

Course Title:	1st Grade: STEM
Grade(s):	1st Grade

Course Description
Our STEM program features a purposeful, foundational, play-based environment structured around ISTE and STEL standards. By integrating engineering and design principles with core mathematics and science concepts, we cultivate 21st-century learners. Through hands-on exploration, students develop critical fine motor skills, collaborative problem-solving abilities, and a capacity for reflective thinking. Our curriculum encourages academic risk-taking and effective communication, transforming natural curiosity into a sophisticated foundation for lifelong inquiry, innovation, and community stewardship.
Approved Curricular Materials/Textbook(s)
Code.org : Course B Bee Bots Bee Bots App Bridges in Mathematics 3rd Edition Lego Education Open Sci Ed

Unit Title	Unit Description (Include Unit Objectives)	Unit Pacing
Welcome Back to STEM	In this introductory unit, 1st graders review what STEM is, and review the routines and practices of the STEM Lab. Students have a chance to preview what will be learned in STEM for the coming year and brainstorm their hopes and dreams.	2 Sessions
Unit 1: Coding	In this unit, first graders will take their skills to the next level. Building on what they've already learned - sequencing, loops - students will tackle bigger puzzles and hands-on "unplugged" activities that bring coding to life without a screen.	6-8 Sessions
Unit 2: Robotics	First-grade engineers are exploring how technology solves problems to make life easier and safer. They will learn that robots are human-designed machines with	4 Sessions

	computers (brains), sensors (eyes), and actuators (muscles) that perform specific jobs in places like factories or outer space. During the unit, students will even design a robot of their own. Using Bee-Bots, students will dive into coding by writing algorithms—sets of instructions—to make their robots move, trace numbers, and "dance". Working in teams, children will practice debugging to troubleshoot and fix errors, ensuring their robots follow their code perfectly.	
Unit 3: Engineering & Design	In this unit, students explore engineering and discover how engineers solve problems in their communities. Our young learners will practice thinking like experts by following the Engineering Design Process: Ask, Imagine, Plan, Create, and Improve. After discovering different types of engineering jobs—from building bridges to designing rocket ships—students will gather everyday supplies, like cardboard and yarn, to plan and build their own prototypes.	2 Sessions
Unit 4: Science - Light & Sound Communication	In this unit, students become young inventors! They'll discover how vibrations create sound and how light can brighten a room or bounce off mirrors. After exploring these "invisible powers," students will design and build their own creative gadgets to send secret messages across a distance using beams of light and pulses of sound.	2 Sessions
Unit 5: Science - Day & Night Patterns	In this unit, students become astronomers as they track the predictable rhythms of the Sun, Moon, and stars! By observing how shadows stretch and shrink throughout the day and shift with the seasons, students will uncover the Sun's daily habits. The exploration continues after dark as students record the changing shapes of the Moon to discover its monthly cycle. They will also solve the mystery of why the stars "disappear" during the day and only twinkle at night. Together, we will learn that while the sky is always changing, it follows a beautiful, steady pattern we can rely on.	2 Sessions
Unit 6: Plant & Animal Traits & Survival	In this unit, students become nature detectives to discover how plants and animals grow, survive, and pass on their traits! By observing animal families, students will see how babies look like their parents and identify the clever	2 Sessions

	behaviors—like bird calls or nesting—that help offspring stay safe. Students will also dig into the world of plants, exploring how roots, stems, and flowers help them thrive. Just like animals, young plants often resemble their "parents," and students will investigate how these shared traits are the secret to survival for every living thing on Earth.	
Unit 7: Measurement & Data With Paper Gliders	In this unit, students become mini-engineers! After folding and flying their own paper gliders, they use "cube trains" to measure how far they fly and record the results on a class tally chart. The real fun begins when students tweak their designs—adjusting wings or weight—to see if they can break their own distance records in a second round of flight tests!	2 Sessions