BRITISH
COLUMBIA
Ministry of Education

BIG IDEAS

| **Decomposition** helps us solve difficult problems by managing complexity. | **Algorithms** are essential in solving problems computationally. | Programming is a tool that allows us to implement **computational thinking**. | **Solving problems** is a creative process. |

Learning Standards

Curricular Competencies	Content
Students are expected to do the following:	*Students are expected to know the following:*
Reasoning and modelling	• ways to represent **basic data types**
• Develop **flexible thinking** to analyze and create algorithms	• **basic programming concepts**
• Explore, **analyze**, and apply mathematical ideas and computer science concepts using **reason**, **technology**, and **other tools**	• variable **scope**
• **Model** with mathematics in **situational contexts**	• ways to construct and evaluate **logical statements**
• **Think creatively** and with **curiosity and wonder** when exploring problems	• use of **control flow** to manipulate program execution
Understanding and solving	• **development of algorithms** to solve problems in multiple ways
• Develop, demonstrate, and apply conceptual understanding through experimentation, **inquiry**, and problem solving	• techniques for **operations** on and **searching** of arrays and lists
• **Visualize** to explore and illustrate computer science concepts and relationships	• problem decomposition through **modularity**
• Apply **flexible and strategic approaches** to **solve problems**	• uses of computing for **financial analysis**
• Solve problems with **persistence and a positive disposition**	• ways to model **mathematical problems**
• Engage in problem-solving experiences **connected** with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures	

Learning Standards (continued)

Curricular Competencies	Content
Communicating and representing - **Explain and justify** mathematical ideas and **decisions** in **many ways** - **Represent** computer science ideas in concrete, pictorial, symbolic, and pseudocode forms - Use computer science and mathematical vocabulary and language to contribute to **discussions** in the classroom - Take risks when offering ideas in classroom **discourse** **Connecting and reflecting** - **Reflect** on mathematical and computational thinking - **Connect mathematical and computer science concepts** with each other, other areas, and personal interests - Use **mistakes** as **opportunities to advance learning** - **Incorporate** First Peoples worldviews, perspectives, **knowledge**, and **practices** to make connections with computer science concepts	