



WHAT

TEACHERS

THINK

US / NEW JERSEY

MANALAPAN-ENGLISHTOWN MIDDLE SCHOOL (MEMS)

SCHOOL SIZE

1,300



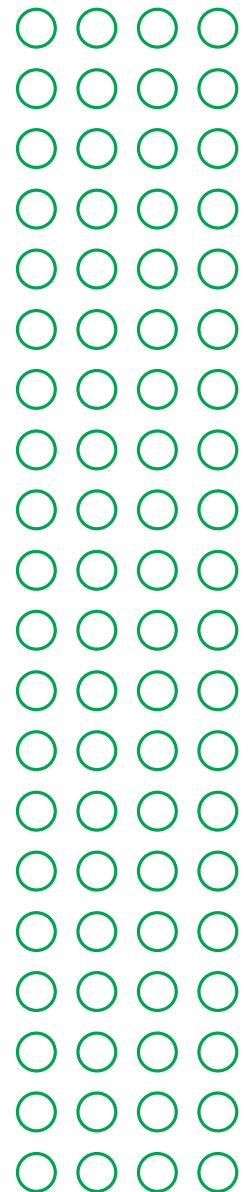
“Bye Bye Boredom”: Find Out How One Teacher Redefined Her STEM Lessons, Engaging Students and Meeting Core Standards

Kathy Seetoo is an 8th grade teacher at Manalapan-Englishtown Middle School (MEMS) in New Jersey, U.S.A. Kathy teaches STEMbotics, which incorporates STEM subjects and robotics, and started using LEGO® MINDSTORMS® Education EV3 with her students during the 2017 school year.

As part of addressing student needs and increasing engagement in STEM, as well as providing advanced learning opportunities, MEMS adopted LEGO® MINDSTORMS® Education EV3 to incorporate and teach STEM principles. Kathy says that the result is a resounding success. Students have “become immediately engaged in STEM learning”, developed problem-solving skills, are highly motivated and actively involved in their hands-on lessons.

This is also true of special educational needs students, where 61 out of 67 students performed at highly independent levels, and more than 90% were easily integrated into non-levelled teams. Kathy remarked that her special educational needs students “achieved more and experienced more success than in the traditional classroom.”

“Students can see for themselves whether or not something works. I don’t have to check every step and confirm if they’re doing a good job. The proof is constant in their work.”



What were the school's challenges in teaching STEM?

MEMS was looking for a resource which would help move teaching and learning away from the traditional teaching methods while still meeting national standards in STEM.

They also wanted to increase student interest and engagement in STEM, sparking curiosity and giving them the skills in subjects which will play a vital role in the workplace of the future.

One further objective was to find a resource that would support, encourage and motivate students of all abilities, from the least technically savvy to the most advanced.

How did using LEGO MINDSTORMS in STEM lessons overcome these challenges?

The goal of LEGO MINDSTORMS is to bring STEM subjects and computer programming to life with hands-on, project-based learning using robotics solutions to strengthen learning outcomes.

A hands-on method of learning

As Kathy told us, LEGO MINDSTORMS “plays right into the ‘learning by doing’ principle. Students are able to dive deep into the problem-solving and experimental processes by building and coding...everything is very hands-on.” Using LEGO MINDSTORMS is to redefine traditional STEM lessons by allowing students to get hands-on and self-correct mistakes in real time.

Immediate engagement

Kathy's students have become excited about delving into the world of robotics and programming, and have fun as they're given the opportunity to be creative within STEM lessons. They are also immediately engaged because they are handling all of the materials for their own build. Students can work at their own pace, everyone can participate and the majority of the students tend to finish before due dates because their interest and engagement level is so high.

Meeting core standards

But it's not just the excitement of getting hands-on and being a facilitator in her students' learning that Kathy has found to be beneficial. She said that LEGO Education solutions “easily incorporate standards within technology, math, science and engineering. Computer science, design process, technology, and math are inherent across the strands and standards.” Students are both engaged and are meeting core standards.



“There are so many resources and so much support [for teachers] that the ‘fear factor’ is quickly reduced. Bye bye boredom!”

It's easy to get started

Kathy had one student who said he “was not good with programming robots...it was too hard.” When Kathy let him ‘play’ with the software action blocks to see if he could get his robot to perform one action, he was surprised to find that he could do it. Kathy realised in an ‘aha’ moment of her own, that “my first instinct was to show him what to do so he could duplicate it, [but]...the kids can be their own ‘answer key.’” After introducing the basic layout, job function and definitions of the brick to LabView connection, students can do and see for themselves whether or not something works as they had pictured it in their mind's eye.”

What do Kathy's students like about using LEGO MINDSTORMS in their STEM lessons?

Kathy asked her students what made them feel successful in class (besides an ‘A’ average!). One of the top responses was that they were able to make mistakes and correct those mistakes themselves by simply making some changes to their LEGO MINDSTORMS programs. This test, learn and improve approach also creates a depth of learning as well as improving problem-solving skills and resilience. The students also said that if they were ever unsure or initially uncomfortable with learning something new, they knew that they were not the only ones who felt that way as the rest of the class was in the same boat too, with other students also expressing hesitation. This meant that students of all abilities were on an equal footing. Allowed only three words to describe her own experience, Kathy says LEGO MINDSTORMS is “hands-on, fun, and user-friendly!”

For more information, visit LEGOeducation.com

