

Codey Rocky Curriculum Sample Packet

Curriculum Overview

An Integrative CS/STEAM lab course for Science, Technology, Engineering, Math, Computer Science, ELA, and Arts.

Grades: 3 to 6

Ages: 8 to 12

Level: Introductory

For Product: MakeBlock Codey-Rocky Robot

Number of Lessons: 14

Length of Lessons: 55 min to 2 hours (with 15 to 20 minute activities)

Course Length: 18 to 24 Days of 55 min each

This is a wonderful CS/STEM lab course for integrating CS-K12 coding and NGSS engineering design into the K-5 classroom or can be adapted for after school programs, clubs, or camps. It works well with Space themed programs as students model a Mission to Mars and turn Codey into a rocket, spaceship, and rover. They create a mission plan and a countdown sequence, then launch, travel to Mars, orbit the planet, land on Mars, communicate back to Earth, avoid obstacles, roam the planet, search for minerals, and help build a Mars base. Wow! That's one multifunctional robot!

The curriculum includes learning new vocabulary, working with components, creating and debugging programs, and operating the robot to accomplish a challenge. Programs are created on Tablets or ChromeBooks and are easily downloaded to the robots via Bluetooth connection. Students learn Scratch coding with lesson activities aligned to CSTA standards for Grades 3-5. Lessons are scaffolded from easy to intermediate to difficult accompanied by Slide Decks that include coding challenges followed by answer keys.

Students follow the NGSS Engineering Process: Ask, Imagine, Plan, Create, and Improve. This engineering process provides a cornerstone for critical thinking and problem solving. By teaching students to use this process, they develop habits that lead to critical 21st century skills. During this process, students may struggle and fail, but that's okay! Mistakes are lessons and aid in the learning process. This is based on educational research on how people learn, and how engineers think.

Most lessons are designed to last from 60 to 120 minutes (with 1 to 4 class sessions) and can be varied based on time available and student interest. Activities are typically 10 to 20 minutes. Use the provided Lesson Sequence, look at the time required for each, and add your dates in for the days you will teach those lessons. Remember to leave time for some fun games at the end!

Students will take a journey to Mars! Have fun and learn about the engineering process with these fun hands-on activities. Write a Mission Plan, test operations of the robot, learn to code, and program Codey Rocky to get to Mars. These lessons are primarily about coding and learning the engineering process within a space adventures theme. Art activities and videos are included to add additional interest.