

## Quest Academy Charter School Junior High Technology Learning Standards

### Standard 1

(Technology Operations and Concepts) Students will be introduced to and be able to demonstrate a sound understanding of computer technology: what types of technology exist, how types of technology function, what component parts work with specific technologies.

- a. **Objectives:**  
Demonstrate understanding of computer hardware, peripherals and troubleshooting.
- b. Understand, evaluate, and use computer software.
- c. Explore and demonstrate understanding of managing operating systems.

### Standard 2

Students will understand and effectively use the common application functions with word processing, spreadsheets, and presentation software and routinely interact, collaborate, and publish with peers/online communities using these tools and functions.

- Objectives:**  
Understand and integrate word processing, spreadsheet, and presentation software functions.

### Standard 3

Students will understand and be able to effectively use and navigate networks and the Internet.

- Objectives:**  
Identify network fundamentals, and demonstrate skills for digital citizenship.

### Standard 4

Students will apply basic desktop publishing design principles.

- Objectives:**
- a. Students will understand how to use balance, contrast, repetition and proximity to create harmony within a publication.
  - b. Students will develop an understanding of basic desktop publishing terminology
  - c. Students will understand that the focal point is the visual element that is the center of interest on the page or set of facing pages.
  - d. Students will use directional flow to draw the readers eyes through the text to particular words or images that the designer wishes to emphasize.
  - e. Students will understand how to use white space /negative space.
  - f. Students will understand the rule of thirds.
  - g. Students will understand how to use balance, contrast, repetition and proximity to create harmony within a publication

### Standard 5

Students will understand the concepts and strategies needed to communicate information about products, services, images, and/or ideas to achieve a desired outcome.

- Objectives:**  
Understand promotional channels used to communicate with the targeted audiences

- a. Explain types of advertising media used to communicate with target audiences
- b. Understand the use of public-relations activities to communicate with targeted audiences
- c. Identify methods personal selling is used to communicate with targeted audiences
- d. Identify and explain communication methods used in sales promotions
- e. Understand the use of social media tools to communicate with targeted audiences
- f. Identify metrics used to assess results of promotional efforts

### Standard 6

#### Objective 1

Students with opportunities to become "computational thinkers" by applying a variety of problem-solving techniques as they create solutions to problems that are situated in a variety of contexts.

- a. Name and explain the steps they use in solving a problem.
- b. Solve a problem by applying appropriate problem-solving techniques.
- c. Express a solution using standard design tools.
- d. Determine if a given algorithm successfully solves a stated problem.

- e. Create algorithms that meet specified objectives.
- f. Summarize the behavior of an algorithm.
- g. Compare the tradeoffs between different algorithms for solving the same problem.
- h. Explain the characteristics of problems that cannot be solved by an algorithm.

### **Standard 7**

**Web Design** (5 weeks) This section prepares students to take the role of a developer by expanding their knowledge of algorithms, abstraction, and web page design and applying it to the creation of web pages and documentation for users and equipment.

#### **Objective 1**

Students will explore issues of social responsibility in web use.

- a. Create web pages with a practical, personal, and/or societal purpose.

They will learn to plan and code their web pages using a variety of techniques and check their sites for usability.

- a. Use abstraction to separate style from content in web page design and development.
- b. Create web pages to address specified objectives.
- c. Select appropriate techniques when creating web pages.
- d. Describe the use of a website with appropriate documentation.

Students learn to create user-friendly websites.

- a. Apply fundamental notions of Human Computer Interaction (HCI) and ergonomics.

### **Standard 8**

**Introduction to Programming** (6 weeks) Students are introduced to some basic issues associated with program design and development.

#### **Objective 1**

Students design algorithms and create programming solutions to a variety of computational problems using an iterative development process in Scratch.

- a. Use appropriate algorithms to solve a problem.
- b. Design, code, test, and execute a program that corresponds to a set of specifications.
- c. Select appropriate programming structures.
- d. Locate and correct errors in a program.
- e. Explain how a particular program functions.
- f. Justify the correctness of a program.

#### **Objective 2**

Programming problems include mathematical and logical concepts and a variety of programming constructs.

- a. Create programs with practical, personal, and/or societal intent.

#### **Objective 3**

Students will be able to identify ethical behavior and articulate both sides of ethical topics.

- a. Discuss issues of equity, access, and power in the context of computing resources.
- b. Communicate the legal and ethical concerns raised by computational innovations.
- c. Explain positive and negative effects of technological innovations on human culture.

#### **Objective 4**

Students study the responsibilities of software users and software developers with respect to intellectual property rights, software failures, and the piracy of software and other digital media.

- a. Analyze how computing influences and is influenced by the cultures for which they are designed and the cultures in which they are used.
- b. Analyze how social and economic values influence the design and development of computing innovations.
- c. Discuss privacy and security concerns related to computational innovations.

#### **Objective 5**

Students are introduced to the concept of open-source software development and explore its implications.

- a. Describe ways in which computing enables innovation.
- b. Discuss the ways in which innovations enabled by computing affect communication and problem solving.

**Objective 6**

Students identify and describe careers in computing and careers that employ computing.

**Objective 7**

Students will use skills and applications learned to complete a cross curricular project for the class.