

Course Title:	2nd Grade: STEM
Grade(s):	2nd 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 C Lego Education Bridges in Mathematics 3rd Edition Open Sci Ed

Unit Title	Unit Description (Include Unit Objectives)	Unit Pacing
Welcome Back to STEM	In this introductory unit, 2nd 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 for the coming school year.	2 Sessions
Unit 1: Coding	In this unit second grade students dive deeper into the world of technology by building more complex "recipes" for their favorite programs. Throughout this adventure, your child will learn to code like a pro using loops to repeat actions and events to make things happen with a click, all while becoming expert puzzle solvers as they "debug" and fix mistakes. Second graders will use their new skills to design and build their own interactive game to play.	8-10 Sessions

Unit 2: Robotics	In this unit, students become young engineers and scientists by building and coding interactive LEGO models using Spike Essential and WeDo 2.0 kits. Working in small groups or with partners, they bring creations like amusement park rides, glowing snails, and science rovers to life using iPads. Along the way, they develop critical thinking and problem-solving skills as they troubleshoot their own code and explore how real-world technology, like motion sensors and satellites, helps us discover the world around us.	5-6 Sessions
Unit 3: Engineering & Design	In this unit, 2nd graders dive into the world of STEM to learn how engineers solve problems and improve technology. Students will practice the Engineering Design Process: Ask, Imagine, Plan, Create, and Improve. Young engineers will explore how everyday objects solve problems by studying their structure (parts) and function (purpose). To conclude the unit, students will step into the role of architects to design floor plans and collaborate to build models.	2-4 Sessions
Unit 4: Science - Animals: Who Lives Where and Why?	In this unit, students become wildlife explorers to discover the amazing variety of animals and where they live! Your child will learn how to group animals by their unique traits and explore how a habitat's food, water, and shelter support different creatures.	2 Sessions
Unit 5: Science - How Plants Grow & Change	In this unit, students become nature inventors to discover how plants find the perfect place to grow! By building their own seed models, your child will explore the clever ways plants "hitchhike" or fly to new soil. Through hands-on experiments, we'll uncover the secret ingredients—like just the right amount of water and light—that help a tiny seed transform into a strong, healthy plant.	2 Sessions
Unit 6: Science - Sculpting the Earth	In this unit, students become Earth explorers to discover how maps, mountains, and oceans tell our planet's story. Children will see how flowing water acts like a sculptor—slowly carving giant rocks into the tiny grains of sand we find at the beach. They'll also investigate how land can change slowly over years or quickly during a landslide, then step into the role of engineers to design clever ways to protect our soil from washing away.	2 Sessions
Unit 7: Science - Properties of Materials	In this unit, students become "Material Masters" to discover why certain things are made of wood, metal, or fabric! Your child will explore the "superpowers" of different materials—like how hard, stretchy, or soakable they are—to decide	2 Sessions

	which ones make the best clothes, kitchen tools, and sturdy buildings. They'll even practice being architects by building and rebuilding structures, learning how the same set of pieces can be taken apart and transformed into something completely new.	
Unit 8: Science - Matter	In this unit, students become scientists to discover the "shape-shifting" powers of the world around them. Your child will explore how water travels across our planet and how it can transform into solid ice. By experimenting with heating and cooling, they'll investigate which changes can be "undone"—like melting an ice cube back into water—and which ones are permanent, like cooking an egg.	2 sessions