information
- Choose an appropriate form, scale, and level of detail for prototyping, and plan procedures for prototyping multiple ideas
- Analyze the design for the life cycle and evaluate its impacts
- Construct prototypes, making changes to tools, materials, and procedures as needed
- Record iterations of prototyping
- Identify feedback most needed and possible sources of feedback
- Develop an appropriate test of the prototype
- Collect feedback to critically evaluate design and make changes to product design or processes
- Iterate the prototype or abandon the design idea
- Identify appropriate tools, technologies, materials, processes, and time needed for production
- Use project management processes when working individually or collaboratively to coordinate production
- Share progress while creating to increase opportunities for feedback
- Decide on how and with whom to share or promote their product, creativity, and, if applicable, intellectual property
- Consider how others might build upon the design concept
- Critically reflect on their design thinking and processes, and identify new design goals
- Assess ability to work effectively both as individuals and collaboratively while implementing project management processes

Applied Skills

- Apply safety procedures for themselves, co-workers, and users in both physical and digital environments
- Identify and assess skills needed for design interests, and develop specific plans to learn or refine them over time

Applied Technologies

- Explore existing, new, and emerging tools, technologies, and systems to evaluate their suitability for their design interests
- Evaluate impacts, including unintended negative consequences, of choices made about technology use
- Analyze the role technologies play in societal change
- Examine how cultural beliefs, values, and ethical positions affect the development and use of technologies

CONTENT

Students will have opportunities to learn and know the following: design opportunities • design cycle • problem decomposition • structures within existing code • ways to modify existing code to meet a particular purpose • strategies to predict effects of code modification • pair programming • programming language constructs to support input/output, logic, decision structure, and loops • requirements of a problem statement • ways to transform requirements into algorithms • translation of design specifications into source code • tools to aid in the development process • pre-built libraries and their documentation • inline commenting to document source code • use of test cases to detect logical or semantic errors • computational thinking processes

ASSESSMENT / EVALUATION:

Assignments and Assessment of student performance will include some or all of the following strategies:

Daily participation in class activities - Participation in classroom discussions - Research skills - Quizzes & Tests – In-class presentations - Creativity - Critical Thinking - Application of knowledge - Cumulative Projects - Homework checks - Teacher observations - Self & peer assessment

POLICIES AND PROCEDURES:

- The “I” (Incomplete) symbol is used to alert students and parents that the student is not demonstrating minimally acceptable performance in relation to expected learning outcomes. Students will be informed of an “I” by either an Interim Report mailed home or an “I” on a report card.
- Students are expected to demonstrate ethical (academic honesty), responsible, and thoughtful behavior.

ATTENDANCE

- Students absent from class are solely responsible for obtaining and completing any missed work and contacting the office and teacher.
- Refer to the School District 44 ‘Attendance Matters’ document found on the NVSD Home Page

PRINT STUDENT NAME: _____

STUDENT SIGNATURE: _____

PRINT PARENT/GUARDIAN NAME: _____

PARENT/GUARDIAN SIGNATURE: _____