2026-2027 3rd Grade STEAM Scope and Sequence

Unit (Title)	Duration	Essential Questions	Key Learning Outcomes	Standards
Unit 1: *Computer Programming Basics*	22-26 Days	- What is programming? - How is code a language? - How does planning improve programming? - How can we anticipate and debug errors? - How do repeating patterns improve efficiency? -Why are strong passwords important? -How do we create strong passwords? -Who uses programming? -Why can programs be written using different code but still function the same way? -How do events, conditionals, while loops, and until commands create more efficient and interactive programs? -How are software, hardware, CPU, and cloud storage essential parts of computer function?	Explain programming and real-world use - Describe code as a communication system - Plan algorithms before coding - Develop programs using sequence, events, and iteration - Identify bugs prior to execution - Use loops to improve efficiency	**CSTA 2026** **Algorithms & Design** - E3-ALG-01 - E3-ALG-03 **Programming** - E3-PRO-04 - E3-PRO-05 - E3-PRO-06 - E3-PRO-07 **Systems & Security** - E3-SAS-12 **PA STEELS** 3.5.3-5.A 3.5.3-5.C 3.5.3-5.I 3.5.3-5.L 3.5.3-5.N 3.5.3-5.O 3.5.3-5.P 3.5.3-5.S 3.5.3-5.BB 3.5.3-5.HH **CEW** -13.1.3-5.D -13.2.3-5.A -13.2.3-5.D -13.3.3-5.B -13.4.3-5.A -13.4.3-5.B

Unit (Title)	Duration	Essential Questions	Key Learning Outcomes	Standards
Unit 2: *Computer Programming Application (Robotics)*	15-20 Days	- How do robots use sensors, motors, and code to function? - How do inputs and outputs work in robotic systems? - How can conditionals and loops control robot behavior? - How do we design, test, and improve robotic solutions? - How can robots solve real-world problems?	- Identify and explain robot components (hub, motors, sensors) - Model input → process → output systems - Build robot models using instructions and design modifications - Program robots using sequence, loops, and conditionals - Use sensor data to guide robot decisions (e.g., distance, color) - Debug and refine robotic programs using testing cycles - Apply robotics to solve structured challenges	**CSTA 2026** **Algorithms & Design** - E3-ALG-01 **Programming** - E3-PRO-04 - E3-PRO-05 - E3-PRO-06 - E3-PRO-07 **Systems & Security** - E3-SAS-12 **Computing & Society** - E3-CAS-16 **PA STEELS** 3.5.3-5.A 3.5.3-5.C 3.5.3-5.I 3.5.3-5.L 3.5.3-5.N 3.5.3-5.O 3.5.3-5.S 3.5.3-5.X 3.5.3-5.Y 3.5.3-5.BB 3.5.3-5.CC 3.5.3-5.HH **CEW** -13.1.3-5.D -13.2.3-5.A -13.2.3-5.C -13.3.3-5.B -13.4.3-5.A -13.4.3-5.B

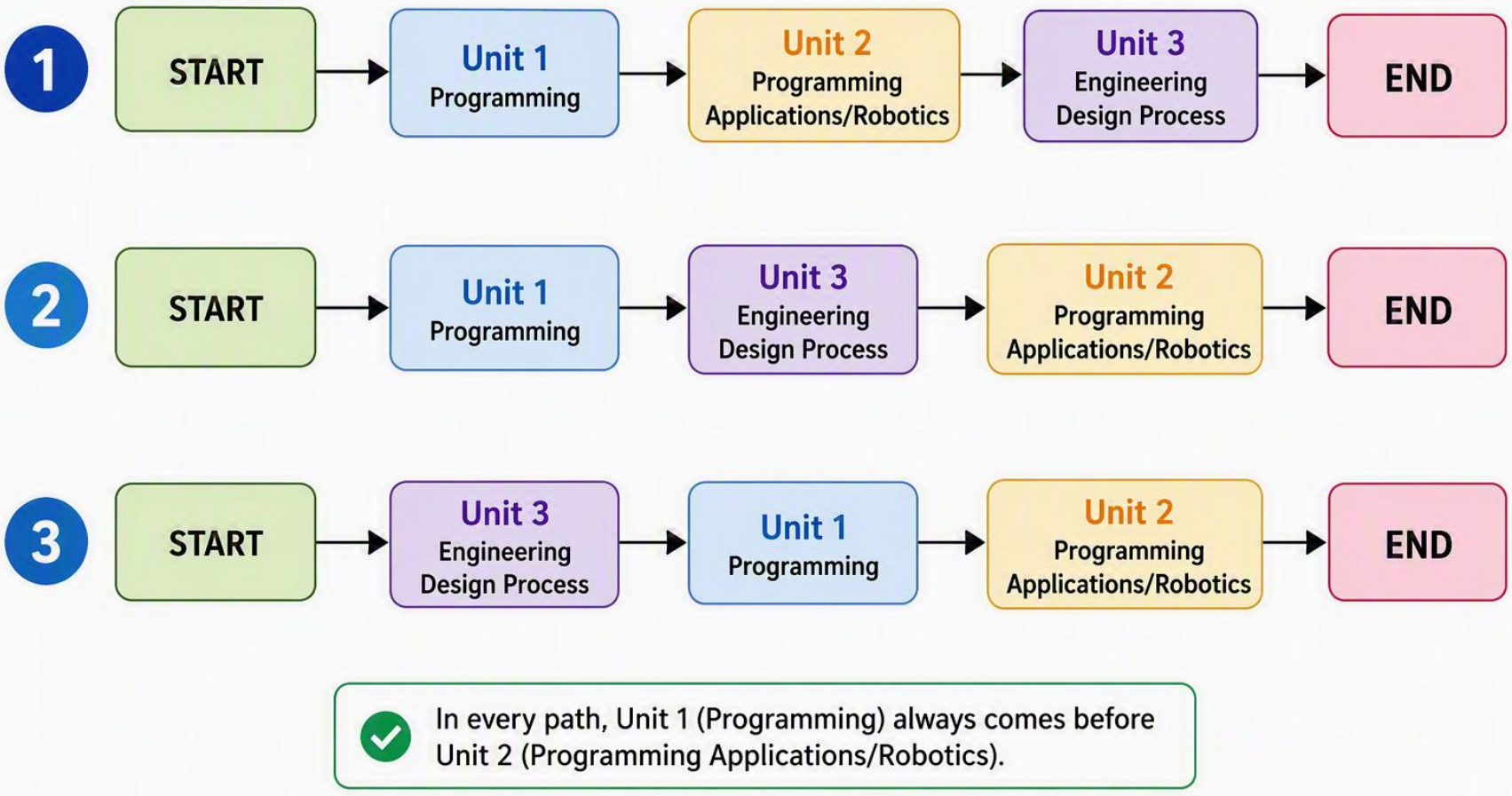
2026-2027 3rd Grade STEAM Scope and Sequence

Unit (Title)	Duration	Essential Questions	Key Learning Outcomes	Standards
Unit 3: *Engineering Design Process*	15-20 Days	- How do engineers solve real-world problems? - What is the purpose and process of the Engineering Design Process? - How do we define problems with constraints? - Why is collaboration important in engineering? - How do we design solutions that meet criteria? - How do we test and improve prototypes? - Why is it important to share and justify solutions?	- Identify problems with constraints (materials, time, cost) - Collaborate to generate multiple solutions - Design solutions that meet criteria and constraints - Develop and use blueprints for prototypes - Test and collect evidence on performance - Iterate and improve designs - Communicate and justify solutions	**PA STEELS** 3.5.3-5.A 3.5.3-5.C 3.5.3-5.I 3.5.3-5.L 3.5.3-5.M 3.5.3-5.N 3.5.3-5.O 3.5.3-5.P 3.5.3-5.Q 3.5.3-5.R 3.5.3-5.S 3.5.3-5.T 3.5.3-5.U 3.5.3-5.V 3.5.3-5.W 3.5.3-5.X 3.5.3-5.Y 3.5.3-5.BB 3.5.3-5.HH **CEW** -13.1.3-5.D -13.2.3-5.A -13.2.3-5.C -13.3.3-5.B -13.4.3-5.A -13.4.3-5.B

Primary Learning Resources:
Code.org, Course D
STEAM Design Challenge Catalog
LEGO Spike Essential
LEGO CS+AI
Finch Robot
Discovery Education

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).