Course Overview

Content Area: **Mathematics**
Course(s): **Algebra 1**
Time Period: **Year**
Length: **180**
Status: **Published**

Course Overview

Aligned to Standards: College board

Revision Date: 2024

In compliance with the NJ Student Learning Standards, climate change, career readiness, DEI (Diversity, Equity, & Inclusivity), as well as other standards have been integrated within the NBCRSD curricula (NJ Administrative Code Title 6A: chapter 8; Title 18A: chapter 35).

Course Overview

Sequence- Unit Titles, Summaries, and Number of weeks per unit (total = 18 semester/36 year)

Unit 1: Primitive Types - 2 weeks

- Primitive data types include various numeric values and boolean. Operators involving primitives adhere to precedence. Variables storing primitives are typically declared and initialized.

Unit 2: Using Objectives - 3 weeks

- Object-oriented programming is a paradigm built up from classes and their instantiations. Although not every class requires objects, objects can be used to gain access to most classes. The String and Random classes are examples where objects are used to call methods, whereas the Math class where objects are not needed.

Unit 3: Boolean Expressions and If Statements - 3 weeks

- Programmers use boolean expressions to create branching mechanisms. These decision structures determine what a program will do if an expression is false and what it will do if it is true. Three common decision structures are if, else, and else if.

Unit 4: Iteration - 4 weeks

- Repetition structures are used to efficiently run the same lines of code repeatedly. Instead of writing out the same statements over and over again, it can be possible, with the right conditions, to carry out segments of code a desired number of times. Iteration as it applies to arrays is covered in a different unit.

Unit 5: Writing Classes - 4 weeks

- Libraries contain over 5,000 classes, but programming is not anything without user-defined classes. Writing classes typically includes the declaration of data fields and definition of methods. Each have their own signatures and each have their own scope.

Unit 6: Array - 2 weeks

- Arrays are data structures used to store multiple pieces of data and refer to them as single entities. References are to the location of the item with index zero. The location of each piece of data is a contiguous register, indexed by its offset. Standard arrays must be declared with a specific size and once this size is declared, it cannot be changed.

Unit 7: ArrayList - 3 weeks

- Arrays are containers that can be filled with primitive data types; however, their length cannot be changed. ArrayLists are containers that are filled with object and their length can be changed. An ArrayList object can call methods from the ArrayList class.

Unit 8: 2D Array - 2 weeks

- Arrays can have arrays as its elements These 2D arrays introduce a new round of iteration that must be coordinated with a first round of iteration. Both rows and columns begin at index 0 and range until one less than the respective array's length.

Unit 9: Inheritance - 4 weeks

- Inheritance is not to be confused with aggregation, association and composition. When one class is used to derive another class, a superclass/subclass relationship is established using the keyword "extends." Related to inheritance is the concept of polymorphism.

Unit 10: Recursion - 2 weeks

- Algorithms come in many varieties. One type of algorithm is the recursive algorithm. In this special case, a method will have a base case and in all other cases, call itself.

Reporting Student Progress (link to NB's Assessment System)
All courses follow a balanced assessment system with Practice and Assessments.
Each category includes formative, summative and alternative assessments.

Accommodations and Modifications (link to menu)
Integrated accommodations and modifications for special education students, English language learners, students at risk of school failure, gifted and talented students, and students with 504 plans.