

3rd Grade Technology Curriculum

Revised 7/2025

NJSLS Standards

8.1.5.CS.1, 8.1.5.CS.2, 8.1.5.CS.3, 8.1.5.NI.1, 8.1.5.NI.2, 8.1.5.IC.1, 8.1.5.IC.2, 8.1.5.DA.1, 8.1.5.DA.2, 8.1.5.DA.3, 8.1.5.DA.4, 8.1.5.DA.5, 8.1.5.AP.1, 8.1.5.AP.2, 8.1.5.AP.3, 8.1.5.AP.4, 8.1.5.AP.5, 8.1.5.AP.6, 8.2.5.ED.1, 8.2.5.ED.2, 8.2.5.ED.3, 8.2.5.ED.4, 8.2.5.ED.5, 8.2.5.ED.6, 8.2.5.ITH.1, 8.2.5.ITH.2, 8.2.5.ITH.3, 8.2.5.ITH.4, 8.2.5.NT.1, 8.2.5.NT.2, 8.2.5.NT.3, 8.2.5.NT.4, 8.2.5.ETW.1, 8.2.5.ETW.2, 8.2.5.ETW.3, 8.2.5.ETW.4, 8.2.5.ETW.5, 8.2.5.EC.1

8.1 Computer Science

- Model how computing devices connect to other components to form a system.
- Model how computer software and hardware work together as a system to accomplish tasks.
- Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.
- Develop models that successfully transmit and receive information using both wired and wireless methods.
- Describe physical and digital security measures for protecting sensitive personal information.
- Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes.
- Identify possible ways to improve the accessibility and usability of computing technologies to address the diverse needs and wants of users.
- Collect, organize, and display data in order to highlight relationships or support a claim. Compare the amount of storage space required for different types of data.
- Organize and present collected data visually to communicate insights gained from different views of the data.
- Organize and present climate change data visually to highlight relationships or support a claim.
- Propose cause and effect relationships, predict outcomes, or communicate ideas using data.
- Compare and refine multiple algorithms for the same task and determine which is the most appropriate.
- Create programs that use clearly named variables to store and modify data.
- Create programs that include sequences, events, loops, and conditionals.
- Break down problems into smaller, manageable sub-problems to facilitate program development.
- Modify, remix, or incorporate pieces of existing programs into one's own work to add additional features or create a new program.
- Develop programs using an iterative process, implement the program design, and test the program to ensure it works as intended.

8.2 Design Thinking

- Explain the functions of a system and its subsystems.
- Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.

3rd Grade Technology Curriculum

Revised 7/2025

- Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.
- Explain factors that influence the development and function of products and systems (e.g., resources, criteria, desired features, constraints).
- Describe how specifications and limitations impact the engineering design process.
- Evaluate and test alternative solutions to a problem using the constraints and tradeoffs identified in the design process.
- Explain how societal needs and wants influence the development and function of a product and a system.
- Evaluate how well a new tool has met its intended purpose and identify any shortcomings it might have.
- Analyze the effectiveness of a new product or system and identify the positive and/or negative consequences resulting from its use.
- Describe a technology/tool that has made the way people live easier or has led to a new business or career.
- Troubleshoot a product that has stopped working and brainstorm ideas to correct the problem.
- Identify new technologies resulting from the demands, values, and interests of individuals, businesses, industries, and societies.
- Redesign an existing product for a different purpose in a collaborative team.
- Identify how improvement in the understanding of materials science impacts technologies.
- Describe how resources such as material, energy, information, time, tools, people, and capital are used in products or systems.
- Describe ways that various technologies are used to reduce improper use of resources.
- Explain why human-designed systems, products, and environments need to be constantly monitored, maintained, and improved.
- Explain the impact that resources, such as energy and materials used to develop technology, have on the environment.
- Identify the impact of a specific technology on the environment and determine what can be done to increase positive effects and to reduce any negative effects, such as climate change.
- Analyze how technology has contributed to or reduced inequities in local and global communities and determine its short- and long-term effects.

Extended Activities

1. **Design Your Own Maze** - Concepts: Variables, loops, strings
Using EduCode's Maze activity to build a maze with programmable paths, keys, and monsters. Guide students to use loops and variable assignments to move the hero. They'll debug using trial-and-error. After completing the online part, have students design a maze on paper and write pseudocode for navigating it.
2. **Uncover the Agency's Secrets** (Python Basics) Concepts: If-statements, string handling, loops. Through interactive challenges, students help "Agent Smith" configure system settings using Python-style commands. Discuss real-world links—like passwords or settings—where conditionals matter. Students create 3 simple "if ... then ..." statements in a Word doc: e.g., "If the weather is rainy, then I take my umbrella."

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Gifted and Talented

1. **Bake a Cake with HTML & CSS** - Advanced Concepts: HTML tags, CSS styling
In this themed Hour of Code, students learn to use tags (like `<h1>` and `<p>`) and simple styling to design a virtual cake. They see live changes as they add ingredients or style it. Back in class, let students sketch their cake on paper and write 2–3 HTML lines that correspond to their design.