



Discovery Education Coding

— 猿創力程式設計學校





About

— **Discovery Education Coding**



關於Discovery頻道

About Discovery Communications

媒體不僅可以娛樂，還可以**啟發**、**教育**以及幫助人們**探索世界**

Media can do so much more than entertain. It can **educate**, **inspire**, and **help people explore** their world.



220⁺

國家和地區



30億

全球觀眾



45

語言



關於Discovery教育

About Discovery Education

Discovery教育是K12數位教材資源的**全球領導者**，尤其在**STEM領域**

Discovery Education is a **global leader** in digital curriculum resources for K–12 classrooms, with a particular focus on **STEM subjects**.



91

國家



5100萬

學生



500萬

教師



Discovery
EDUCATION™

遍及全球

Worldwide Reach



超過50%美國學校
In over 50% of US schools



2,500+加拿大學校
2,500+ Canadian schools



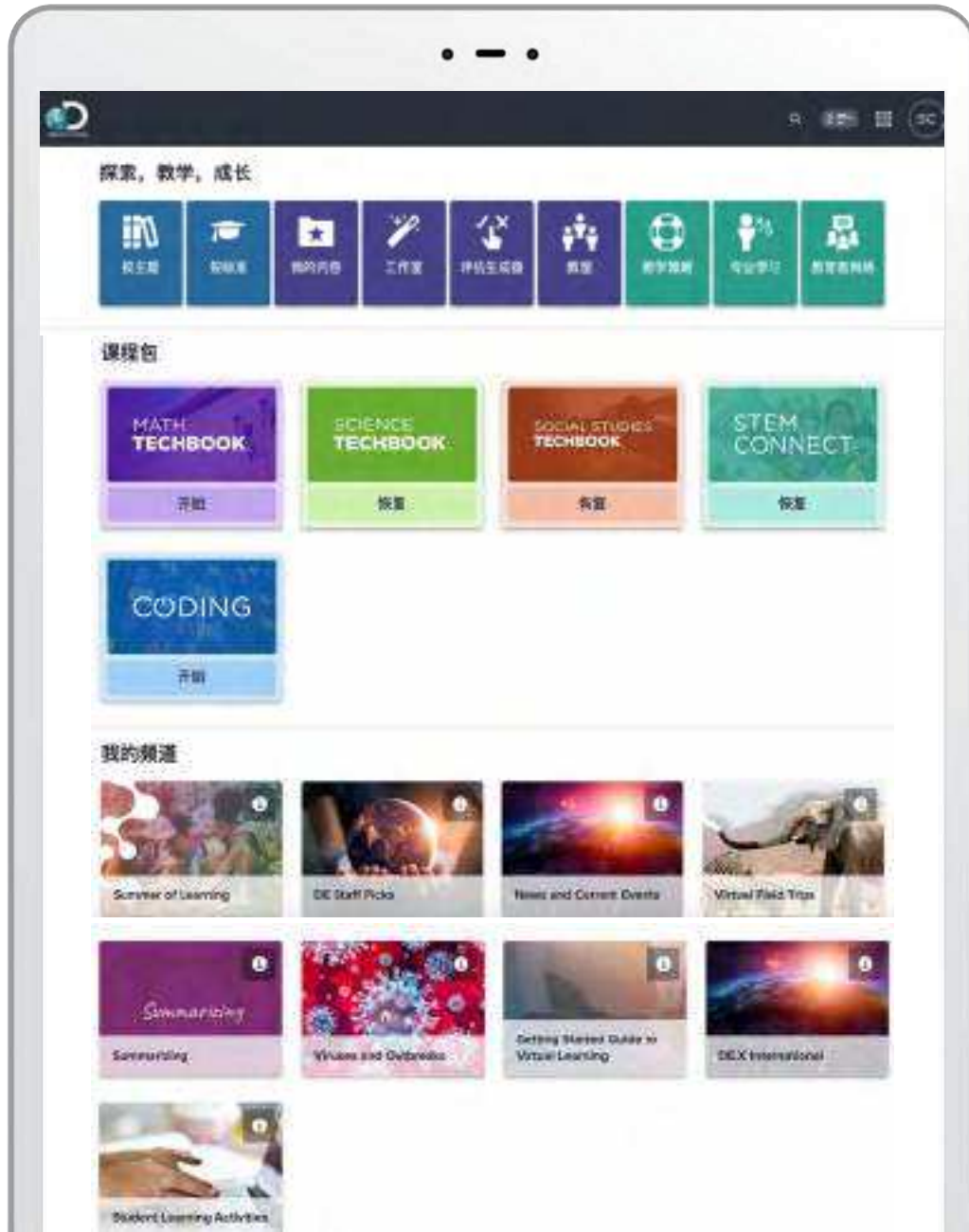
超過50%的英國小學
In over 50% of primary schools

教學解決方案

Solutions for teaching and learning

Discovery教育為K12老師及學生提供**教材資源**以及紮實的**教師培訓**，已獲得眾多教育獎項肯定

Discovery Education supports K–12 teachers and students with award-winning **curricular resources** and dynamic **professional development**.



教學解決方案

Solutions for teaching and learning

STEM跨學科專題式課程

STEM
CONNECT

教學培訓

PROFESSIONAL
DEVELOPMENT

科學課程

SCIENCE
TECHBOOK

社會課程

SOCIAL STUDIES
TECHBOOK

數學課程

MATH
TECHBOOK

多媒體教學資源庫

EXPERIENCE

程式設計

CODING



 **Discovery** | CODING
EDUCATION™





BLOCK



Learn to code using a graphical approach

透過圖形化程式學習



PYTHON



Learn how to write and apply programs using text

學習文字式程式語言



HTML



Learn how web pages are designed, structured, and presented

學習網頁之設計與結構



程式課程體系 (K-6年級/5~12歲)

Coding Curriculum (K-6)

The screenshot displays the Discovery Education Coding Curriculum interface. At the top, there is a navigation bar with the Discovery Education logo, a dropdown menu for 'Block coding', and buttons for 'Python' and 'HTML'. Below this is a secondary navigation bar with 'Learn', 'Create', and 'Glossary' options. The main content area features a left sidebar with a level selector (Level 1 to Level 6) and a 'Repetition and loops' lesson highlighted. The main content area shows the lesson title 'Repetition and loops' with a description: 'Learn how computers use repetition and loops to do things over and over again (and again!)'. Below the title is a lesson plan card for 'Bugs in the garden' with a description: 'Head out to the garden with the snail and the spider to explore the concepts of 'repeat' and 'loop' in coding.' and a 'Help video' link. The bottom of the screen shows the start of another lesson card for 'Driving me loopy'.

Discovery EDUCATION

Block coding Python HTML

Learn Create Glossary

Level 1
Level 2
Level 3
Level 4
Refresher (level 1-3)
Introduction to variables
Repetition and loops
Level 5
Level 6

Repetition and loops

Learn how computers use repetition and loops to do things over and over again (and again!).

LESSON
Bugs in the garden

Head out to the garden with the snail and the spider to explore the concepts of 'repeat' and 'loop' in coding.

Lesson plan Help video

LESSON
Driving me loopy

一堂程式課

A coding Lesson



- **每堂課有課程介紹、建議教案以及教學影片**
- Lessons begin with an introduction and include a lesson plan and explanation video
- **每堂課分解為 範例/解決/練習/建立 各個學習段**
- Lessons are broken into Example, Solve, Practice and Build segments
- **每堂課最後會創造一個App**
- Lessons culminate with creation of an app

學生作品集

STUDENT EXAMPLES

*Students can demonstrate
their creativity by creating
and sharing their own apps*





Design Learn Teach

- 當我們在設計程式課程時，我們怎麼思考
- 當孩子在學習程式時，他們應該學習什麼
- 當老師在教程式時，他們如何自信地教學



CODING™

漸進式學習階段
Learning Progression

全面教師支持
Comprehensive Teacher Support

像程式設計師一樣思考
Think Like a Programmer



激發創造力並分享
Spark and Share Creativity

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漸進式學習階段

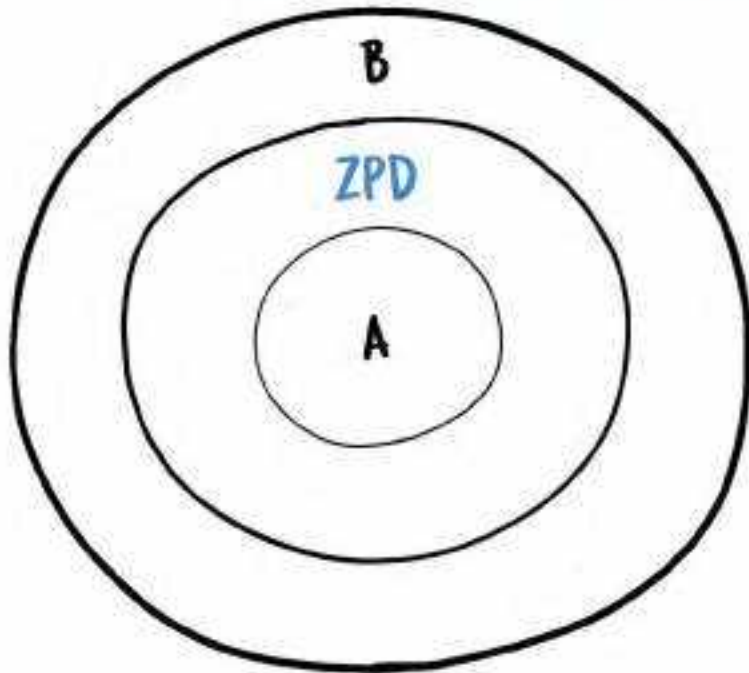
Learning Progression



學習鷹架

Scaffolding - ZPD

Zone of Proximal Development



A: Stuff learners can do.

ZPD: Stuff learners can do, with support.

B: Stuff learners can't do (even with support).

barefootTEFLteacher.com

基於學習者現有知識基礎

Assess the current knowledge of the learner

將學習分解為小且可完成之任務
Break down the tasks into small and manageable tasks

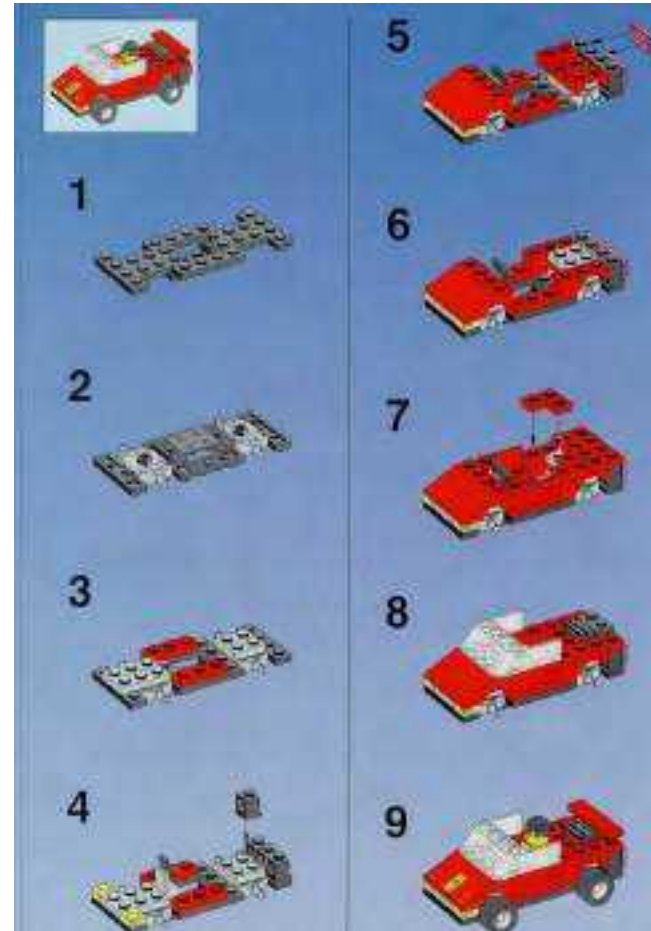
用語言及提示來幫助學生
Use verbal cues and prompt to assist students

學習建構-課程前期

Approach to learning...early steps in a lesson

學習目標指示Instructions...

建造這台車子 Build this Car



學習建構-課程中期

Approach to learning...later steps in a lesson

學習提示 Briefing...

現在建造一台你自己設計的車子 Now Build a Car of your design



學習建構-課程後期及自由創作

Approach to learning...end of lesson and free code

學習提示 Briefing...

設計及建造一個交通工具，它可以...

Design and build a vehicle which...





“

學習界面看起來很有趣；每個課程活動都很獨特，例如讓乳牛做降落傘，孩子們都很喜歡，笑個不停

The interface looks exciting. Each activity is so unique graphically and they make them giggle – the idea of parachuting cows, they love things like that.

— **DAN BATSON, DEPARTMENT HEAD**
BRITISH SCHOOL OF BUCHAREST, ROMANIA

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全面教師支持

Comprehensive
Teacher Support





Those who can do.
Those who cannot teach.

— BERNARD SHAW 蕭伯納

自信教學-線上支持

Teach coding with confidence - Online



影片教學

Video Tutorial

自信教學-線上支持

Teach coding with confidence - Online

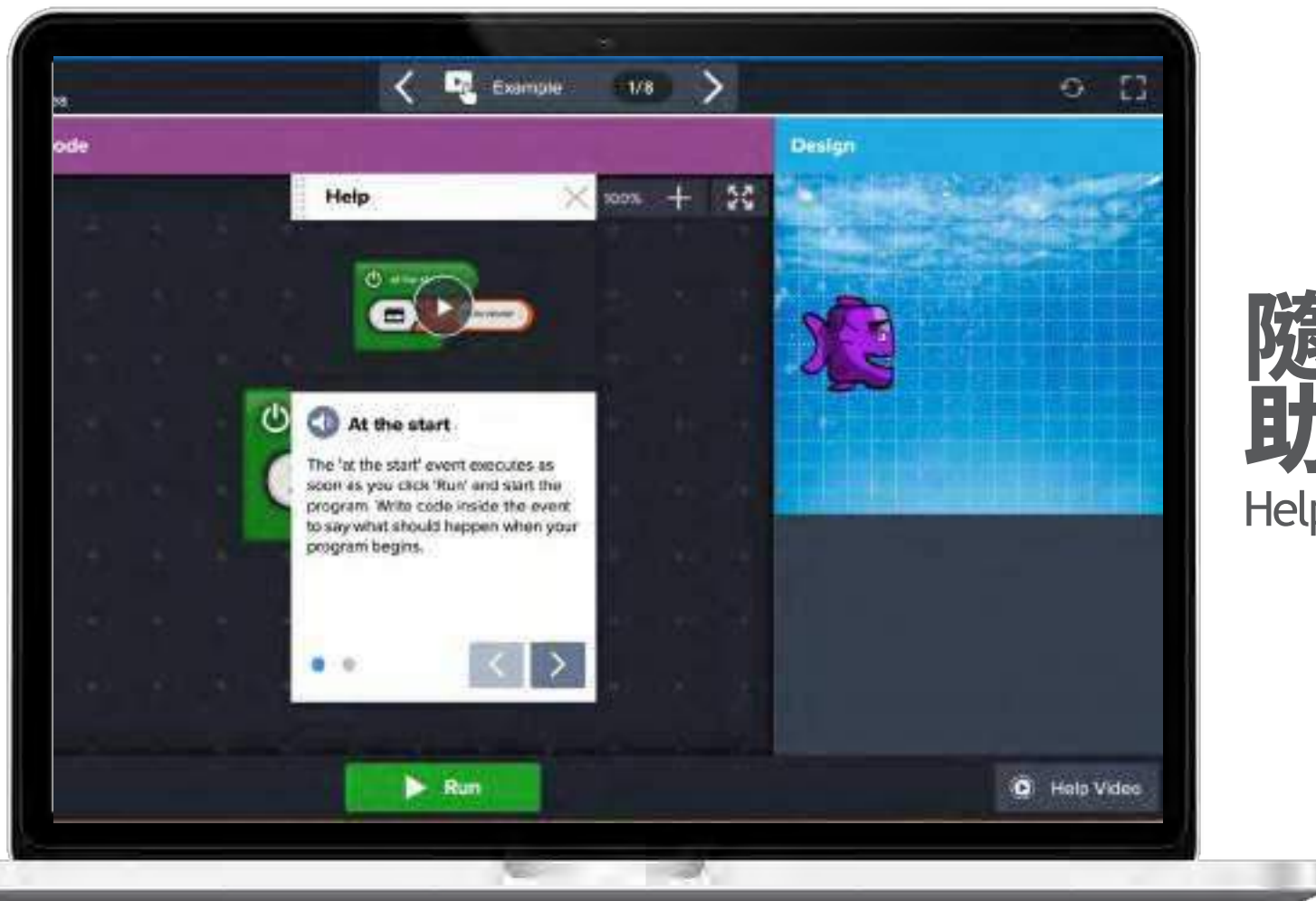


步驟式課程

Step-by-step Lesson

自信教學-線上支持

Teach coding with confidence - Online

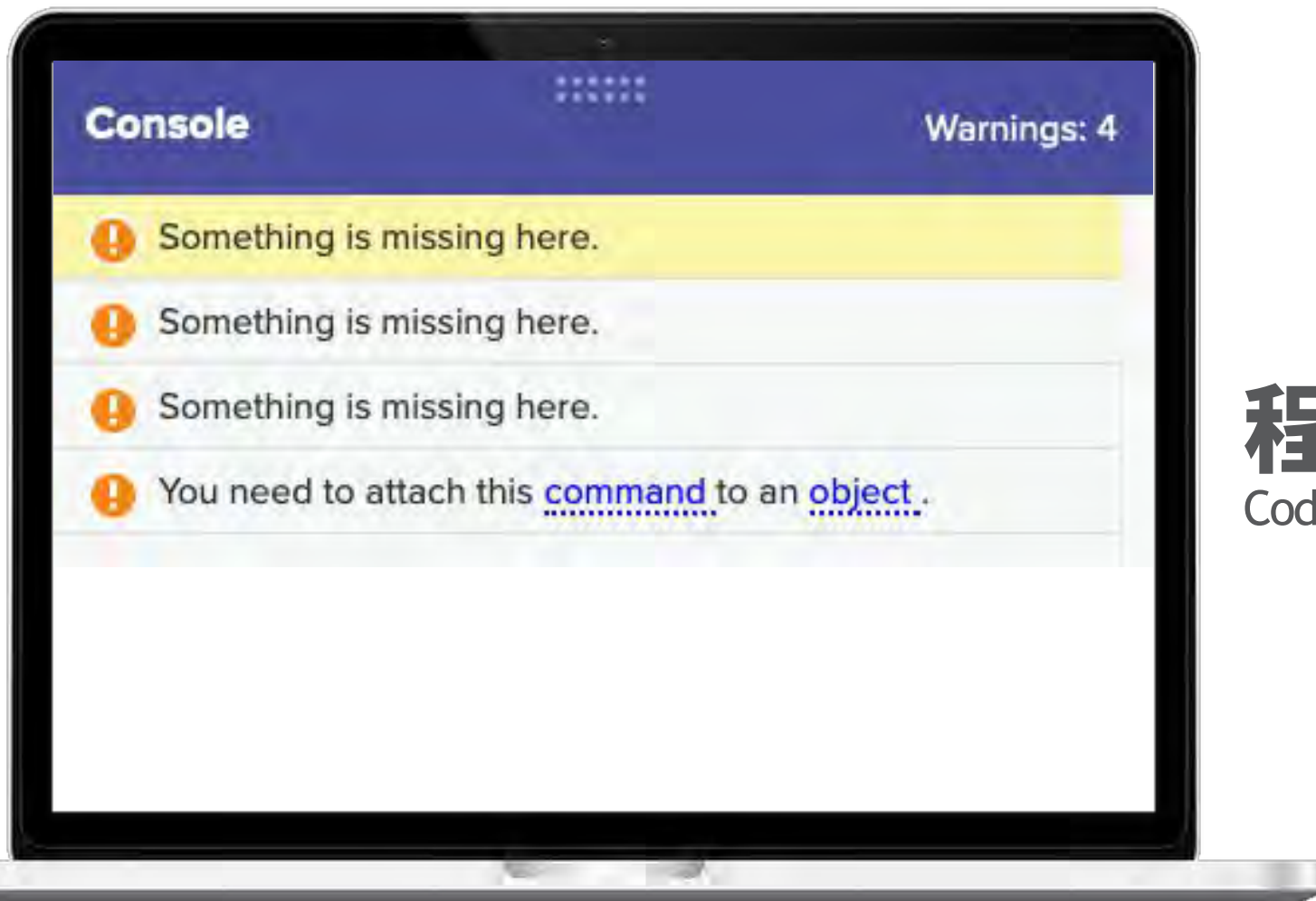


隨手可得的輔助教學影片

Help Video at hands

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程式碼驗證

Code Validation

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用詞查表

Glossary

自信教學-線下支持

Teach coding with confidence -
Offline



線下程式挑戰賽

Offline Coding Challenge

自信教學-線下支持

Teach coding with confidence - Offline



建議教案

Lesson Plan

自信教學-線下支持

Teach coding with confidence - Offline

Level 1	
LESSON	CROSS-CURRICULAR CONTENT
On the move: Under the sea	Maths: Position and direction English: Speaking and listening; Vocabulary extension 'code', 'program', 'event'
On the move: Royal chair	Maths: Position and direction English: Speaking and listening; Fairy tale tropes (characters); Vocabulary extension 'object'
On the move: Transport on the go	Maths: Position and direction English: Speaking and listening; Vocabulary extension 'vehicle'
On the move: Another planet	Maths: Position and direction English: Speaking and listening; Vocabulary extension 'UNIT', 'internal'
Simple inputs: Burst the bubbles	Maths: Position and direction English: Speaking and listening; Vocabulary extension prefix 'dis' (disappear)
Simple inputs: Catch the fish	Maths: Position and direction English: Speaking and listening; Vocabulary extension 'combine'
Simple inputs: Magic castle	Maths: Position and direction English: Speaking and listening; Vocabulary extension 'cast', 'varnish'; fairy tale tropes (characters)
Simple inputs: Emergency	Maths: Position and direction English: Speaking and listening; Vocabulary extension 'emergency'
Level 2	
LESSON	CROSS-CURRICULAR CONTENT
Different sorts of input: Find Falling Head	Maths: Position and direction English: Speaking and listening; Vocabulary extension 'specific', 'key' (keyboard)
Different sorts of input: Key to the race	English: Speaking and listening
Different sorts of input: Up in the air	English: Speaking and listening; Vocabulary extension 'vertical', prefix anti- (antidote/air)
Different sorts of input: Shark attack	English: Speaking and listening; Vocabulary extension 'velocite'
Different sorts of input: Snow White	English: Speaking and listening; Vocabulary extension 'meadow'
Buttons and instructions: Fly a helicopter	Maths: Position and direction English: Speaking and listening; Vocabulary extension 'hour'
Buttons and instructions: Hug food	Maths: Position and direction English: Speaking and listening; Vocabulary extension 'challenge'
Buttons and instructions: Find my cat!	Maths: Position and direction English: Speaking and listening

Discovery Education - Block coding Cross-curricular content

MATHS
These block coding lessons will give children a deeper sense of the mathematical understanding that will

ENGLISH
Speaking and listening
Because of the investigative and collaborative approach, English progression of study: Key stages 1 and 2. At **spoken language**

- listen and respond appropriately to adults
- ask relevant questions to assist their own
- articulate and justify answers, arguments
- give well-structured descriptions, explanations
- maintain attention and participate actively
- use spoken language to develop understanding
- speak socially and fluently with an increasing command of Standard English;
- participate in discussions, and presentations;
- consider and evaluate different viewpoints, attending to and building on the contributions of others.

Curriculum for Excellence Listening and talking (second level)

- When I engage with others, I can respond in ways appropriate to my role, show that I value others' contributions and use these to build on thinking. LIT 2-02a
- As I listen or watch, I can identify and discuss the purpose, main ideas and supporting detail contained within the text, and use this information for different purposes. LIT 2-04a
- I can select ideas and relevant information, organise these in an appropriate way for my purpose and use suitable vocabulary for my audience. LIT 2-06a
- I can show my understanding of what I listen to or watch by responding to literal, inferential, evaluative and other types of questions, and by asking different kinds of questions of my own. LIT 2-07a
- When listening and talking with others for different purposes, I can:
 - share information, experiences and opinions;
 - explain processes and ideas;
 - identify issues raised and summarise main points or findings; and
 - clarify points by asking questions or by asking others to say more. LIT 2-08a

LANGUAGE
As well as subject-specific vocabulary, the lessons use 'tier two' vocabulary. The table below lists some, but not all words that you may wish to present or just check the children's understanding of. Apart from being a good opportunity to extend language, gaps in this sort of vocabulary can create obstacles to comprehension of the whole activity, be sensitive about making assumptions about children's vocabulary and comprehension. Words suggested under the 'Key vocabulary' heading in the lesson plans are largely technical, linking to maths or

跨學科整合

Interdisciplinary Connection

自信教學-線下支持

Teach coding with confidence - Offline

The image shows two identical worksheets side-by-side. Each worksheet is titled "Introduction to variables" and features a cartoon character in the top left corner. The content is organized into several sections:

- What's a variable?** Explains that variables are used to store information and give it names. It states that a variable is like a box with information, and you can get the computer to look in the box whenever you want the information to be used. It also notes that for humans, you can't tell the computer to do just what you tell it to do; it just gets an idea of what you want when you give it the information.
- What you'll build** A game where you can use variables to build simple fun games. It includes three tasks: 1. Let the player earn points by pressing buttons or hitting enemies. 2. Earn points or lose points by choosing different foods. 3. Count down and start up levels in a shopping game. A note says: "Make a game that uses your game when you can earn points, lose points, and have your skills automatically get out if you are hungry!"
- Your skills** You can change and set your own rules, using variables. It shows a diagram of a "Change amount" block and a "Set amount" block. Below this, it says: "You will write code to say what to set or change the amount. This could happen: 1. At the start of a game. 2. When a player wins." It shows two code snippets: one with a "set amount" block and another with a "change amount" block.
- Match the word to its definition** A matching exercise with three words and three definitions:
 - Change**: An object keeps track of a single piece of information, such as a score or the time taken.
 - Set**: To assign a variable by a specific amount.
 - Variable**: It refers to a particular value for a variable.
- Five code challenge** A challenge to build a game where a player starts with 2 lives and must try not to lose them. It says: "Use one variable to keep score, and another variable to keep track of how many lives the player has left. They could lose a life when they click on the wrong object or if two objects hit each other. Remember that the lives variable would need to change by 1 every time the wrong object is hit. See the space below to plan your app!"

學生學習單

Student Worksheet



Discovery Education Coding是完整的教學方案。任何老師都可以進行教學。我們已經使用在我們學校4年，而且它還獲得了ICT創新獎，這就說明了它有多好。

Discovery Education Coding is the complete package. Anybody can pick it up and teach it, and the support is there if you need it. The fact that we have used it for four years, culminating in receiving the ICT Innovation Award, is testament to how good this product is.

**— TIFFANY BOLTON, COMPUTING COORDINATOR,
ST SWITHUN WELLS' CATHOLIC PRIMARY SCHOOL, MIDDLESEX**



Discovery EDUCATION™





Thanks!

