LEGO® Galaxy Robotic Lab

California Standards Alignment (Grades 5-8)

This program aligns with both California Common Core (CCSS) and Next Generation Science Standards (NGSS).

Key Learning Outcomes

Students will leave understanding:

- Basic coding logic (sequencing, commands, variables)

- How robots use motors and sensors

- Real-world applications of robotics in space exploration

- Collaboration and problem-solving strategies

	Crosscutting Concepts	Standards Addressed		
NGSS Engineering Design *(Primary Focus)*	Students design, test, and refine robot programs to complete missions, adjusting variables like speed, distance, and direction.	MS-ETS1-1: Define design problems with criteria and constraints	MS-ETS1-2: Evaluate competing design solutions	MS-ETS1-3: Analyze data to improve designs
NGSS Physical Science, Earth & Space Science	Students observe how motor power, speed, and rotation impact robot movement. Students learn about galaxies, exoplanets, and space exploration concepts tied to mission scenarios.	MS-PS2-2: Plan investigations involving forces and motion	MS-ESS1-2: Develop models to describe objects in the solar system and beyond	5-ESS1-1: Support arguments about stars and galaxies
CCSS Speaking & Listening	Students collaborate in pairs, discuss strategies, and communicate solutions.	CCSS.ELA-LITERACY.SL.5.1 / SL.6.1 / SL.7.1 / SL.8.1 Engage effectively in collaborative discussions	CCSS.ELA-LITERACY.SL.5.4 Report on a topic using appropriate facts and details	
CCSS Mathematics *(Applied Concepts)*	Students apply measurement, distance, and proportional reasoning when programming robot movement (e.g., rotations → distance).	CCSS.MATH.PRACTICE.MP1: Make sense of problems and persevere	CCSS.MATH.PRACTICE.MP4: Model with mathematics	
CCSS Technology & Engineering	*(CTE Alignment – California Framework)* Introduction to computer science concepts. Computational thinking. Real-world STEM applications.			

LEGOLAND California – Galaxy Robotic Lab