Design Thinking In Progress!

From Clubs to the Classroom and Everywhere in Between

Have you heard the news? Design thinking is appearing all over Benchmark! Although design thinking had been introduced to our students over the past few years, this year it has become a focus of our professional development and programming. Last summer the entire faculty read John Spencer and A.J. Juliani's book, LAUNCH: Using Design Thinking to Boost Creativity and Bring Out the Maker in Every Student. The book was brought to life on the very first day of school in September when the faculty participated in a professional development workshop led by one of the book's authors John Spencer. In February, the faculty continued to learn from the creators of the LAUNCH Cycle with a second professional development workshop led by A.J. Juliani.

You may be asking: what exactly is *design thinking*? According to A.J. Juliani, it is the process that "provides a way to think about creative work [and] starts with empathy working to really understand the problems people are facing before attempting to come up with ideas and create solutions." In other words, it is a process that involves a step-by-step way to learn, to experiment, to create, and to solve problems in any area of challenge. Though this exact process can vary depending on the model or framework, Juliani and Spencer's LAUNCH Cycle steps are: **(L)** Look, Listen, and Learn, **(A)** Ask Tons of Questions, **(U)** Understanding the Process or Problem, **(N)** Navigate Ideas, **(C)** Create a Prototype, and **(H)** Highlight and Fix.

Design thinking is based on project- and inquiry-based learning that encourages student curiosity, problem solving, creativity, and risktaking. At Benchmark, it began a few years ago with the introduction of the Robotics and Genius Clubs. There students began working with materials, were given opportunities to tinker, and challenges to complete, practicing the kinds of project- and inquiry-based learning that can give them new strategies to incorporate into their classroom experiences. With goals to wonder, create, code, problem-solve, iterate, be resilient, and have fun doing it, the students in these clubs have tapped into the new world of hands-on learning.

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-Dianne Cooney, Math Teacher

In Robotics Club, older students are engaged in uniquely assembling and programming Lego Mindstorm EV3 robots to complete tasks, while younger students complete tasks with Dash and Dot robots. "Students have to discover how to code for movement and for the use of sensors to follow a line, avoid obstacles, and respond to sound," said Math Teacher and Robotics Club Advisor Dianne Cooney.

In Genius Club, sometimes students participate in open-ended activities that allow opportunities to tinker, explore and manipulate a variety of materials to make their own creations such as a miniature playground or a marble maze. Other times, students are given challenges to complete where the end goal is the same but the means of achieving it are open-ended. For instance, they may create a prototype of a transport mechanism that would safely move people from a mountaintop to a valley.

In Robotics and Genius Clubs, we are noticing that students are not only learning to tackle problems in innovative ways, they are demonstrating positive outcomes within themselves. "Because much of what they work on is driven by their own interest and curiosity, students are highly engaged and guite persistent," Dianne said. "We also see enthusiasm. creativity, problem solving around glitches, resilience, and a sense of satisfaction when a robot does what it is supposed to do. It's also great to see such a sense of ownership that 'I designed this and I determined what it would do." In addition, students have been practicing their listening skills and collaboration, which "can be particularly difficult when two people

do not have the same ideas about how to go about something," Dianne said. "It has been exciting to watch students begin to share freely what they discover with their friends—much like open sourcing ideas and information."

The encouraging outcomes prompted by students' participation in these clubs has encouraged faculty to initiate similar design thinking challenges for students in the classroom—getting them to think outside of the box—and the feedback continues to be positive.

Design thinking and projectbased learning will assuredly become a future hallmark of a Benchmark education going forward with the opening of our state-of-the-art Innovation Space in fall 2018 (see page 13 for more information). "The Innovation Space will provide students with tools and technology that will enhance problem solving," said Head of the Math Department Rosanne Crowe. "The use of these tools and technologies will allow greater emphasis on the empathy piece of the process because they provide a broader range of possible solutions. Hopefully students will experience that there is more than one right answer to any question, that there are alternative approaches to solving problems, that they can have some control over how and what they learn, and that everyone has the power to engage creatively in the world in which we live."

"Design thinking is a process that should help all students in and out of the Innovation Space, and we hope it will become part of their strategic repertoire," said Director of Special Projects Betsy Cunicelli. "It [design thinking] is important to incorporate into education because it taps into creativity and problem solving. It's a structured way of thinking that will serve students well regardless of what path they choose."



A new Robotics Club member is exuberant when introduced to a robot that was built the previous year.
2: To generate excitement about the upcoming Mini-THON[®], students participated in a "Four Diamonds" design thinking challenge in math class.
3: Genius Club members work out the kinks in a Domino course they designed
4: During Robotics Club, a student tests a new iteration of her Lego robot design.