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**STEAMING
ALONG IN
THE JUNIOR
SCHOOL
CLASSROOM**

By Dana Kobernick, LCC Communications Manager



WHAT DO YOU TO BE YOU GROW UP?"

YOUNG CHILDREN CONSTANTLY ARE ASKED THIS QUESTION BY INQUISITIVE ADULTS, WHO INVARIABLY FIND THE RESPONSES CUTE. HOWEVER, NO ONE EXPECTS THAT A CHILD WILL MAKE THIS DECISION BEFORE LEARNING ABOUT AND EXPLORING, OVER THE COURSE OF MANY YEARS, ALL THE POSSIBILITIES. ►



DISCOVER



EXPLORE

INCORPORATING STEAM (SCIENCE, TECHNOLOGY, ENGINEERING, ART, AND MATH) INTO THE SCHOOL CURRICULUM EQUIPS STUDENTS FOR THEIR FUTURE AS MORE JOBS ARE CREATED IN RELATED FIELDS. IT CULTIVATES THE NEXT GENERATION OF INNOVATORS BUT, MORE IMPORTANTLY, HELPS FOSTER A GENUINE LOVE OF LEARNING AT A VERY YOUNG AGE.

“Our goal is to encourage traits such as motivation, curiosity and engagement,” says Yasmine Ghandour, interim Junior School director.* “The STEAM components are integrated into any classroom, as opposed to being taught in isolation, and are more focused on process rather than end results. In essence, the students learn to practice critical thinking and develop problem solving skills.”

“There are so many benefits to STEAM,” adds Tommy Bérubé, science teacher.

“Students who learn better through hands-on activities, or are more practical and not afraid to take risks or to fail, are given an opportunity to shine. These activities allow them to apply their knowledge, ask questions, and attempt to come up with the answers on their own.”

*Yasmine Ghandour served as the 2017–2018 interim Junior School director. She is the owner/founder of Orchard House and was the LCC Junior School director from 2007–2014.

Here is a sampling of how STEAM was applied in the Junior School classrooms over the past year.

Kindergarten

For their Halloween project, which married art with engineering and math, kindergarten students brainstormed ideas for their classroom decoration. One class chose to build a zombie while the other class made a jack-o-lantern. Guided by their imaginations and working in teams, students undertook the designs and sourced the materials. One innovative student built a pulley system so that the zombie would have moving parts.

Grade 1

In another Halloween project, grade 1 students created pumpkins and ghosts with eyes that lit up. The student engineers learned how electricity is generated and how to make circuits using copper wiring, button batteries and LED lights. Getting a behind-the-scenes look at how many of their toys might be created was particularly exciting. In a different project, the students were introduced to *ScratchJr*, a coding app, to create illustrations for a classroom writing assignment.

Grade 2

With digital literacy and development of problem solving skills being key components of the school curriculum, grade 2 students were introduced to the concept and principles of coding. *Dash and Dot* are two small robots who came to life as students explored their lights, movements and sounds, using the iPad app *Wonder*. They even turned Dash into a projectile launching machine, making an arm extension hurl a ball into a cup. Some students entered the *Dash and Dot International Competition* and, for the first task, came in 15th out of 80 teams!

Grade 3

The grade 3 students set out to solve a problem: during recess time, more activities are needed to occupy the younger students and avoid occasional conflicts. Using the Design Thinking process, which involves understanding the problem, exploring solutions, prototyping, testing and implementing the solution, students conducted interviews and brainstormed ideas to create more activities on the field. They consulted with Headmaster Chris Shannon and Chief Operating Officer Geoff Kalil. They used their math skills to measure the field and drew plans to scale. Lastly, they took their best plan to the LCC Fab Lab where they created a 3D model. Their proposal was presented to the leadership team, who will take it into consideration as a future project for the field.

FACING PAGE (TOP) JUNIOR SCHOOL STUDENTS IN THE FAB LAB (BOTTOM) GRADE 2 STUDENTS PROGRAM A ROBOT BELOW GRADE 3 STUDENTS IN THE FAB LAB WITH THEIR PLAYGROUND MODEL



Grade 4

Using their design skills and science knowledge, the grade 4 students focused on the environment and looked at how the Junior School could reduce waste going into landfills. After researching the ways in which a composting system could be designed for use in the classroom, they constructed multilevel composting bins out of wood. Placing tiny worms in dirt at the bottoms of the bins, they were gratified to see the complete decomposition of the remnants of their snacks, like apple cores. The project will be reviewed and improved upon this year.

Grade 5

Students studied the basic physics associated with building a small model roller coaster and engineered its construction using *K'NEX*, a construction toy system. It provided a hands-on learning opportunity that challenged those who are less inclined to take risks. They also had the opportunity to be creative and build miniature machines that could fly, jump, roll or walk, such as airplanes with flapping wings, and cars and bicycles that moved.

Grade 6

In science, grade 6 students were tasked with building a bridge that had to sustain a minimum of 45 pounds. After reviewing engineering theories, students were provided with little more than Popsicle sticks and glue, and had to determine how to construct the most solid structures. Triangles, they soon discovered, are much stronger than any other shapes when constructing free-standing objects. They quickly learned that one weak spot could destroy the bridge, and that the foundation had to be perfectly sound.

In math, students learned how to create images on their iPads with *TurtleArt*. Using their understanding of geometry, logic and backwards planning, they worked on creating shapes, filling them in, changing the colours, and making patterned designs. Their final project was to create an image that could be cut out on the laser cutter, producing pieces that were strung together to form a spectacular mobile. 

BELOW GRADE 4
STUDENTS BUILDING
COMPOST CONTAINERS

