Blended Learning with LEGO® Education

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5 IDEAS...

...and examples for Blended Learning Using the 5E Model

What is "blended learning?"

Blended learning combines in-person instruction with asynchronous learning that takes place outside of the classroom before and after in-person sessions. This instructional model provides flexibility in lesson delivery with differentiated instruction and pacing. It promotes equity of access by keeping the hands-on portion of each lesson in-person.

Blended Learning and the 5E Model

The 5E instructional model (*Engage, Explore, Explain, Elaborate, Evaluate*) lends itself to implementation in a blended learning environment because some stages of the model work best in an in-person setting, while others can easily be accomplished asynchronously. LEGO® lesson plans follow the 5E model, making it easy to quickly transition to a blended learning format. Follow these tips to prepare any LEGO Education lesson for a blended learning situation.

LEARNING STAGE	LESSON IDEAS	EXAMPLES
1 **Engage:** Asynchronous Pique your students' curiosity about the project, and tap into their prior knowledge and conceptions.	With LEGO Education's in-app and online lessons, students can get a head start at home. • Prepare your students to collaborate and build with confidence in your classroom, making the most of your in-person time together. • Use the "Ignite a Discussion" content in the LEGO Education lesson plan to pique your students' interest and tap into their existing knowledge.	• Ask your students to respond to prompts in online discussion forums, personal blogs or journals, or via direct messages to you. • Give your students options for at-home learning (e.g., watching a video, listening to a recorded lecture, reading an article, or participating in an online interactive demonstration). • Ask your students to preview the lesson's building and coding tips to save time later on. If they're writing their own code, have them complete their first draft before you meet face-to-face. • Maintain a file storage system where students can easily upload the code they've written at home to use on school computers in your classroom. • Encourage your students to brainstorm multiple creative solutions to the design challenge. Remind them that there can be a variety of successful designs in STEAM projects.

LEARNING STAGE	LESSON IDEAS	EXAMPLES
2 **Explore**: In person Have students work with a partner or small group. Students build, write and test code in a classroom setting.	Educators always wish they had more time to do things with their students. • Optimize in-person class time for students to create, collaborate, problem solve, experiment as they build and iterate on designs.	• Focus on hands-on troubleshooting and design analysis – what's working, what isn't working, and what could be changed to make it work better? • Have your students use photos and videos to capture their in-person explorations for later use in documenting and presenting their projects.
3 **Explain**: In person Have students demonstrate their current understanding of the concepts at hand while you provide feedback encouraging collaboration and problem-solving.	• Use group discussions and hands-on demonstrations to give your students the opportunity to showcase their current knowledge and ask for clarification. • Look for ways to trigger reflection and nurture critical thinking. • Elicit and answer questions.	• Check for student understanding by having each group demonstrate and explain how their device works. • Answer your students' questions and directly address misconceptions to develop a deeper understanding of the concept at hand. • Create a plan to foster peer feedback. • Model and have your students demonstrate their best coding and building techniques to help students who are struggling. • Ask your students to modify their designs and explore variations that can solve the challenge in unique and unexpected ways (this is a prelude to the *Elaborate* phase of the 5E model).

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LEARNING STAGE	💡 LESSON IDEAS	👥 EXAMPLES
4 **Elaborate**: Asynchronous Challenge and deepen students' learning through new experiences.	• After your students have worked through their projects in a classroom setting, ask them to take time at home to reflect on their work and synthesize it into a coherent presentation. • Pose new ideas or steps for students to go beyond the basic project and creatively explore new ideas	• Encourage your students to use a variety of online tools to collaborate remotely on a shared project presentation to showcase their knowledge. • Give your students options for showcasing their academic strengths and demonstrating content mastery (e.g., submitting a written assignment, recording an oral report, drawing an explanatory comic strip, making a stop-motion video). • Challenge your students to go beyond the basic project and imagine/explore advanced possibilities for design and program modifications. • Consider utilizing the "Extensions" content in the online LEGO® Education lesson plans to incorporate interdisciplinary academic work and go deeper into specific topics.
5 **Evaluate**: Asynchronous Assess students' understanding and achievement of the learning goals, and provide feedback on their work.	• Facilitate an online showcase of your students' work. • Encourage effective peer critiques. • Streamline your assessment process.	• Focus on formative assessment practices that develop throughout a project, rather than relying on a final summative assessment. • Host an online gallery or slideshow where students can upload their final presentations and participate in a virtual "gallery walk." Be sure to monitor and moderate the comments. • Advise students on how to give and receive constructive peer feedback that's direct, useful, and respectful. • Suggest students complete a self-assessment to build student agency and independence. • Check out the "Assessment Opportunities" in the online LEGO® Education lesson plans for guidance on developing assessment tools and rubrics.