URBANDALE COMMUNITY SCHOOL DISTRICT

Course Title:	**Computer Science Principles (CSP)**	
Description: Using Python as a primary tool and incorporating multiple platforms and languages for computation, this course aims to develop computational thinking, generate excitement about career paths that utilize computing, and introduce professional tools that foster creativity and collaboration. CSP helps students develop programming expertise using the Python language.		
Reporting Topic	**Course Level Standards**	**Competency Statement**
Input/Output	• Demonstrate version control using Github by merging testing branches into a master branch. (CSP.VC.01) • Demonstrate code commenting and manipulation of variables with operators (CSP.VO.02) • Construct algorithms that accept input and generate output. (CSP.IO.03)	Students will understand and demonstrate the concepts of input/output by using various version control systems and PyCharm's Interactive Console
Algorithms	• Analyze and create If-Else and Boolean comparison conditionals. (CSP.CO.04) • Demonstrate use of loops to iterate through code quickly. (CSP.I.05) • Describe various numbering systems and how they are related to the Decimal System. (CSP.NS.06)	Students will demonstrate the use of loops, conditional statements and numbering systems to create short algorithms to solve a variety of problems.
Data Control Structures	• Explain the creation of graphical images using programming.(CSP.G.07) • Examine the characteristics of lists, strings and tuples and perform iterations. (CSP.LS.08) • Use functions to shorten and improve readability of code. (CSP.F.09)	Students will demonstrate the use of strings, lists, arrays, tuples and functions to be able to manipulate and control data.
Object-Orientation	• Demonstrate the use of Object-Oriented programming by incorporating the use of Classes. (CSP.CL.10) • Extend classes to create animated objects. (CSP.AN.11 • Create a program with user control using hardware systems (CSP.UC.12) • Streamline programs by encapsulating code into Modules/Libraries (CSP.ML.13) • Create an arcade game using sprite collision detection methods. (CSP.GD.14) • Analyze and present statistical analysis of large data sets. (CSP.DA.15)	Students will demonstrate their knowledge of Object-Oriented Programming by their use of classes, modules and encapsulation while incorporating Game Design.