

## **TECHNOLOGY-12/13**

### **ESSENTIAL UNIT 5 (E05)**

(Beginning Programming)  
(July 2017)

**Unit Statement:** Almost one million programming jobs currently go unfilled in the United States alone. The need for basic "code" literacy is spreading across many career fields, and the trend will only continue. Luckily, technology giants including Google, Microsoft, and Facebook have invested heavily in building "code literacy" resources for beginners. Instructors with no experience can easily teach programming with the resources provided.

While it provides the student with the techniques necessary to write well-documented, structured computer programs, **no prior programming experience is required**. Examples involving if-then statements, repetition, arrays, functions, and records will be used. The unit is designed to promote good programming practices and to introduce a student to the joy and self-confidence developed in building valid program code.

There is a large variety of suitable programming platforms and languages available to use during this unit. A choice should be made based on the experience of the teacher and/or interest of the student.

**Essential Outcomes:** (must be assessed for mastery)

1. **The Student Will** diagram the internal components of a computer.
2. **TSW** write detailed instructions to accomplish a task.
3. **TSW** write and execute specific lines of code to create a desired effect.
4. **TSW** design a program with a specific purpose, and create this program to meet or exceed their designs.
5. **TSW** diagram logical file structure and format.

**Software/Resources:**

#### **Novice**

These four websites provide self-directed programming units that start from the very beginning to the very advanced.

<https://www.khanacademy.org/computing/computer-programming>

<https://www.codecademy.com/>

<https://code.org/>

<https://scratch.mit.edu/>

#### **Experienced**

These three websites provide self-directed programming units that are directed at students with programming experience.

<http://snap.berkeley.edu/>

<https://www.w3schools.com/>

<http://codingbat.com/java>

This website describes the internal parts of the computer.

<http://computer.howstuffworks.com/computer-hardware-channel.htm>

This website describes the information processing cycle.

[http://wikieducator.org/Block\\_diagram\\_of\\_computer](http://wikieducator.org/Block_diagram_of_computer)

Destiny Webpath Express (found on QSI schools Library site) use this search engine to find age-appropriate websites that align with this unit.

*ASSESSMENT RUBRIC FOUND ON FOLLOWING PAGE.....*

## Assessment Rubric – E05 – Beginning Programming

**Student Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**To receive a ‘B’ the student must show ‘B’ level mastery on ALL Essential Outcomes. (TSW’s)**

**To receive an ‘A’, the student must show ‘A’ level mastery on ALL available and ‘B’ level mastery on all remaining TSW’s.**

<b>TSW</b>	<b>‘A’ Level Mastery</b>	<b>‘B’ Level Mastery</b>	<b>‘P’ Comments</b>
1. Diagram the internal components of a computer.		Be able to diagram the internal components of a computer.	
2. Write detailed instructions to accomplish a task.	Write detailed instructions for another person to be able to accomplish a multistep task.	Write detailed instructions for another person to be able to accomplish a simple task.	
3. Write and execute specific lines of code to create a desired effect.	Employs advanced code arrangement, creating an elegant program. Demonstrates ability to pinpoint minor and major mistakes in own code and that of others.	Employs code combinations creating a functioning program. Demonstrates ability to find major mistakes in own code.	
4. Design a program with a specific purpose, and create this program to meet or exceed their designs.	Design a program with a specific purpose, and create this program to meet or exceed their designs. Demonstrates ability to pinpoint minor and major mistakes in own code and that of others.	Design a program with a specific purpose, and create this program. Demonstrates ability to find major mistakes in own code.	
5. Show their understanding of file structure and format.		Appropriately arranges files for functional logical and use. Ex: Properly label folders, pictures and place them in an logical and orderly place.	