Three Rivers School District
PLANNED COURSE STATEMENT

Course Title: Discrete Math / Coding (Intro to JavaScript)	**Grade Level(s): 9-12**
Length of Course: 1 semester	**Credit Area: Math**
Prerequisite: Algebra 2	**Amount of Credit: 0.5**
Adopted/Supplemental Material:	
Dual Credit Articulation: None	

COURSE DESCRIPTION: This course introduces students to the basics of computer programming and the JavaScript programming language. Students will work individually and in teams to create drawing and animation programs using Khan Academy and the Processing JS library. The course focuses on fundamental programming ideas that can be applied to many programming languages with syntactic adaptation. Coding with JavaScript requires the application of many math standards taught abstractly in Algebra 1, Geometry, and Algebra 2 including: variables, functions, logic, operations, linear relationships, Cartesian coordinates, geometric transformations, and more.

COURSE GOALS:
Students will:
1. Draw, manipulate, and color shapes with code
2. Learn to use variables to hold values and animate drawings
3. Learn how to make programs that draw shapes based on mouse location
4. Learn to resize components of a JavaScript drawing relative to variables
5. Learn to display, resize, color, and animate text and strings
6. Learn to use functions and parameters to maximize coding efficiency
7. Use logic and "if statements" to teach programs when to execute specific code
8. Lean tricks for debugging programs that aren't working
9. Learn to use looping to repeat code
10. Learn how to write code that is decipherable to other programmers
11. Learn how to use arrays to store multiple values in a variable
12. Learn how to store complex data in objects
13. Learn to use object-oriented concepts to make JavaScript code more reusable
14. Learn planning and pseudo-code techniques to increase programming productivity

Common Core State Standards Addressed:

Seeing Structure in Expressions
- Interpret the structure of expressions
- Write expressions in equivalent forms to solve problems

Creating Equations
- Create equations that describe numbers or relationships

Reasoning with Equations and Inequalities
- Understand solving equations as a process of reasoning and explain the reasoning
- Solve equations and inequalities in one variable

Interpreting Functions
- Understand the concept of a function and use function notation
- Interpret functions that arise in applications in terms of the context
- Analyze functions using different representations

Building Functions
- Build a function that models a relationship between two quantities
- Build new functions from existing functions

Congruence
- Experiment with transformations in the plane
- Understand congruence in terms of rigid motions

Similarity, Right Triangles, and Trigonometry
- Understand similarity in terms of similarity transformations

Modeling with Geometry
- Apply geometric concepts in modeling situations

ASSESSMENT STRATEGIES:
Summative assessment will be based on the completion of projects by established deadlines. Each project must meet all of the requirements established in the grading rubric and be original. Formative assessment will be continuous, through teacher observation and interaction.

ACCOMMODATIONS AND MODIFICATIONS:
Any student who feels the course is moving too slowly and demonstrates mastery of the subject matter by consistently exceeding expectations for regular assignments is encouraged to meet with the teacher for more rigorous assignments and projects. More rigorous work will include alternate assignments and projects, not additional assignments. Work will be graded using the same standards for work completed by other students in the class. Conversely, a student with an IEP who needs more time to complete the work may have assignments modified to meet his/her needs.

CAREER RELATED LEARNING STANDARDS:
Students will demonstrate appropriate workplace behaviors (e.g. maintain regular attendance and be on time), apply decision-making and problem-solving techniques, demonstrate effective teamwork, apply the principles of effective communication to give and receive information, acquire, use, and transfer information, assess the relationship of educational achievement to career goals, research and analyze career options, assess characteristics related to personal, educational, and career goals, and demonstrate academic knowledge and technical skills required for successful employment.