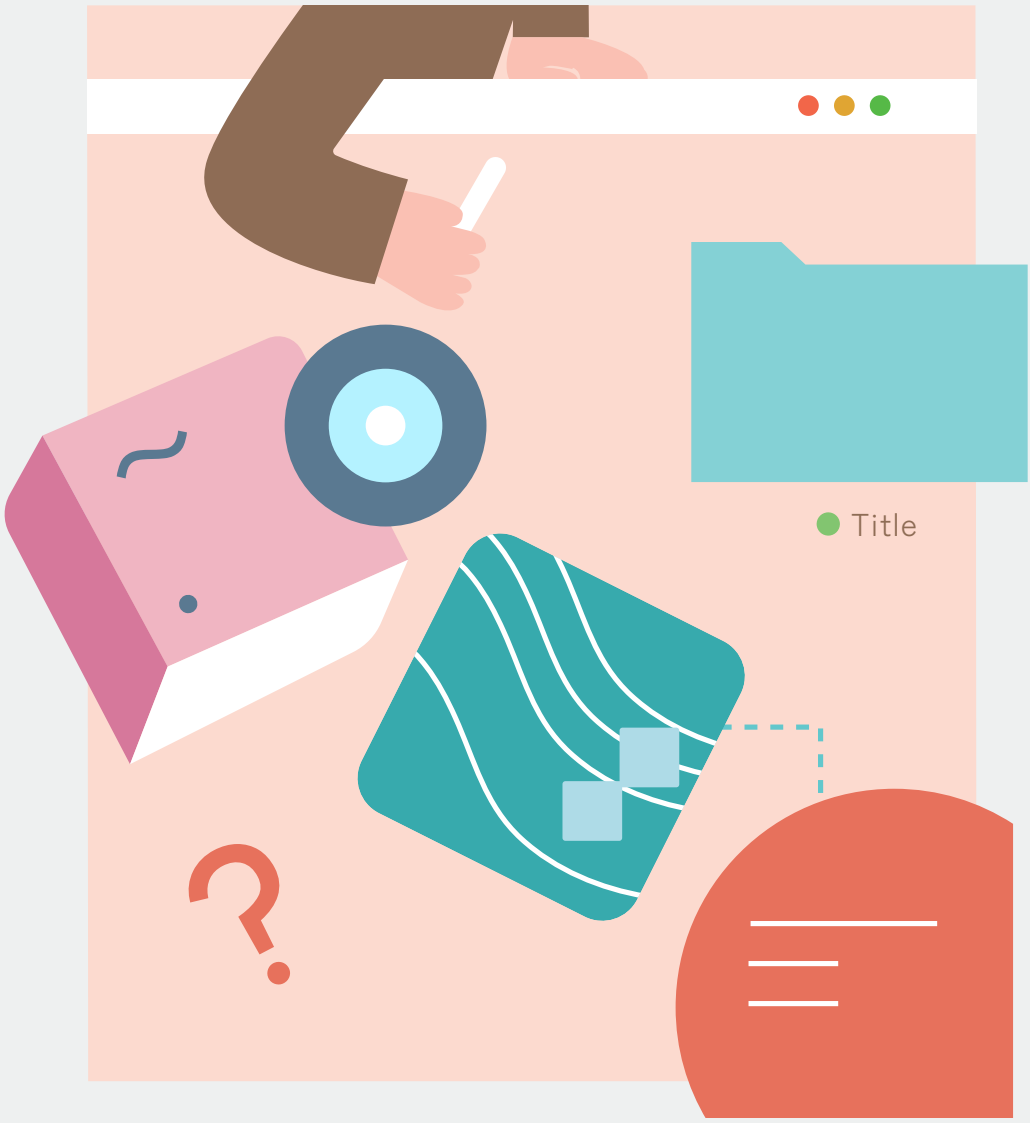
國中科技領域

雙語教學資源手冊

資訊科技 英語授課用語

A Reference Handbook for Junior High School Bilingual Teachers in the Domain of Technology (Information Technology): Instructional Language in English

〔國中八年級〕



高師大全英語與雙語教學推動中心 發行 iTEACH NKNU Taiwan Teach for the World

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單元一 資料收納櫃—陣列
How to Use Arrays in Scratch Programming

國立高雄師範大學軟體工程與管理學系 劉峻維、曾士軒

■ 前言 Introduction

本單元的學習目標，是讓學生學習如何在 Scratch 程式中，運用陣列，提升他們的程式設計能力。學生了解陣列的概念和基本操作，並經由實際的範例和活動來展示陣列在程式中的應用。

- 學生了解陣列的基本概念。
- 學生學習在 Scratch 中建立和操作陣列。
- 學生學習使用陣列來儲存和處理資料。

The learning objectives of this unit are to let students learn how to use arrays in Scratch programming and enhance their programming skills. They understand the concept of arrays and basic operations, and demonstrate the application of arrays in programming through practical examples and activities.

- Students understand the basic concept of arrays.
- Students learn how to create and manipulate arrays in Scratch.
- Students learn to use arrays for storing and processing data.

■ 詞彙 Vocabulary

單字	中譯	單字	中譯
array	(n.) 陣列	manipulate	(v.) 操作
index	(n.) 索引	iterate	(v.) 迭代，重述
element	(n.) 元素	data structure	(n.) 資料結構
variable	(n.) 變數	add	(v.) 添加
list	(n.) 清單	remove	(v.) 刪除
data	(n.) 資料	retrieve	(v.) 檢索
store	(v.) 儲存	search	(v.) 搜尋
access	(v.) 存取	sort	(v.) 排序
debug	(v.) 除錯	execute	(v.) 執行
compile	(v.) 編譯	error	(n.) 錯誤

■ 教學句型與實用句子 Sentence Frames and Useful Sentences

❶ In Scratch, I can create an array to _____.

例句：**In Scratch, I can create an array to** store a list of numbers.

在 Scratch 中，我可以建立一個陣列，來儲存一系列的數字。

❷ The index of the element in the array starts from _____.

例句：**The index of the element in the array starts from** 0.

陣列中元素的索引從 0 開始。

❸ I can _____ through the array elements.

例句：**I can loop through the array elements.**

我可以使用循環遍歷陣列元素。

❹ I can access a specific element in the array by using its _____.

例句：**I can access a specific element in the array by using its** index.

我可以透過索引來存取陣列中的特定元素。

❺ I can manipulate the elements in the array by _____.

例句：**I can manipulate the elements in the array by** adding or removing elements.

我可以添加或刪除元素，來操作陣列中的元素。

■ 對話 Dialogues

對話一 Dialogue 1

Teacher: What is an array in Scratch?

Student: An array in Scratch is a data structure that can store a collection of elements.

Teacher: How do you create an array in Scratch?

Student: To create an array in Scratch, I can go to the Variables category and click “Make a List.”

Teacher: How do you access an element in an array?

Student: In Scratch, I can access an element in an array by using its index. The index starts from 1.

Teacher: Can you give me an example of how to manipulate elements in an array?

Student: Sure! I can manipulate elements in an array by adding or removing elements. For example, I can use the “add [item] to [list]” block to add an item to the array.

Teacher: Great! Now, you know how to work with arrays in Scratch.

Student: Thank you, teacher!

老師： 在 Scratch 中，什麼是陣列？

學生： 在 Scratch 中，陣列是一種可以儲存一批元素的資料結構。

老師： 你在 Scratch 中，你如何建立一個陣列？

學生： 要在 Scratch 中建立一個陣列，我可以進入變數類別，點擊「建立一個清單」。

老師： 你如何存取陣列中的元素？

學生： 在 Scratch 中，我可以用索引來存取陣列中的元素。索引從 1 開始。

老師： 你能舉個例子，來操作陣列中的元素嗎？

學生： 當然！我可以添加或刪除元素，來操作陣列中的元素。例如，我可以使用「將 [項目] 加入 [清單]」區塊，將一個項目添加到陣列中。

老師： 太棒了！現在，你知道如何在 Scratch 中使用陣列了。

學生： 謝謝您，老師！

單元二 資料在哪兒—搜尋演算法
The Concept of Search Algorithms

國立高雄師範大學軟體工程與管理學系 劉峻維、曾士軒

■ 前言 Introduction

本單元的學習目標，是使學生瞭解搜尋演算法的概念，並學會應用兩種常見的搜尋演算法：循序搜尋和二分搜尋。學生了解這些演算法的原理、使用場景和效能，並能運用這些知識，來解決實際問題。

- 學生了解什麼是搜尋演算法，以及它們在日常生活中的應用場景。
- 學生學會使用循序搜尋演算法，來尋找特定元素在列表中的位置。
- 學生學會使用二分搜尋演算法，來尋找已排序列表中的特定元素。

The learning objectives of this unit are to help students understand the concept of search algorithm and learn to apply two common search algorithms: linear search and binary search. Students understand the principles, use cases and perform these algorithms plus be able to apply this knowledge to solve real-world problems.

- Students understand search algorithms and their application to scenarios in daily life.
- Students learn to use the linear search algorithm to find the position of a specific element in a list.
- Students learn to use the binary search algorithm to find a specific element in a sorted list.

■ 詞彙 Vocabulary

單字	中譯	單字	中譯
search	(v.) 搜尋	linear	(adj.) 線性的
algorithm	(n.) 演算法	binary	(adj.) 二分的
sort	(v.) 排序	data structure	(n.) 資料結構
efficiency	(n.) 效率	add	(v.) 添加
data	(n.) 資料	access	(v.) 存取
retrieve	(v.) 檢索	debug	(v.) 除錯
array	(n.) 陣列	compile	(v.) 編譯

■ 教學句型與實用句子 Sentence Frames and Useful Sentences

❶ I use _____ to _____.

例句：**I use** linear search **to** find a specific item in an unsorted list.

我使用循序搜尋法，在未排序的清單中，尋找特定項目。

❷ The _____ algorithm is commonly used to _____.

例句：**The** binary search **algorithm is commonly used to** search in a sorted list.

二分搜尋演算法，通常用於在已排序的清單中，進行搜尋。

❸ Sorting algorithms can _____ the efficiency of _____.

例句：**Sorting algorithms can** improve **the efficiency of** data retrieval.

排序演算法可以提高資料檢索的效率。

■ 對話 Dialogues

對話一 Dialogue 1

Teacher: Do you know what a search algorithm is?

Student: A search algorithm is a step-by-step procedure for finding specific data within a collection of data.

Teacher: Can you give me an example of a search algorithm?

Student: The linear search algorithm is one example. It checks each element in a list until the desired element is found or the end of the list is reached.

Teacher: How about sorting algorithms? What are they used for?

Student: Sorting algorithms are used to arrange data in a specific order, such as ascending or descending order. This can greatly improve the efficiency of searching and retrieving data.

Teacher: Excellent! Can you think of any real-life examples where search and sorting algorithms are used?

Student: Search algorithms are used in search engines like Google to find relevant information on the internet. Sorting algorithms are used in online marketplaces to arrange products by price or popularity.

Teacher: Well done! You have a good understanding of search and sorting algorithms.

Student: Thank you, teacher!

老師： 你知道什麼是搜尋演算法嗎？

學生： 搜尋演算法是一種逐步進行的程序，用於在一組資料中尋找特定的資料。

老師： 你能舉一個搜尋演算法的例子嗎？

學生： 循序搜尋演算法就是一個例子。它會檢查清單中的每個元素，直到找到所需的元素，或達到清單的末尾。

老師： 排序演算法呢？它們用於什麼？

學生： 排序演算法用於將資料按照特定的順序排列，例如遞增或遞減。這可以大大提高搜尋和檢索資料的效率。

老師： 太好了！你能想到任何現實生活中使用搜尋和排序演算法的例子嗎？

學生： 搜尋演算法用於像 Google 這樣的搜索引擎中，在互聯網上查找相關資訊。排序演算法用於在線上市場，按照價格或受歡迎程度排列產品。

老師： 做得好！你對搜尋和排序演算法有很好的理解。

學生： 謝謝您，老師！

單元三 資料排排站—排序演算法
Applications of Sorting Algorithms

國立高雄師範大學軟體工程與管理學系 劉峻維、曾士軒

■ 前言 Introduction

本單元的學習目標，是讓學生了解排序演算法，在資訊科技中的重要性和應用。學生知道不同的排序演算法及其特點，並可實際動手實作排序演算法。

- 學生知道排序演算法
- 學生熟悉常見的排序演算法，例如選擇排序和插入排序，並了解它們的特點和使用情境。
- 學生學會使用氣泡排序演算法，理解其原理和步驟。
- 學生比較和分析排序演算法，並選擇適當的排序演算法，解決實際問題。

The learning objectives of this unit are to let students understand the importance and applications of sorting algorithms in the field of information technology. Students know different sorting algorithms and their characteristics and are able to have hands-on experiences in implementing sorting algorithms.

- Students know the sorting algorithms.
- Students are familiar with common sorting algorithms, such as selection sort and insertion sort and understand their characteristics and use cases.
- Students learn to use the bubble sort algorithm and understand its logic.
- Students compare and analyze sorting algorithms, and choose appropriate sorting algorithms to solve real-world problems.

■ 詞彙 Vocabulary

單字	中譯	單字	中譯
information	(n.) 資訊	problem	(n.) 問題
data	(n.) 資料	solution	(n.) 解決方案
algorithm	(n.) 演算法	ascending order	(n.) 升序
bubble sort	(n.) 氣泡排序	descending order	(n.) 降序
selection sort	(n.) 選擇排序	complexity	(n.) 複雜度
insertion sort	(n.) 插入排序	application	(n.) 應用程式
comparison	(n.) 比較	authorization	(n.) 授權
analysis	(n.) 分析	software	(n.) 軟體
implementation	(n.) 實作	firewall	(n.) 防火牆
step	(n.) 步驟	malicious	(adj.) 惡意的

■ 教學句型與實用句子 Sentence Frames and Useful Sentences

❶ The first step of _____ algorithm is to _____.

例句：**The first step of** bubble sort **algorithm is to** compare the first two elements.

氣泡排序演算法的第一步，是比較前兩個元素。

❷ To implement _____, you need to _____.

例句：**To implement** insertion sort, **you need to** repeatedly insert an element into the sorted subarray.

要實作插入排序，你需要重複將一個元素插入已排序的子陣列中。

❸ The time complexity of _____ algorithm is _____.

例句：**The complexity of** bubble sort **algorithm is** $O(n^2)$.

氣泡排序演算法的時間複雜度是 $O(n^2)$

❹ Bubble sort is suitable for _____.

例句：**Bubble sort is suitable for** small-sized arrays.

氣泡排序適用於小型陣列。

■ 對話 Dialogues

對話一 Dialogue 1

Teacher:	Have you heard of sorting algorithms before?
Student:	Yes, I have. Sorting algorithms are used to arrange elements in a specific order.
Teacher:	Can you give me an example of a sorting algorithm?
Student:	Sure. One example is the bubble sort algorithm. It compares adjacent elements and swaps them if they are in the wrong order.
Teacher:	Are there any other sorting algorithms that you are familiar with?
Student:	Yes, there are some. I'm also familiar with selection sort and insertion sort. Selection sort repeatedly selects the smallest element and swaps it with the current position.
Teacher:	Good job! Now, let's compare these sorting algorithms and analyze their characteristics.
Student:	That sounds interesting! I'm excited to learn more about sorting algorithms.

老師： 你有聽說過排序演算法嗎？

學生： 是的，我知道。排序演算法是用來將元素按照特定順序排列的。

老師： 你能舉一個排序演算法的例子嗎？

學生： 當然可以。氣泡排序演算法是一個例子。它比較相鄰的元素，如果它們的順序錯誤，就交換位置。

老師： 你還熟悉其他的排序演算法嗎？

學生： 是的。我也熟悉選擇排序和插入排序。選擇排序重複選擇最小的元素，並與當前位置進行交換。

老師： 做得很好！現在，讓我們比較這些排序演算法，並分析它們的特點。

學生： 聽起來很有趣！我很期待學習更多有關排序演算法。

單元四 模組化程式設計
Modular Design

國立高雄師範大學軟體工程與管理學系 劉峻維、曾士軒

■ 前言 Introduction

本單元的學習目標，是讓學生了解模組化設計的觀念。他們能練習將遇到的問題，逐一切分成獨立的小問題，再針對各個小問題，去一一解決。學生進一步應用此設計理念到 Scratch 程式設計。他們學習如何呼叫函式與定義函式，包括函式與程式碼間的傳遞參數。最後，學生被提供可實際應用，與體驗模組化設計的利益。它們是如下：

- 簡化主程式的複雜度
- 具有獨立性，允許在不同地方進行呼叫
- 易於除錯，減少修正的時間，改進程式的效率

The learning objectives of this unit are to let students understand the concept of modular design. They can practice breaking down problems into independent small problems and then systematically solve each problem. Students further apply this design concept to Scratch programming. They learn how to call functions and define functions, including passing parameters between functions and the codes of function calls. Finally, students are provided with practical applications to experience the benefits of modular programming design. They are as follows:

- Reduce the time complexity of the main program.
- Having independence, allowing others to call the functions from different parts of the program.
- Easy debugging, reducing correction time and improving programming efficiency

■ 詞彙 Vocabulary

單字	中譯	單字	中譯
variable	(n.) 變數	successful	(adj.) 成功的
function	(n.) 函數	value	(a.) (n.) 值
session	(n.) 節次	sequential	(a.) (adj.) 依序的
analyze	(v.) 分析	determine	(v.) 確定
conditionals	(n.) 條件式	complexity	(n.) 複雜性
repeatedly	(adv.) 反覆地	define	(v.) 定義
expand	(v.) 擴充	minimum	(adj.) 最小的
extract	(v.) 提取	comparison	(v.) 比較
exchange	(v.) 交換	execution	(n.) 執行
obtain	(v.) 取得	program	(n.) 程式

■ 教學句型與實用句子 Sentence Frames and Useful Sentences

❶ I learned _____ in _____.

例句：**I learned** the concept of modular design **in t**he programming class and now I can break down problems into smaller parts.

我在程式設計課程中，學習模組化設計的概念，而且，現在，我可以將複雜問題拆分成多個小問題。

❷ _____ helps me + (原形動詞 VR) _____.

例句：Functions in Scratch **helps me create** more organized and efficient codes.

在 Scratch 中的呼叫功能模組，幫我創造較有組織且效率的程式碼。

❸ I can ___(原形動詞 VR) to make (sth) more ____.

例句：**I can** passed parameters between different functions in my program **to make** it more flexible and adaptable.

我能夠在程式裡的不同函數中傳遞變數，使它能更有彈性和適應性。

❹ ___ simplifies the complexity of ____.

例句：Modular design **simplifies the complexity of** my main program.

模組化設計簡化我主程式的複雜度。

❺ By using ____, I can _____.

例句：**By using** modular design, **I can** easily call functions from different parts of my program.

藉由使用模組化程式設計，我可以更輕易地從程式的不同部分中呼叫函數。

■ 對話 Dialogues

對話一 Dialogue 1

Teacher: Good morning, students! Today, we will continue to learn modular design in programming. Can anyone tell me what they have learned so far?

Student: I learned that modular design helps us break down problems into smaller parts, making them easier to solve.

Teacher: Excellent! That's right. How do calling functions in Scratch programming help you?

Student: Using functions help my codes be more organized and efficient. They let me reuse codes and save time when making changes.

Teacher: Great point! Now, can anyone share an example of passing parameters between functions?

Student: In my game, I passed the player's score as a parameter to the function that updates the highest score. It makes my codes more flexible and dynamic.

Teacher: Wonderful! It sounds like you're applying the principles of modular design effectively. Can you share how modular design has simplified your main program?

Student: By breaking my program into smaller independent parts, it becomes easier to understand and manage. I can focus on each module separately, which reduces complexity and improves readability.

Teacher: It's clear that modular design plays a crucial role in programming. Keep up the good work and continue exploring the benefits of modular design in our upcoming activities.

Student: Thank you teacher!

老師： 同學們，早安！今天，我們將繼續學習程式設計中的模組化設計。有人告訴我到目前為止，你們學習了什麼嗎？

學生： 我學到模組化設計幫我將問題拆解成較小部分，讓它們較易解決。

老師： 太棒了！完全正確。呼叫 Scratch 程式設計中的函式如何幫助你呢？

學生： 呼叫函式幫助我的程式碼較有組織和效率。它們讓我重複使用程式碼，在修改時，節省時間。

老師： 很好的觀點！現在，有誰能分享一個在程式中傳遞參數的例子呢？

學生： 在我的遊戲中，我傳遞玩家的分數作為參數，以便更新最高分的函式。它讓我的程式碼較靈活和動態。

老師： 太棒了！聽起來你很有效地應用模組化設計的原則。你能分享模組化設計如何簡化你的主程式嗎？

學生： 藉由將我的程式拆解成較小、獨立的部分，它會變得較易理解和管理。我可以分別專注每個模組，減少複雜性，並提高可讀性。

老師： 顯然，模組化設計在程式設計中扮演著重要的角色。你們應該繼續努力，持續探索模組化設計的好處，於我們即將進行的活動中。

學生： 謝謝您，老師！

單元五 模組化程式設計進階實作
Advanced Implementation of Modular Programming

國立高雄師範大學軟體工程與管理學系 劉峻維、曾士軒

■ 前言 Introduction

本單元將帶領學生閱讀與認識流程圖與分析循序搜尋問題，以設計解題方法。總共有兩個節次：

- 抽牌遊戲
- 還書系統

我們用變數判斷是否已成功搜尋，及隨機函數加上判斷，保證學生在每次執行程式時，取得不一樣的值。第二節的還書系統中，我們反覆思考流程定義，以擴充變數空間，學生學習拆分問題，尋求最小值，並減少程式的複雜性。學生也練習將「比較」和「交換」功能，從主程式中拆分出來。

This unit guides students to read and understand flowcharts. It helps students analyze sequential search problems to design problem-solving methods. There are two sessions in total:

- Card Drawing Game
- Library Return System

We use variables to determine if a successful search has been performed, and random functions combined with conditionals to ensure that students obtain different values each time when the program is executed. In the second session, the Library Return System, we repeatedly define the flowchart to expand the variable space. Students learn to break down the problem to seek the minimum value and reduce the program's time complexity. Students also practice how to extract the "comparison" and "exchange" functions from the main program.

■ 詞彙 Vocabulary

單字	中譯	單字	中譯
card	(n.) 卡片	draw	(v.) 抽卡
game	(n.) 遊戲	randomize	(v.) 隨機化
calculate	(v.) 計算	score	(n.) 分數
sequential	(adj.) 循序的	search	(v.) 搜尋
structure	(n.) 結構	program	(n.) 程式
implement	(v.) 實作	array	(n.) 陣列
loop	(n.) 迴圈	element	(n.) 元素
specific	(adj.) 特定的	update	(v.) 更新
action	(v.) 動作	function	(v.) 函數
variable	(n.) 變數	task	(n.) 任務

■ 教學句型與實用句子 Sentence Frames and Useful Sentences

❶ ____ will _____ until ____.

例句：Players **will** draw cards **until** they got 8 cards.

玩家將會抽卡直到他們有八張牌。

❷ They will practice _____ to _____.

例句：**They will practice** sequential searching **to** find specific cards in a deck.

他們將練習循序搜尋來尋找牌組中的特定卡片。

❸ ____ will be designed using ____.

例句：The main program **will be designed using** modular programming.

主程式將用模組化程式來設計。

❹ ____ will use _____ to determine if _____.

例句：Students **will use** conditional statements **to determine if** a card matches specific criteria.

學生將用條件陳述，來決定是否卡片符合特定的標準。

❺ As part of _____, they will _____.

例句：**As part of** their problem-solving skills, **they will** also learn how to find the minimum index value in an array.

作為問題解決能力的一部分，他們還將學習如何在陣列中找到最小索引值。

■ 對話 Dialogues

對話一 Dialogue 1

Teacher: Good morning, students! Today, we will create a card-drawing game using Scratch.

Student: That sounds exciting!

Teacher: We can use the “pick random” block in Scratch to select cards randomly from a deck. It will give the game an element of surprise.

Student: How can I calculate the score based on the cards drawn?

Teacher: We can assign different values to each card and use variables to keep track of the score. As the cards are drawn, we add their respective values to the score variable.

Student: Got it! Now, how should I structure the main program for the game?

Teacher: It's important to use modular programming to make the main program more organized and maintainable. You can break down the game rules into smaller functions or procedures that handle specific tasks, such as: card selection, score calculation and displaying the results.

Student: Teacher, thank you for explaining everything! I'm excited to start working on my card-drawing game using these concepts.

Teacher: You're welcome! I'm glad to see your enthusiasm. You should take it step by step and don't hesitate to ask for help if you encounter any challenges. Good luck!

老師： 同學們，早安！今天，我們將使用 Scratch，製作一個抽卡遊戲

學生： 聽起來很刺激！

老師： 我們可以在 Scratch 中使用「pick random」區塊，來從一副牌中隨機選卡片。這將為遊戲增添驚喜的元素。

學生： 我該如何根據抽到的卡片，計算分數呢？

老師： 我們可以為每張卡片分配不同的值，並用變數來追蹤分數。當抽到卡片時，我們將它們的值加到分數變數中。

學生： 明白了！現在，我該如何為遊戲建構主程式呢？

老師： 使用模組化程式設計，使主程式較有組織且易於維護是重要的。你可以將遊戲邏輯拆分為處理特定任務的較小函式或程序，例如卡片選擇、分數計算和顯示結果。

學生： 謝謝您的解釋，老師！我很興奮能利用這些概念，來開始製作我的抽卡遊戲。

老師： 不客氣！我很高興看到你的熱情。你要一步一步來，如果遇到任何困難，隨時尋求幫助。祝你好運！

單元六 網路使用與社會議題
Internet Use and Social Issues

國立高雄師範大學軟體工程與管理學系 劉峻維、曾士軒

■ 前言 Introduction

本單元的學習目標，是教育學生在使用網路交友時，認知自我保護與個人資料隱藏的重要性。他們也學到網路成癮和成癮後的危害。他們知道在網路中發言的影響，與利害關係。他們了解網路上言論自由的概念與責任，進而理解到網路霸凌的防範與通報。最後，學生被教導網路倫理與法律，他們除了能倚賴法律條文的約束外，也能發展自己的網路倫理價值與素養，來保護自己。以下是重點：

- 網路交友與網路成癮
- 網路言論與網路霸凌：網路的言論自由與責任，及網路霸凌
- 網路倫理與法律：網路倫理規範，網路犯罪與法律

The learning objectives of this unit are to educate students on the importance of self-protection and awareness of personal data privacy when engaging in online socializing. They also learn the risks of Internet addiction and its consequences. They know the impact of online speech and the relationship between rights and responsibilities. They understand concepts of freedom of speech and accountability on the Internet and further understand the prevention and reporting of cyberbullying. Finally, students are taught Internet ethics and laws. They will be able to go beyond legal constraints and develop their own ethical values and awareness to protect themselves. The following are some key points:

- Online socializing and Internet addiction.
- Online speech and cyberbullying: freedom of speech and responsibility towards online speech and cyberbullying.
- Internet ethics and laws: Internet ethics guidelines, Internet crimes and laws.

■ 詞彙 Vocabulary

單字	中譯	單字	中譯
online	(adj.) 線上的	socializing	(n.) 社交
self-protection	(n.) 自我保護	personal data	(n.) 個人資料
privacy	(n.) 隱私	awareness	(n.) 意識
addiction	(n.) 成癮	risk	(n.) 風險
responsibility	(n.) 責任	freedom of speech	(n.) 言論自由
risk	(n.) 潛在危險	cyberbullying	(n.) 網路霸凌
prevention strategies	(n.) 預防策略	report	(v.) 舉報

■ 教學句型與實用句子 Sentence Frames and Useful Sentences

❶ It is important to _____.

例句：**It is important to** protect yourself online.

在網路上保護自己是很重要的。

❷ The significance of _____ cannot be ignored.

例句：**The significance of** self-protection and safeguarding personal data **cannot be ignored.**

自我保護與保護個人資料的重要性，是不可忽視的。

❸ Having a strong sense of _____.

例句：**Having a strong sense of** Internet ethics is important.

擁有良好的網路倫理觀念是很重要的。

■ 對話 Dialogues

對話一 Dialogue 1

Teacher: Good morning students! Today, we are going to discuss the topic of online socializing and its impact on society. Does anyone have any ideas or questions?

Student: I think it's important to be aware of the risks of online socializing. How can we protect ourselves and our personal data?

Teacher: That's a great question. We'll discuss the importance of self-protection and personal data privacy in our upcoming lessons. We'll also learn strategies to safeguard our information and recognize potential risk.

Student: How about the responsibility of freedom of speech online? Is there a limit to what we can say?

Teacher: That's also an excellent question. We'll explore the concepts of freedom of speech and the responsibilities that come with it. It's important to understand the potential impact of our words and be responsible in terms of the way we manage our freedom of speech.

Student: I've heard about cyberbullying. How can we prevent it and what should we do if we witness this type of behavior?

Teacher: Cyberbullying is a serious issue. We'll dedicate some time to discuss prevention strategies and the importance of reporting any incidents. We'll also learn how to support each other and create a safe online environment.

Student: Are there any laws or regulations regarding Internet ethics?

Teacher: Absolutely. We'll introduce Internet ethics guidelines and relevant laws for online activities. It's important to understand the legal aspects and develop a strong ethical foundation to navigate the online world responsibly.

老師： 早安，同學們！今天，我們將討論網路社交的主題，和對社會的影響。有任何想法或問題嗎？

學生： 我認為意識到網路社交的風險是重要的。我們如何保護自己和個人資料呢？

老師： 那是一個很好的問題。接下來的課程中，我們將討論自我保護和個人資料隱私的重要性。我們也將學習保護資訊和認識潛在危險的策略。

學生： 關於網路上的言論自由與責任呢？我們說什麼有限制嗎？

老師： 很好的問題。我們將探討言論自由的概念，及隨之而來的責任。了解我們言論的影響，並對言論自由負責是重要的。

學生： 我聽說過網路霸凌。我們如何能預防網路霸凌？如果我們目睹網路霸凌，該怎麼辦？

老師： 網路霸凌是一個嚴重的問題。我們將花時間討論，預防策略及舉報事件的重要性。我們也將學習如何互相支持，且創造安全的網路環境。

學生： 關於網路倫理，有任何法律或規定嗎？

老師： 當然有。我們將介紹網路倫理規範，和網路活動的相關法律。了解法律層面、發展健全的道德基礎，並且負責任地瀏覽網路是很重要的。

國內外參考資源 More to Explore

自造教育及科技輔導中心 這個網站以創新教育為主題，提供高級中等以下學校的教育資源，並透過系列課程、競賽專區及線上微課程等功能，推動教育界探索未來教學的新視野與可能性。 https://tech.k12ea.gov.tw/	
能源教育資源總中心 國中機構結構與能源相關教學活動的分享內容，包含木工製作、機械結構與動力實驗等範例。 https://learnenergy.tw/index.php?inter=digital&caid=1&id=295	
高雄市教育局國民教育輔導團-高雄國民教育各學科領域專頁 匯集高雄國民教育各學科領域的專頁資訊，提供多元學科資源及社群連結，方便教師和學習者快速找到相關支持與交流平台。 https://reurl.cc/M6yNan	

國中科技領域雙語教學資源手冊: 資訊科技英語授課用語

[八年級]

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[8th grade]

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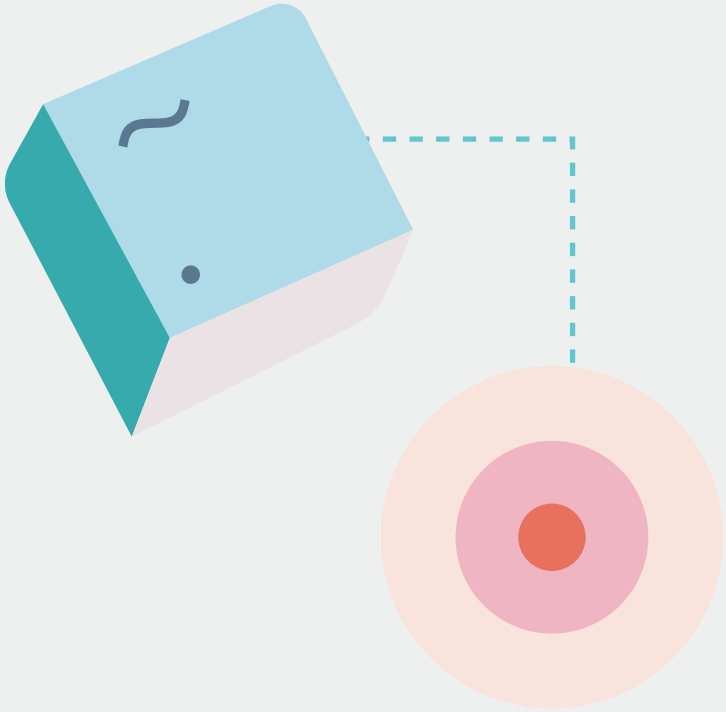

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