SOUTH BERGEN JOINTURE COMMISSION

TECHNOLOGY CURRICULUM
Grades 3-5

New Jersey Student Learning Standards

CURRICULUM DETAILS				
TECHNOLOGY 3-5				
	NJSLS: English Language Arts	**NJSLS: Mathematics**	**NJSLS: Science**	**NJSLS: Social Studies**
Interdisciplinary Connections	E1. Demonstrate independence. E2. Build strong content knowledge.	M3. Construct viable arguments and critique the reasoning of others. M5. Use appropriate tools strategically. M6. Attend to precision. M7. Look for and make use of structure.	S7. Engaging in argument from evidence. S8. Obtaining, evaluating, and communicating information.	SS4. Considers multiple perspectives, values diversity, and promotes cultural understanding.
Core Instructional Materials	Core Materials	N/A		
	Leveled Resources	N/A		
	Modified Resources	N/A		
	Technology & Digital Tools	Computers, iPads, Digital Tools & Resources		
21st Century Themes & Skills	Career Ready Practices CRP2. Apply appropriate academic and technical skills. CRP4. Communicate clearly and effectively and with reason. CRP6. Demonstrate creativity and innovation.			
Pacing Guide: Overview	The New Jersey Student Learning Standards for Technology outline the student learning objectives that are to be addressed within each grade level. Based on these objectives, the South Bergen Jointure Commission has created pacing guides which outline the scope and sequence that is to be followed for each of its curricula. Refer to the *Pacing Guide* below for additional details.			
Assessment: Overview	The grade level expectations outlined in the New Jersey Student Learning Standards for Technology will be assessed through: class discussion and quizzes, as well as the use of teacher observation, checklists and rubrics for assessing the understanding and application of technology skills.			

MODIFICATIONS			
Special Education	**At-Risk**	**English Language Learners**	**Gifted and Talented**
Word walls	Teacher tutoring	English Language Learners	Curriculum compacting
Visual aides	Peer tutoring	Scaffolding	Challenge assignments
Graphic organizers	Study guides	Word walls	Enrichment activities
Multimedia	Graphic organizers	Sentence/paragraph frames	Tiered activities
Leveled readers	Extended time	Bilingual dictionaries/translation	Independent research/inquiry
Assistive technology	Parent communication	Think alouds	Collaborative teamwork
Notes/summaries	Modified assignments	Read alouds	Higher level questioning
Extended time	Counseling	Highlight key vocabulary	Critical/Analytical thinking tasks
Answer masking		Annotation guides	Self-directed activities
Answer eliminator		Think-pair-share	
Highlighter		Visual aides	
Color contrast		Modeling	
		Cognates	

PACING GUIDE
TECHNOLOGY: GRADE 3-5

SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY
Technology Operations and Concepts	**Creativity and Innovation**	**Communication and Collaboration**	**Digital Citizenship & Research and Information Fluency**	**Critical Thinking, Problem Solving & Decision Making**
Students demonstrate a sound understanding of technology concepts, systems and operations.	*Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.*	*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.*	*Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.* *Students apply digital tools to gather, evaluate, and use information.*	*Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.*
NJSLS 8.1.5.A.1, 8.1.5.A.2, 8.1.5.A.3, 8.1.5.A.4, 8.1.5.A.5, 8.1.5.A.6	**NJSLS** 8.1.5.B.1	**NJSLS** 8.1.5.C.1	**NJSLS** 8.1.5.D.1, 8.1.5.D.2, 8.1.5.D.3, 8.1.5.D.4, 8.1.5.E.1	**NJSLS** 8.1.5.F.1

FEBRUARY	MARCH	APRIL	MAY	JUNE
The Nature of Technology	**Technology and Society**	**Design**	**Abilities for a Technological World**	**Computational Thinking: Programming**
Creativity and Innovation Technology systems impact every aspect of the world in which we live.	*Knowledge and understanding of human, cultural and societal values are fundamental when designing technological systems and products in the global society.*	*The design process is a systematic approach to solving problems.*	*The designed world is the product of a design process that provides the means to convert resources into products and systems.*	*Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.*
NJSLS 8.2.5.A.1, 8.2.5.A.2, 8.2.5.A.3, 8.2.5.A.4, 8.2.5.A.5	**NJSLS** 8.2.5.B.1, 8.2.5.B.2, 8.2.5.B.3, 8.2.5.B.4, 8.2.5.B.5, 8.2.5.B.6	**NJSLS** 8.2.5.C.1, 8.2.5.C.2, 8.2.5.C.3, 8.2.5.C.4, 8.2.5.C.5, 8.2.5.C.6, 8.2.5.C.7	**NJSLS** 8.2.5.D.1, 8.2.5.D.2, 8.2.5.D.3, 8.2.5.D.4, 8.2.5.D.5, 8.2.5.D.6, 8.2.5.D.7	**NJSLS** 8.2.5.E.1, 8.2.5.E.2, 8.2.5.E.3, 8.2.5.E.4

- Lessons and activities will vary by grade level

Essential Questions: How can I demonstrate an understanding of technology concepts, systems and operations?		
Content Area: Technology		
Standard: 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.		
Strand A. Technology Operations and Concepts		
21st Century Theme: Financial, Economic, Business and Entrepreneurial Literacy		
21st Century Skills: ICT Literacy, Life and Career Skills		
Content Statement	**Instructional Outcome**	**Assessment**
Understand and use technology systems.	8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.	• Class Discussion • Quizzes • Application of Technology Skills: ○ Teacher Observation ○ Checklists ○ Project-Based Rubrics
Select and use applications effectively and productively.	8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.	
	8.1.5.A.3 Use a graphic organizer to organize information about problem or issue.	
	8.1.5.A.4 Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data.	
	8.1.5.A.5 Create and use a database to answer basic questions.	
	8.1.5.A.6 Export data from a database into a spreadsheet; analyze and produce a report that explains the analysis of the data.	

Essential Questions: How can I demonstrate creativity and innovation in using technology?		
Content Area: Technology		
Standard: 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.		
Strand B. Creativity and Innovation		
21st Century Theme: Financial, Economic, Business and Entrepreneurial Literacy		
21st Century Skills: ICT Literacy, Life and Career Skills		
Content Statement	**Instructional Outcome**	**Assessment**
Apply existing knowledge to generate new ideas, products, or processes.	8.1.5.B.1 Collaborative to produce a digital story about a significant local event or issue based on first-person interviews.	• Class Discussion • Quizzes • Application of Technology Skills: ○ Teacher Observation ○ Checklists ○ Project-Based Rubrics
Create original works as a means of personal or group expression.		

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Essential Questions: How can I use digital media and environments to communicate and work collaboratively?		
Content Area: Technology		
Standard: 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.		
Strand C. Communication and Collaboration		
21st Century Theme: Financial, Economic, Business and Entrepreneurial Literacy		
21st Century Skills: ICT Literacy, Life and Career Skills		
Content Statement	Instructional Outcome	Assessment
Interact, collaborate, and publish with peers, experts, or others by employing a variety of digital environments and media.	8.1.5.C.1 Engage in online discussions with learners of other cultures to investigate a worldwide issue from multiple perspectives and sources, evaluate findings and present possible solutions, using digital tools and online resources for all steps.	- Class Discussion - Quizzes - Application of Technology Skills: - Teacher Observation - Checklists - Project-Based Rubrics
Communicate information and ideas to multiple audiences using a variety of media and formats.		
Develop cultural understanding and global awareness by engaging with learners of other cultures.		
Develop cultural understanding and global awareness by engaging with learners of other cultures.		

Essential Questions: How do human, cultural, and societal issues related to technology? How can I practice legal and ethical behavior in terms of technology?		
Content Area: Technology		
Standard: 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.		
Strand D. Digital Citizenship		
21st Century Theme: Financial, Economic, Business and Entrepreneurial Literacy		
21st Century Skills: ICT Literacy, Life and Career Skills		
Content Statement	Instructional Outcome	Assessment

Advocate and practice safe, legal, and responsible use of information and technology.	8.1.5.D.1 Understand the need for and use of copyrights.	• Class Discussion
	8.1.5.D.2 Analyze the resource citations in online materials for proper use.	• Quizzes • Application of Technology Skills:
Demonstrate personal responsibility for lifelong learning.	8.1.5.D.3 Demonstrate an understanding of the need to practice cyber safety, cyber security, and cyber ethics when using technologies and social media.	○ Teacher Observation ○ Checklists ○ Project-Based Rubrics
Exhibit leadership for digital citizenship.	8.1.5.D.4 Understand digital citizenship and demonstrate an understanding of the personal consequences of inappropriate use of technology and social media.	

Essential Questions: How can I use digital tools to gather, evaluate, and use information?
Content Area: Technology
Standard: 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.
Strand E. Research and Information Literacy
21st Century Theme: Financial, Economic, Business and Entrepreneurial Literacy
21st Century Skills: ICT Literacy, Life and Career Skills

Content Statement	Instructional Outcome	Assessment
Plan strategies to guide inquiry.	8.1.5.E.1 Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.	• Class Discussion
Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.		• Quizzes • Application of Technology Skills: ○ Teacher Observation ○ Checklists ○ Project-Based Rubrics
Evaluate and select information sources and digital tools based on the appropriateness for specific tasks.		

Essential Questions: What strategies can I use to make informed decisions when using digital tools and resources?
Content Area: Technology
Standard: 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.
Strand F. Critical Thinking, Problem Solving, and Decision-Making
21st Century Theme: Financial, Economic, Business and Entrepreneurial Literacy
21st Century Skills: ICT Literacy, Life and Career Skills

Content Statement	Instructional Outcome	Assessment

	8.1.5.F.1 Apply digital tools to collect, organize, and analyze data that support a scientific finding.	● Class Discussion
		● Quizzes
		● Application of Technology Skills:
		   ○ Teacher Observation
		   ○ Checklists
		   ○ Project-Based Rubrics

Identify and define authentic problems and significant questions for investigation.		
Plan and manage activities to develop a solution or complete a project.		
Collect and analyze data to identify solutions and/or make informed decisions.		
Use multiple processes and diverse perspectives to explore alternative solutions.		

Essential Questions: How do technology systems impact every aspect of the world in which we live?
Content Area: Technology
Standard: 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.
Strand A. Nature of Technology: Creativity and Innovation
21st Century Theme: Financial, Economic, Business and Entrepreneurial Literacy
21st Century Skills: ICT Literacy, Life and Career Skills

Content Statement	Instructional Outcome	Assessment

The characteristics and scope of technology.	8.2.5.A.1 Compare and contrast how products made in nature differ from products that are human made in how they are produced and used.	● Class Discussion
		● Quizzes
		● Application of Technology Skills:
		   ○ Teacher Observation
		   ○ Checklists
		   ○ Project-Based Rubrics

	8.2.5.A.2 Investigate and present factors that influence the development and function of a product and a system.	
The core concepts of technology.	8.2.5.A.3 Investigate and present factors that influence the development and function of products and systems, e.g., resources, criteria and constraints.	
The relationships among technologies and the connections between technology and other fields of study.	8.2.5.A.4 Compare and contrast how technologies have changed over time due to human needs and economic, political and/or cultural influences.	
	8.2.5.A.5 Identify how improvement in the understanding of materials science impacts technologies.	

Essential Questions: Why is an understanding of human, cultural and societal values fundamental when designing technological systems and products in the global society?		
Content Area: Technology		
Standard: 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.		
Strand B. Technology and Society:		
21st Century Theme: Financial, Economic, Business and Entrepreneurial Literacy		
21st Century Skills: ICT Literacy, Life and Career Skills		
Content Statement	Instructional Outcome	Assessment

The cultural, social, economic and political effects of technology.	8.2.5.B.1 Examine ethical considerations in the development and production of a product through its life cycle.	● Class Discussion
		● Quizzes
		● Application of Technology Skills:
		  ○ Teacher Observation
		  ○ Checklists
		  ○ Project-Based Rubrics

The effects of technology on the environment.	8.2.5.B.2 Examine systems used for recycling and recommend simplification of the systems and share with product developers.	
	8.2.5.B.3 Investigate ways that various technologies are being developed and used to reduce improper use of resources	
The role of society in the development and use of technology.	8.2.5.B.4 Research technologies that have changed due to society's changing needs and wants.	
	8.2.5.B.5 Explain the purpose of intellectual property law.	
The influence of technology on history.	8.2.5.B.6 Compare and discuss how technologies have influenced history in the past century.	

Essential Questions: How can the design process be used to solve problems?		
Content Area: Technology		
Standard: 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.		
Strand C. Design		
21st Century Theme: Financial, Economic, Business and Entrepreneurial Literacy		
21st Century Skills: ICT Literacy, Life and Career Skills		
Content Statement	Instructional Outcome	Assessment

The attributes of design.	8.2.5.C.1 Collaborate with peers to illustrate components of a designed system.	● Class Discussion
		● Quizzes
		● Application of Technology Skills:
		  ○ Teacher Observation
		  ○ Checklists
		  ○ Project-Based Rubrics

	8.2.5.C.2 Explain how specifications and limitations can be used to direct a product's development.	
	8.2.5.C.3 Research how design modifications have lead to new products.	
The application of engineering design.	8.2.5.C.4 Collaborate and brainstorm with peers to solve a problem evaluating all solutions to provide the best results with supporting sketches or models.	

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	8.2.5.C.5 Explain the functions of a system and subsystems.	
The role of troubleshooting, research and development, invention and innovation and experimentation in problem solving.	8.2.5.C.6 Examine a malfunctioning tool and identify the process to troubleshoot and present options to repair the tool.	
	8.2.5.C.7 Work with peers to redesign an existing product for a different purpose.	

Essential Questions: How does the design process impact converting resources into products and systems?		
Content Area: Technology		
Standard: 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.		
Strand D. Abilities for a Technological World		
21st Century Theme: Financial, Economic, Business and Entrepreneurial Literacy		
21st Century Skills: ICT Literacy, Life and Career Skills		
Content Statement	**Instructional Outcome**	**Assessment**

Apply the design process.	8.2.5.D.1 Identify and collect information about a problem that can be solved by technology, generate ideas to solve the problem, and identify constraints and trade-offs to be considered.	● Class Discussion
		● Quizzes
		● Application of Technology Skills:
		  ○ Teacher Observation
		  ○ Checklists
		  ○ Project-Based Rubrics

	8.2.5.D.2 Evaluate and test alternative solutions to a problem using the constraints and trade-offs identified in the design process to evaluate potential solutions	
Use and maintain technological products and systems.	8.2.5.D.3 Follow step by step directions to assemble a product or solve a problem.	
	8.2.5.D.4 Explain why human-designed systems, products, and environments need to be constantly monitored, maintained, and improved.	
	8.2.5.D.5 Describe how resources such as material, energy, information, time, tools, people and capital are used in products or systems.	
Assess the impact of products and systems.	8.2.5.D.6 Explain the positive and negative effect of products and systems on humans, other species and the environment, and when the product or system should be used.	
	8.2.5.D.7 Explain the impact that resources such as energy and materials used in a process to produce products or system have on the environment.	

Essential Questions: How does computational thinking build and enhance problem solving skills?		
Content Area: Technology		
Standard: 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.		
Strand D. Abilities for a Technological World		
21st Century Theme: Financial, Economic, Business and Entrepreneurial Literacy		
21st Century Skills: ICT Literacy, Life and Career Skills		

Content Statement	Instructional Outcome	Assessment

Computational thinking and computer programming as tools used in design and engineering.	8.2.5.E.1 Identify how computer programming impacts our everyday lives.	● Class Discussion
		● Quizzes
		● Application of Technology Skills:
		  ○ Teacher Observation
		  ○ Checklists
		  ○ Project-Based Rubrics

	8.2.5.E.2 Demonstrate an understanding of how a computer takes input of data, processes and stores the data through a series of commands, and outputs information.	
	8.2.5.E.3 Using a simple, visual programming language, create a program using loops, events and procedures to generate specific output.	
	8.2.5.E.4 Use appropriate terms in conversation (e.g., algorithm, program, debug, loop, events, procedures, memory, storage, processing, software, coding, procedure, and data).	