

CODE BREAKER

UNIFY Series: Year 5-6 STEM



impact.edu.au/register

BIG IDEA:

Code Breaker extends and challenges students so they can embrace innovation in a digital age. *Code Breaker* students think, solve problems and acquire an understanding of how technologies can work for them. The course is designed to guide students through levels of computational, mathematical, design, systems and futures thinking.

Code Breaker helps schools to build staff and student capability simultaneously. Key teachers and leaders can access the [IMPACT STEM Squad](#). Your web conference supervisor can co-teach with our online teacher.

SELECTION CRITERIA:

- ✓ Selection criteria for the UNIFY Series is largely subjective.
- ✓ Many schools use this project as a STEM enrichment opportunity for mid-to-high achieving students.
- ✓ Teacher judgement and student interest in the topic should assist selection.

AUSTRALIAN CURRICULUM:

See page 2 for Australian Curriculum links, NAPLAN online, and assessment/reporting details.

THE COURSE:

LESSON OVERVIEW		
NO.	TITLE	CONTENT
1	<i>Welcome to Coding</i>	<ul style="list-style-type: none">Design ThinkingTools and Avatar
2	<i>What is Code?</i>	<ul style="list-style-type: none">Overview of ProgrammingThink like a computer
3	<i>Let's Code: Block Code</i>	<ul style="list-style-type: none">Graphics and PixelsIntroduction to Block Code
4	<i>We Code: Block Code</i>	<ul style="list-style-type: none">Programming in BlocklyProblem solving with Blockly
5	<i>You Code: Block Code</i>	<ul style="list-style-type: none">Programming in BlocklyCheck in 1: Flag challenge
6	<i>Let's Code: Python</i>	<ul style="list-style-type: none">Programming SyntaxBytes and Binary Code
7	<i>We Code: Python</i>	<ul style="list-style-type: none">Password decision making (else/ if)Problem solving with Python
8	<i>You Code: Python</i>	<ul style="list-style-type: none">Programming in PythonCheck in 2: Variables challenge
9	<i>Electronics Code</i>	<ul style="list-style-type: none">Programming in electronicsCode Bug Kit
10	<i>Electronics Code</i>	<ul style="list-style-type: none">Debugging codeConductivity with electronics
11	<i>Electronics Code</i>	<ul style="list-style-type: none">Programming a Code Bug KitCheck in 3: Coding a Code Bug
12	<i>Futures</i>	<ul style="list-style-type: none">Futures ThinkingThe real world of code



Years 5, 6

UNIFY Series
Rounds 1-3

Coding and robotics are important for every student to prepare them for the jobs of the future, where technology will be part of every workplace. But it's not just about the code. Learning coding engages students in developing their skills in critical thinking, creativity, collaboration and innovation.

Coding is a "must have" for every student. Our schools are partnering with industry and universities, generating real pathways for our students into the world of work and further study. Through these partnerships, our teachers are increasing their skills and our students are connecting coding and robotics to their future.'

#Coding Counts
Advancing Education
(DET)

[How it Works](#)

[Participation Costs](#)

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Contact Details: Phone (07) 3727 2888 or email admin@impact.eq.edu.au

Australian Curriculum

Digital Technologies Learning Area

Digital Technologies Knowledge and Understanding

- Examine the main components of common digital systems and how they may connect together to form networks to transmit data ([ACTDIK014](#))
- Examine how whole numbers are used to represent all data in digital systems ([ACTDIK015](#))

Digital Technologies Processes and Production Skills

- Acquire, store and validate different types of data, and use a range of software to interpret and visualise data to create information ([ACTDIP016](#))
- Define problems in terms of data and functional requirements drawing on previously solved problems ([ACTDIP017](#))
- Design a user interface for a digital system ([ACTDIP018](#))
- Design, modify and follow simple algorithms involving sequences of steps, branching, and iteration (repetition) ([ACTDIP019](#))

General Capabilities

Numeracy

Using measurement

- Estimate and measure with metric units

Interpreting statistical information

- Interpret data displays

Using spatial reasoning

- Visualise 2D shapes and 3D objects
- Interpret diagrams

ICT Capability

Managing and operating ICT

- Select and use hardware and software

Creating with ICT

- Generate solutions to challenges and learning area tasks

Communicating with ICT

- Select and use appropriate ICT tools safely to share and exchange information and to safely collaborate with other.

Literacy

Comprehending texts through listening, reading and viewing

- Comprehend texts
- Navigate, read and view learning area texts
- Interpret and analyse learning area texts

Composing texts through speaking, writing and creating

- Compose spoken, written, visual and multimodal learning area texts

Word Knowledge

- Understand learning area vocabulary

Visual Knowledge

- Understand how visual elements create meaning

Critical and Creative Thinking

Inquiring – identifying, exploring and organising information and ideas

- Pose questions
- Identify and clarify information and ideas
- Organise and process information

Reflecting on thinking and processes

- Reflect on processes

Generating ideas, possibilities and actions

- Consider alternatives
- Seek solutions and put ideas into action
- Imagine possibilities and connect ideas

Analysing, synthesising and evaluating reasoning and procedures

- Apply logic and reasoning
- Draw conclusions and design a course of action

NAPLAN Online – ICT Skills Guide

NAPLAN Online requires students to confidently use a computer or device in at least seven ways. As shown below, IMPACT Centre projects develop all seven of these skills and are an excellent way to prepare your students for online testing.

- Locate and select an answer from a list – YES
- Type an answer – YES
- Read the screen and navigate web pages – YES
- Manipulate objects on screen – YES

- Read and comprehend digital texts – YES
- Plan and compose text using word processing – YES
- Listen using a headset – YES

NB: See [DET's NAPLAN Online ICT Skills Guide](#) for details.

Assessment

- Pre & Post Assessment (*Knowledge & Understanding*)
- Check in problem solving tasks for programming in Blockly, Python and Electronics (*Processes & Production Skills*)

Reporting

- Pre-Post assessment data is provided to schools, along with student attendance data.
- Qualitative report card comments are provided to schools. We recommend their inclusion as an OLA on semester report cards.

[How it Works](#)

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