Clinton-Glen Gardner School District

Curriculum Management System

Computer Technology

Grade 5

August 2015

For adoption by all regular education programs as specified and for adoption or adaptation by all Special Education Programs in accordance with Board of Education Policy #2200

BOE APPROVED August 25, 2015

CLINTON-GLEN GARDNER SCHOOL DISTRICT

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Writers' Names: Kyle Rehrig

21st Century Life and Careers Integration: Jessica Latanzio Crespo
Barbara Shaffer

Clinton-Glen Gardner School District

Mission

The mission of the Clinton-Glen Gardner School District is to inspire our students to become contributing members of society who are independent, innovative, life-time learners equipped with the necessary skills to meet the demands of our ever-changing world.

Philosophy

New technologies are evolving at a rapid rate with both frequent advancements of existing technologies and the creation of new ones. It is important that all students understand and develop familiarity with these ever-emerging technologies and have the ability to execute basic computer skills to choose, operate, and troubleshoot applications in school, at home, and later in the workplace. Technology is uniquely positioned to transform learning, to foster critical thinking, creativity, and innovation, and to prepare students to thrive in a global society. As digital learners, students are able to acquire and apply content knowledge and skills through active exploration, interaction, and collaboration with others. Doing so will enable students to function in our evolving society as informed, productive members of while broadening their understanding, use and application of state of the art technology. Technology enables students to solve real world problems, enhance life, and extend human capability as they meet the challenges of a dynamic global society. The curriculum assists students in accomplishing the following goals:

- Applying information-literacy skills to access, manage, and communicate information using a range of technological tools
- Integrating technology with content area learning
- Obtaining, comprehending, and manipulating information to attain goals
- Exploring and experiencing existing technology
- Demonstrating competency in using technology as a tool for learning

New Jersey State Department of Education
Core Curriculum Content Standards

A note about Technology Standards and Cumulative Progress Indicators:

In October of 2014, the NJDOE adopted the following technology standards:

8.1 Educational Technology (Word | PDF): All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate, and to create and communicate knowledge.

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming (Word | PDF): All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

According to the International Society for Technology Education, “advances in technology have drastically changed the way we interact with the world and each other. The digital age requires that we understand and are able to harness the power of technology to live and learn". To this end, our current curriculum is undergoing a year long process of reflection and revision to ensure that the design process builds in our students the recognition that success is not merely identifying a problem but working through a process--- and that failure is not an end but rather a point for reevaluation. Computational thinking provides an organizational means of approaching life and its tasks. It develops an understanding of technologies and their operations and provides students with the abilities to build and create knowledge and new technologies. Not all students will be programmers, but they should have an understanding of how computational thinking can build knowledge and control technology. For example, in grade 8, we are supplementing our current curriculum with Lego EV3 Design Engineering Projects that let students work with open-ended problem solving activities, in a context which makes it fun and engaging to learn using Science, Technology, Engineering and Mathematics.

The projects combine science and mathematics concepts with soft skills, such as creative thinking, problem solving, teamwork and communication skills, boosting 21st century learning skills. All projects follow a design engineering process as used by engineers in various industries. The design engineering process provides a structured flow through the activities. Students are guided through the process starting with a design brief which explains the challenge, using videos of robots in action to make real life connections, and includes a final project which can be shared and presented. It is our goal to adapt these learning activities for grades K-7 after our initial implementation in grade 8.

Grade 5
Computer Technology
Scope and Sequence

Quarter I

Topic: Word Processing
I. Inserting and deleting data
II. Alignments
III. Spell checker
IV. Cut and paste

Topic: Multimedia
I. Inserting text
II. Graphics and digital images
III. Sounds, voice

Topic: Digital Citizenship
I. Responsibilities of using the Internet
II. Safety

Topic: Data Collection and Analysis
I. Use Internet resources to collect data
II. Use data for analysis
III. Present data

21st Century Skills (The ones that apply for this unit are in bold)

- **Creativity & Innovation**
- **Critical Thinking & Problem Solving**
- Communication & Collaboration
- Media Literacy
- Information Literacy
- Information, Communication & Technology

21st Century Themes (The ones that apply for this unit are in bold)

- **Global Awareness**
- Financial, Economic, Business and Entrepreneurial Literacy
- Civic Literacy
- Health Literacy
- **Environmental Literacy**

Assessment

District Benchmark

Differentiation

The technology classroom offers a one-to-one environment in which each student has access to a computer; therefore, students have their own “differentiation in a box.” While each student has the same tools, those tools can be manipulated in ways that serve individual needs. Also, a one-to-one environment simplifies other aspects of differentiation, because students have ready access to differentiated content, tools for differentiated learning processes, and resources for creating differentiated products. The instructor will also use the following guidelines to inform the nature of differentiation:

- Choosing learning goals
- Making practical pedagogical decisions about the nature of the learning experience
- Selecting and sequencing activity types to combine to form the learning experience
- Selecting formative and summative assessment strategies that will reveal what and how well students are learning
- Selecting tools and resources that will best help students to benefit from the learning experience being planned.

This framework emphasizes that the selection of tools and resources should follow naturally from the specific needs of the student. This model increases the likelihood of seamless, successful technology instruction that meets the needs of all learners. For specific examples, http://www.learnnc.org/lp/editions/every-learner/67

Suggested days of Instruction	Curriculum Management System Subject/Grade Level: Grade 5 Computer Technology	Topic: Word Processing	
		Goal 1: Students will be able to correctly use the tools in a word processing program to create a professional looking document.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions, Conceptual Understandings	Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model
5	1.1. Create professional documents (e.g., newsletter, personalized learning plan, business letter or flyer) using advanced features of a word processing program. (8.1.8.A.1) 1.2. Demonstrate the use of spell checking, cutting and pasting information, thesaurus, alignments. 1.3. Develop strategies to reinforce positive attitudes and productive behaviors that impact critical thinking and problem-solving skills. (9.1.8.A.1)	**Essential Questions:** What tools can be used to make a word-processed document look more professional? **Conceptual Understandings:** The use of technology and digital tools requires knowledge and appropriate use of operations and related applications.	**Learning Activities:** Insert and delete text on a story template. Make spelling corrections on various documents. Using a story is written out of order, use various techniques to cut and paste lines or paragraphs so it makes sense. Improve and/or change words in a document by using the thesaurus tool. **Assessment Models:** Print outs of activities above **Additional Resources:**

Suggested days of Instruction	Curriculum Management System Subject/Grade Level: Grade 5 Computer Technology	Topic: Multimedia	
		Goal 2: The student will be able to combine text, sound and graphics to create a multimedia story.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions, Conceptual Understandings	Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model
10	2.1. The use of technology and digital tools requires knowledge and appropriate use of operations and related applications. (8.1.8.A.1) 2.2. Synthesize and publish information about a local or glorbal issue or event on a collaborative, web-based service. (8.1.8.B.1) 2.3. Inserting text and graphics into a multimedia document. 2.4. Insert sound and/or voice. 2.5. Synchronize animations to story. 2.6. Develop strategies to reinforce positive attitudes and productive behaviors that impact critical	**Essential Questions:** How can digital tool be used for creating original and innovative works, ideas and solutions? **Conceptual Understandings:** The use of technology and digital tools requires knowledge and appropriate use of operations and related applications. The use of digital tools and media-rich resource enhances creativitiy and the construction of knowledge. Digital tools provide opportunities for people to have new experiences recognize problems, design solutions and express their ideas.	**Learning Activities:** Create a story about a global issue such as recycling, Cyber Safety or pollution **Assessment Models:** Publish stories on the school's intranet. **Additional Resources:** School intranet

	thinking and problem-solving skills. (9.1.8.A.1) 2.7. Use multiple points of view to create alternative solutions. (9.1.8.B.1) 2.8. Determine an individual's responsibility for personal actions and contributions to group activities. (9.1.8.C.1) 2.9. Demonstrate the use of compromise, consensus, and community building strategies for carrying out different tasks, assignments, and projects. (9.1.8.C.2) 2.10. Use effective communications skills in face-to-face and online interactions with peers and adults from home and from diverse cultures. (9.1.8.D.3)		

Suggested days of Instruction	Curriculum Management System Subject/Grade Level: Grade 5 Computer Technology	Topic: Digital Citizenship	
		Goal 3: The student will be able to demonstrate proper Internet behavior.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions, Conceptual Understandings	Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model
10	3.1. Model appropriate online behaviors related to cyber safety, cyber bullying, cyber security, and cyber ethics. (8.1.8.D.1) 3.2. Design and implement a project management plan using one or more problem-solving strategies. (9.1.8.A.4) 3.3. Determine an individual's responsibility for personal actions and contributions to group activities. (9.1.8.C.1) 3.4. Demonstrate the use of compromise, consensus, and community building strategies for carrying out different tasks,	**Essential Questions:** What are an individual's responsibilities for using technology? What constitutes misuse and how can it best be prevented? **Conceptual Understandings:** Technology use can have positive or negative impact on both users and those affected by their use. Technology advancements create societal concerns regarding the practice of safe, legal and ethical behaviors.	**Learning Activities:** Demonstrate understanding of cyber safety, cyber bullying, cyber safety, and cyber ethics by completing the activities found on the websites below. Create a poster, multimedia file or video with tips about how to respond to a cyber bully and post on the school's website. **Assessment Models:** Present poster or multimedia files to younger students and/or parents. **Additional Resources:** Netsmartz.com Cybersmart.com

	assignments, and projects. (9.1.8.C.2) 3.5. Employ appropriate conflict resolution strategies. (9.1.8.D.1) 3.6. Justify the need for greater cross-cultural understanding due to globalization. (9.1.8.D.5) 3.7. Determine the undesired consequences of unethical uses of media. (9.1.8.E.4) 3.8. Demonstrate how productivity and accountability contribute to realizing individual or group work goals within or outside the classroom. (9.1.8.F.1) 3.9. Explain how rules, laws, and safety practices protect individual rights in the global workplace. (9.1.8.F.2) 3.10. Relate the use of new technologies at home, in the workplace, and in other settings to matters of ethics		

Suggested days of Instruction	Curriculum Management System Subject/Grade Level: Grade 5 Computer Technology	Topic: Data Collection and Analysis	
		Goal 4: Students will gather information from the Internet over time and analyze the data collected.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions, Conceptual Understandings	Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model
5	4.1. Select and apply digital tools to collect, organize and analyze data that support a scientific finding. (8.1.8.F.1) 4.2. Collect specific data from a predetermined web site over a specified time period. Compare and contrast data and draw conclusions. 4.3. Develop strategies to reinforce positive attitudes and productive behaviors that impact critical thinking and problem-solving skills. (9.1.8.A.1) 4.4. Determine an individual's responsibility for personal actions and contributions to group activities. (9.1.8.C.1)	**Essential Questions:** How do I choose which technological tools to use and when it is appropriate to use them? **Conceptual Understandings** Information accessed through the use of digital tools assists in generating solutions and making decisions.	**Learning Activities:** Collect weather conditions, temperature and sunrise and sunset times for 2 locations from a web site. Analyze findings and determine what kind of outdoor activities could occur based on the weather. **Assessment Models:** Create a multi-media or video comparing and contrasting the outdoor activities. **Additional Resources:** Weatherchannel.com

	4.5. Model leadership skills during classroom and extra-curricular activities. (9.1.8.C.3)		

Suggested days of Instruction	Curriculum Management System Subject/Grade Level: Grade 5 Computer Technology	Topic: Scratch Programming	
		Goal 5: Students will focus on the fundamentals of programming by designing and programming their own games and projects.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions, Conceptual Understandings	Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model
10	5.1 Examine a system, consider how each part relates to other parts, and discuss a part to redesign to improve the system. **8.2.8.A.2** 5.2 Investigate a malfunction in any part of a system and identify its impacts. **8.2.8.A.3** 5.3 Explain how different teams/groups can contribute to the overall design of a product **8.2.8.C.1** 5.4 Collaborate to examine a malfunctioning system and identify the step-by-step process	**Essential Questions:** What is Scratch? How can I use technology to create my own programs and games? How do I use the Scratch interface to develop my own ideas? How do you upload and share ideas using technology? How can I work collaboratively with a group to improve my ideas and designs? What games and programs can I create with this program? **Conceptual Understandings** Identify the basic tools of the Scratch program.	**Learning Activities:** Using Scratch computer programming langauge, students will create interactive stories, animations, games and art. **Assessment Models:** Project evaluation Small benchmark tasks to serve as informal and formal assessments. **Additional Resources:** Computers Scratch software Internet connectivity

	used to troubleshoot, evaluate and test options to repair the product, presenting the better solution. **8.2.8.C.6** 5.5 Build a prototype that meets a STEM-based design challenge using science, engineering, and math principles that validate a solution. **8.2.8.D.3** 5.6 Demonstrate an understanding of the relationship between hardware and software. **8.2.8.E.2** 5.7 Develop an algorithm to solve an assigned problem using a specified set of commands and use peer review to critique the solution. **8.2.8.E.3** 5.8 Use appropriate terms in conversation (e.g., programming, language, data, RAM, ROM, Boolean logic terms). **8.2.8.E.4**	Create movement and sound with a sprite. Control the initiation of animation. Program to change color and costume during animation. Change background and move between stages Coordinate movement of multiple sprites Use the hide, show, wait and sensing buttons.	