Stage 1 – Desired Results

NJCCCS: 8.1 & 8.2	Unit/Big Idea:
Enduring Understandings: **Students will understand that…** Technology evolves at a rapid pace based on the needs/wants of society and is influenced by cultural, political and environmental values and constraints. A system has interrelated components designed to collectively achieve a desired goal. All technological uses require resources that include tools/machines, materials, information, energy, time, and people.	**Essential Questions:** How does technology impact society? What are the positive and negative consequences of technology? Should technologies that produce negative impact continue to be used? Is it always beneficial to use the most economical materials for production of a technological product?

Students will know...		Students will be able to…
Computational thinking and computer programming as tools used in design and engineering.	8.2.8.E. 1	Identify ways computers are used that have had an impact across the range of human activity and within different careers where they are used.
	8.2.8.E. 2	Demonstrate an understanding of the relationship between hardware and software.
	8.2.8.E. 3	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. 4	Use appropriate terms in conversation (e.g., programming, language, data, RAM, ROM, Boolean logic terms).

Stage 2 – Assessment Evidence Benchmark

Benchmark Assessment	Other Evidence:
You are a programmer. Design a product that solves a problem or presents information electronically. Your task is to use the appropriate technology tools to design the product.	Research other computer languages to understand their differing features and purposes and consider their suitability for the world. Read two non-fiction texts featuring computer science programming languages. Compare the featured computer languages and their practicality in the real world.

Stage 3 - Learning Plan

Suggested Learning Activities:	
Suggested Learning Activities: Engage in online lessons, develop code, complete activities using HTML/CCS and Python programming languages using the Codecademy.org website. Introduce/define programing terminology. Introduction to Computer Science: • Overview of online materials and how they can be used to develop a scheme of work. • Create webpage with an HTML frame • Design a webpage for a social networking profile Become familiar with Codecademy platform: • Understand why Python is used including variables and Boolean • Understand and create whitespace and multi-line comments • Perform mathematical operations using python syntax	Communicate with students in your school and beyond to solve problems, debate issues, and share ideas. Analyze these perspectives, identify ethical concerns that may exist and weigh them against the benefits of innovation. Present your position online for comment globally. Identify the components of a computer (e.g. monitor, keyboard, trackpad, memory, etc.). Explain how to monitor and maintain these systems to preserve the life span, maintenance needs and recycling process for the equipment. Identify a technological system and research the source of its components. Explain the positive and negative issues with global parts and local parts. Research the issues surrounding the ownership of student created products/work including questions concerning patents, ethical and unethical labor in the United States and other countries, impact on American school systems.

Unit Strategies/Modifications:

Special Education Students:
Development of target vocabulary
Scaffolding comprehension and content-area reading
Decreasing the amount of work presented or required
Using videos, illustrations, pictures, and drawings to explain or clarify graphic organizers
Teaching key aspects of a topic. Eliminating nonessential information
Providing study guides
Allowing students to correct errors (looking for understanding)
Marking students' correct and acceptable work, not the mistakes
Allowing products (projects, timelines, demonstrations, models, drawings, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning

Modifying tests to reflect selected objectives
Using true/false, matching, or fill in the blank tests in lieu of essay tests
Reducing the number of answer choices on a multiple choice test
Allowing the use of note cards or open-book during testing
Utilizing graphic organizers
Providing visuals
Strategic grouping

Gifted Students:
Guided Reading Groups
Literature Circles
Flexible grouping in content areas
Independent projects
Differentiated product assignments
Student Choice
Multiple texts
Multiple intelligence options
Group investigation
Research
Bloom's Taxonomy - Stress higher order thinking skills
Habits of Mind
Webb's Depth of Knowledge – Emphasis on Level 3 and 4

Students at Risk of Failure:
Adjust time for completion of assignments
Allow frequent breaks
Preferential seating
Reduce/minimize distractions
Emphasize teaching (auditory, visual, auditory, tactile)
Individual/small group instruction
Emphasize critical information/key concepts
Pre-teach vocabulary
Provide visual cues
Adjust length of assignment
Break assignments into smaller units
Read directions to student
Positive reinforcement
Frequent checks for understanding
Adapt assessments

English Language Learners:
WIDA Can-Do Descriptors http://www.wida.us/standards/CAN_DOs/
Development of target vocabulary
Scaffolding comprehension, content-area reading
Decreasing the amount of work presented or required;
Using videos, illustrations, pictures, and drawings to explain or clarify.
Graphic organizers
Teaching key aspects of a topic.
Eliminating nonessential information.
Allowing students to correct errors (looking for understanding);
Marking students' correct and acceptable work, not the mistakes;

Showing products (projects, timelines, demonstrations, models, drawings, poster boards, charts, graph student's learning;

Modifying tests to reflect selected objectives;

Using true/false, matching, or fill in the blank tests in lieu of essay tests;

Reducing the number of answer choices on a multiple choice test;

Allowing the use of note cards or open-book during testing;

Collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student.