

2026-2027 SCHOOL YEAR

SCIENCE & ENGINEERING

COMPUTER SCIENCE & ROBOTICS

3rd/ 4th	2026-2027		2026-2027	
	Physical Science	SPORTS COLLISIONS Contact Forces and Energy Transfer Students investigate how everyday activities such as sports or riding a bike, can lead to head injuries because of the rapid energy transfer involved in contact collisions. Students design and test how different materials and helmet designs absorb and dissipate energy and use their findings to design prototypes of a new helmet design. • Speed and energy • Contact forces • Energy Transfer	Robotics	LEGO ROBOTICS Motors, Speed, and Motion Students program robots, focusing on complex algorithms to solve problems involving movement and transportation. They master control over motor speeds and rotations and use conditionals to determine their robot's actions. Students design code using sequences and loops to control movement and timing, display light and color outputs, and apply debugging to improve program efficiency using text-based blocks. • Complex sequences and loops • Motor speed, rotation, and timing • Conditionals and displaying colors (Input/Output) • Decomposing problems
	Earth Science	SNOWED-IN Weather, Climate, and Geography Students examine how blizzards and heavy snowfall in Colorado can affect transportation, power, communication, and safety for residents in various areas around the state. They define how these problems impact people differently, depending on their needs and the areas they live, and utilize the engineering design process to develop or improve upon an existing technology to help Colorado residents. • Weather conditions • Regional climates • Impacts of weather-related hazards	Game Design	WORLD BUILDING Designing Game Scenes Students focus on scene design and content creation within the virtual environment. They learn to master the scene editor tools, including the object Inspector to add objects, select environments, and manually assign and change animations and materials. Students focus on the non-coding aspects of design and explore how their aesthetic choices and scene configuration impact the overall storytelling of their virtual world. • Scene design • Manual animation and material changes • Object manipulation (Size, position)

				• Storytelling through visual design • Editor tools
	Physical Science	TO CATCH A THIEF Sound, Light, Heat, and Currents Students investigate the physics of waves—including light, sound, and electric currents—to solve the challenge of museum security. They engage in a series of design projects to create a complete, multi-modal defense system to guard valuable art. Students engineer subsystems like a light tripwire concealed by reflection, design a coded alarm sequence, and build a basic circuit to successfully detect a perimeter breach and instantly transmit an alert. • Sound, light, and heat • Electric currents • Waves • Coded information	Game Design	CORE CODING Events, Collisions, and Movement Students transition into core coding by adding game logic to their scenes. They learn to programmatically add interactivity by making objects clickable and writing code that triggers events. Students create playable levels with obstacles by programming movement and detecting object collisions. Students use loops to create repeating obstacle movement and dynamically change animations and display custom text based on user input. • Game logic and level design • Clickable objects • Collision detection • Loops • Dynamic animations and text display
	Life Science	DAMS AND WATER LOCKS Life Cycles & Ecosystem Engineering Students investigate how dams and water locks affect the life cycle of fish and their ability to lay eggs in natal streams. They examine ways fish hatcheries support fish through each stage of their life and study existing solutions, such as the remote controlled fish doorbell. Students are guided through parts of a multi-step solution aimed to address the ecosystem impacts of dams and water locks: migration (circuitry and sensors), water quality (filtration), and temperature management (fluid dynamics). • Life cycles • Habitats • Environmental changes • Survival and reproduction	Physical Computing	MICRO:BIT MAKER Physical Computing & Sensor Input Students are introduced to physical computing by learning to program the micro:bit device in a block-based environment. They focus on how code interacts with hardware, controlling the onboard LED matrix and responding to physical sensor input like buttons and accelerometer data. Students practice sequencing and event-driven programming to create practical, real-world projects that reinforce computational thinking concepts. • Programming hardware • Micro:bit and LED matrix control • Sensor Input • Sequencing and event-driven programming • Creating simple, real-world devices

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3rd/ 4th	Physical Science	NON-FRICTION Force, Motion, and Technology Students explore various ways that contact forces cause problems– such as the energy needed to combat friction, and how tiny technologies can be damaged when physically touched. Students learn about innovations that use electric and magnetic forces in place of contact forces (e.g. maglev trains) and experiment with possible future innovations of this technology. • Electric and magnetic forces • Scientific ideas about magnets • Motion	STORY STUDIO AI Literacy Students use generative AI tools to create narratives and design sequels to their favorite stories. They learn to harness AI to generate story ideas and bring narratives to life in immersive VR spaces. The unit covers the history and growth of AI, addressing safety and simple ethics when using AI tools. By building and interacting with AI-generated characters, students learn to be thoughtful and responsible users of this transformative technology. • Generative AI • VR Storytelling • AI history • Responsible technology use
	Life Science	MYSTERY SPECIES Animal Structures Students explore the mystery of how unknown species from around the world are related when genetic data is missing. They apply the method of comparative anatomy—just like real taxonomists—to conduct a detailed analysis of organisms based on their physical traits. Students learn to use evidence to make claims about classifying newly discovered or rarely studied creatures, especially those from deep oceans or remote jungles. • Inherited and developed traits	LEGO ROBOTICS Sensor Coding Students program complex solutions for automating tedious tasks like trash collection. They focus on programming motors, lights, and color sensors and use sequences and loops to make their robot react to specific inputs. They decompose problems, debug code, and use graph points (x- and y-axis) to map and analyze the robot's physical path and program efficiency using text-based blocks. • Programming motors and sensors (Light, Color) • Text-based block coding

		• Fossils • Survival advantage • Internal and external structures • Animal senses		• Conditional actions based on sensor input • Decomposing and debugging programs • Using coordinates
	Environmental Science	ELECTRIC VEHICLES Renewable and Nonrenewable Energy Students investigate energy and fuels to design cars of the future. They create a concept Electric Vehicle (EV) that is fast, efficient, and clean. Students learn about the link between design choices and natural resources, focusing on how to minimize the environmental impact by using clean energy and finding sustainable materials. • Energy and fuels • Natural resources • Environmental impact	Game Design	BASICS OF GAME DESIGN Sprite Lab Students explore basic concepts of game design, including defining rules, setting scoring, and determining winning conditions. They learn to program characters using conditional logic to respond to user input and collisions. Students apply these concepts to ultimately complete a game prototype within the visual coding tools. • Game design basics (rules, scoring) • Conditional logic and input • Object interaction and response • Game prototype creation
	Earth Science	BREAKING GROUND Geotechnical Engineering Students apply foundational concepts of urban planning, geology, and geotechnical engineering in order to analyze a plot of land with scaffolded maps and resources. They investigate how the landscape has changed over time and study possible hazards. Students create plans to decide how the land could be used, considering the landscape and various geologic and environmental factors. • Rock formations • Weathering and erosion • Maps and data • Impact of natural processes	Robotics	INTRO TO LEGO LEAGUE Robotics and Advanced Programming Students expand robotics skills through guided practice with competition-style missions. In teams, students code complex autonomous systems with sophisticated sensor logic for precise navigation with differentiated support. Students practice computational thinking and the engineering design process to systematically test, debug, and refine algorithms to develop robust and efficient robotic solutions. • Autonomous programming • Sensor logic • Algorithmic refinement • Design process