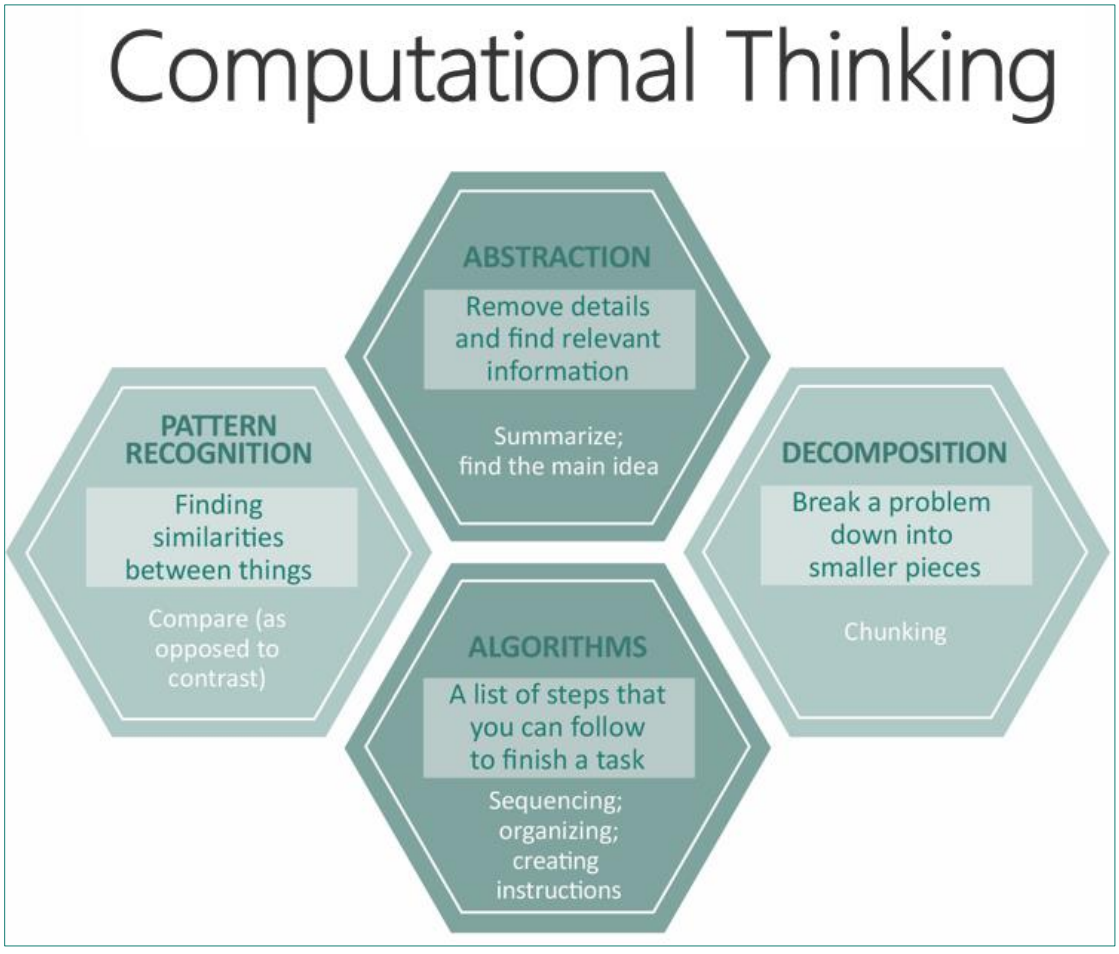
Our Micro:bit Story - School District 43 – Coquitlam, B.C., Canada

In January 2018, leaders from School District 43 in Coquitlam, B.C., Canada were invited to present at the prestigious British Educational Training and Technology (BETT) Conference. The focus was on our implementation strategy as it relates to the use of micro:bit and Microsoft MakeCode in SD43 schools.

Micro:bit is only one of only a few tools the District has selected to be an integral part of its K-12 Coding Continuum providing both resources and learning support for schools and teachers. Our presentation shared the following:

Think Computational Thinking, Not Coding

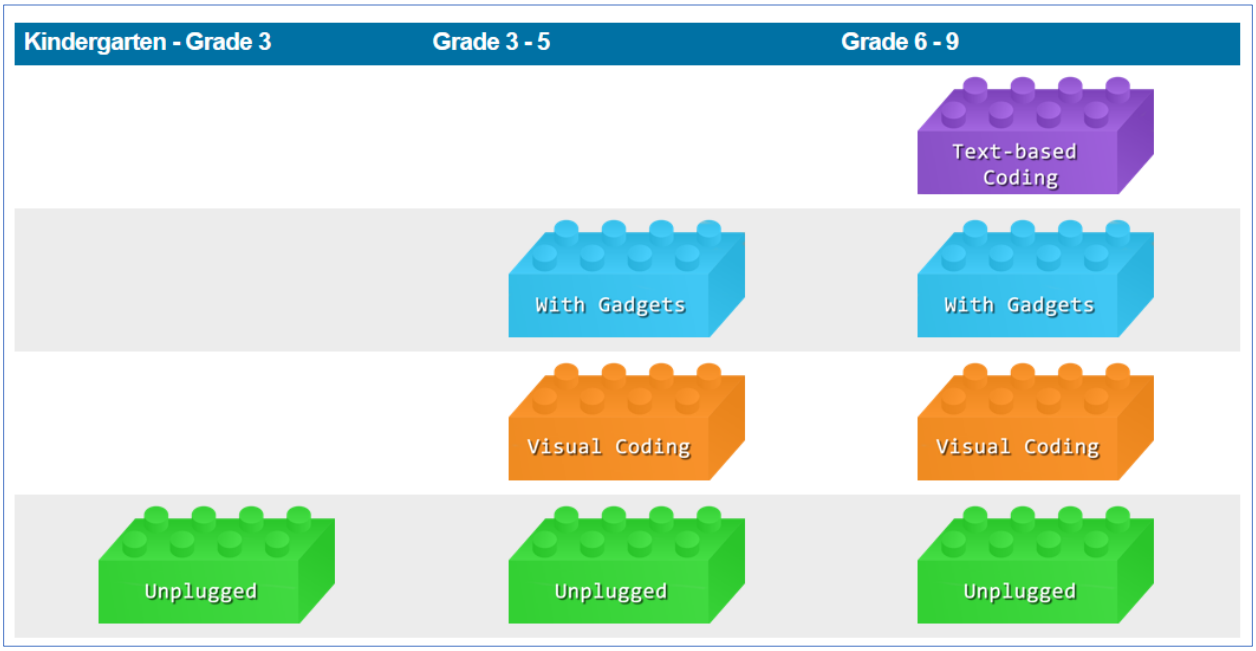
An important part of making coding accessible to all teachers in a variety of subject areas is to focus on the coding-related competencies we want to develop in all students. Therefore, we emphasize computational thinking skills throughout our Coding Continuum.



By identifying elements that all teachers can relate to (and probably already teach), we are able to make coding concepts much more accessible to all teachers regardless of their background knowledge.

Coding Continuum

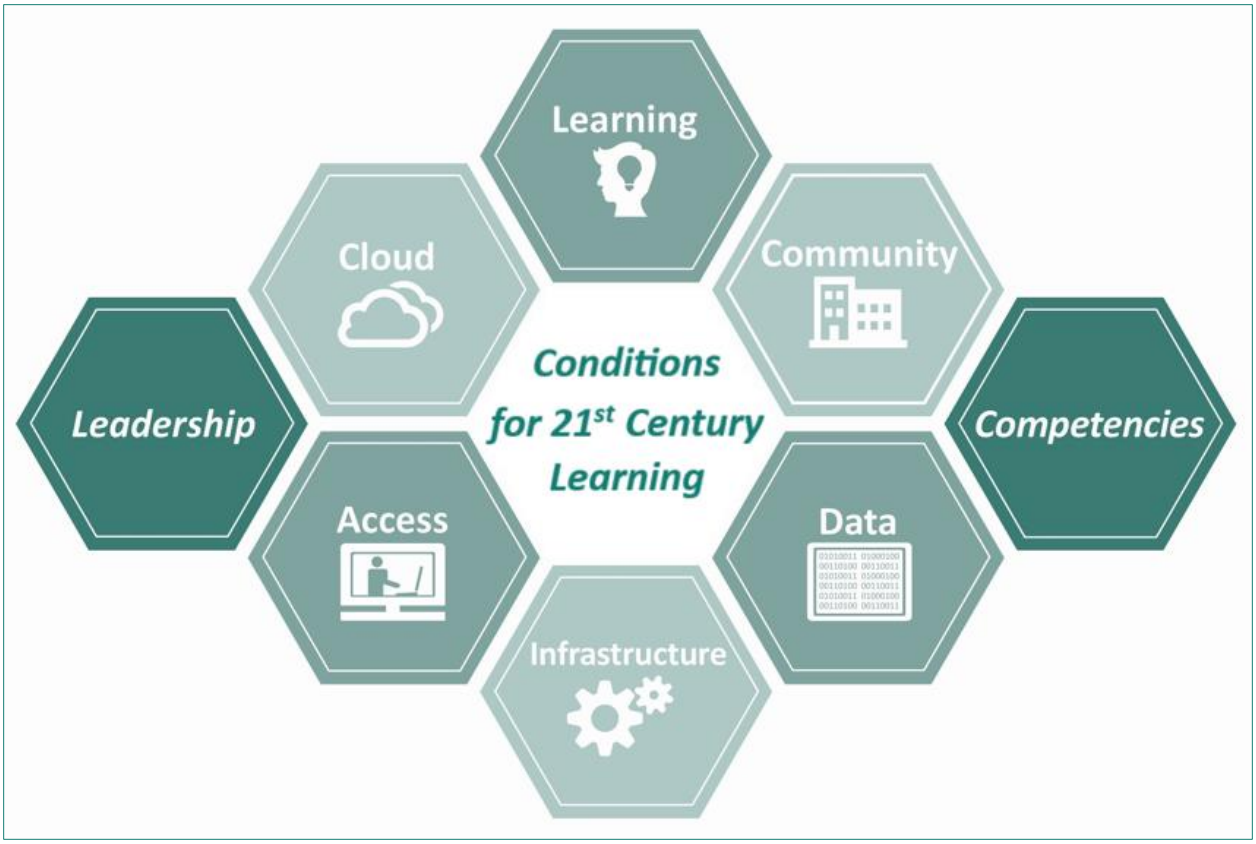
The SD43 Coding Continuum is a strategy that involves development of Computational Thinking skills through a series of progressive activities starting with physical, unplugged activities and progressing to the use of block-based visual coding platforms, devices and ultimately, text-based coding. This framework provides accessible skills to all teachers and students creating a strong foundation in logic-based problem solving and design thinking.



Micro:bit was chosen to play an important role in our continuum, extending visual coding, with gadgets to more advanced STEAM activities by encouraging students to design and construct as part of the coding process. Specifically, micro:bit and MakeCode support a high level of access for all classrooms by providing a low floor (easy for anyone to get started) while enabling a high ceiling (can provide advanced development capabilities).

Conditions for 21st Century Learning

With all educational technology initiatives, SD43 considers our *Conditions for 21st Century Learning Model*. This model ensures a wholistic approach to educational technology implementation planning. In the case of micro:bit, we provided "Access" for everyone by investing in resources for classrooms, while aligning those resources with teacher "Learning" to ensure all participating educators were supported with training and ongoing support in their effective use.



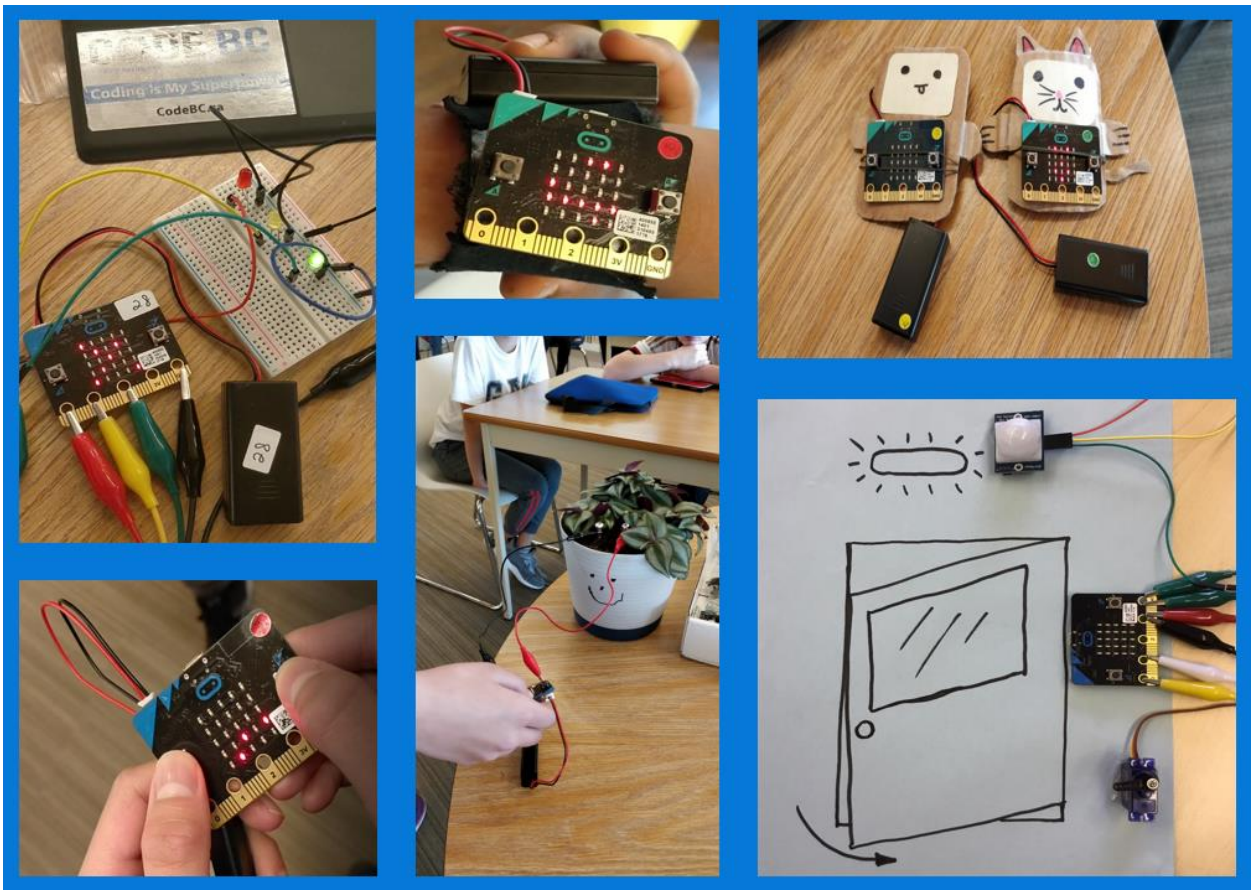
As part of our strategy, every elementary and middle school (focused on grades 4-8) were provided with a class set of micro:bit's by the school district and were encouraged to purchase additional devices at subsidized prices. In order to receive the devices, schools were required to send staff to an "unboxing" event where attendees received training in the use of micro:bits in various curricular areas.

Key to the success of our initiative lies in the Low Floor, High Ceiling capabilities of micro:bit and MakeCode. The BETT presentation demonstrated how, with a very small amount of training, any teacher can easily learn how to support their students in accessing the Microsoft MakeCode block editor to create simple projects.

The Microsoft MakeCode block editor platform allows students to test their visual program on a virtual micro:bit and, then when working, transfer it to the physical device empowering students with a tangible experience. Initial activities are as simple as having the micro:bit LED screen show face shapes in order to reflect their feelings while interacting with peers.

Low Floor, High Ceiling

An important part of our approach to computational thinking and coding involves challenging students to make sense of everyday things in our lives. What do you recognize in these photos? Do you see a stoplight, an automatic door? We believe micro:bit provides the opportunity to replicate these things and, with a little student ingenuity, maybe even make them better!



From here, we focus on the ability of micro:bit and MakeCode to provide a “low floor” accessible to anyone! This video demonstrates a grade 3 student programming for the first time:

Video 1 here (https://youtu.be/u5mBJ3YVxQQ)

In the same lesson, we quickly see how student engagement leads to exploration – this group of students realized the micro:bit could be a scoreboard:

Video 2 here (https://youtu.be/-JISuX_9tXI)

Because students can easily extend their learning using micro:bit, with just a little bit of support, we see how a student can engage in creative robotics:

Video 3 here (https://youtu.be/usMryUlLd_U)

From simple faces and letters to full-scale robotics and automation projects, it is easy to see how the Low Floor, High Ceiling capabilities make micro:bit an important part of our coding strategy.

Role of Curriculum and Leadership

"Students need digital literacy skills like coding to have the best possible chance for success in our rapidly changing world. Applied Design, Skills and Technologies (ADST) in the new curriculum gives every student the chance to learn the technical skills that can launch them in to a career in the growing tech sector.

Micro:bit is a great resource to help students learn important coding skills, and it's just one example of the amazing innovation happening in B.C.'s classrooms."

Hon. Rob Fleming, British Columbia Education Minister

We are fortunate to have Computation Thinking explicitly embedded in BC's new ADST curriculum. Even greater, all curricular areas connect to 7 core competencies that we seek to develop in all students.

Competencies such as Communication, Critical and Creative Thinking are all embeded in computational thinking activities supported by micro:bit. With this, it is easy to see why Our school district has chosen to include micro:bit in all our resource and training packages for elementary and middle schools.

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To learn more about this and our other Educational Technology strategies, please visit our EdTech website here: https://www.sd43.bc.ca/Resources/EdTech

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www.sd43.bc.ca