# Grades 11-12 Game Programming, Quarter 3, Revised 2014-15

**Big Ideas/Key Concepts:** probability/statistics, coordinate systems, game environments, advanced programming concepts

<table>
<thead>
<tr>
<th>Standards</th>
<th>Student Friendly “I Can” Statements</th>
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| Standard 5.0<br>The student will demonstrate the acquisition of programming skills essential to the development of games. (*CLE 3102.1.7, CLE 3102.2.1, CLE 3102.3.6, CLE 3102.3.1, CLE 3102.3.5, CLE 3102.3.6, CLE 3102.3.9, CLE 3103.1.7, CLE 3103.2.3, CLE 3108.1.7,*) | I can synthesize the talents of a multi-disciplinary team to complete the development of an electronic game. Design and create an interactive program that implements graphics and sound. (*CLE 3102.1.2, CLE 3102.5.1, CLE 3102.5.2, CLE 3101.1.2, CLE 3103.2.4, CLE 3103.3.2, CLE 3103.3.5, CLE 3103.5.1, CLE 3103.5.2, CLE 3103.5.3, CLE 3103.5.4, CLE 3108.1.2, CLE 3108.2.3, CLE 3108.5.1*)
I can investigate relevant external application programming interfaces and use them where appropriate.
I can apply the concepts of probability and statistics to various aspects of game systems and environments. (*CLE 3102.1.2, CLE 3102.5.1, CLE 3102.5.2, CLE 3101.1.2, CLE 3103.2.4, CLE 3103.3.2, CLE 3103.3.5, CLE 3103.5.1, CLE 3103.5.2, CLE 3103.5.3, CLE 3103.5.4, CLE 3108.1.2, CLE 3108.2.3, CLE 3108.5.1*)
I can apply the concepts of coordinate systems, vectors, and Newtonian motion to objects in game environments.
I can acquire mastery of advanced programming concepts as needed to complete projects.
I can demonstrate an understanding of the core principles of programming with Visual C#, a powerful object oriented programming language.
I can utilize Visual Studio / Visual C# Express, one of the leading...
integrated development environments, to develop software applications.
I can Analyze the basic structure of a C# application and be able to debug, compile, and run an application.
I can Create, name, and assign values to variables.
I can Create custom methods that can return values and take parameters.
I can Utilize common built-in objects and references types.
I can Utilize common programming statements to implement flow control, looping, and exception handling.
I can Create, initialize, and use collections.
I can Design and create custom classes and use the object-oriented techniques of inheritance, abstraction, polymorphism, and encapsulation.
I can Demonstrate significant understanding of Microsoft’s Xbox and Windows game development tool, XNA Game Studio.
I can Employ the core programming logic and techniques that are used in every game built with Microsoft XNA.
I can Identify the code, structure, and layout of a fully functional role-playing game (RPG).
I can Create and customize new game characters, items, chests, quests, and monsters.
I can Create enhancements to the combat engine logic within the RPG game.
I can Understand the inner workings of the RPG Game’s Artificial Intelligence (AI) system, for the purpose of modifying simulated game actions.
I can Describe how a two-dimensional tile-based rendering and collision system works to create maps in a game.