



STEM Education

STEM education (Science, Technology, Engineering and Math) is changing learning for students in the classroom. CDSBEO students and teachers use a variety of technology tools to personalize learning, increase productivity, and achieve success. As STEM education continues to evolve, the purposeful selection of technology tools and applications enables teachers to provide engaging, meaningful, and rich learning experiences.

Principal of Curriculum, Nancy McIntyre, presented information to the Board on new and innovative ways that technology is being used in STEM teaching practices.

"When teachers look to incorporate STEM education in their classroom, it can be overwhelming without some type of guide as there are many different tools and options to choose from," began Principal McIntyre.

"One of the ways we have been able to support our schools is through the Curriculum lending library. Through the lending library, teachers can see the impact of various STEM tools firsthand, and they are then better informed to make recommendations to their principal, and in some cases parent council."

Earlier this school year, teacher Blair Fitzsimons received the Prime Minister's Awards for Teaching Excellence in STEM. Since joining the staff at St. Mary-St. Cecilia Catholic School six years ago, Mr. Fitzsimons has led the move to integrate STEM learning at all grade levels, beginning in Kindergarten.

"Having the willingness to learn alongside students of all ages allows for amazing opportunities for discovery and inquiry," noted McIntyre.

Over the past four years, the Curriculum Department has been promoting and encouraging schools to participate in the Hour of Code challenge during Computer Science Education Week, held in early December. The week encourages innovation and creativity from students.

"When learning happens through STEM tools, students receive immediate feedback through interactive devices that travel distances, light up, make noise, simulate games, act unexpectedly and even require care and cleaning. These opportunities allow students to discover that learning and fun can go together while building life-long skills."

STEM learning also encourages students to work together, share ideas, and to collaborate on problem solving. Students are fully engaged as they write code for their robot programming, test their results, and come up with innovative new ways to use technology.

"Even more, when it's time for recess, Phys Ed., or even the end of the school day, a collective groan is not uncommon, with students hoping to continue learning or asking if they can do this at home. It is incredible to see how STEM can provide a desire to keep on learning," concluded McIntyre.



Despite the pandemic, all CDSBEO intermediate and senior students will be able to participate virtually in this year's regional science fair. This opportunity is especially important as projects provide opportunities for innovation, experimentation, and study. Participating in the science fair provides project-based learning where students engage in deeper knowledge through active explorations of real-world challenges and problems.

"Thank you so much for joining us with this update on STEM education in our schools," concluded Chair Lalonde. "It is amazing to see this learning taking place, and we are excited by the opportunities it provides for our students."

The Digital Learner

Technology allows digital learners to be engaged, adaptable, and ready for the next challenge. Through new and emerging technology tools, CDSBEO teachers are expanding learning experiences for students in a highly engaging manner that ensures all students can participate. The digital learner is constantly seeking new and exciting ways to learn. In addition to the growing collection of readily available technology applications, CDSBEO educators also provide students with authentic learning experiences. By immersing students in a learning process that allows for creative and critical approaches to problem-solving and decision-making, students are presented with opportunities and experiences to help them thrive.

Technology-Enabled Learning and Teaching Curriculum Consultant, Jameson Lee, presented information to the Board of Trustees on the evolving technology-based learning opportunities which are available to learners, and how these experiences provide authentic learning.

"Over the past year, we have seen tremendous changes and growth using technology to interact, share, and learn. Basic job requirements in all industries continue to evolve, where greater emphasis is placed on familiarity with digital tools and applications," began Lee. "Within the CDSBEO, we have kept pace with these changes and demands. Our students have access to the same types of tools used by industry-leading professionals."

Currently, student focus is on learning through experimentation, emphasizing process over product. Students have the opportunity to experiment with various design software, 3D printing, and the use of virtual reality to simulate real life experiences for career exploration. For example, students can feel what it's like to operate heavy machinery or visit construction sites.

"Through these incredibly powerful digital tools, we help and empower students to take ownership and responsibility for their learning," noted Lee.

Lee also discussed the many exciting opportunities for learning through gaming which are currently emerging.



"The gaming industry is growing at an incredible pace, especially over the past year. At least 2.69 billion people and 61 per cent of Canadians play video games. There is a video game out there for everyone. There are so many genres and games accessible on many different platforms and devices. The first time I listened to a presentation about gaming in education, I found myself questioning whether competitive gaming, known as Esports has a place in our schools. I began to understand, like other professional sports, the world of Esports goes well beyond playing the game."

The gaming industry offers a range of careers for artists, engineers, and broadcasters. Esports is unlocking more opportunities as universities and colleges have begun to recruit students through scholarships. Specific fields of study in gaming and Esports are being offered across many campuses in North America.

"It comes as no surprise that some of CDSBEO's innovative educators have already started to provide Esports opportunities for their students," noted Lee.

These opportunities allow students to collaborate, make new friendships, and support each other. Additionally, students have had the opportunity to compete against schools in Manitoba, Texas, and California. Esports also attracts students from across many different groups creating opportunities for those who may not participate in any extracurricular activities.

"Sponsored by Dell Education, Microsoft, and Intel, I have partnered with Virtual Learning Teacher, Grace Scully to offer a first-of-its-kind Girls Who Game extracurricular club in the CDSBEO. This diverse group of ten grade 8 virtual learning students is one of 18 clubs across Canada. For the spring 2021 cohort, our club is tasked with a culminating activity asking the students to re-imagine their community. By focusing on the United Nations Sustainable Development Goals #5 Gender Equality and #7 Affordable Clean Energy, they will brainstorm, plan, and build equitable, sustainable, and accessible buildings and experiences in Minecraft Education Edition. This group is learning how they can be change agents through gaming."

"This has certainly been an enlightening presentation. Thank you so much for sharing this information with us today," concluded Chair Lalonde.