BLUE VALLEY DISTRICT CURRICULUM & INSTRUCTION

Computer and Information Technology
Software Development and Game Design

ORGANIZING THEME/TOPIC	FOCUS STANDARDS & SKILLS
Object Oriented Programming (OOP) ntegrated Development Environments (IDE) Time Frame: 2 weeks	KS 10152.1 18 Demonstrate knowledge of software development environment. ● Create programs using game development tools and industry standard language. ● Implement industry standards for documentation of programs. ● Apply OOP principles of modular development to program design I (e.g. modular design, Integrated Development Environments, languages, documentation). ● Control data flow using scope of variables, parameters, inheritance and encapsulation (e.g. private, public, static, and void/non-void methods). ● Use API documentation and research to develop solutions to game design problems.
Events Time Frame: 2 weeks	KS 10152.1.17 Identify the elements of the information processing cycles (i.e. input, process, output, storage). ● Understand how computers use event handlers to control their operation. ● Apply input mechanisms (e.g. keyboard, mouse) to control game operation.
Program Logic Time Frame: 5 weeks	KS 10152.1.22 Demonstrate knowledge of key constructs and commands specific to a language. ● Represent logic structures graphically with flowcharts and verbally with pseudo-code. ● Create branching structures: if and if/else. ● Create looping structures using while and for. ● Apply multi-path branching to solve logical game design problems. ● Create nested logical structures to solve game design problems. ● Select and apply the appropriate logic structure to solve programming problems.
Data Types and Structures Time Frame: 4 weeks	KS 10152.1.21 Demonstrate knowledge of the concepts of data and procedural representations. ● Create programs using numeric data types, operators, order of operations. ● Solve programming problems using Boolean data and Boolean logical operators. ● Use Strings and String operators to process string data. ● Develop game programs that utilize arrays and standard array algorithms (e.g. search, sort).

Game Design Time Frame: 4 weeks	KS 10152.1.23 Demonstrate knowledge of how programming control structures are used to verify correctness. ● Make objects move, turn and react to other object and edges. ● Incorporate scorekeeping mechanisms. ● Explore other gaming concepts and platforms. ● Design and create a fully functional game. ● Create and control (e.g. movement, animation) appropriate game graphics. ● Build games that mimic real-world object behaviors. ● Control game operation via standard tools (e.g. time-keeping, life span, power-ups). ● Enhance game control with 'winning' screens and multi-level operation. ● Design, build, test, and complete fully functional game projects.
Career Readiness Time Frame: 1 week	KS 10152.2.8 Identify and explore career opportunities in Information Technology. ● Function effectively in individual and group project situations. ● Demonstrate knowledge of industry norms for workplace conditions and expectations. ● Use knowledge of career paths and trends to construct a plan for career development.