SDST Course Overview & Planning Document

Course Name/Content Area: Grade 6 STEM
Grade: 6
Subject: STEM

Course/Content Area Description/Overview:

In this hands-on, project-based course, students will further deepen their critical skills in problem-solving, creativity, and teamwork while exploring exciting concepts in STEM. This foundational course will take students through the core principles of digital citizenship, the engineering design process, and culminate in a robotics unit that combines building, engineering, programming, and coding a robot.

Overarching Essential Questions for this Curriculum Plan:

1. How does technology influence our daily lives and shape the world around us?
2. How can the engineering design process be applied to solve real-world problems?
3. What responsibilities do we have as digital citizens in an increasingly connected world?

Major Units of Study:

1. Introduction to Digital Citizenship
2. Foundations of the Engineering Design Process
3. Robotics

In this course/content area, students will develop mastery in these areas:

	SDST Profile of a Graduate Connections	Focus Skills	Focus Concepts	Connections to Standards
	***Critical Thinking***	Analyzing complex problems Developing and testing solutions Evaluating effectiveness Generating innovative ideas Applying creativity in engineering and design	Breaking down complex problems into smaller, manageable parts to understand them better. Assessing the credibility of sources, arguments, and solutions based on evidence. Combining different ideas and solutions to create new concepts or approaches.	**STEELS Standards:** 3.5.6-8.A 3.5.6-8.B 3.5.6-8.R

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	***Communication***	Teamwork and collaboration Communicating ideas clearly Resolving conflicts Building consensus	Understanding and responding thoughtfully to others' ideas and feedback. Effectively conveying ideas and findings through verbal and visual means. Working together towards a common goal while respecting diverse perspectives.	**STEELS Standards:** 3.5.6-8.X 3.5.6-8.S

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	***Problem Solving***	Defining problems, brainstorming solutions, conducting tests, iteration Building robotic components Programming robots Debugging programs Integrating coding with engineering principles	Design Thinking: A structured approach to solving problems through empathy, ideation, prototyping, and testing. Iterative Process: Recognizing that problem-solving is often a cycle of trying, failing, and adjusting. Utilizing available resources creatively to find solutions to challenges.	**STEELS Standards:** 3.5.6-8.P 3.5.6-8.Q 3.5.6-8.K 3.5.6-8.L
	***Self-Motivated Learner***	Understanding online safety and ethics Practicing responsible use of technology	Establishing clear, achievable objectives for personal and academic growth. Evaluating and reflecting on one's own learning process and	**STEELS Standards:** 3.5.6-8.E 3.5.6-8.I

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			progress to identify areas for improvement. Being open to change and willing to adjust strategies based on new information or challenges.	
	***Global Citizen***	Respecting intellectual property Understanding the impact of technology on society Designing for a target audience	Civic Responsibility: Understanding the role of individuals in contributing to their communities and the world. Recognizing and appreciating diverse cultures and perspectives in a global context. Comprehending the	**STEELS Standards:** 3.5.6-8.H 3.5.6-8.GG

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			importance of responsible practices that support society.	