Use this resource guide to find LEGO® Education professional development opportunities relevant to each learning module of Build to Launch

The Professional Development resources below feature videos of real teachers and students learning with different LEGO® Education solutions and using the engineering design process. The teaching competencies and student learning in them are transferrable to elementary or middle-school classrooms using hands-on materials and open-ended projects like Build to Launch, with or without LEGO® Education products.

Module 1: Getting to Space		
Build to Launch	LEGO® Education Professional Development Platform	
Mission: Key Skills/Concepts	**Suggested Resource(s)**	**Ways to Use**
Briefing • Write Clear Directions • Algorithmic Thinking	Computational Thinking in LEGO® Education SPIKE™ Essential Lessons	Support students by connecting clear directions to the algorithmic thinking required in programming. Use LEGO® Education SPIKE™ Essential Lessons (with or without the product) to share examples of algorithmic thinking and sequences.
Operation Autopilot • Engineering Design Process	**Learning Quest:** Facilitating Engineering Design (modeled with elementary or middle school students) Also see Module 2: The Path to the Pad to support science learning and documenting design thinking and processes.	Learn strategies to: • guide students through the engineering design process as they build, test, and iterate an Autonomous Vehicle prototype.
STEAM Work is Teamwork • Collaboration and Teamwork	**Learning Burst:** Common Obstacles to Collaboration **Learning Quest:** Facilitating Collaboration and Teamwork *Also see Module 2: Take Aim to support solution diversity and design iteration.*	Learn strategies to: • encourage positive, purposeful collaboration, and teamwork as students create a Space Launch System prototype.

Module 2: Testing & Transport		
Build to Launch	LEGO® Education Professional Development Platform	
Mission: Key Skills/Concepts	**Suggested Resource(s)**	**How to Use**
Briefing • Test Design Ideas	Computational Thinking in LEGO® Education SPIKE™ Essential Lessons *Also see Module 1: Operation Autopilot to support the engineering design process.*	Extend students' learning by connecting the role of evaluating and debugging when testing programming ideas. Use LEGO® Education SPIKE™ Essential Lessons (with or without the product) to share examples of evaluating and debugging.
Building a Bullseye • Solution Diversity • Design Iteration	**Learning Burst:** Generating Multiple Ideas Learning through Iteration	Learn strategies to help students: • support students in generating diverse solutions to the open-ended engineering design challenge in Building a Bullseye.

		• refine their ideas as they test and iterate a tool during this mission.
The Path to the Pad • Design Iteration • Structure and Function	**Learning Burst:** Supporting Students in Documenting their Design Process **Learning Quest:** Facilitating Science Learning (modeled with elementary or middle school students) *Also see Module 1: Operation Autopilot to support the engineering design process.*	Learn strategies to: • guide students in effectively documenting their design thinking and process while developing and sharing The Path to the Pad. • help students approach the world through the lens of science, developing sound experimental practices that connect their activities to the scientific concepts in this mission.

Module 3: Working in Space		
Build to Launch	LEGO® Education Professional Development Platform	
Mission: Key Skills/Concepts	**Suggested Resource(s)**	**How to Use**
Briefing • Problems and Solutions	**Learning Quest:** Facilitating Creative and Critical Thinking (modeled with elementary or middle school students)	Learn hands-on strategies to help your students think creatively to generate ideas and then critically analyze their thinking about barriers to working in space.
Staying Safe in Space • Constraints and Criteria • Cause and Effect	**Learning Quest:** Facilitating Engineering Design (modeled with elementary or middle school students) **Learning Burst:** Guiding Students to Observe and Describe (elementary students) Guiding Students to Explain and Communicate (middle school) *Also see resources for Module 3 Briefing to support critical thinking*	Learn strategies to: • guide students through the engineering design process, including defining and responding to constraints and criteria for a Staying Safe in Space. • help students develop science vocabulary so they can observe, describe, explain, and communicate space hazards clearly and precisely.
The Right Tool for the Job • Compare and Contrast • Problems and Solutions • Engineering Design Process	**Learning Quest:** Facilitating Creative and Critical Thinking (modeled with elementary or middle school students) **Learning Burst:** Listening and Questioning Skills *Also see resources for Module 1: Operation Autopilot to support the engineering design process.*	Learn strategies to help your students: • think creatively to generate ideas for space tools and then critically analyze those ideas to make them actionable. • develop listening and questioning skills that support them in investigating tools to solve specific problems in space

Additional Professional Development Resources		
Build to Launch	LEGO® Education Professional Development Platform	
Connect to the Missions	**Suggested Resource(s)**	**How to Use**
Brief students on the mission **and** Explain the mission to students	**Learning Burst:** Framing a Learning Purpose	Learn strategies to frame the purpose of lessons, maximizing learning and engagement by clearly sharing what students are expected to learn and do.

Differentiation for All Learners	**Learning Burst:** Differentiating Learning Experiences	Learn strategies to treat your class as a collection of individuals and create effective learning experiences that meet each individual student's needs.
Additional Inspiration Lessons	**Product Support:** LEGO® Education BricQ Motion Essential LEGO® Education BricQ Motion Prime LEGO® Education SPIKE™ Essential LEGO® Education SPIKE™ Prime	Access self-guided functional product support, preparation help, and guided lessons.
Throughout missions **and** Countdown to Launch	**Learning Burst:** Implementing Productive Hands-On Learning Ensuring Equitable Student Participation Providing Effective Feedback Encouraging Play and Productive Experimentation (modeled with elementary or middle school students) **Learning Quest:** Using Formative Assessment Managing Small Group Work	Learn strategies to: • implement norms, routines, and procedures that support successful and productive hands-on learning. • elicit information, structure activities, and facilitate interactions so that each student can participate actively and equitably. • maximize the impact of your formative assessment through effective feedback. • create a classroom atmosphere that encourages playful learning, purposeful experimentation, and innovative solutions. • manage and monitor small group work for full participation and student success.

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