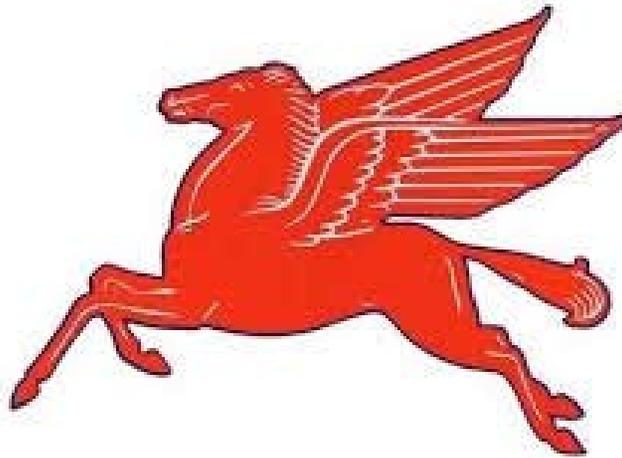# Curriculum Management System

PAULSBORO PUBLIC SCHOOLS

Technology – Pre-School

UPDATED 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.

Board Approved: September 2015

Table of Contents

Paulsboro Public Schools

Dr. Laurie Bandlow, Superintendent

Board of Education
Mr. Thomas Ridinger, President
Ms. Bonnie Eastlack, Vice President
Mrs. Barbara Dunn
Mrs. Paula Giampola
Mr. John Hughes*
Mr. Joseph L. Lisa
Mrs. Lisa L. Lozada-Shaw
Mrs. Lisa Priest
Mrs. Irma R. Stevenson
Mr. James J. Walter
* Greenwich Township Board of Education Representative

District Administration
Dr. Lucia Pollino, Director of Curriculum & Assessment
Ms. Jennifer Johnson, Business Administrator/Board Secretary
Mr. John Giovannitti, Director of Special Services
Mr. Paul Bracciante, Principal

Curriculum Writing Team
Mrs. Noreen DeMarco, Teacher
Mr. Matthew J. Browne, District Mathematics Coach
Mrs. Rebecca Richardson, District Literacy Coach

Paulsboro Public Schools

Mission Statement

The mission of the Paulsboro School District is to provide each student the educational opportunities to assist in attaining their full potential in a democratic society. Our instructional programs will take place in a responsive, community based school system that fosters respect among all people. Our expectation is that all students will achieve the New Jersey Core Curriculum Content Standards (NJCCCS) at every grade level.

Introduction/Philosophy

The Paulsboro School District Technology Curriculum is designed to promote technological and information literacy as well as critical thinking, problem-solving, and decision-making skills that is necessary for students to compete in and connect with our constant-changing global community. The curriculum motivates, empowers and enhances students' conceptual understanding, procedural knowledge, and problem- solving skills in technology including its nature, impact, and social, ethical, and human aspects. Students learn how to use many technological tools to gather, interpret and share information, and to choose appropriate technologies to complete their work.

Mission: Understanding that technology is multi-disciplinary by nature and has applications in any environment, our technology curriculum is designed to promote academic success by incorporating technological tools and applications into the teaching a learning process.

Vision: An education in technology fosters a population that:
- Takes a real-world approach to teaching technology to allow for an enhancement of the learning process, enrichment of academic experience, and to bestow students with the skills necessary to succeed throughout life.
- Allows all students including those who are English Language Learners and those who have special needs to develop technological skills while simultaneously strengthening understanding of academic knowledge and skills.
- Encourages students to become active participants in the learning process.
- Teaches students to efficiently access, explore, apply, and synthesize information in our digital world.

New Jersey State Department of Education
Core Curriculum Content Standards

8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.

8.2 Technology Education, Engineering, and Design – All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society, and the environment.

New Jersey State Department of Education
21st Century College and Career Readiness Standards

The 12 Career Ready Practices
These practices outline the skills that all individuals need to have to truly be adaptable, reflective, and proactive in life and careers. These are researched practices that are essential to career readiness.

9.1 Personal Financial Literacy
This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.

9.2 Career Awareness, Exploration, and Preparation
This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

http://www.state.nj.us/education/cccs/2014/career/

Scope and Sequence
Quarter I – Grade K-2

Big Idea: 1	Big Idea: 2
Strand 8.1.2.A.1-7: Technology Operations and Concepts: Students will demonstrate a sound understanding of technological concepts, systems and operations.	**Strand 8.1.2.B.1: Creativity and Innovation:** Students will demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.

Scope and Sequence	
Quarter II – Grade K-2	
Big Idea: 3 Strand 8.1.2.C.1: Communication and Collaboration: Students will use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.	**Big Idea: 5** Strand 8.1.2.E.1: Research and Information Fluency: Students will apply digital tools to gather, evaluate, and use information.
Big Idea: 4 Strand 8.1.2.D.1: Digital Citizenship: Students will understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.	**Big Idea: 6** Strand 8.1.2.F.1: Critical Thinking, Problem Solving, and Decision Making: Students will use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Scope and Sequence	
Quarter II – Grade K-2	
Big Idea: 7 Strand 8.2.2.A.1-5: The Nature of Technology: Creativity and Innovation. Students will understand that technology systems impact every aspect of the world in which we live.	**Big Idea 9** Strand 8.2.2.C.1-6: Design: Students will understand how the design process is a systematic approach to solving problems.
Big Idea: 8 Strand 8.2.2.B.1-4: Technology and Society: Students will gain knowledge and understanding that human, cultural and societal values are fundamental when designing technology systems and products in the global society.	

Scope and Sequence
Quarter II – Grade K-2

Big Idea: 10	Big Idea: 11
Strand 8.2.2.D.1-5: Abilities for a Technological World: Students will understand how the designed world is the product of a design process that provides the means to convert resources into products and systems.	**Strand 8.2.2.E.1-5: Computational Thinking:** **Programming** Students will understand how computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.

K-2 Technology – Quarter I
Big Idea: Technology Operations and Concepts

Standard: 8.1 Educational Technology:	GOAL
Students will: **8.1.2.A.1:** Identify the basic features of a digital device and explain its purpose. **8.1.2.A.2:** Create a document using a word processing application. **8.1.2.A.3:** Compare the common uses of at least two different digital applications and identify the advantages and disadvantages of using each. **8.1.2.A.4:** Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums). **8.1.2.A.5:** Enter information into a spreadsheet and sort the information. **8.1.2.A.6:** Identify the structure and components of a database. **8.1.2.A.7:** Enter information into a database or spreadsheet and filter the information.	**Goal 1:** Students demonstrate a sound understanding of technological concepts, systems and operations.

Essential Questions	Assessments
1. In a world of constant change, what skills should we learn? 2. How do I choose which technological tools to use and when it is appropriate to use them? (Lesson Level by Grade: K = raise awareness/introduce, 1st= develop skills, 2nd=master skills)	1. As a class, create an "All About the Students" book. 2. Create a story about the things students like to do. Revise, edit and print the story in paragraph form. 3. Computer Parts - Bingo, Worksheets, Matching Game, ABCYA.com's "Find the Technology" 4. Identify different types of programs, when to use them and what you would use them for.

Enduring Understanding	Resources
1. Technology is constantly changing and requires continuous learning of new skills. 2. Selection of technology should be based on personal and/or career needs assessment.	www.noogenesis.com www.pbs.org ww.edheads.org www.knowitall.org www.ABCYA.com

Career Ready Practices
CRP11

English/Language Arts Standards

K-2 Technology – Quarter I
Big Idea: Creativity and Innovation

Standard: 8.1 Educational Technology:	GOAL
Students will: • **8.1.2.B.1:** Illustrate and communicate original ideas and stories using digital tools and media-rich resources. **Career Ready Practices** CRP11 **English/Language Arts Standards**	**Goal 2:** Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.

Essential Questions	Assessments
1. How can I transfer what I know to new technological situations/experiences? 2. What are my responsibilities for using technology? 3. What constitutes misuse and how can it best be prevented? (Lesson Level by Grade: K = raise awareness/introduce, 1st= develop skills, 2nd=master skills)	1. Complete a picture book. Use a program such as Kidspiration or Paint & Draw to illustrate. 2. Use Kidspiration to brainstorm and organize the writing process. 3. Create a digital scrapbook. 4. Create a short video.

Enduring Understanding	Resources
1. A tool is only as good as the person using it. 2. Technology use can have a positive or negative impact on both users and those affected by their use.	Pics4Learning www.astronomywebguide.com Kidspiration Photostory or other photo software Windows Movie Maker

K-2 Technology – Quarter I
Big Idea: Communication and Collaboration

Standard: 8.1 Educational Technology:	GOAL	
Students will: • **8.1.2.C.1:** Engage in a variety of developmentally appropriate learning activities with students in other classes, schools, or countries using various media formats such as online collaborative tools, and social media. **Career Ready Practices** CRP11 **English/Language Arts Standards**	**Goal 3:** Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.	
	Essential Questions	**Assessments**
	1. How has the use of digital tools improved opportunities for communication and collaboration? (Lesson Level by Grade: K = raise, awareness/ introduce, 1st= develop skills, 2nd=master skills)	1. Compare information about a topic with other students or classrooms. 2. Participate in a project that combines artwork with the development of reading and writing skills. 3. Type a PenPal letter. 4. Use Skype to communicate with students in other schools, countries, etc.
	Enduring Understanding	**Resources**
	1. Digital tools allow for communication and collaboration anytime/anyplace worldwide.	ThinkQuest www.k12science.org www.monsterexchange .org Center of Innovation in Engineering and Science Education (CIESE) Global SchoolNet Video Calling Software Skype

K-2 Technology – Quarter II
Big Idea: Research and Informational Fluency

Standard: 8.1 Educational Technology:	GOAL	
Students will: • **8.1.2.D.1:** Develop an understanding of ownership of print and non-print information. **Career Ready Practices** CRP11 **English/Language Arts Standards**	**Goal 4:** Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.	
	Essential Questions	**Assessments**
	1. What are an individual's responsibilities for using technology? 2. What constitutes misuse and how can it best be prevented? (Lesson Level by Grade: K = raise awareness/ introduce, 1st= develop skills, 2nd=master skills)	1. BrainPop activities about ethical behavior on the computer. 2. Projects that help students learn how to research information safely on the Internet. Find pictures to tie in with writing. Cite all resources. 3. Recognize ownership of work by identifying the title, author or source of a book, article, song or poem.
	Enduring Understanding	**Resources**
	1. Technology use can have a positive and a negative impact on both users and those affected by their use.	www.edutopia.org www.digitalcitizenship.net www.cyberwise.org www.brainpopjr.com www.commonsensemedia.org

K-2 Technology – Quarter II
Big Idea: Research and Informational Fluency

Standard: 8.1 Educational Technology:	GOAL
	Goal 5: Students apply digital tools to gather, evaluate, and use information.

	Essential Questions	Assessments
Students will: • **8.1.2.E.1:** Use digital tools and online resources to explore a problem or issue.. **Career Ready Practices** CRP11 **English/Language Arts Standards**	1. Why is the evaluation and appropriate use of accurate information more important the ever in the technological age? (Lesson Level by Grade: K = raise awareness/ introduce, 1st= develop skills, 2nd=master skills)	1. Projects that help students learn how to research information safely on the Internet. Find pictures to tie in with writing. Cite all resources. 2. Choose and issue from a website that provides current events for kids and have students find 3 important facts about it. Ask other students to provide comments and offer other possible solutions. 3. Research report/worksheet with cited information and pictures. 4. Explore an issue in or around the school. Take pictures and upload. State reasons for problem and ideas for solution in Kidspiration. Upload pic and type final draft in Word.
	Enduring Understanding	Resources
	1. Information is spread worldwide within seconds due to technological advancements and has an immediate impact.	www.timeforkids.com

K-2 Technology – Quarter II
Big Idea: Critical Thinking, Problem Solving, and Decision Making

Standard: 8.1 Educational Technology:	GOAL	
Students will: • **8.1.2.F.1:** Use geographical mapping tools to plan and solve problems. **Career Ready Practices** CRP11 **English/Language Arts Standards**	**Goal 6:** Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.	
	Essential Questions	**Assessments**
	1. How do I choose which technological tools to use and when is it appropriate to use them? 2. How can I transfer what I know to new technological situations/experiences? (Lesson Level by Grade: K = raise awareness/ introduce, 1st= develop skills, 2nd=master skills)	1. Current road construction has caused a major street in your community to be closed. Plan an alternate route from school to your home avoiding that street. 2. Completed Google Earth project with rubric. 3. Using a list of addresses of the local police station, fire house, post office, hospital, and library, use a mapping tool to identify where each of these buildings is located in relation to the school.
	Enduring Understanding	**Resources**
	1. Selection of technology should be based on personal and/or needs assessment. 2. A tool is only as good as the person using it.	Google Earth/Maps www.discoveryeducation.com

K-2 Technology – Quarter III
Big Idea: The Nature of Technology, Creativity, and Innovation

Standard: 8.1 Educational Technology:	GOAL	
	Goal 7: Technological systems impact every aspect of the world in which we live.	
Students will:	**Essential Questions**	**Assessments**
• **8.2.2.A.1:** Define products produced as a result of technology or nature.	1. Can we control the pace at which technology is created?	1. Students to explore ways to find information without using a mobile device.
• **8.2.2.A.2:** Describe how designed products and systems are useful at school, home and work.	2. Should we, even if we can?	2. Pick a type of mobile device. Research and explain why that device is useful.
• **8.2.2.A.3:** Identify a system and the components that work together to accomplish its purpose.	(Lesson Level by Grade: K = raise awareness/ introduce, 1st= develop skills, 2nd=master skills)	3. brainpopjr.com activities and quiz.
• **8.2.2.A.4:** Choose a product to make and plan the tools and materials needed.		
• **8.2.2.A.5:** Collaborate to design a solution to a problem affecting the community.	**Enduring Understanding**	**Resources**
Career Ready Practices CRP11	1. Technology evolves at an ever accelerating pace based on the needs/wants of society and is influenced by cultural, political and environmental values and constraints.	www.brainpopjr.com
English/Language Arts Standards		

K-2 Technology – Quarter III
Big Idea: The Nature of Technology, Creativity, and Innovation

Standard: 8.2 Educational Technology:	GOAL
Students will: **8.2.2.B.1:** Identify how technology impacts or improves life. **8.2.2.B.2:** Demonstrate how reusing a product affects the local and global environment. **8.2.2.B.3:** Identify products or systems that are designed to meet human needs. **8.2.2.B.4:** Identify how the ways people live and work has changed because of technology.. **Career Ready Practices** CRP11 **English/Language Arts Standards**	**Goal 8:** Knowledge and understanding of human, cultural and societal values are fundamental when designing technology systems and products in the global society.

Essential Questions	Assessments
1. How does technology extend human capabilities? 2. What are the positive and negative consequences of technology? 3. Should technologies that produce negative impact continue to be used? 4. When are sophisticated tools required, and when are the simplest tools the best to use? (Lesson Level by Grade: K = raise awareness/ introduce, 1st= develop skills, 2nd=master skills)	1. Examine a broken product (i.e. - a toy). Identify the parts of their interactions with each other. Discuss how the product could be fixed or improved. 2. Brainstorm with classmates to develop a list of technologies intended to make life easier (i.e. - human assistive devices such as crutches, wheelchairs, prosthetics). 3. Working in groups, create a set of instructions to reassemble a toy(s) students have examined. 4. Compare findings and graph a chart in Excel. 5. Earth Day Research Project

Enduring Understanding	Resources
1. Technological outcomes have the potential for anticipated and unanticipated positive and negative results. 2. The design process is fundamental to technology and engineering.	www.recyclecity.com

K-2 Technology – Quarter III
Big Idea: Design

Standard: 8.2 Educational Technology:	GOAL

Goal 9: The design process is a systematic approach to solving problems.

Standard: 8.2 Educational Technology:

Students will:
8.2.2.C.1: Brainstorm ideas on how to solve a problem or build a product.

8.2.2.C.2: Create a drawing of a product or device that communicates its function to peers and discuss.

8.2.2.C.3: Explain why we need to make new products.

8.2.2.C.4: Identify designed products and brainstorm how to improve one used in the classroom.

8.2.2.C.5: Describe how the parts of a common toy or tool interact and work as part of a system.

8.2.2.C.6: Investigate a product that has stopped working and brainstorm ideas to correct the problem.

Career Ready Practices
CRP11

English/Language Arts Standards

Essential Questions	Assessments
1. Can a system continue to operate with a missing or malfunctioning component? 2. Is it always beneficial to use the most economical material(s) for production of a technological product? (Lesson Level by Grade: K = raise awareness/ introduce, 1st= develop skills, 2nd=master skills)	1. Examine a broken product (i.e. - a toy). Identify the parts of their interactions with each other. Discuss how the product could be fixed or improved. 2. Brainstorm with classmates to develop a list of technologies intended to make life easier (i.e. - human assistive devices such as crutches, wheelchairs, prosthetics). 3. Working in groups, create a set of instructions to reassemble a toy(s) students have examined. 4. Compare findings and graph a chart in Excel. 5. Earth Day Research Project

Enduring Understanding	Resources
1. A system has interrelated components designed to collectively achieve a desired goal. 2. All technological activities use resources that include tools/machines, materials, information, energy, capital, time and people.	www.recyclecity.org www.trackmania.com

K-2 Technology – Quarter IV
Big Idea: Abilities for a Technical World

Standard: 8.2 Educational Technology:	GOAL	
Students will: **8.2.2.D.1:** Collaborate and apply a design process to solve a simple problem from everyday experiences. **8.2.2.D.2:** Discover how a product works by taking it apart, sketching how parts fit, and putting it back together. **8.2.2.D.3:** Identify the strengths and weaknesses in a product or system. **8.2.2.D.4:** Identify the resources needed to create technological products or systems. **8.2.2.D.5:** Identify how using a tool (such as a bucket or wagon) aids in reducing work. **Career Ready Practices** CRP11 **English/Language Arts Standards**	**Goal 10:** The designed world is the product of a design process that provides the means to convert resources into products and systems.	
	Essential Questions	**Assessments**
	1. Can a system continue to operate with a missing or malfunctioning component? 2. Is it always beneficial to use the most economical material(s) for production of a technological product? (Lesson Level by Grade: K = raise awareness/ introduce, 1st= develop skills, 2nd=master skills)	1. Discuss the seven resources of technology: time, people, energy, money, tools, materials, knowledge. 2. Identify parts of a chair in the classroom and where those parts can be found. Draw a picture of a chair you would like to invent, scan it, use Kidspiration or Word to describe your findings.
	Enduring Understanding	**Resources**
	1. A system has interrelated components designed to collectively achieve a desired goal. 2. All technological activities use resources that include tools/machines, materials, information, energy, capital, time and people.	

K-2 Technology – Quarter IV
Big Idea: Computational Thinking: Programming

Standard: 8.2 Educational Technology:	GOAL	
Students will: **8.2.2.E.1:** List and demonstrate the steps to an everyday task. **8.2.2.E.2:** Demonstrate an understanding of how a computer takes input through a series of written commands and then interprets and displays information as output. **8.2.2.E.3:** Create algorithms (a set of instructions) using a pre-defined set of commands (i.e.- to move a student or character through a maze). **8.2.2.E.4:** Debug an algorithm (i.e.- correct an error). **8.2.2.E.5:** Use appropriate terms in conversation (i.e.- basic vocabulary words: input, output, the operating system, debug and algorithm). **Career Ready Practices** CRP11 **English/Language Arts Standards**	**Goal 11:** Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.	
	Essential Questions	**Assessments**
	1. Can a system continue to operate with a missing or malfunctioning component? 2. Is it always beneficial to use the most economical material(s) for production of a technological product? (Lesson Level by Grade: K = raise awareness/ introduce, 1st= develop skills, 2nd=master skills)	1. Completion of one hour of code. 2. Can play Robot Turtle board game with little to no assistance. 3. Completion of various programming games from <u>csedweek.org</u>.
	Enduring Understanding	**Resources**
	1. A system has interrelated components designed to collectively achieve a desired goal. 2. All technological activities use resources that include tools/machines, materials, information, energy, capital, time and people.	<u>csedweek.org</u> <u>hourofcode.com</u> <u>kinderlogo.com</u> Robot Turtle Board Game Scratch Program

Pre-School Technology
COURSE BENCHMARKS

1. Students demonstrate a sound understanding of technological concepts, systems and operations.
2. Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
3. Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
4. Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
5. Students apply digital tools to gather, evaluate, and use information.
6. Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
7. Technological systems impact every aspect of the world in which we live.
8. Knowledge and understanding of human, cultural and societal values are fundamental when designing technology systems and products in the global society.
9. The design process is a systematic approach to solving problems.
10. The designed world is the product of a design process that provides the means to convert resources into products and systems.
11. Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.