

Codemakers & Codebreakers (8-9)

Hello! This document includes a brief outline of our Codemakers & Codebreakers workshop, as well as relevant BC ADST curriculum connections. In this workshop, students will learn about internet safety and encryption using python coding and ciphers.

If you'd like to register for our workshops, please fill out our registration survey linked here: https://ubc.ca1.qualtrics.com/jfe/form/SV_eQbTY2Kj1ByZM8K

<p>BC Curriculum Ties (In addition to satisfying multiple core competencies)</p>	<p><u>BC Applied Design, Skills, and Technologies Curriculum Links 8-9:</u></p> <ul style="list-style-type: none"> ○ <i>Applied Skills</i> <ul style="list-style-type: none"> ○ <i>Demonstrate an awareness of precautionary and emergency safety procedures in digital environments.</i> ○ <i>Identify and evaluate the skills and skill levels needed, individually or as a group, in relation to a specific task, and develop them as needed</i> ○ <i>Applied Technologies</i> <ul style="list-style-type: none"> ○ <i>Identify the personal, social, and environmental impacts, including unintended negative consequences, of the choices they make about technology use.</i> ○ <i>Content</i> <ul style="list-style-type: none"> ○ <i>Computational Thinking</i> <ul style="list-style-type: none"> ○ <i>Software programs as specific and sequential instructions with algorithms that can be reliably repeated by others</i> ○ <i>Programming languages, including visual programming in relation to text-based programming and programming modular components.</i> ○ <i>Digital Literacy</i> <ul style="list-style-type: none"> ○ <i>Ethical and legal implications of current and future technologies.</i>
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Grade Levels	8-9
Time	1~1.5 hours
Goals of the Workshop	<ol style="list-style-type: none"> 1. To learn about the importance of online security and password privacy 2. To create a basic “hacking” program using Python 3. To learn about various encryption methods and to practice encoding and decoding messages

Activity Descriptions

Python Brute Force Hacking

Objective: For students to create a basic “hacking” program that can uncover a password using Python coding.

Participants will:

- Get an introduction to Python coding
- Learn about coding principals such as variables, equalities, and loops
- Learn about time complexity and how some malicious programs discover your password

Cipher Creation

Objective: For students to understand the methods and uses of encryption and to get hands-on experience with ciphers.

Participants will:

- Learn about different encryption methods and their uses in everyday life
- Practice encrypting and decrypting messages with each other

Cyberattack Escape Room

Objective: For students to work together to solve our puzzle website using ciphers, logic, and teamwork.

Participants will:

- Compete in groups to solve a collection of ciphers, riddles, and brain teasers

We can't wait to connect with your school & expose your students to the STEM field with our exciting, hands-on STEM activities!

