



**CASE STUDY**  
**MAKING LITTLEBITS**  
**A PART OF THE**  
**CURRICULUM**

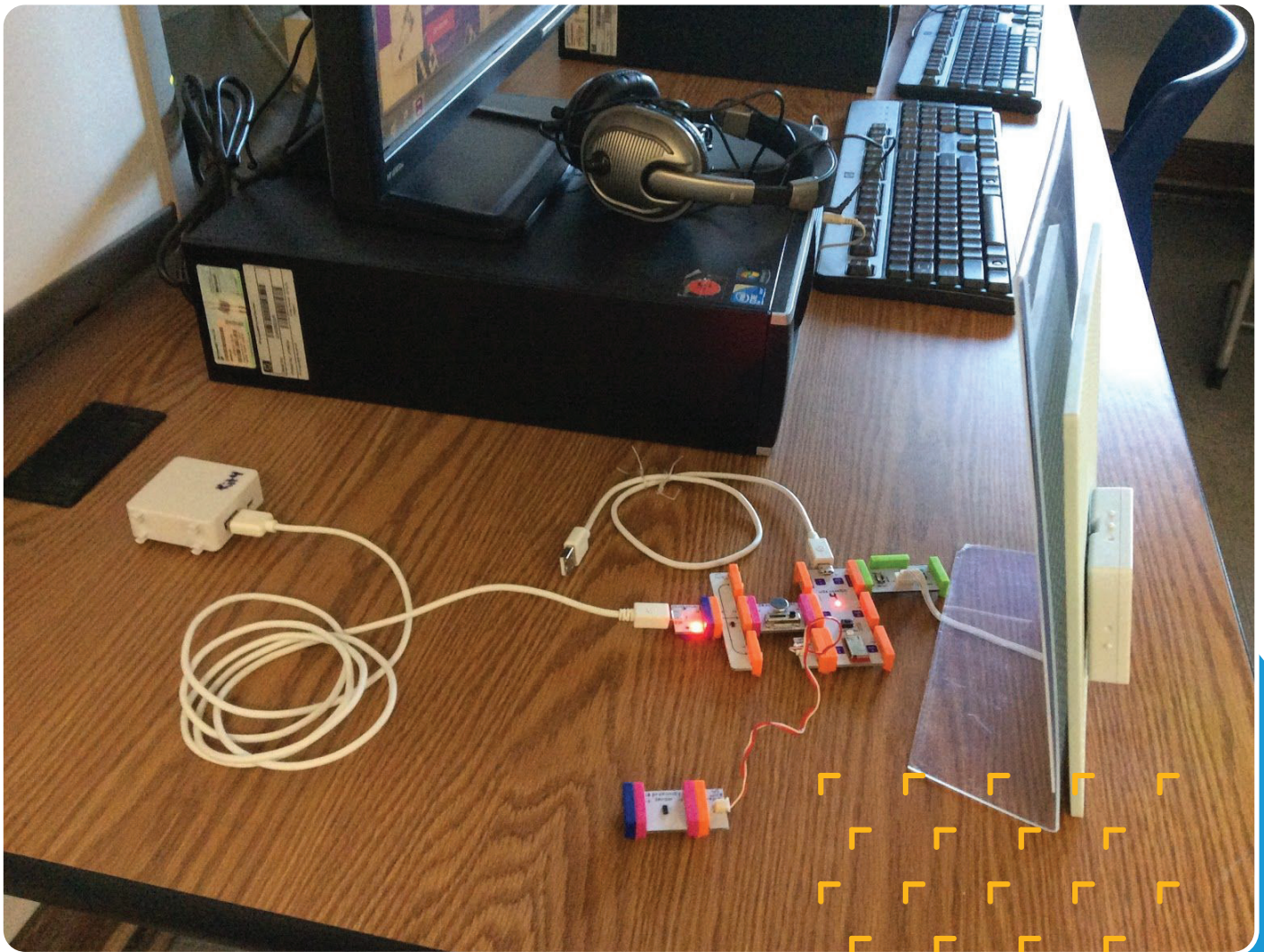


HOW ONE TECHNOLOGY INTEGRATION SPECIALIST IS BRINGING STEAM TO NATHANIEL MORTON ELEMENTARY SCHOOL, ONE EDUCATOR AT A TIME



sphero®  
**littleBits**®





Carmella Hughes was a classroom teacher for more than 30 years before she took on a new role five years ago – that of a technology integration specialist.

As a technology integration specialist, Carmella works with just under 600 students for one hour every other week, introducing them to new technology and ideas via Nathaniel Morton Elementary School's makerspace (currently housed in the school's computer lab). She also helps other educators and administrators through coaching and professional development. In 2015, she wrote a grant for funds to help her build out Nathaniel Morton's STEAM program.

**“I’ve always been the go-to tech person in our building. And in addition to my personal interests, I’m constantly on the lookout for new and exciting ways to expose our students to technology, problem-solving, and critical thinking.”**

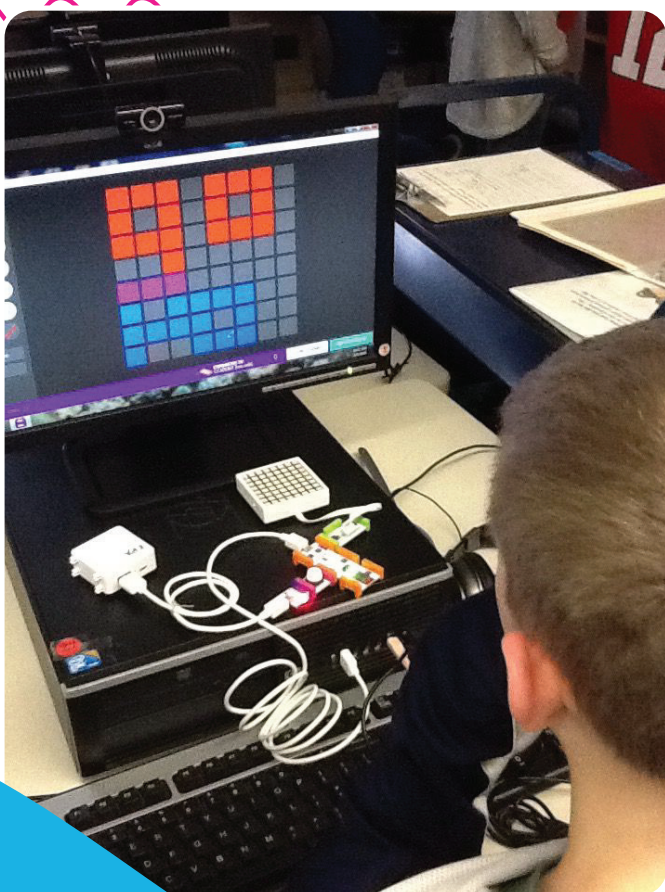
– Carmella Hughes, Technology Integration Specialist

Carmella's goal was to help her students become more familiar with mobile devices, computers, programming, and other types of technology so that she could have an even bigger impact on how they learn, problem-solve, and collaborate. Carmella understands that these skills are the ones necessary for her students to become technology-literate in the future of work.

In 2016, Carmella received the funds she requested from the grant and she immediately invested in the beginning of a makerspace for her students. That's when she first became familiar with littleBits, which she has since incorporated into her work with grades four and five.

**“Teachers are hesitant to embrace something new -- especially if they feel like it will be a major lift for them to learn it or teach it.”**

– Carmella Hughes, Technology Integration Specialist



## FIGHTING TO INTEGRATE TECHNOLOGY INTO THE CLASSROOMS

But as much as Carmella was enjoying littleBits and the other technology tools she had procured for her school's coding and engineering program, she sensed some hesitation from the classroom teachers at her school.

It's difficult to incorporate new technology into the classroom when it is not yet a designated part of the curriculum. Said Carmella, “Teachers are hesitant to embrace something new – especially if they feel like it will be a major lift for them to learn it or teach it.”

For new technology to be effective in a makerspace, it needs to be used on a more consistent basis in other spaces, as well. Carmella envisions a future where the idea of a classroom shifts into a workshop-oriented model, where technology is organized into centers and students are empowered to explore it at their own pace for specific periods of time.



## CONNECTING A MAKERSPACE WITH CLASSROOM LEARNING

### IN THE MEANTIME, CARMELLA SUGGESTS SEVERAL WAYS TO HELP EDUCATORS CONNECT A MAKERSPACE WITH CLASSROOM LEARNING:

- Look at the possibilities. Carmella frequently offers to co-teach a lesson with educators in her school so they can get a better sense for how STEAM learning in the makerspace can connect with classroom curriculum.
- Make it easy. Carmella has created a series of lesson cards using the technology tools in her makerspace. She packages the tech tools with standards-connected lesson plans so that teachers can borrow the pre-packaged tools – like one-stop-shopping – and incorporate into their curriculum! Some tech providers, like littleBits, provide lessons and activities that are connected to state standards to make it even easier for educators to dive in.
- Plan for professional development. Some educators feel apprehensive about embracing technology that they haven't been officially taught, themselves. That's why it's so important to arrange for workshops and professional development sessions that will adequately expose them to makerspace tools as a resource.

Says Carmella: "Educators need to know that someone in their building can support them. They benefit from a hands-on approach as much as students do!"



## SUCCESS IN THE CLASSROOM

While getting educators on board with using new technology in the classroom is a work in progress, Carmella has already seen measurable benefits for students.

She said: "Putting littleBits into the hands of students and seeing where they take it has been a huge success. Even if they have only limited exposure to the technology, they show demonstrable creativity and ability to problem-solve when they are given the opportunity to explore."

Carmella has noticed that students who use littleBits are more apt to jump in, try new things, and make mistakes. She doesn't give them the answers and she has seen them get incredibly excited when they figure out new concepts and succeed!

**"Kids need access to hands-on learning, and a makerspace may be the best place for them to gain that experience. But I tend to think that a makerspace is just a piece of a larger puzzle. What we really need to develop is a 'maker mind.' That's this mentality that kids can create, build, and problem-solve anywhere."**

– Carmella Hughes, Technology Integration Specialist