

ANNUAL IMPLEMENTATION PLANS FOURTH GRADE

3-5 Engineering Design Performance Expectations

3-5 ETS1-1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time or cost.
3-5 ETS1-2	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
3-5 ETS1-3	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Science and Engineering Practices

3-5 ETS1-1	Asking Questions and Defining Problems
3-5 ETS1-2	Planning and Carrying Out Investigations
3-5 ETS1-3	Constructing Explanations and Designing Solutions

Disciplinary Core Ideas

3-5 ETS1.A	Defining and Delimiting Engineering Problems
3-5 ETS1.B	Developing Possible Solutions
3-5 ETS1.C	Optimizing the Design Solution

Crosscutting Concepts

Patterns
Cause & Effect: Mechanism & Explanation
Scale, Proportion, and Quantity
Systems & System Models
Structure & Function

Fourth Grade STEM Lessons

Minutes

Fourth Grade STEM Lessons	Minutes
MAKEY MAKEY	
Makey Makey Introduction Lesson 3-5 Basic Circuitry	60
Makey Makey 3-5 Block Coding	60-120
Makey Makey Music and Fun!	60-120
SQUISHY CIRCUITS	
Squishy Circuits Conductive Creations	60
SNAP CIRCUITS	
Snap Circuits Electric Bingo	60
Get Snapped with Snap Circuits 4	60-120
ROK BLOCKS, FOUNDATIONAL FLUENCIES, AND STEM PATHWAYS	
Introduction to ROK Block (if needed)	60
ROK Blocks Engineering Design Challenge 2	60-90
Making Things Move	180
OZOBOT	
OzoBlocky Basic Training	25-50
Basic Training Color Codes (3 lessons)	50-150
Elementary School CS with Game Design	200
LESSONS 1-4	
Clean Energy Cruise	30-45
LITTLEBITS	
Busy Bees	60
Heart Beats	60
Chain Reaction Machine	50
Morse Code Devise	45
Energy Transfer	45
Plant Adaptations	60
Fortune Teller	45
Introduction to littleBits	60
Introducing the littleBits Invention Cycle	60
Invent a Self-Driving Vehicle	60-120
Hack Your Classroom	120+

EXTRA LITTLEBITS GENERAL LESSONS	
Turning Points (3 lessons)	135
VocaBilitary (2 lessons)	50-100
Let's Make a Techno Jungle (4 lessons)	200
Aesop's Fables (3 lessons)	135
3D PRINTING	
Introduction to 3D Printing Concepts	60+
SPHERO	
Sphero Bolt Long Jump	60
Bridge Challenge	120-240
Light Painting	60-120
Tractor Pull	120-240
Hydro Hypothesis	120-240
Organ Quiz	60
Planets Quiz	120-240
Blocks 1: Intro & Loops	60-120
Maze Mayhem	60-120
Blocks 2: If/Then/Else	60-120
Blocks 3: Lights	60-120
Blocks 4: Variables	60-120
Draw 2: Spelling	60
Sphero City	240-360
Swim Meet	60
Chariot Challenge	240-360
What a Character	60-120
Avoid the Minotaur	60-120
Draw 1: Shapes	60
Draw 3: Perimeter	60-120
Area of A Rectangle	60-120
	4070-5415

**This is an estimated amount of time for these lessons, it could be more or less depending upon kids' needs. Indicates Cal Ripken, Sr. Foundation STEM Lesson. All other lessons are created by the manufacturer of these STEM products.*

Common Core State Standard Connections

ELA/Literacy-

SL.4.1 Engage effectively in a range of collaborative discussions with diverse partners on grade 4 topics.

W.4.2d Use precise language and domain specific vocabulary to inform about or explain the topic.

Math-

4.MD.2 Use the four operations to solve word problems involving,