Fairfield Public Schools

Computer Coding and Graphics - Grade 8

Computer Coding and Graphics

National Standards course is aligned with

- International Society for Technology in Education: ISTE Standards http://www.iste.org/standards/iste-standards
- Partnership for 21st Century Skills: Framework for 21st Century Learning http://www.p21.org/about-us/p21-framework

ISTE

1a – Apply existing knowledge to generate new ideas, products or processes
1b – Create original works as a means of personal or group expression
2a – Interact, collaborate and publish with peers, experts or others employing a variety of digital environments and media
4a – Identify and define authentic problems and significant questions for investigation
4b – Plan and manage activities to develop a solution or complete a project
4c – Collect and analyze data to identify solutions and make informed decisions
5a – Advocate and practice safe, legal and responsible use of information and technology
5b – Exhibit a positive attitude toward using technology that supports collaboration, learning and productivity
5c – Demonstrate personal responsibility for lifelong learning
5d – Exhibit leadership for digital citizenship
6a – Understand and use technology systems
6b – Select and use applications effectively and productively
6c – Troubleshoot systems and applications
6d – Transfer current knowledge to learning of new technologies

21st Century Skills

1. Productivity
    a. Effort
        i. Put in the best effort that you can.
        ii. Try the best that you can.
    b. Results/ Final Product
        i. How does your project look?
        ii. Did you finish your project?
        iii. How did your project perform?
2. Technology and Tools
    a. Applications
        i. Can you use technology and tools appropriately?
        ii. Can you use technology and tools independently?
    b. Media: Design Elements
        i. Can you effectively use elements of design?
        ii. Can you use elements of design independently?
3. Critical and Creative Thinking

a. Decision Making
    i. Can you make your own decisions on your project(s)?
    ii. Can you exceed project expectations?
b. Problem Solving
    i. Can you solve problems or challenges on your own?
    ii. Are you willing to try multiple solutions to a challenge or problem presented in class?
    iii. Can you create alternative solutions on your own?
c. Invention and Innovation
    i. Is your solution to a problem unique?
    ii. Did your solution to a problem solve the problem?
    iii. Did your project show a high level of creativity?

4. Communication and Collaboration
    a. Electronic Environments: Familiarity with Digital Tools
        i. Can you use digital tools properly to communicate?
        ii. Can you use digital tools properly to collaborate with class peers?
    b. Classroom Environments: Working with Peers
        i. Can you work collaboratively with classmates to solve problems and make decisions?

Computer Coding and Graphics

Description

In this elective marking period 8th grade course, students will develop computer coding and graphic design concepts and skills. Students will also further their understanding of digital ethics and responsibilities, and be expected to effectively communicate and collaborate, while thinking critically and creatively to solve problems.

Course Overview

Course Goals

Students should be able to

- Understand how to use the internet safely, effectively and efficiently via an online classroom community
- Develop proficiency in digital coding
- Develop proficiency in graphic design
- Develop proficiency in problem solving and troubleshooting coding and graphic design errors

Essential Questions

- How do we use the internet to efficiently find, use, create and share information safely and ethically?
- Which coding language command(s) would be appropriate for a given task or project?
- What strategies would be appropriate to troubleshoot coding and graphic errors?
- How can computer coding literacy be applied to our other classes and other areas of life (i.e. Striving for accuracy and persistence)?

Assessments

Skill Assessments

- Summative assessments
- Basic coding and graphics project(s)
- Advanced coding project(s)

Content Outline

I. Unit 1: Introduction to Computer Programming/Coding
II. Unit 2: Basic Coding and Graphic Design Concepts and Skills
III. Unit 3: Advanced Coding Concepts and Skills

Grade Level Skills

Students will demonstrate proficiency in

- Using the internet safely, effectively and efficiently
- Develop proficiency in digital coding
- Develop proficiency in graphic design
- Develop proficiency in problem solving and troubleshooting coding and graphic design errors

Pacing Guide

Marking Period								
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9
Unit 1 **Introduction to Computer Programming/Coding** 1- 2 weeks			Unit 2 **Basic Coding and Graphic Design Concepts and Skills** 3 - 4 weeks			Unit 3 **Advanced Coding Concepts and Skills** 3- 4 weeks		

Unit 1 – Introduction to Computer Programming/Coding, 1 – 2 weeks

Unit Objectives

Students will be able to

- Understand what computer programming is and how it is used
- Safely, effectively and efficiently use social networking applications via an online classroom community

Essential Questions

- What is computer programming and how is it used?
- How do we use the internet to efficiently find, use, create and share information safely and ethically?

Assessments

- Internet activities
- Online classroom community activities

Suggested Materials/Resources

- School's networked computers and printers
- School's web browser and internet applications
- School approved social networking/classroom community

Unit 2 – Basic Coding and Graphic Design Concepts and Skills, 3 - 4 weeks

Unit Objectives	Essential Questions	Assessments
Students will be able to • Develop proficiency in using the basic operating commands in a programming language • Develop proficiency in employing graphic design techniques	• Which coding language command(s) would be appropriate for a given task or project? • Which graphic design tools and techniques can be employed to generate a digital image?	• Create a basic coding and graphics project(s) • Create an image product(s) • Summative assessment

Suggested Materials/Resources

- School's networked computers and printers
- School's web browser and online coding applications
- School approved social networking/classroom community

Unit 3 - Advanced Coding Concepts and Skills, 3 – 4 weeks

Unit Objectives	Essential Questions	Assessments
Students will be able to • Effectively read, write and run code in at least one coding language. • Develop proficiency in problem solving and troubleshooting coding and graphic design errors.	• What strategies would be appropriate to troubleshoot coding and graphic errors? • How can computer coding literacy be applied to our other classes and other areas of life (i.e. Striving for accuracy and persistence)?	• Create an advanced coding program project(s), using commands involving looping, variables, logical and mathematical concepts • Summative assessment

Suggested Materials/Resources

- School's networked computers and printers
- School's web browser and internet applications
- School approved social networking/classroom community