2026-2027 2nd Grade STEAM Scope and Sequence

Unit (Title)	Duration	Essential Questions	Key Learning Outcomes	Standards
Unit 1: *Coding/Programming Basics*	20-25 Days	- What is programming? - How is code a language? - Why do different coding blocks matter? - How can debugging fix errors? - How are loops like repeating patterns? -Who uses programming? -Why is it important to understand the functions of different coding blocks?	- Explain programming and its purpose - Describe code as a communication system - Sequence blocks to create functional programs - Plan programs before building - Identify and debug errors - Recognize repeated patterns and use loops to improve efficiency	**CSTA 2026** **Algorithms & Design** - E2-ALG-01 - E2-ALG-03 **Programming** - E2-PRO-04 - E2-PRO-06 - E2-PRO-07 **Systems & Security** - E2-SAS-12 **PA STEELS (Engineering & Technology)** -3.5.K-2.B -3.5.K-2.C -3.5.K-2.F -3.5.K-2.K -3.5.K-2.N -3.5.K-2.W -3.5.K-2.X -3.5.K-2.AA -3.5.K-2.DD **CEW Standards** -13.4.K-2.B -13.4.K-2.D -13.2.K-2.B -13.2.K-2.C

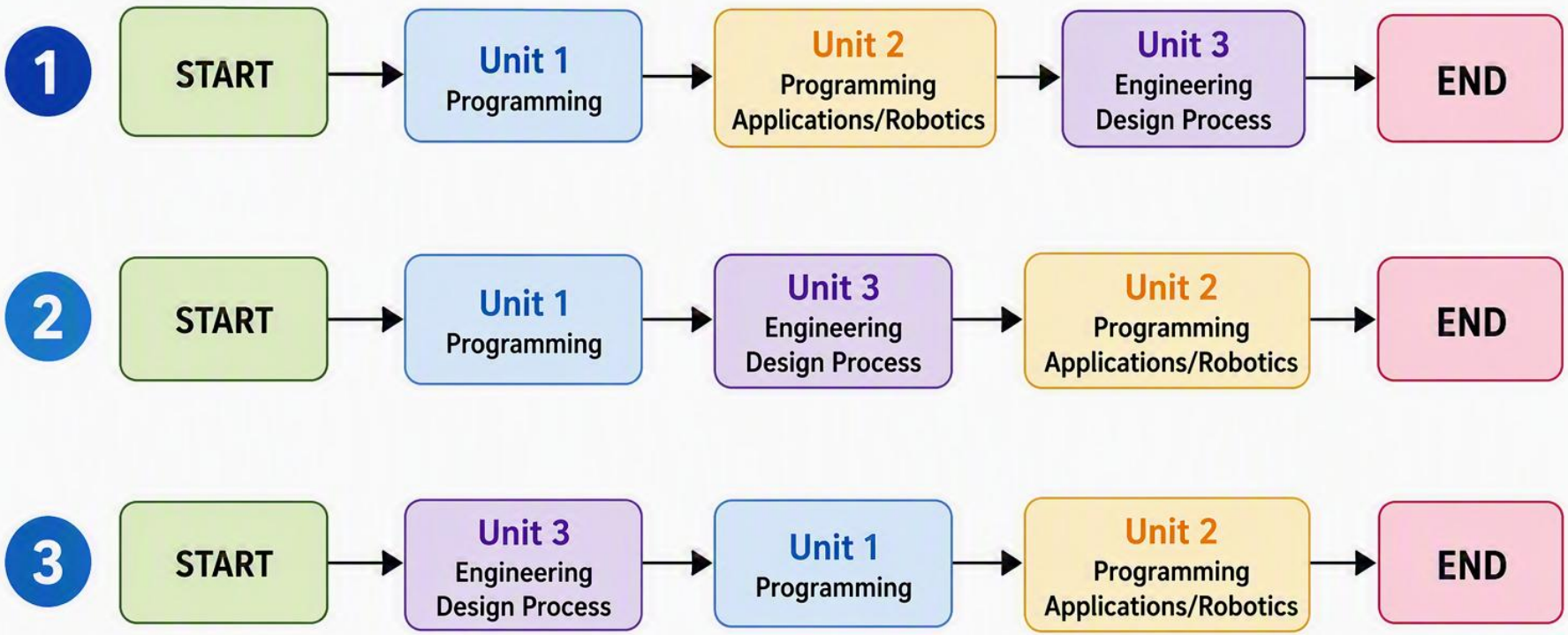
Unit 2: *Programing/Coding Application (Robotics)*	18-24 Days	- What is a robot and how does it work? - How do sensors, motors, and code work together? - How do we use programming to control movement and actions? - How do we solve problems using testing and iteration? - How can robots help people around the world? -How can loops and sequences make programming more efficient?	- Identify key robot components (motor, sensor, hub) - Explain input → process → output systems - Build a robot model using instructions - Program a robot using sequences and loops - Use sensors to control robot behavior - Test, debug, and improve robot performance - Apply computational thinking to solve real-world challenges	**CSTA 2026** **Algorithms & Design** - E2-ALG-01 **Programming** - E2-PRO-04 - E2-PRO-05 - E2-PRO-07 **Systems & Security** - E2-SAS-12 **Computing & Society** - E2-CAS-15 **PA STEELS (Engineering & Technology)** -3.5.K-2.B -3.5.K-2.C -3.5.K-2.F -3.5.K-2.K -3.5.K-2.N -3.5.K-2.W -3.5.K-2.X -3.5.K-2.AA -3.5.K-2.DD **CEW Standards** -13.4.K-2.B -13.4.K-2.D -13.2.K-2.B -13.2.K-2.C

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Unit 3: **Engineering Design Process**	18-20 Days	- How do we identify real-world problems? - Why is collaboration important in designing solutions? - Why do engineers plan before building? - How do we improve our designs? - Why is it important to share solutions? -Why is it important to edit a blueprint or prototype when it does not work the way it was intended to work?	- Identify real-world problems - Collaborate to generate multiple solutions - Justify the value of multiple solutions - Create blueprints/design plans - Select appropriate materials and tools - Build and test prototypes - Revise designs based on feedback - Share and explain solutions SWBAT explain the importance of sharing prototypes.	**PA STEELS (Engineering & Technology)** -3.5.K-2.B -3.5.K-2.C -3.5.K-2.F -3.5.K-2.K -3.5.K-2.N -3.5.K-2.W -3.5.K-2.X -3.5.K-2.AA -3.5.K-2.DD **CEW Standards** -13.1.K-2.C -13.2.K-2.A -13.3.K-2.B -13.3.K-2.C
Primary Learning Resources: **Code.org, Course C** **Scratch Jr** **LEGO SPIKE Essential** **Discovery Education** **STEAM Design Challenge Catalog**				

VALID TEACHING ORDER PATHS

(Unit 2 can never come before Unit 1)



In every path, Unit 1 (Programming) always comes before Unit 2 (Programming Applications/Robotics).