

The background features a dark blue gradient with faint, glowing circular patterns and lines, suggesting a technological or scientific theme. At the bottom, there is a silhouette of a mountain range.

未來科技趨勢：EMI和雙語的崛起 TECHNOLOGY TRENDS: THE RISE OF EMI AND BILINGUALISM

高雄市立瑞祥高中國中部 曾文暉老師

緣由：2030雙語政策

- 雙語政策二大願景為「培育臺灣人才接軌國際」及「呼應國際企業來臺深耕，讓臺灣產業連結全球，打造優質就業機會」。
- 為此，國發會及教育部遵照總統及院長指示，統合協調各部會相關資源，積極推動2030雙語政策，以加速推動高等教育雙語化、均衡完善高中以下教育階段雙語化條件、數位學習、英檢量能擴充、提升公務人員英語力、及成立行政法人專責推動等六大主軸來推行政策，以提升雙語政策之整體成效，用雙語力加值專業力，讓臺灣的下一代有更好的競爭力。

雙語台灣行

英語等同商機接軌國際
台企為訂單培養雙語化

EMI

- EMI 全名為 English as a Medium of Instruction，即全英語教學、全英語授課。
- 嚴謹的 EMI 教學須包含以下三個條件：
- 1. What? 教授專業學科（如生活科技）
- 2. How? 把英語當作「教學工具」
- 3. Where? 在英語非母語的地區（如臺灣、新加坡）

EMI的優點

- 經由英語教授專業學科不只可以幫助學生因應國際化趨勢。
- 也可以提升他們在不同國家之間的能動性與就業力。
- 對這些大學/高中來說，EMI更是吸引國際學生的好方法。

EMI和CLIL的差別

	CLIL	EMI
學習重點	學科 + 語言	學科
授課方式	將英語學習如單字、句型整合在學科學習中，讓學生能實際應用英文	不會特意教英語，而是用英語來教學科概念
評量重點	學科 + 語言	學科
資料來源：親子天下翻轉教育報導整理，《雙語教育完整手冊》		

3 種適用於全英語課室的教學法

- Multimodality 多模態教學法
- Paraphrasing 換句話說
- Simplification 簡化概念



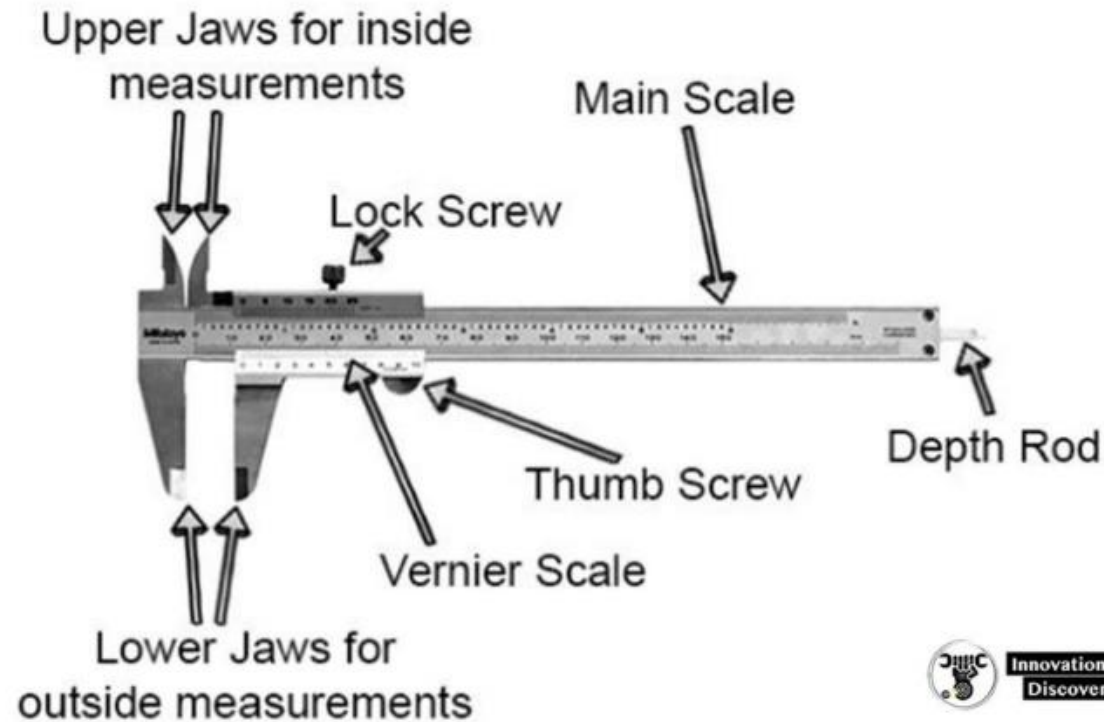
MULTIMODALITY 多模態教學法



張文嘉講師提供

MULTIMODALITY 多模態教學法

How to use Vernier Calipers



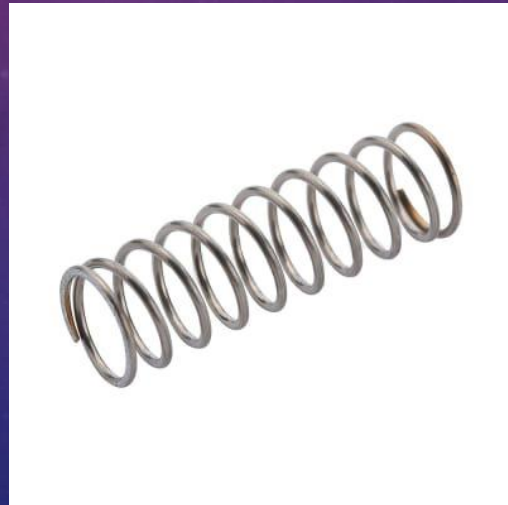
1. Unlock the lock screw and press the thumb screw down. Open the jaws.
2. Close the jaws around the object you want to measure or, for inside measurements open them until they fill the gap you wish to measure, or insert the depth rod into the hole you wish to measure.
3. Tighten the lock screw so that the jaws do not move.
4. Now read the scale.

PARAPHRASING 換句話說

- 指教師在傳遞課程內容時，將較難的單字抽換成簡單的同義字，或是透過換句話說，在不影響原意的情況下以較簡單的英語呈現。

PARAPHRASING 換句話說

- 例如：彈簧(Spring)
- A spring is a device consisting of an elastic but largely rigid material (typically metal) bent or molded into a form (especially a coil) that can return into shape after being compressed or extended.(老師好難!!!)
- A spring is something made of a bendy and hard material, like metal. It can be shaped like a coil. When you push it or pull it, it can bounce back to its original shape.(容易多了!!!)

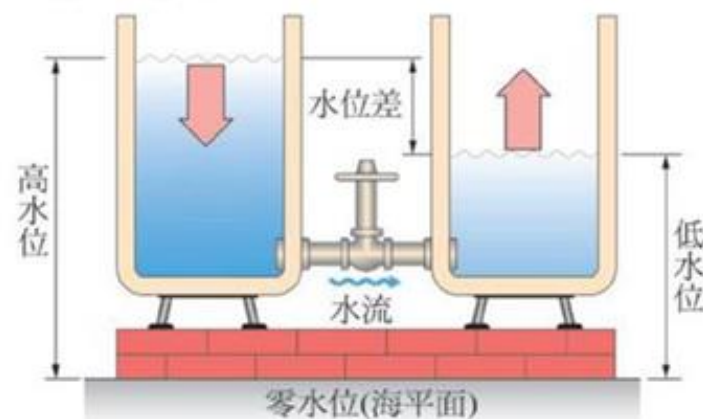


SIMPLIFICATION 簡化概念

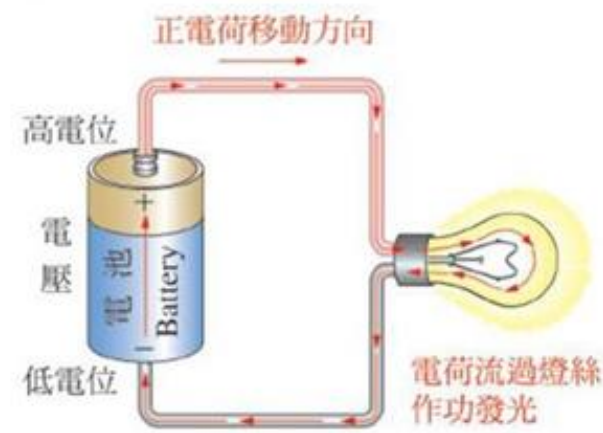
1-5 電 壓

1-5.1 電壓的定義

1. 電壓(voltage)：把電荷從一端壓到另一端。要使導體內的電荷開始流動形成電流，在導體兩端供給的驅動能量。
2. 如圖1-7電池提供電能驅使電荷移動，使燈絲作功發光。
3. 電壓、電位、電位差、電動勢、端電壓及電壓降等的單位都是伏特(volt, V)。



(a) 水位



(b) 電位

圖 1-7 水位與電位

雙語課教案撰寫

高雄市立瑞祥高中雙語核心導向教案

國立高雄師範大學
在職教師雙語教學增能學分班
National Kaohsiung Normal University
Bilingual Teaching Enhancement Program
主題：London Bridge Falling down—Introduction to Truss Bridge and Bridge
Design Software

(倫敦鐵橋垮下來—桁架橋概論與電腦軟體設計)

教師：Tseng Wen-Hui (曾文暉老師) 編寫

協同教師：Wu, Yi-Jen (吳怡蓁老師)

K1-K12 Core-competency Based Bilingual Lesson Plan Design

雙語核心素養導向教案

1. Pedagogical Concepts of Lesson Plan Design 教學設計理念 (呼應核心素養說明)：

科技領域課程著重在運用科技工具、材料、資源，進行系統性思考與科技相關問題的解決，以培養學生在設計製作及應用資訊系統之基本能力，進而發展學生邏輯與運算思維、問題解決、創新設計、批判思考等高層次思考能力。

科技領域課程也著重跨學科知識的整合，藉由強調實作的專題課程來運用如科學、科技、工程、藝術與數學等學科知識。

桁架橋為日常生活中常見的科技和工程，了解它的科技原理和設計製作過程可以讓學生了解實務上如何解決問題的步驟和方法。

Courses in the field of science and technology focus on the use of scientific and technological tools, materials, and resources to reinforce systematic thinking and solve technology-related problems, so as to cultivate students' basic abilities in designing and applying information systems, and to develop students' logical and computational thinking, problem solving, and innovation High-level thinking skills such as designing and critical thinking.

Courses in the field of science and technology also focus on the integration of interdisciplinary knowledge, using subject knowledge such as science, technology, engineering, art, and mathematics through thematic courses that emphasize practice.

The truss bridge is a common technology and engineering in daily life. Understanding its scientific and technological principles and design and production process can enable students to understand the steps and methods of how to solve problems in practice.

2. Teaching Resources 教學資源 (請寫明使用之教科書版本及其他教材融入)：

(a) Textbook Selection (教科書版本或出版社)：

Alternative lesson plan based on the truss bridge lesson

Carolyn Ho, December 10, 2021

Keywords:

tension, compression, vertical member, diagonal member, slope, equilateral triangle, truss bridge, Howe, Pratt, Warren

Learning objectives

Content knowledge

- Download and install the bridge design software.
- Draw a truss bridge with the software.
- Simulate a test of the bridge design using a mechanical analysis program.

Language skills

- Identify bridge design based on short descriptions. (reading)
- Discuss solutions and problems in the song London Bridge Is Falling Down. (listening, speaking)
- Express opinion about one of the three bridge designs. (speaking)

Lesson procedure (50 minutes)

Stage and Time	Learning Activities	Materials/Teaching Aids	Observer's Notes
Warmer: generate interest 8 mins	Greet students. Post the discussion question first for students to focus their attention on key points in the song. Play "London Bridge is Falling Down." Show lyrics if necessary. Pair students. Have them discuss the question for 3 minutes. Call on a few students for answers.	PPT that includes the discussion questions (see Activity 1 below on page 3). Video of London Bridge is Falling Down	This video generates interest in students about bridge building.
Review keywords 5 mins	Pair or group students to complete the matching exercise. Check answers in open class by having students read the words out loud while labeling the images.	PPT or worksheet (see Activity 2)	This stage can be done quickly. The purpose is for students to be familiar with the words that they will see in the next stage (reading about the 3 designs).
Introduce truss bridge	"Today we're going to design a bridge using one of the well-known truss bridge design and test it using an app. Before we begin, let's learn about 3 popular truss bridge designs."	PPT Worksheet or projected worksheet (see Activity 3)	In this stage, students will learn about the 3 designs by actively reading descriptions and visualize

雙語課實際授課狀況



London Bridge Falling down—Introduction to Truss Bridge and Bridge Design Software

Kaohsiung Municipal Rueisiang High School
Technology teacher Tseng Wen Hui
2021.10.12



雙語課支援網頁



雙語數位學伴計畫
Bilingual Digital Learning

網站導覽 教育部數位雙語學伴FB專頁

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教學資源

當前位置：首頁> 雙語數位教學範例教案> 科技教育> 科技教育

線上互動教學資源

線上語言學習資源

雙語數位教學範例教案

選擇教案類別：

教案格式

閩南語

英語

客語

原住民族語

科技教育 - 科技教育

資料搜尋：

蒐尋關鍵字

搜尋

年級	教案名稱	教案作者	指導老師
三年級	數學領域—分類 閱覽	馬梓育老師	王雅茵老師



雙語課支援網頁



NKNU Taiwan Teach for the World



國立高雄師範大學 全英語與雙語
教學推動中心

648 個讚 • 800 位追蹤者



已說讚

發送訊息

搜尋

參考資料連結

- 雙語政策
- 2030雙語政策 從台灣走向世界的宣言 想賺世界的錢就靠全球共通語言! 雙語教育的困難與挑戰 台灣的雙語模式現正建構中 | 主持人黃倩萍 | 【轉動台灣 完整版】20230527 | 三立新聞台
- EMI 教學是什麼? EMI 全英語授課適用於臺灣高等教育嗎?
- EMI 教學新手攻略: 3 種適用於全英語課室中的教學法

Thank you♡



感謝您！