Computer Science Resource Guide
Third – Fifth Grade

Data and Information		
Indiana Academic Standard	**Clarifying Statement(s)**	**Vocabulary**
3-5.DI.1 Understand and use the basic steps in algorithmic problem solving (e.g., problem statement and exploration, examination of sample instances, design, implementation, and testing).		**algorithm** – a step-by-step process to complete a task
3-5.DI.2 Develop a simple understanding of an algorithm (e.g., search, sequence of events, or sorting) using computer-free exercises.		
3-5.DI.3 Demonstrate how a string of bits can be used to represent alphanumeric information and how 1's and 0's represent information.	(1) Help students understand that computers change information into 1's and 0's to represent information. (2) To illustrate binary encoding, we can use any two symbols.	**binary** – a method of encoding data using two symbols (usually 1 and 0)
3-5.DI.4 Describe how a simulation can be used to solve a problem.	Example: --forecasting the weather and viewing the radar is a simulation of the weather patterns	**simulation** – reproduce the behavior of a system
3-5.DI.5 Understand the connections between computer science and other fields.		**computer science** – the study of computers and algorithmic processes, including their principles, design, implementation, and impact on society

Computing Devices and Systems		
Indiana Academic Standard	**Clarifying Statement(s)**	**Vocabulary**
3-5.CD.1 Demonstrate proficiency with keyboards and other input and output devices.	Example: A keyboard is an input device that sends information about the keys you press. This is received by the computer and it displays the correct letter or number. A monitor is an output device. It displays all the information that has been sent to it by input devices.	**proficiency** – a high degree of competence or skill (this is determined at the district level) **device** – a unit of physical hardware or equipment that provides one or more computing functions with a computer system. It can provide input to the computer, accept output, or both. **input** – the signals or instructions sent to a computer
3-5.CD.2 Understand the pervasiveness of computers and computing in daily life (e.g., voicemail, downloading videos and audio files, microwave ovens, thermostats, wireless Internet, mobile computing devices, GPS systems).		**computing** – any goal-oriented activity requiring, benefiting from, or creating algorithmic processes
3-5.CD.3 Apply troubleshooting strategies for identifying simple hardware and software problems that may occur during use.		**troubleshooting** – a systematic approach to problem solving that is often used to find and resolve a problem, error, or fault within software or a computer system **hardware** – the physical components that make up a computing system, computer, or computing device **software** – programs that run on a computer system, computer, or other computing device
3-5.CD.4 Recognize that computers model intelligent behavior (as found in robotics, speech and language recognition, and computer animation).		

Programs and Algorithms		
Indiana Academic Standard	**Clarifying Statement(s)**	**Vocabulary**
3-5.PA.1 Use technology resources (e.g., calculators, data collection probes, mobile devices, videos, educational software, and web tools) for problem-solving and self-directed learning, and general-purpose productivity tools and peripherals to support personal productivity, remediate skill deficits, facilitate learning, and individual/collaborative writing, communication, and publishing activities.		**peripheral device** – generally defined as any auxiliary device such as a computer mouse or keyboard that connect to and works with the computer in some way. Other examples are webcams, scanners, printer, etc.
3-5.PA.2 Use digital tools to gather, manipulate, and modify data for use by a program.		**digital** – a characteristic of electronic technology that uses discrete values, generally 0 and 1, to generate, store, and process data **data** – information that is collected and used for reference or analysis. Data can be digital or non-digital and can be in many forms, including numbers, text, show of hands, images, sounds, or videos. program -
3-5.PA.3 Implement problem solutions using a block-based visual programming language.		**visual programming language** – any programming language that lets users create programs by manipulating program elements graphically rather than by specifying them textually

Networking and Communication		
Indiana Academic Standard	**Clarifying Statement(s)**	**Vocabulary**
3-5.NC.1 Use online resources (e.g., email, online discussions, collaborative web environments) to participate in collaborative problem-solving activities for the purpose of developing solutions or products.		**collaborative** – to work, one with another
3-5.NC.2 Use productivity technology tools (e.g., word processing, spreadsheet, presentation software) for individual and collaborative writing, communication, and publishing activities.		

Impact and Culture		
Indiana Academic Standard	**Clarifying Statement(s)**	**Vocabulary**
3-5.IC.1 Discuss basic issues related to responsible use of technology and information, and the consequences of inappropriate use.		**digital citizenship** – the norms of appropriate, responsible behavior with regard to the use of technology
3-5.IC.2 Identify the impact of technology (e.g., social networking, cyber bullying, mobile computing and communication, web technologies, cyber security, and virtualization) on personal life and society.		

3-5.IC.3 Evaluate the accuracy, relevance, appropriateness, comprehensiveness, and biases that occur in electronic information sources.		**accuracy** – being correct and precise **relevance** – important to the matter at hand **appropriateness** – suitable or proper in the circumstances **comprehensiveness** – complete, including all or nearly all elements or aspects of something **bias** – prejudice in favor of or against one thing, person, or group compared with another, usually in a way considered unfair
3-5.IC.4 Understand ethical issues that relate to computers and networks (e.g., equity of access, security, privacy, copyright, and intellectual property).		