

## GRADE 6 INFORMATION TECHNOLOGY CODING FRAMEWORK

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### OVERVIEW

Coding 6 is a semester course of the Sixth Grade Curriculum. Students will be exposed to two programming languages: a block-based and a text-based language. This course covers some of the most important fundamental coding concepts such as variables, data types, input and output operations, mathematical and logical operators, functions, conditionals and loops to control program flow. Basic operations and concepts will also be covered during class time.

### EXPECTATIONS

#### The student will be able to:

- Write programs that make computers follow instructions.
- Write programs using a block-based language to design and develop their own programs.
- Write programs that receive user inputs, process the data and give output back to the user.
- Write code that makes decisions, choosing between multiple options.
- Write code that use loops, repeating instructions until certain outcomes are reached.
- Pull in outside libraries that increase the capabilities of their programs.

### CODING CONCEPTS

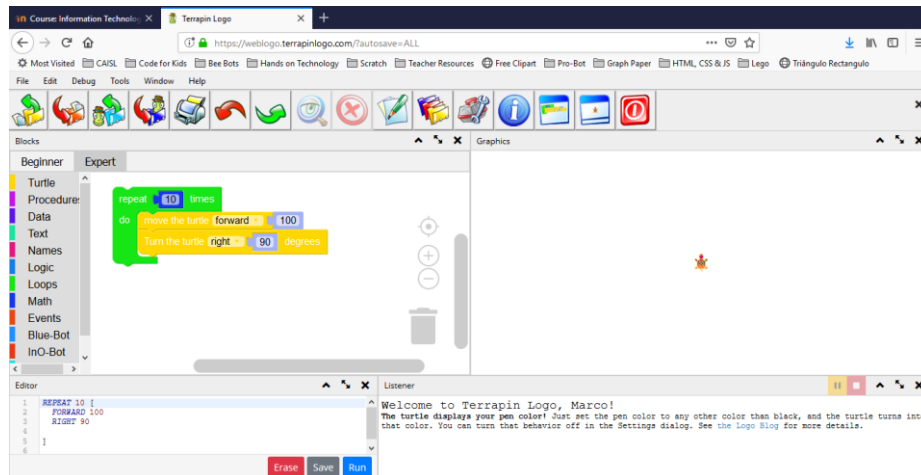
Text Input and Output	Comparisons	Coordinates
Statements	Booleans	Drawing lines and shapes
Expressions	Logical Operators	RGB Colors
Variables	While Loops	Functions
Concatenation	Libraries	Events
Mathematical Operators	Randomness	Mouse and Keyboard Input
Conditionals	Debugging	

## **ACTIVITIES**

Worksheets, Projects and Group Activities

## **RESOURCES**

**Weblogo** (block-based programming language)



**Python** (text-based programming language)



## **PERFORMANCE INDICATORS**

### **CRITICAL THINKING, PROBLEM SOLVING & DECISION MAKING**

#### Using Weblogo:

- Use coordinates to move on the screen DOK 2
- Use print commands to output data from their own programs DOK 2
- Use variables to store and process data on their programs DOK 2
- Use conditionals to control the program flow DOK 2
- Use loops to control the program flow DOK 2
- Use blocks to build a simple game DOK 3

#### Using Python:

- Write simple programs using text input and output DOK 2
- Write simple programs that use variables to store and process data DOK 2
- Write simple programs that use mathematical & logical operators and conditionals to control the program flow DOK 2
- Write simple programs that use loops to control the program flow DOK 2
- Use libraries, and its functions, to enrich their own programs DOK 3
- Use the concepts of function and procedure to avoid repeating code DOK 3
- Write programs that process mouse and keyboard input DOK 2
- Use PyGame library to build a simple game DOK 3