**Focus Topic:  Standard 8.1: Educational Technology**                    TSW = The Student Will

| Objective(s) | NJCCCS Alignment | Essential Questions | Understandings | Suggested Assessments & Activities |
|---|---|---|---|---|
| TSW demonstrate knowledge of a real world problem using digital tools | 8.1.8.A.1 | What specific needs does technology meet? | The use of technology and digital tools requires knowledge. | Ongoing observation & questioning during class discussions |
| TSW create a professional document (newsletter, flyer, or personalized learning plan) using advanced word processing features | 8.1.8.A.2 | How is technology used? | Media rich resources enhance creativity | Performance tasks |
| TSW develop a simulation that provides an environment to solve a real world problem | 8.1.8.A.3 | Why is safety important? | Cyber safety has an impact on society | Self-Assessment |
| TSW create a multimedia presentation including images and sounds | 8.1.8.A.3 | What purpose do digital tools serve? | Technological development creates societal/global concerns | NJ TAP IN Checklist |
| TSW graph and calculate data within a spreadsheet and present a summary of the results | 8.1.8.A.4 | What impact do global issues have on technology? | Technology impacts our lives | Projects |
| TSW create a spreadsheet to calculate, graph, and present information | 8.1.8.A.4 | What impact does technology have globally? | | Differentiated Instruction |
| TSW plan and create a simple database, define fields, input data, and produce a report using sort and query | 8.1.8.A.5 | | | Technology Integration |
| TSW select and use digital tools and digital resources to accomplish tasks and solve problems | 8.1.8.A.5 | | | |

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| TSW synthesize and publish information about a local or global issue or event | 8.1.8.B.1 | | | |
| TSW evaluate and publish information about a local/global event on a collaborative web based service (shared hosted service) | 8.1.8.B.1 | | | |
| TSW collaborate to develop and publish work that provides perspectives on a global problem for discussions with learners from other countries | 8.1.8.C.1 | | | |
| TSW engage in online discussions with other learners to understand perspectives relating to a problem or issue; propose solutions | 8.1.8.C.1 | | | |
| TSW model appropriate online behaviors relating to cyber safety, cyber bullying, cyber security, and cyber ethics | 8.1.8.D.1 | | | |
| TSW demonstrate the application of appropriate citations to digital content. | 8.1.8.D.2 | | | |
| TSW summarize the fair use and Creative Commons guidelines | 8.1.8.D.3 | | | |
| TSW compare Creative Commons guidelines to intellectual property | 8.1.8.D.3 | | | |
| TSW demonstrate how information on a controversial issue may be biased | 8.1.8.D.3 | | | |
| TSW assess the credibility and accuracy of digital content | 8.1.8.D.4 | | | |

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| TSW understand appropriate uses for social media and the negative consequences of misuse. | 8.1.8.D.5 | | | |
| TSW analyze findings using data collection technology to produce solutions for a real world problem | 8.1.8.E.1 | | | |
| TSW effectively use a variety of search tools and filters in professional public databases to find information to solve a real world problem | 8.1.8.E.1 | | | |
| TSW use electronic authoring tool (in collaboration) to evaluate and summarize a current event or contemporary figure | 8.1.8.F.1 | | | |
| TSW explore a local issue, by using digital tools to collect and analyze data to identify a solution and make an informed decision | 8.1.8.F.1 | | | |

**Focus Topic:  Standard 8.2: Technology Education, Engineering, and Design**                    TSW = The Student Will

| Objective(s) | NJCCCS Alignment | Essential Questions | Understandings | Suggested Assessment & Activities |
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| TSW understand the impact of globalization on the development of a technological system over time | 8.2.8.A.1 | How does technology impact global issues? | The design process is a systematic approach to solving problems | Ongoing observation & questioning during class discussions |
| TSW research a product that was designed for a specific demand and identify how the product has changed to meet new demands | 8.2.8.A.1 | How does recycling affect our environment and economy? | Choice of resources impacts the environment and economy | Performance tasks |

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| TSW 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 | What are the advantages and. disadvantages of technology? | Technology has an impact on our environment and economy | NJ TAP IN Checklist |
| TSW investigate a malfunction in any part of a system and identify its impacts | 8.2.8.A.3 | How does technology affect our environment and economy? | Resource selection affects the development of a product | Self-Assessment |
| TSW redesign an existing product that impacts the environment to lessen its impact(s) on the environment | 8.2.8.A.4 | | | Projects |
| TSW describe how resources (such as material, energy, information, time, tools, people, and capital) contribute to a technological product or system | 8.2.8.A.5 | | | Differentiated Instruction |
| TSW design and create a product that addresses a real world problem working with specific criteria and constraints | 8.2.8.B.1 | | | Technology Integration |
| TSW evaluate the history and impact of sustainability on the development of a designed product | 8.2.8.B.1 | | | |
| TSW present the results of sustainability development to peers | 8.2.8.B.1 | | | |
| TSW identify design constraints involved in designing a prototype by completing a design problem | 8.2.8.B.2 | | | |
| TSW report design constraint results in a multimedia presentation | 8.2.8.B.2 | | | |

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| TSW identify the desired and undesired consequences from the use of a product or system | 8.2.8.B.2 | | | |
| TSW solve a science based design challenge | 8.2.8.B.3 | | | |
| TSW build a prototype using science and math principles | 8.2.8.B.3 | | | |
| TSW research and analyze the ethical issues of a product on the environment | 8.2.8.B.3 | | | |
| TSW report environmental findings for review by peers and /or experts | | | | |
| TSW research examples of how humans can devise technologies to reduce the negative consequences of other technologies | 8.2.8.B.4 | | | |
| TSW identify new technologies resulting from the demands, values, and interests of individuals, businesses, industries and societies | 8.2.8.B.5 | | | |
| TSW compare and contrast the different types of intellectual property including copyrights, patents and trademarks | 8.2.8.B.6 | | | |
| TSW analyze the historical impact of waste and demonstrate how a product is upcycled, reused or remanufactured into a new product | 8.2.8.B.7 | | | |
| TSW explain the need for patents and the registration of a patent | 8.2.8.C.1 | | | |

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| TSW explain how different teams/groups can contribute to the overall design of a product | 8.2.8.C.1 | | | |
| TSW explain the need for optimization in a design process | 8.2.8.C.2 | | | |
| TSW compare and contrast current and past incidences of ethical and unethical use of labor in the United States | 8.2.8.C.2 | | | |
| TSW evaluate the function, value, and aesthetics of a technological product or system, from the perspective of the user and the producer | 8.2.8.C.3 | | | |
| TSW identify the steps in the design process that would be used to solve a designated problem | 8.2.8.C.4 | | | |
| TSW explain the interdependence of a subsystem that operates as part of a system | 8.2.8.C.5 | | | |
| TSW create a technical sketch of a product with materials and measurements labeled | 8.2.8.C.5 | | | |
| TSW examine a malfunctioning system and identify the step-by-step process used to troubleshoot, evaluate and test options to repair the product, presenting the better solution | 8.2.8.C.6 | | | |
| TSW collaborate with peers and experts in the field to research and develop a product using the design process, data analysis and trends | 8.2.8.C.7 | | | |

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| TSW maintain a design log with annotated sketches to record the developmental cycle. | 8.2.8.C.7 | | | |
| TSW develop a proposal for a chosen solution that include models (physical, graphical or mathematical) to communicate the solution to peers | 8.2.8.C.8 | | | |
| TSW evaluate the role of ethics and bias on trend analysis/prediction in the development of a product in the United States | 8.2.8.D.1 | | | |
| TSW design and create a product that addresses a real world problem using a design process under specific constraints | 8.2.8.D.1 | | | |
| TSW identify the design constraints and trade-offs involved in designing a prototype by completing a design problem | 8.2.8.D.2 | | | |
| TSW report results in a multimedia presentation, design portfolio or engineering notebook | 8.2.8.D.2 | | | |
| TSW 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 | | | |
| TSW research and publish the steps for using and maintaining a product or system and incorporate diagrams or images throughout to enhance user comprehension | 8.2.8.D.4 | | | |

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| Explain the impact of resource selection and the production process in the development of a common or technological product or system. | 8.2.8.D.5 | | | |
| TSW identify and explain how the resources and processes used in the production of a current technological product can be modified to have a more positive impact on the environment | 8.2.8.D.6 | | | |
| TSW work in collaboration with peers to develop a product using the design process and data analysis; record the development cycle via digital log | 8.2.8.E.1 | | | |
| TSW 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.1 | | | |
| TSW demonstrate an understanding of the relationship between hardware and software | 8.2.8.E.2 | | | |
| TSW 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 | | | |
| TSW use appropriate terms in conversation | 8.2.8.E.4 | | | |