



# 電子教學資源簡介

Junior Secondary  
**science**  
Mastering Concepts and Skills

初中科學

基礎概念與技能

# 牛津電子教材概覽

# 單一帳戶登入  
牛津各大平台

帳號有效至 2024 年 6 月 30 日

iSolution  
account

01

教師資源中心



02

iSolution  
一站式互動平台

03

課本 · 作業  
互動 PDF

04

評核平台和資源



05

教學資源



06

自主學習資源



01

# Teacher's Resource Centre 教師資源中心

支援



iOS



Android



Windows



Mac OS

立即試用



教學資源試用包

# 全新設計 功能提升


NEW

收藏自選教材，  
一按備用

My Bookmarks

Junior Secondary Science Mastering Concepts and Skills

## Teacher's Resources Centre

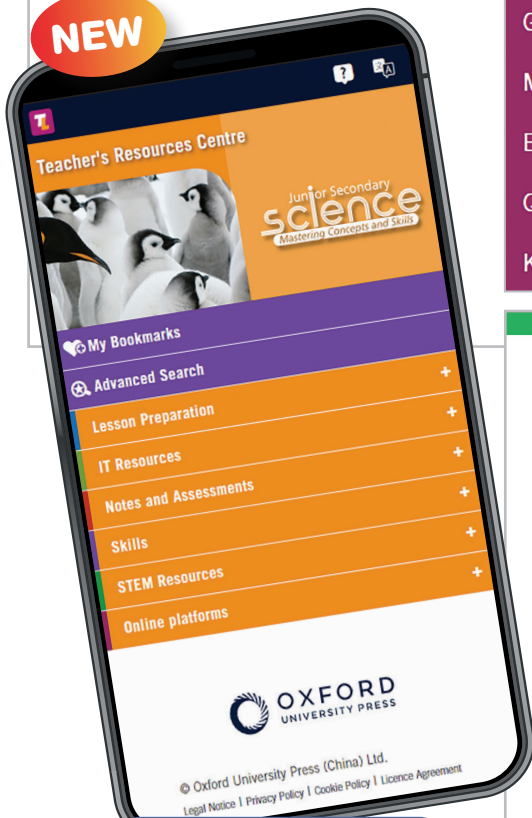


Junior Secondary science  
Mastering Concepts and Skills

My Bookmark Advanced Search

|                      |                |                         |          |                  |                    |
|----------------------|----------------|-------------------------|----------|------------------|--------------------|
| Lesson Preparation + | IT Resources + | Notes and Assessments + | Skills + | STEM Resources + | Online platforms + |
|----------------------|----------------|-------------------------|----------|------------------|--------------------|

NEW



流動裝置互通！

Google Forms

Microsoft Forms

Edpuzzle

Quizizz

Kahoot!

UP!

資源分類清晰，  
搜尋更易

Advanced Search

NEW

跨課跨類別選一併  
下載，極具彈性

Advanced Search

Book  1A  1B  2A  2B  3A  3B  3C

Unit  All  1  2  3

Types of resources:  All  Teaching scheme  Textbook and workbook PDF  Google / MS Forms for textbooks  NSE Teaching resources pack

Pre-DSE booklet  Image bank  Textbook and workbook answers  Corrigenda  PowerPoint  Practical and Activity video

Interactive practical (Edpuzzle)  PhET simulation  Animation, model, etc  Virtual tour  Flipped classroom  Lesson worksheet

Short notes for revision  5-min Short quiz  15-min Section quiz  Unit test  Question bank  Mini science dictionary

Further investigation worksheet  Skill builder and practice  Example and Follow-up practice  STEM project  Home lab

Pre-lesson helper

Reset Show

Book 1A : Unit 1 Introducing science : Textbook and workbook PDF

| Description | Type     | File size | File type |
|-------------|----------|-----------|-----------|
| Unit 1      | Textbook | 30KB      | PDF       |
| Unit 1      | Workbook | 30KB      | PDF       |

Book 1A : Unit 1 Introducing science : Short notes for revision

| Description                                    | File size | Download |
|--|-----------|----------|
| Unit 1 Introducing science                     | 4.07MB    | DOCX     |
| Unit 1 Introducing science (bilingual version) | 5.47MB    | DOCX     |

Book 1A : Unit 2 Water : Textbook and workbook PDF

| Description | Type     | File size | File type |
|-------------|----------|-----------|-----------|
| Unit 2      | Textbook | 30KB      | PDF       |
| Unit 2      | Workbook | 30KB      | PDF       |

Book 1A : Unit 2 Water : PowerPoint

| Description                                       | Type      | File size | File type |
|---|-----------|-----------|-----------|
| 2.1 Change in states of water                     | English   | 3.84MB    | PPTX      |
| 2.1 Change in states of water (bilingual version) | Bilingual | 4.23MB    | PPTX      |

Bookmark Download

支援



iOS



Android



Windows



Mac OS

了解更多


<https://isolution.oupchina.com.hk>

在家在校 暢通無阻



網頁版

 毋須下載，登入即用，  
 省時便利，使用更暢順

程式 (app) 版



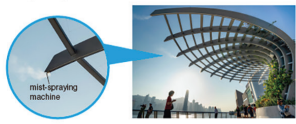
課文內容、教學資料，一目了然

**課本**

## 2.1 Change in states of water

**Let's begin**

The photo shows the mist-spraying machine in the Avenue of Stars. On hot summer days, the machine sprays mists to the air to lower the surrounding temperature.



Why can spraying mists to the air lower the surrounding temperature? The mists in the air evaporate quickly. They absorb energy from the air. This lowers the surrounding temperature. (Will be discussed on p. 89)

The answer to Let's begin is related to one of the processes of the change in states of water. Let us learn about the states of water first.

**Processes of change in states of water**

Look at the glass of iced water in Fig 2.1. Water exists in three physical states\*, in this case:

- liquid state\*, we commonly call it water;
- solid state\*, we call it ice;
- gas state\*, we call it water vapour\*.

**作業**

## 2 Water

**Section exercise** 2.1 Change in states of water → Textbook p. 80-91

**Level 1**

**A Fill in the blanks** (1 mark each, total 5 marks)

Fill in the blanks below with the words given.

condenses   freezes   gas   liquid   solid   steam   vapour

- Water exists in three physical states: ice is the  solid  state, water is the  liquid  state and water vapour is the  gas  state.
- When water boils, it changes into  steam .
- When water is cooled to 0 °C, it  freezes  and changes into ice.

**B True or false** (1 mark each, total 6 marks)

Write 'T' for a true statement and 'F' for a false statement in the boxes provided.

- The change in state of water from a liquid to a gas at 100 °C is called boiling.
- Evaporation can occur in solid state.
- The melting point and the freezing point of water are different.
- Water exists on Earth in three physical states.

 提供豐富資源、  
 額外連結

按需要顯示答案，供即堂核對

## UP! 多元化教學工具，方便授課

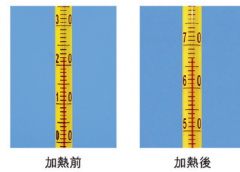
在此輸入標題

淡水是珍貴的自然資源，我們要節約用水，不應浪費。

## 電子練習即時批改

家敏把一杯水加熱，並用溫度計量度水在加熱前後的溫度。下圖顯示溫度計的讀數。

- Ⓐ. 上升了 35 °C
- Ⓑ. 上升了 45 °C
- Ⓒ. 下降了 35 °C
- Ⓓ. 下降了 45 °C



1 2 3 4 5 6 7

© Oxford University Press

## 自行添加資源，把電子書個人化

and arranged in a regular pattern.

- Particles in liquid state are closely packed but not arranged regularly.
- Particles in gas state are far apart.

You will learn more about particles in **Bk 1B, Unit 6**.

### 2 Water

#### 2.1 Change in states of water

- 1 Water exists on Earth in three physical states:
  - a ice (solid state)
  - b water (liquid state)
  - c water vapour (gas state)
- 2 **Melting** is the change in state from a solid to a liquid. When ice is heated to 0 °C, it melts and turns into water. This temperature is the **melting point** of ice.
- 3 **Boiling** is the change in state from a liquid to a gas. When water is heated to 100 °C, it boils and turns into steam. This temperature is the **boiling point** of water.
- 4 During the melting of ice and the boiling of water, the temperatures of the ice and the water remain unchanged.
- 5 When ice melts or when water boils, energy is absorbed from the surroundings.
- 6 **Freezing** is the change in state from a liquid to a solid. When water is cooled to 0 °C, it freezes and turns into ice. This temperature is the **freezing point** of water.

melting 熔點 melting point 沸點 boiling point 凝固點 freezing point

## 查閱遞交記錄，報告詳列成績分佈

Exercise

| Student number | Student name | Marks (%) |
|----------------|--------------|-----------|
| 001            | Mandy Chan   | 100       |
| 002            | Raymond Chan | 85        |
| 003            | Yandy Ho     | 20        |
| 004            | Rebecca Lee  | 56        |
| 005            | Ryan Liu     | 74        |
| 006            | Molly Wong   | 32        |
| 007            | Ray Wong     | 48        |

## 多元化互動活動，堂上分享意見、照片、音效，教師即時預覽，促進課堂討論

### Practical 2.7

Take a photo of your drawing of the beaker of muddy water. Share it with your class.

## 自設課業，適時發放

檔案/網址 練習1.docx

說明 練習1





支援



iOS



Android



Windows



Mac OS



毋須登入 靈活省時

# 隨心選用不同軟件開啟，  
迎合教師需要

UP! 資源齊備，一目了然

- 教學資料
- 豐富資源
- 問題答案
- 額外連結

**物質在不同溫度的溶解度**  
物質的溶解度會受溫度影響嗎？讓我們在實驗2.6探究一下。

**實驗 2.6 溫度對溶解度的影響**

**目的**  
探究溫度對明礬在水中的溶解度的影響

|                                |   |                        |
|--------------------------------|---|------------------------|
| 每組儀器及材料                        |   |                        |
| 玻璃或塑膠燒杯 (250 cm <sup>3</sup> ) | 3 | 玻璃棒                    |
| 量筒 (100 cm <sup>3</sup> )      | 1 | 明礬                     |
| 茶匙                             | 1 | 水 (60 °C、30 °C 和 0 °C) |

- 把100 cm<sup>3</sup> 60 °C 的水加入燒杯內。
- 把一茶匙明礬加進水中，然後用玻璃棒攪拌。
- 待明礬完全溶解後，重複步驟2，直至明礬不能再溶解。記錄你共加了多少茶匙明礬。

**實驗備註**  
如果天氣寒冷，可著學生把燒杯放在裝了棉花的大燒杯中，以減慢熱能散失到四周。

**注意**  
小心熱水。

- 分別用30 °C 和 0 °C 的水，重複步驟1至3。

**參考網站**  
以下網址載有更多關於溶解度與水質的資料：  
香港供水服務處

**延伸閱讀**  
圖2.41所標識的先施技藝館為地產舖，以下網址有更多關於地產舖和海水淡化或鹹水資料：  
海水淡化

**議後活動**

在1963年，香港發生嚴重旱災，當時政府實行制水措施。在嚴峻時期，供水時間縮減至每四天供水一次，每次四小時。試在互聯網上找更多關於香港供水歷史的資料。

**多媒體資訊系統 暫江聯受 供水**

**圖 2.40** 在1963年制水期間，市民在街上排隊輪流取水

**延伸學習**

**開拓新水源**  
香港人口不斷增長，為確保將來有充足的淡水供市民所需，政府正致力開拓新的水資源。目前在將軍澳興建的海水化淡廠就是其中一個項目。將軍澳海水化淡廠採用一種先進技術，把海水中的鹽和其他雜質去除從而生產食水。圖2.41簡單描述該廠技術的原理。

**圖 2.41** 從海水去除雜質和鹽質

**Water 2**

**Skill Designing investigations**

2 Sharon studies how temperature affects the rate of evaporation of water. She wets two towels with the same volume of water. She places them under different conditions. However, Sharon's teacher says the experiment is not a fair test.

a Suggest why the experiment is NOT a fair test and how to make the experiment fair. (2 marks)

The towels are not of the same size. (1)  
Identical towels should be used. (1)

b The towels can also be used to study how wind speed affects the rate of evaporation.

i Draw a diagram to show the experimental design. (2 marks)

Correct set-up (2)

ii Describe the procedure. (4 marks)

Put two identical towels on two dishes. Label the set-ups as A and B. (1)  
Add 5 cm<sup>3</sup> of water to each piece of filter paper. Measure the mass of each set-up with an electronic balance. (1) Leave set-up A in still air. Blow cold air from a fan onto set-up B for 5 minutes. (1) Measure the mass of each set-up again. Find the mass of water evaporated in each set-up. (1)



iOS



Android



Windows



Mac OS



## 電子版練習

NEW

提供課本內練習的電子版，多個平台供教師選擇，迎合不同教學需要

Google Forms

Microsoft Forms

Quizizz

即試!

Google Forms



Microsoft Forms



## 自動批改，學生即時知道正確答案

Level 1 2/20, 共 30 分

Questions 1 to 3: Refer to the information below. Select 'True' for a true statement and 'False' for a false statement.

Joe prepares the set-up below. The set-up is placed under the sun. After several hours, liquid P is collected in the glass.

✗ Question 1 The formation of liquid P involves boiling and condensation. \* 0/1

True ✗

False

正確答案

False

## 課堂即時互動活動，提高學習興趣

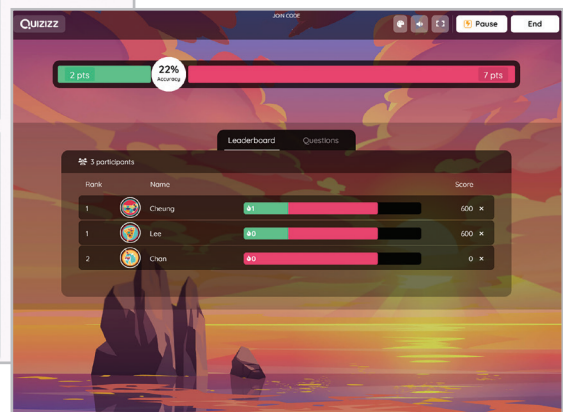
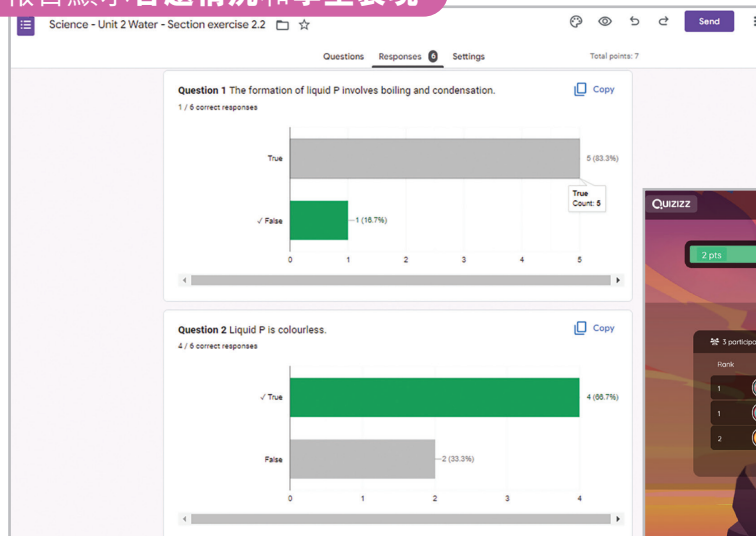
Which of the following can make the jelly powder dissolve faster?

(1) Stir the mixture  
(2) Heat the mixture  
(3) Use a larger bowl

1 (1) and (2) only    2 (1), (2) and (3)    3 (1) and (3) only    4 (2) only

Streak Boost... Immunity Streak Saver

## 報告顯示答題情況和學生表現



04



# Online Question Bank

## 線上試題庫

支援



Windows



Mac OS

# 一站式搜尋題目、  
自訂試卷、匯出試卷

NEW

全新設計

毋須安裝

題目數量

+70%

備收藏功能，  
可標記題目備用

The screenshot shows the 'Junior Secondary Science Mastering Concepts and Skills' interface. It features a search bar, filter options (Series, Book, Unit, Section, Type, Level, Core/Ext, Category), and a list of search results. The selected question is about the formation of water droplets on glasses. The interface also shows a 'Used today (by you)' and 'Used today (by school)' indicator for the question.

Basic concepts and reasoning ✓  
Data analysis  
Science process skills  
Experiment  
Scientific investigation  
Reading  
STSE  
STEM  
Cross unit

顯示題目上次使用時間，  
有助避免重複使用題目

多種搜尋方式，新增按技能選題

匯出選項

- 英文版       中文版  
 題目和答案       只有題目       只有答案

取消

匯出

強大的設計試卷工具，  
有助**加速**設計試卷**流程**



OXFORD  
EXERCISE  
PLATFORM

**NEW**

# Oxford Exercise Platform 牛津網上練習平台

- ✔ 提供預設練習及題目，老師可以直接選用、修改或自設練習
- ✔ 網上派發練習，即時檢視進度

支援



iOS



Android

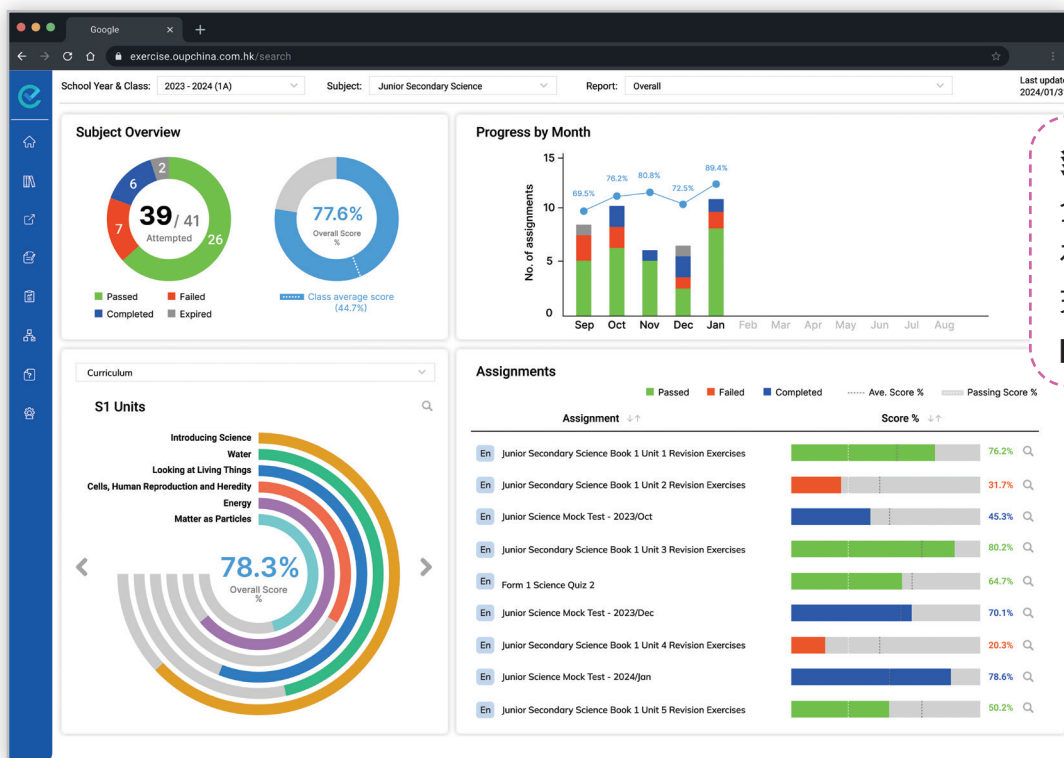
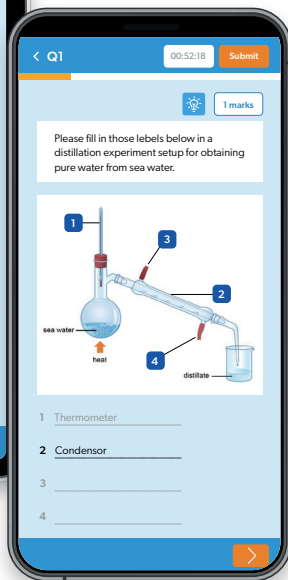
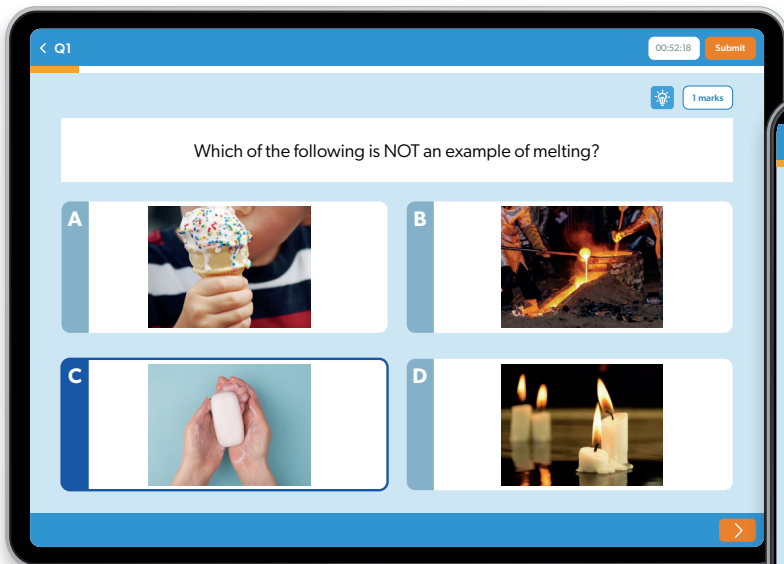


Windows



Mac OS

立即試用



多種分析報告，  
全方位分析學生  
在不同範疇的表  
現，方便老師適  
時跟進



iOS



Android



Windows



Mac OS

大量!!

# 教學影片，解說清晰，  
鼓勵自主學習

## Teaching videos 教學影片

即試!



**Skill builder 2.1**

**Drawing line graphs**

A line graph can show the relationship between two variables. Let us learn how to draw one in the following example.

**Example**

A beaker of water is heated with a Bunsen flame. The temperature of the water is measured at 1-minute intervals. The results are recorded in the table below.

| Time (min)             | 0  | 1  | 2  | 3  | 4  | 5  |
|------------------------|----|----|----|----|----|----|
| Water temperature (°C) | 24 | 35 | 44 | 53 | 62 | 70 |

Draw a line graph of the temperature of water against time.

**Steps**

- Give a title to the graph.
- Put the independent variable on the horizontal axis (x-axis), and the dependent variable on the vertical axis (y-axis). Write down the units.
- Choose a suitable scale which makes full use of the graph paper. The scales should be equally spaced.
- Draw a cross to represent each data point.
- Connect the points with a straight line or a smooth curve.

**Temperature of water against time**

**NEW Skill builder 技能教室**

即試!



**Problem-solving**

\*\*4 There is a big farm in the midstream of a river.

**Video tutor**

Three water samples A, B and C are taken at different locations along the river. The following graphs show the amounts of algae and dissolved oxygen in these samples.

**a** Explain the change in the amount of algae in the water samples. (1 mark)

**b** A large number of dead fish is often found at downstream of the river. Suggest TWO reasons for the death of the fish. (2 marks)

**c** A sewage treatment plant is now built to treat the sewage from the farm before discharging. The treatments are sedimentation, filtration and adding chlorine. Is the water obtained at C suitable for drinking? Explain briefly. (2 marks)

Marks (p. 56-63): / 47 65

**NEW Workbook video tutor 作業解題影片**

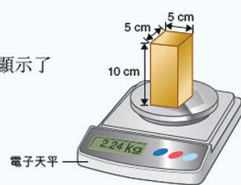
NEW

## Example 例題解說

### 例題解說 6.1

#### 計算物體的密度

右圖顯示銅塊的尺寸，電子天平上顯示了銅塊的質量。計算銅塊的密度。



#### 題解

$$\text{質量} = 2.24 \text{ kg} = 2240 \text{ g}$$

$$\text{體積} = 10 \times 5 \times 5 = 250 \text{ cm}^3$$

$$\text{密度} = \frac{\text{質量}}{\text{體積}} = \frac{2240 \text{ g}}{250 \text{ cm}^3} = 8.96 \text{ g/cm}^3$$

$$\therefore \text{銅塊的密度是 } 8.96 \text{ g/cm}^3.$$

**技巧小錦囊**  
記緊要先把單位由 kg 轉換成 g。

### 即時訓練 6.1

玻璃塊的質量是 1.2 kg，玻璃塊的長、闊和高分別是 8 cm、6 cm 和 10 cm。計算玻璃塊的密度。

即試!



右圖顯示銅塊的尺寸，電子天平上顯示了銅塊的質量。計算銅塊的密度。(g/cm<sup>3</sup>)

密度 =  $\frac{\text{質量}}{\text{體積}}$

質量 = 2.24 kg = 2.24 × 1000g = 2240g

# 另備實驗影片、動畫等，內容豐富，未能盡錄！

# STEM

NEW

## STEM project STEM 專題研習

**STEMproject** **Water-saving device**  
Related content: Unit 2, p. 144

**Problem**  
Tina notices that the other members of her family always take showers for a long time. To save water, Tina decides to make a water-saving device that can remind them to shorten their shower time. She is going to make the device using the pocket-sized computer: micro:bit.

Let me make a water-saving device to remind them to shorten their shower time.

**Objective**  
Design and make a water-saving device using the micro:bit. The device can...

**即試！**




Set a time limit

NEW

## Home lab 在家小實驗

**在家小實驗 8.1** **STEM**

**簡單電動機**  
試試利用電池、銅線和三顆磁鐵來製作電動機，並觀察線圈會發生甚麼變化。

**注意**  
• 使用剪刀時要小心。  
• 銅線可能會變熱，不要讓電路長時間通電。

**影片**

- 把銅線屈曲成上圖的形狀。
- 把磁鐵放置在電池的負極。
- 把銅線放置在電池的正極，使它保持平衡。

**須在成人指導下進行**

**即試！**




再次把銅線放在電池的正極，使它保持平衡

NEW

## Flipped classroom 翻轉課堂

### 2.3 Dissolving

Let's begin

**Flipped classroom**  
Watch a video and answer the questions.

We add sugar to a hot drink to make it taste sweet. After stirring the drink, the sugar seems to disappear. Where does the sugar go?



**2.3 Dissolving**

sugar  
water

the sugar seems to disappear

即試！



備有相關練習連報告，教師可知道學生預習情況，適時調整課堂進度

**Flipped classroom**

Science – Flipped classroom worksheet  
2.3

Question 3

Mandy added 5 g of sugar grains into each of the beaker containing 100 cm<sup>3</sup> of water at 25 °C. She then stirred the sugar solution in beaker B and kept the solution in beaker A undisturbed.

5 g sugar grains added  
100 cm<sup>3</sup> water at 25 °C  
5 g sugar grains added

**Microsoft Forms**

溶解

|   |     |    |     |
|---|-----|----|-----|
| A | 咖啡粉 | 咖啡 | 水   |
| B | 咖啡粉 | 咖啡 | 咖啡粉 |
| C | 水   | 咖啡 | 咖啡粉 |

Google Forms



## PhET Simulation worksheet

### PhET 模擬程式工作紙

支援



iOS



Android



Windows



Mac OS

網頁版毋須下載，鼓勵自主學習

工作紙配合模擬程式使用，  
鞏固學生科學概念



## Interactive practicals

### 互動實驗

跨平台**互動實驗影片**，  
連**網上練習**，有助學  
生掌握實驗重點，預  
習實驗課



# VR Virtual tour 虛擬考察

支援



iOS



Android



Windows



Mac OS



城門郊野公園



# 3D model 3D 模型

支援



iOS



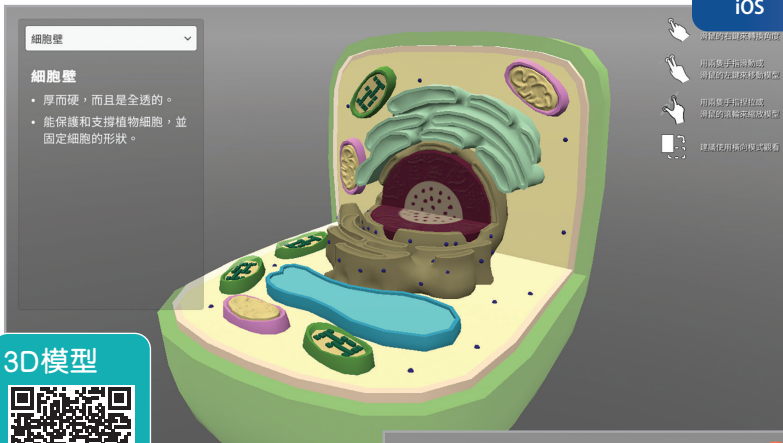
Android



Windows



Mac OS

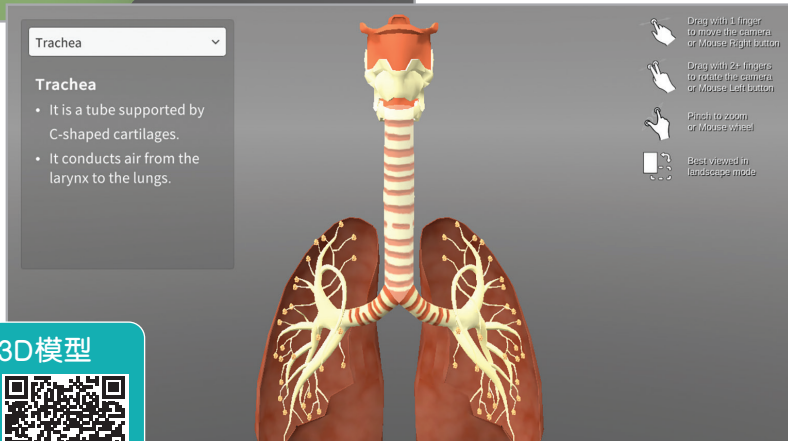


3D模型



# 毋須下載程式，  
一個網址即到

自由旋轉縮放，  
360° 顯示結構



3D模型



NEW



## OxfordSciXR App

- ✔ 利用**互動立體模型**解釋抽象概念
- ✔ 提供**虛擬與實境**混合學習體驗
- ✔ **虛擬實驗室及互動聲效**提供沉浸式的學習體驗

支援



iOS



Android

iOS



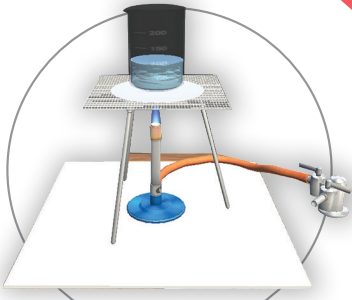
Android



備 Google Forms 配合使用，立即試用：



NEW

增設 VR 虛擬實驗室，  
簡介見於宣傳卡# 增加更多 XR 模型  
及 VR 虛擬實驗室！

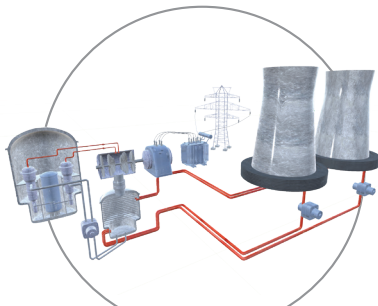
Heating substances with  
Bunsen burner  
用本生燈把物質加熱 (1A p. 63)



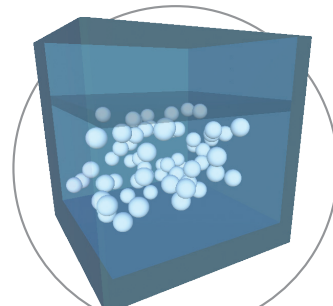
Using the light microscope  
使用光學顯微鏡 (1B p. 4)



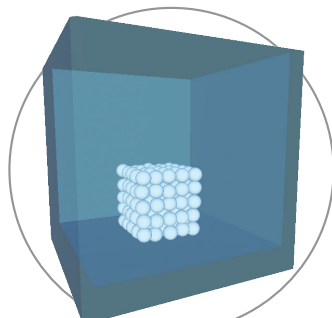
Birth of a new life  
新生命的誕生 (1B p. 53)



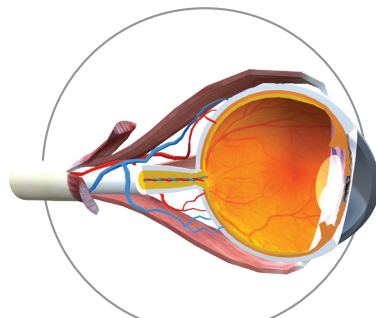
Nuclear power station  
核電站 (1B p. 146)



Gas pressure  
氣壓 (1B p. 205)



Particle model of solids, liquids and gases  
固體、液體和氣體的粒子模型 (1B p. 180)



Short sight and long sight  
近視和遠視 (2B p. 104)

NEW

# eResources list 電子學習資源表

支援



iOS



Android



Windows

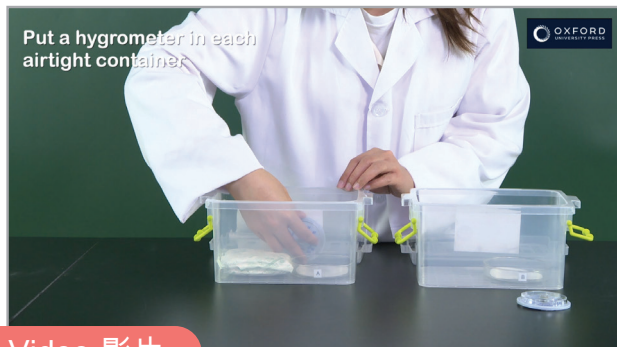


Mac OS

✔ 讓學生隨時隨地閱覽一系列電子教學資源

✔ 毋須登入和 QR 碼

即試！



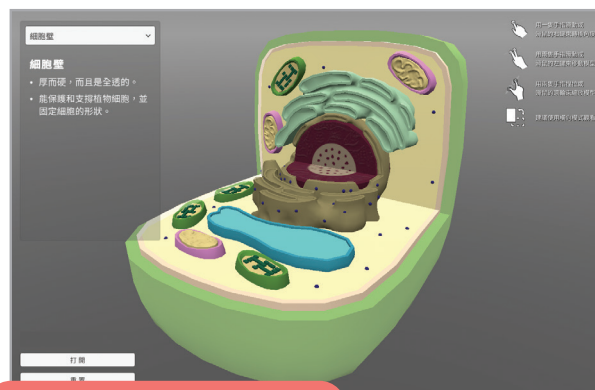
Video 影片



Animation 動畫



VR 虛擬旅程



3D model 3D 模型

NEW

## Padlet

## 牛津科學教師關注組

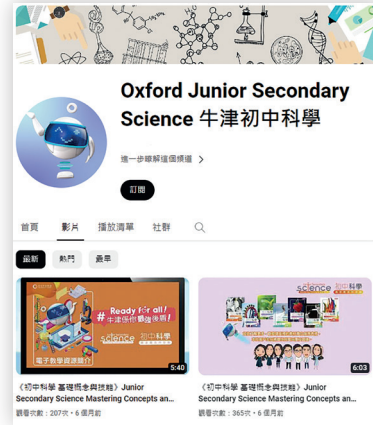


訂閱牛津科學教師關注組 Padlet，獲取最新科學科教材及資訊！



NEW

## YouTube Channel



訂閱牛津初中科學 YouTube 頻道，搶先瀏覽最新資訊！



如老師想進一步了解本課本系列，歡迎填妥預約教材簡介服務表格，本社客戶主任將儘快致電回覆及跟進。



如有任何查詢，歡迎與我們的客戶主任聯絡。

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