

# Building Real-World Connections In Middle School

Caroline Hanson is building lessons for her middle school students that grow with her students as they learn. According to Caroline Hanson, students love the **open-ended learning and that there isn't just one way to solve problems with LEGO® Education** products. Because of this, there is less pressure for them to get the "right" answer, leaving more room for experimentation, creativity and differentiation. Using this pedagogy, Caroline Hanson creates lessons that inspire investigation and real-world understanding.

Her 6th grade students learn how to make robots complete mazes and create choreographed dances. These challenges leave space for variance—that is, Hanson can require the dance be a certain length or involve sounds or decorations, or she can specify the number of blocks or sensors required for a maze. The possibilities are virtually endless and keep the learning fresh and **engaging for her students as they prototype, modify and continue to build on the concepts they have learned.**

In 7th grade, Hanson brings real-world connections into the classroom by incorporating real-world problems and interdisciplinary tie-ins. For instance, she teaches lessons around space exploration and problems current scientists and engineers are facing. She does this through the EV3 Space Challenges that **emphasize the power of problem solving in challenging environments.** In 8th grade, the EV3 Design Engineering Projects help her teach gear ratio, which she ties into **autonomous vehicles** and the future of self-driving cars.

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**Caroline Hanson**

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**Using math and science, she can reinforce these lessons and relate them back to her students' core classes.** "Applying the concepts they learn through their core classes builds that sense of relevance, which is so important for students," she says. "They get to use and see the concepts outside of a controlled experiment or a piece of paper."

Hanson has seen her students congratulate each other on successful outcomes, or even put in self-directed work. One student decided to build a robotic chairlift. "He spent hours in class and was not quite finished on the last day of class, so he came in during the teacher work day to perfect his project, spending many extra hours getting to his goal and feeling good about it all," she says.

Engagement enables students to build the skills needed to get ready for high school and beyond, such as **teamwork, collaboration, self-awareness and self-confidence.** "Different strengths emerge in robotics," she says, "And students have a chance to shine apart from their

academic work." They learn about themselves and their learning style, and they are motivated to fix their mistakes. She adds, **"Even failure with a robot can be engaging."**

Even as her students continue to grow and develop through robotics, Hanson is building her skills through LEGO Education. "I like that I have not come close to learning all of the capabilities, so I am constantly building my own professional tools and knowledge as I find new ways to interact with the students and get them to try new challenges."

