

Nov 10th 13:30~16:00

雙語生科起步走-

雙語生科實務分享研習

新北市新泰國中-陳佳萱老師



outlines

What we'll discuss today

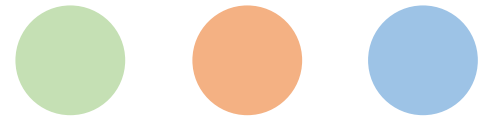
• **2030雙語政策**

• **雙語環境級學校執行方式**

• **七年級教學內容分享**

• **八年級教學分享**

• **教學以及備課資源**



2030 bilingual nation strategies

2030 雙語國家政策整體推動方案

國家發展委員會
教育部
人事行政總處
考選部
公務人員保障暨培訓委員會

110年9月

Why 爲什麼要推動？

How 怎麼推動？

What 要達成什麼願景目標？



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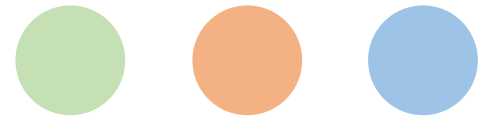
家政策非短期可達成之目標，政府將立法成立行政法人，經由立法及預算保障，確保此一攸關臺灣人才國際競爭力之重大政策，能依步驟循序推動，透過雙語國家政策的穩健紮根推動，讓臺灣的人才有更好的雙語力與競爭力，培育臺灣人才接軌國際，進而吸引更多國際企業來臺深耕，並讓臺灣產業連結全球，提供下一代更富足的未來。



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二、均衡完善高中以下教育階段雙語化條件

高中以下教育階段之各項雙語化策略，不會調整 108 課綱的推動，亦不會排擠既有課程資源，而是以外加資源強化 108 課綱意旨，以核心素養做為課程發展之主軸，強調學生學習不以學科知識及技能為限，而應關注學習與生活之結合，
這正與雙語國家政策希望學生不只於英語課程中學習英語，
亦能運用英語學習其他領域知識，通過英語去探索世界之理
念相符。



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示我國多數學生具備相當聽讀能力，並得以在雙語情境中，正確解讀課堂指令。因此後續可藉由推動雙語教學強化英語表達能力，故在國民教育階段，應以建置各校沉浸雙語學習環境為目標。



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(1) 強化學生在生活中應用英語的能力

提高學生英語力及儲備未來職場競爭力。到了 2024 年，全國有 60% 高中以下學校落實英語課採全英語授課，且每 7 所學校就有 1 所於部分領域課程實施雙語教學；到了 2030 年，全國 100% 高中以下學校落實英語課採全英語授課，且每 3 所學校就有 1 所於部分領域課程實施雙語教學。

非考科到2030年感覺勢必執行雙語授課



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(2) 推動校際合作

提高學生運用英語交流溝通之頻率。到了 2024 年，
全國每 14 所學校就有 1 所學校與國外學校締結姊妹
校；到了 2030 年，全國每 6 所學校就有 1 所學校與
國外學校締結姊妹校。



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(4) 擴增雙語人力：

生運用英語溝通之動機。到了 2024 年，累計培育 6,000 名本國籍雙語教學師資，全國每 5 所學校就有 1 所學校引進外籍英語教學人員或部分工時之外籍英語教學助理；到了 2030 年，累計培育 15,000 名本國籍雙語教學師資，並達成全國公立國中小均引進外籍英語教學人員或部分工時之外籍英語教學助理，而全國每 3 所公立高中就有 1 所有外籍英語教學人員。



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三、數位學習

2. 個人化學習設備：教育部現已提供個人學習載具，並預計於 2025 年前再持續增購，搭配資訊科技教室及智慧學習教室可補足數位學習需求。

各類英檢證照等級對照表

| CEFR 語言能力參考指標 | 劍橋大學英語能力認證分級測驗 Cambridge Main Suite | 劍橋大學國際商務英語能力測驗 BULATS ALTE | 全民英檢 GEPT | 傳統多益 TOEIC | 新版多益 New TOEIC | 多益口說 | 雅思國際英語測驗 IELTS | 托福 TOEFL | | 由 LTTC 舉辦之外語 (含英、日、德、法、西語) 能力測驗 (FLPT) | | 全球英檢 Global English Test | 全國英語等級考試 Public English Test System (PETS) 中國大陸考試中心設計 並實行之英語水準考試 |
|---|---|-------------------------------|--------------|---------------|---------------------------------|-----------------------|---------------------------|-------------|---|---|--------|-----------------------------|---|
| C2 Mastery | Certificate of Proficiency in English (CPE) | Level 5 90~100 分 | 優級 | 950 以上 | | --- | 8 或以上 (且單項均至少 8 分) | 630 以上 | | 三項筆試總分 | 口試級分 | C2 | --- |
| C1 Effective Operational Proficiency | Certificate in Advanced English (CAE) | Level 4 75~89 分 | 高級 | 880 以上 | 945 分以上 聽力須達 490 閱讀須達 455 | 滿分 200 (Level 8) | 7 或以上 (且單項均至少 7 分) | 560 以上 | 110 分以上 閱讀須達 28 聽力須達 26 口說須達 28 寫作須達 28 | 240~330 | S-3 以上 | C1 | PETS-5 |
| B2 Vantage | First Certificate in English (FCE) | Level 3 60~74 分 | 中高級 | 750 以上 | 785 分以上 聽力須達 400 閱讀須達 385 | 160 以上 (Level 7) | 5.5 或以上 (且單項均至少 5.5 分) | 527 以上 | 87 分以上 閱讀須達 22 聽力須達 21 口說須達 23 寫作須達 21 | 195~239 | S-2+ | B2 | PETS-4 |
| B1 Threshold | Preliminary English Test (PET) | Level 2 40~59 分 | 中級 | 550 以上 | 550 分以上 聽力須達 275 閱讀須達 275 | 120 以上 (Level 5-6) | 4 或以上 (且單項均至少 4 分) | 457 以上 | 57 分以上 閱讀須達 8 聽力須達 13 口說須達 19 寫作須達 17 | 150~194 | S-2 | B1 | PETS-3 |
| A2 Waystage | Key English Test (KET) | Level 1 20~39 分 | 初級 | 350 以上 | 225 分以上 聽力須達 110 閱讀須達 115 | 90 以上 (Level 4) | 3 或以上 (且單項均至少 3 分) | 390 以上 | | 105~149 | S-1+ | A2 | PETS-2 |
| A1 | | | | | | 90 以下 (Level 1-3) | | | | | | A1 | PETS-1 |

資料來源：各大考試官方網站搜集匯整

1. 【劍橋大學英語能力認證分級測驗】【劍橋大學國際商務英語能力測驗】http://www.bulats.com.tw/test_cefr.php / https://www.ltcc.ntu.edu.tw/CEFRbyLTTCag_tests.htm
2. 【全民英檢 GEPT】【由 LTTC 舉辦之外語能力測驗 (FLPT)】https://www.ltcc.ntu.edu.tw/CEFRbyLTTC_tests.htm
3. 【新版多益測驗 New TOEIC】【新版多益口說測驗 New TOEIC Speaking】【托福測驗 TOEFL】<http://www.toeefl.com/FL/12100025-25>

兩年前是怎麼開始雙語生活科技課的呢……



W2: Environmental Protection (1478/17)

Thursday, 29 July 2021 1:59 PM

Environmental Protection

| | |
|-------------------------|--|
| Main Aim: | <input type="checkbox"/> Understand that education for sustainability develops knowledge, skills, values, and world views necessary for people to act in ways that contribute to more sustainable patterns of living. |
| Subsidiary Aims: | <input type="checkbox"/> Learn language connected to the environment. <input type="checkbox"/> Listen to a dialogue about environmental protection. <input type="checkbox"/> Explore how sustainability content can be taught under the scope of Scouting. |

Warmer

- You are going to find out about *World Environment Day*. Use the internet to find answers to the following questions:

綜合領域的雙語課程

綜合領域的雙語課程

| Word | Definition |
|---------------------|---|
| a reduction | a) when there is less of something |
| biodiversity | b) a variety of plants and animals in a place |
| an initiative | c) a plan to do something together |
| worldwide | d) across the whole world |
| impact | e) to make people think about something |
| climate change | f) a change in temperatures and weather around the world |
| to ban | g) to say that people cannot do or use something |
| sustainable | h) using resources in a way that ensures there will be enough for the future |
| local community | i) people who live in the same town or neighbourhood |
| recycle | j) turn rubbish into new products |
| landfill | k) rubbish and waste materials buried under the ground |
| renewable resources | l) energy sources that cannot be depleted and are able to supply clean energy |

2. Complete the following sentences using some of the words and phrases above.

自主學習英語增

< ☰ AA 🔍 ⋮

bite | [baɪt] | n. 咬; 咬伤, 叮伤

aspen | [ˈæspən] | n. 山杨

institute | [ˈɪnstɪtju:t] | n. 协会, 学会; 学院, 研究院

invite | [ɪnˈvaɪt] | vt. 邀请; 请求, 要求; 引诱, 怂恿; 招致

campus | [ˈkæmpəs]... (大学) 校园; 大学或其分校

onstage | [ˌɒnˈsteɪdʒ] | adj. 舞台表演区的; 台上的, 台上演出的

biography | [baɪˈɒɡrəfi] | n. 传记

publish | [ˈpʌblɪʃ] | v. 出版; 公布

jokingly | [ˈdʒɔʊkɪŋli] | adv. 开玩笑地, 打趣地

worked. But now that I was no longer at either of those places, I hadn't heard from him much. We talked a **bit** about the **Aspen Institute**, which I had recently joined, and I **invited** him to speak at our summer **campus** in Colorado. He'd be happy to come, he said, but not to be **onstage**. He wanted instead to take a walk so that we could talk.

That seemed a **bit** odd. I didn't yet know that taking a long walk was his preferred way to have a serious conversation. It turned out that he wanted me to write a **biography** of him. I had recently **published** one on Benjamin Franklin and was writing one about Albert Einstein, and my initial reaction was to wonder, half **jokingly**, whether he saw himself as the natural **successor** in that sequence. Because I assumed that he was **still**

⏏ 📊 🗨️ 🔍

🕒 定時 ⏪ 1x 00:36 -11:58 ⏩



編輯

Podcast

立即聆聽

瀏覽

排行榜

搜尋

資料庫

最近更新

節目

已儲存

已下載

最新單集

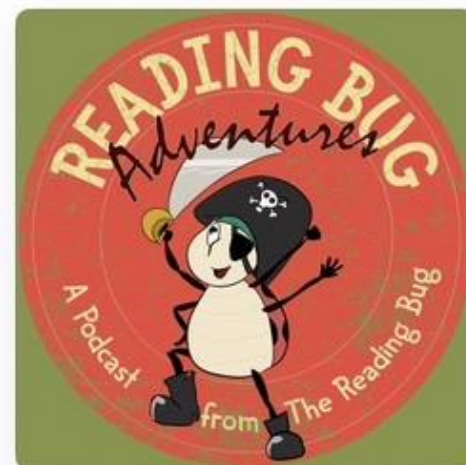
電台

新增電台

節目



Picking up STEAM
更新時間：2018年1...



Reading Bug Adventu...
更新時間：6月7日



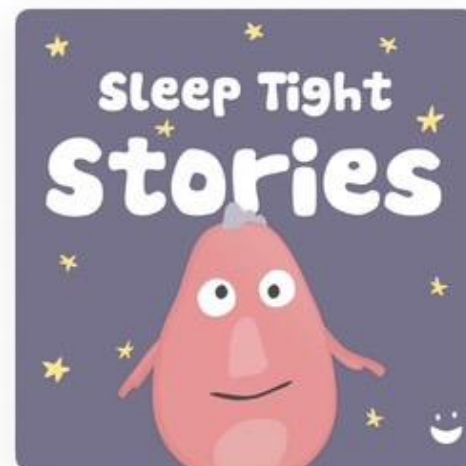
Real English Convers...
更新時間：8月31日



RealLife English
更新時間：9月5日



Sip on This with As...
更新時間：2019年...



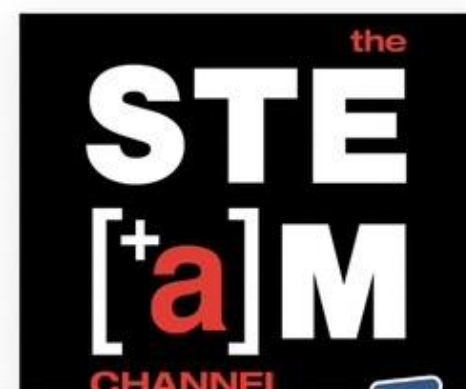
Sleep Tight Stories -...
更新時間：9月1日



Sounds Like A Plan
更新時間：6月8日



Speak English With A...
更新時間：2021年1...



English Idioms : Food

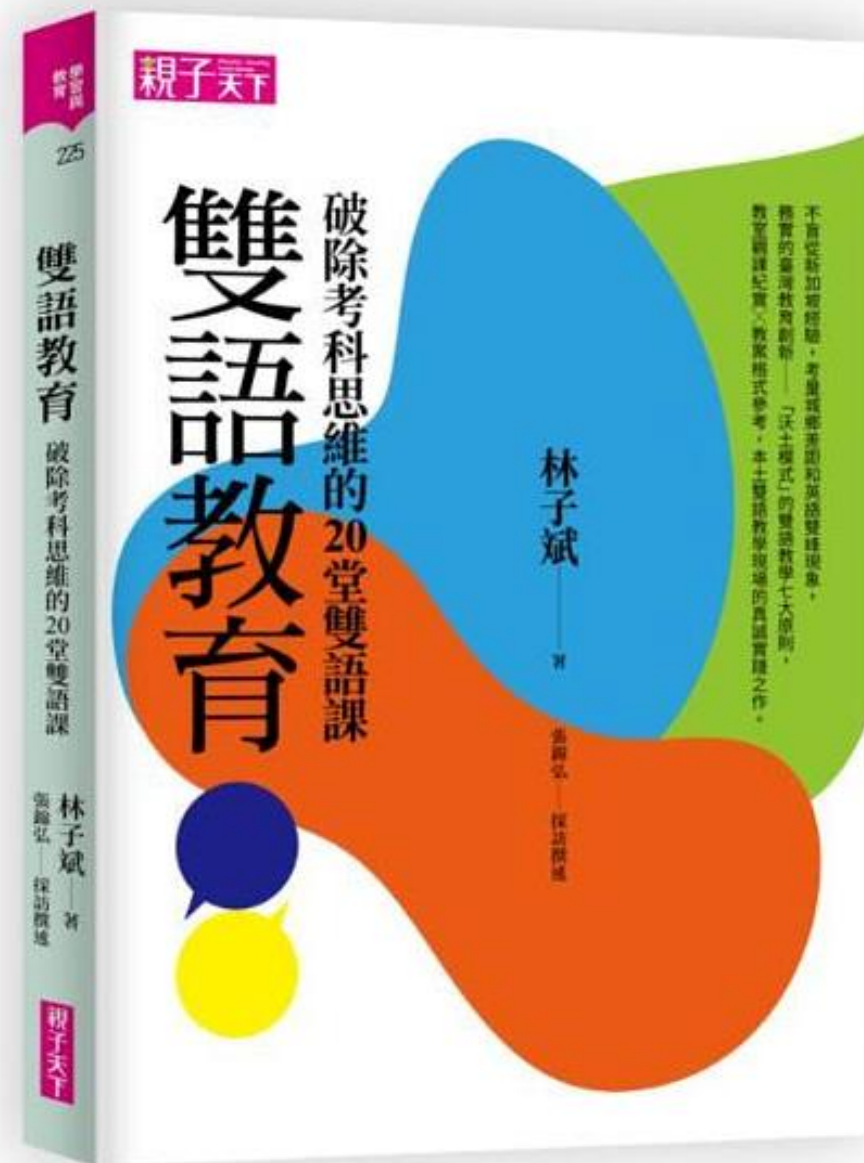
Speak English With A British Accent — 2021年1月27日



要怎麼開始備課呢？



準備期間我們做了……



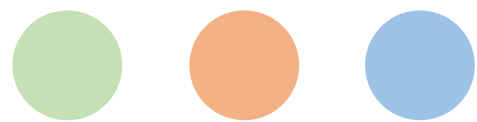
內容節錄至《雙語教育-破除考科思維的20堂雙語課》

提醒1：要營造雙語環境

提醒2：不能犧牲學科知識

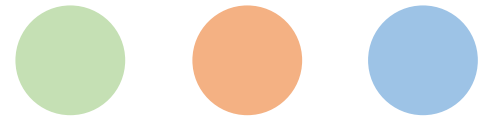
提醒3：應視學生程度調整

提醒4：應破除考科思維



課程實施對象

- 對象：**七年級全體學生**
- 實施對象英語能力背景：**新北及台北國小畢業生英語詞彙能力落在300字，部分學生詞彙量達400字** (臺灣師範大學宋曜廷教授，2020)
- 分組方式：**依據七年級學生第一次英文段考成績(包含聽力與閱讀成績)**，將全班28人分位6組，每一組皆包含各成績級距的學生，成績最高之學生為該組別組長。



課程實施方式

- 除了生活科技木工實作為個人活動外，其餘活動皆採分組合作學習的方式。
- 各組別配有一至二位英文能力落在**80~100分**區間的同學為組長。

雙語課程說明

開學第一節課先幫學生做好心理建設

Ex: 老師也是土生土長的台灣人，教學相長

- 上課採用雙語模式

因應**2030雙語政策**，110學年度入學學生生活科技課上課以**中英文交錯**的方式授課

討論發表、作業、實作活動……



課室用語先下手!



課室用語手冊

可能有部分的句子不適合學生(發展自己需要的)

<https://vtedu.k12ea.gov.tw/uploads/16540475248210xRD7KHq.pdf>



- Part 2 -

課堂用語

1 問候語 & 點名

請掃描 QR-CODE
聽取音檔



| 編號 | 例句 | 中譯 |
|-----|--|---------------|
| ▶ 1 | Attention, please. It is class time! | 上課時間到了。 |
| ▶ 2 | (1) It's time to start now. | 現在開始上課。 |
| | (2) Let's begin our lesson now. | 現在開始上課。 |
| ▶ 3 | Is everybody ready to start ? | 大家準備好了嗎? |
| ▶ 4 | I hope you are all ready for your English lesson . | 希望你們準備好上英文課了。 |
| ▶ 5 | (1) Now we can get down to work . | 我們可以開始了。 |
| | (2) I think we can start now. | 我們可以開始了。 |
| ▶ 6 | (1) Now, let's begin today's lesson . | 我們現在開始上課吧。 |
| | (2) We are going to start today's lesson . | 我們要開始今天的課程了。 |
| | We won't start until everyone is | |

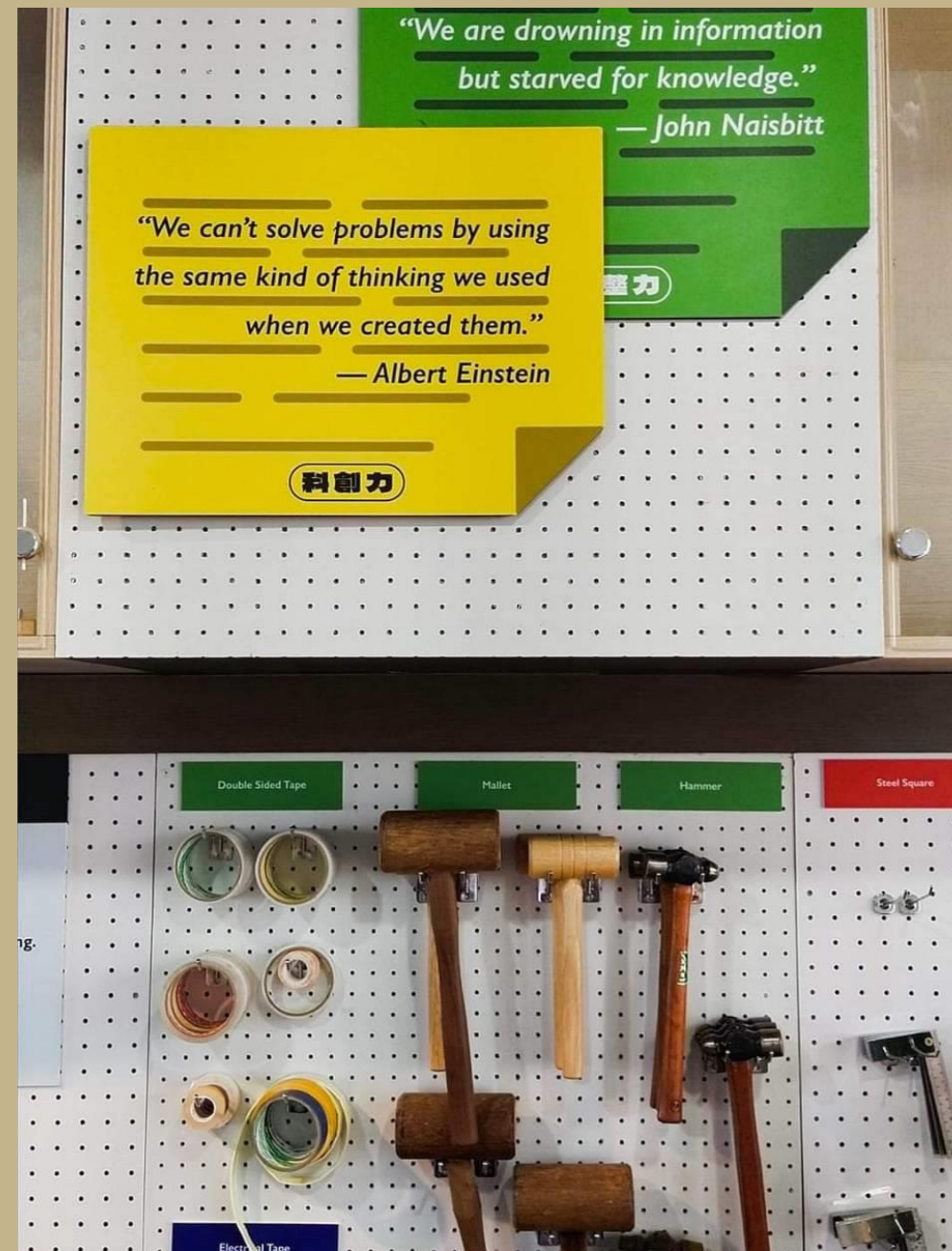
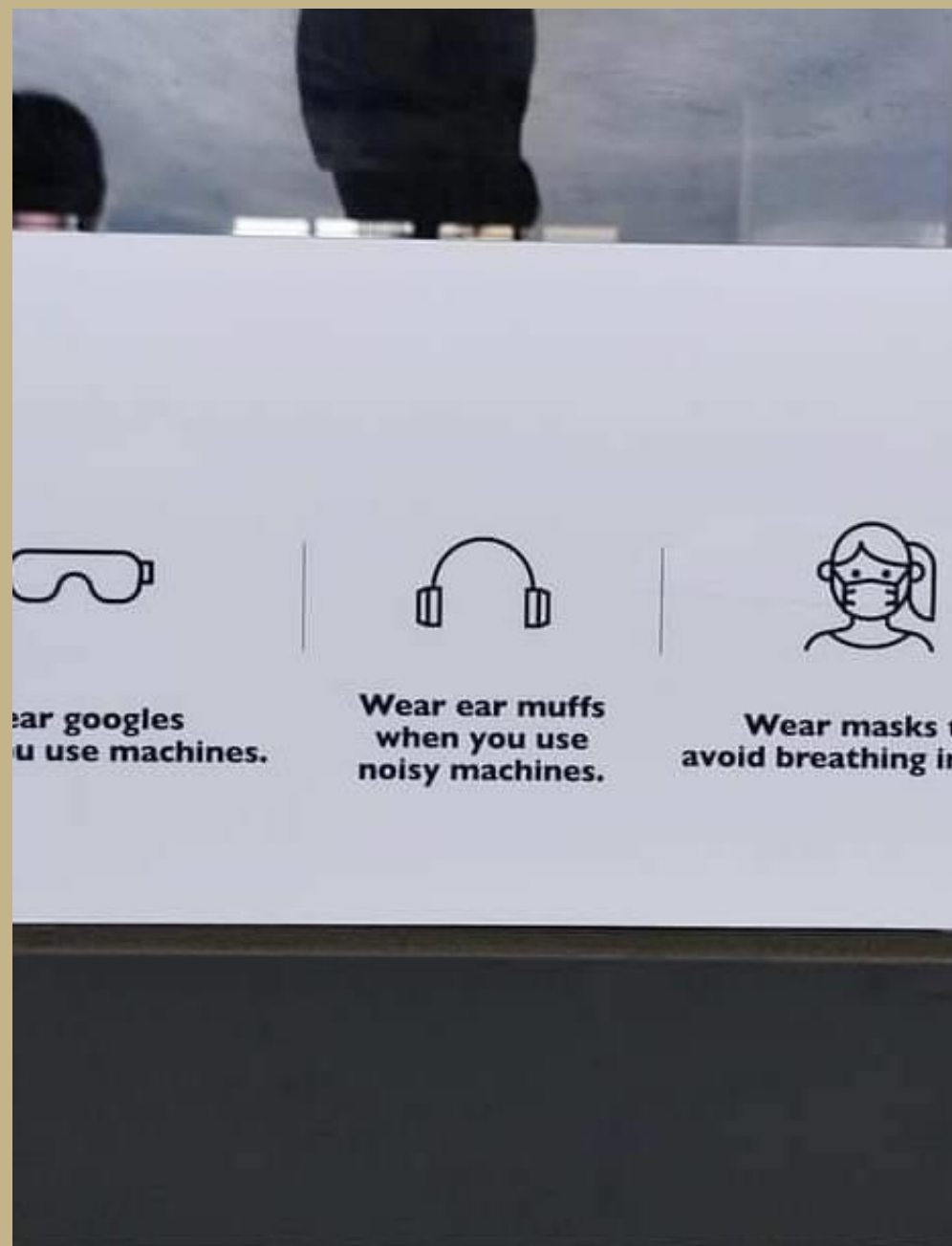
| | | |
|------|--|-------------------------------|
| ▶ | (2) I'm going to take the roll . | |
| ▶ | (3) Let's take attendance . | |
| ▶ 11 | Let's check who is present and who is absent . | 看一下誰 出席 誰 缺席 。 |
| ▶ 12 | Please respond to your roll number . | 叫到 座號 請回應。 |
| ▶ 13 | Is anybody absent today? | 有人 缺席 嗎? |
| ▶ 14 | Who is missing today? Is anyone absent ? | 今天誰沒來? 有人 缺席 嗎? |
| ▶ 15 | Does anyone know why Diana is not here? | 有人知道黛安娜為什麼沒來嗎? |
| ▶ 16 | Listen while I call your names . | 聽我 叫你們的名字 。 |
| ▶ 17 | (1) Raise your hand and say " Here ." when I call out your name. | 叫到你的名字時, 請舉手並且回答「 到 」。 |
| | (2) Raise your hand and say " Present ." when I call out your name. | |

雙語環境

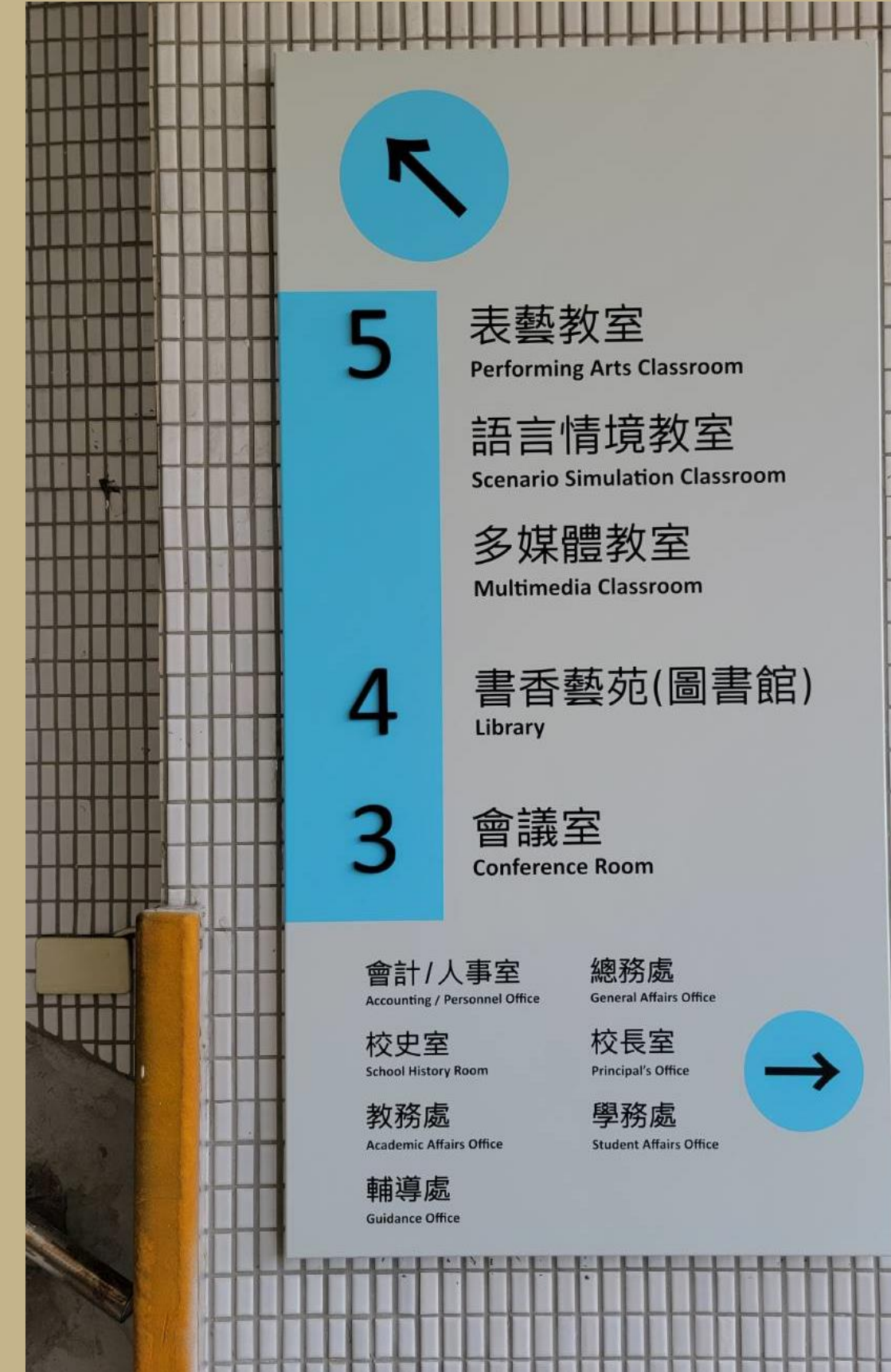


Bilingual strategies in our campus

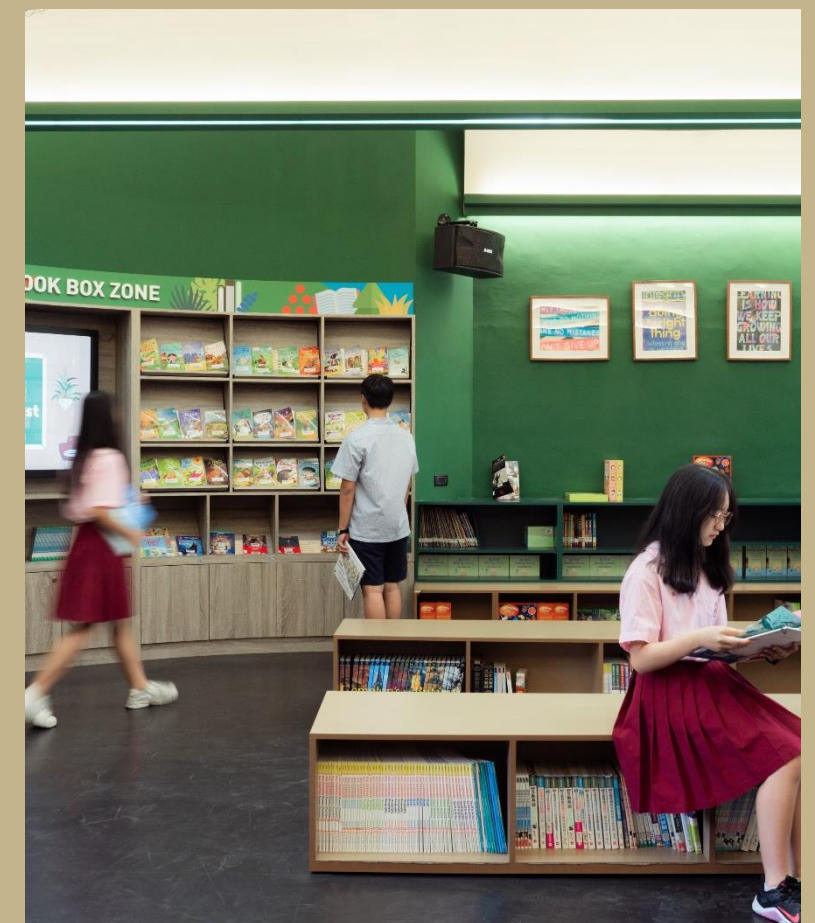
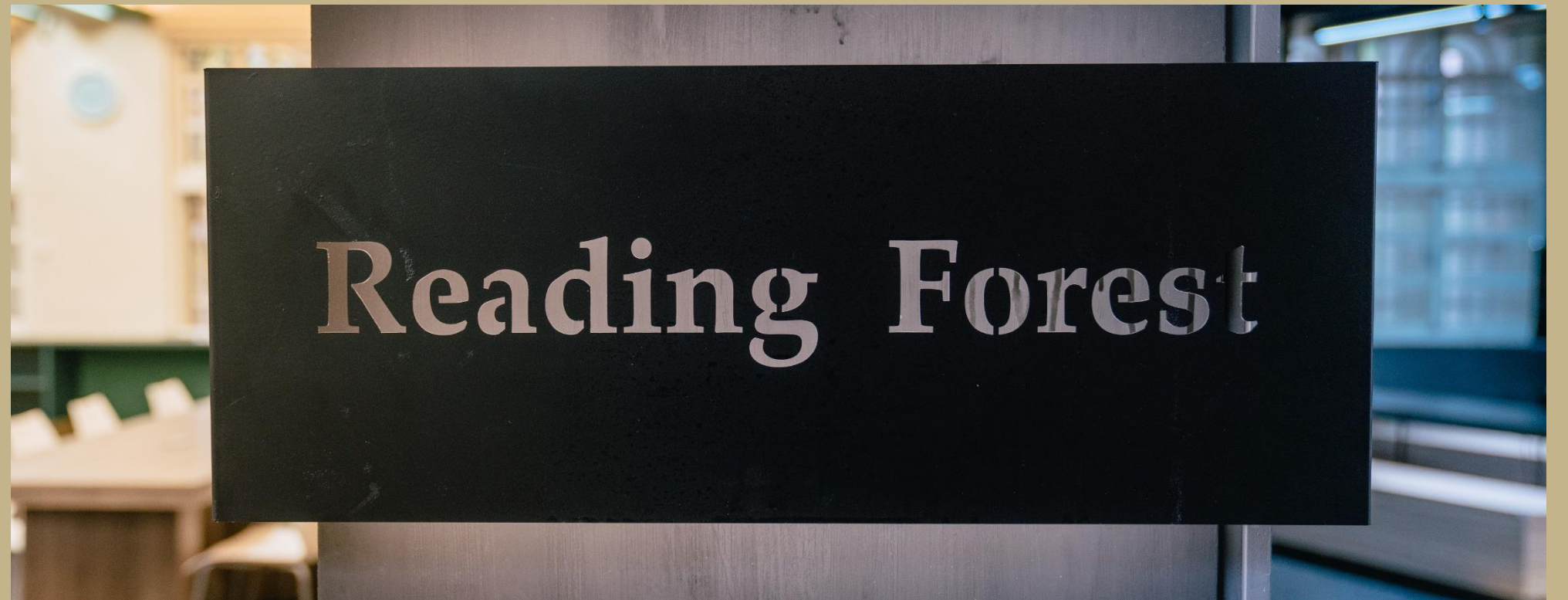
情境布置



情境布置



情境布置



Reading Forest

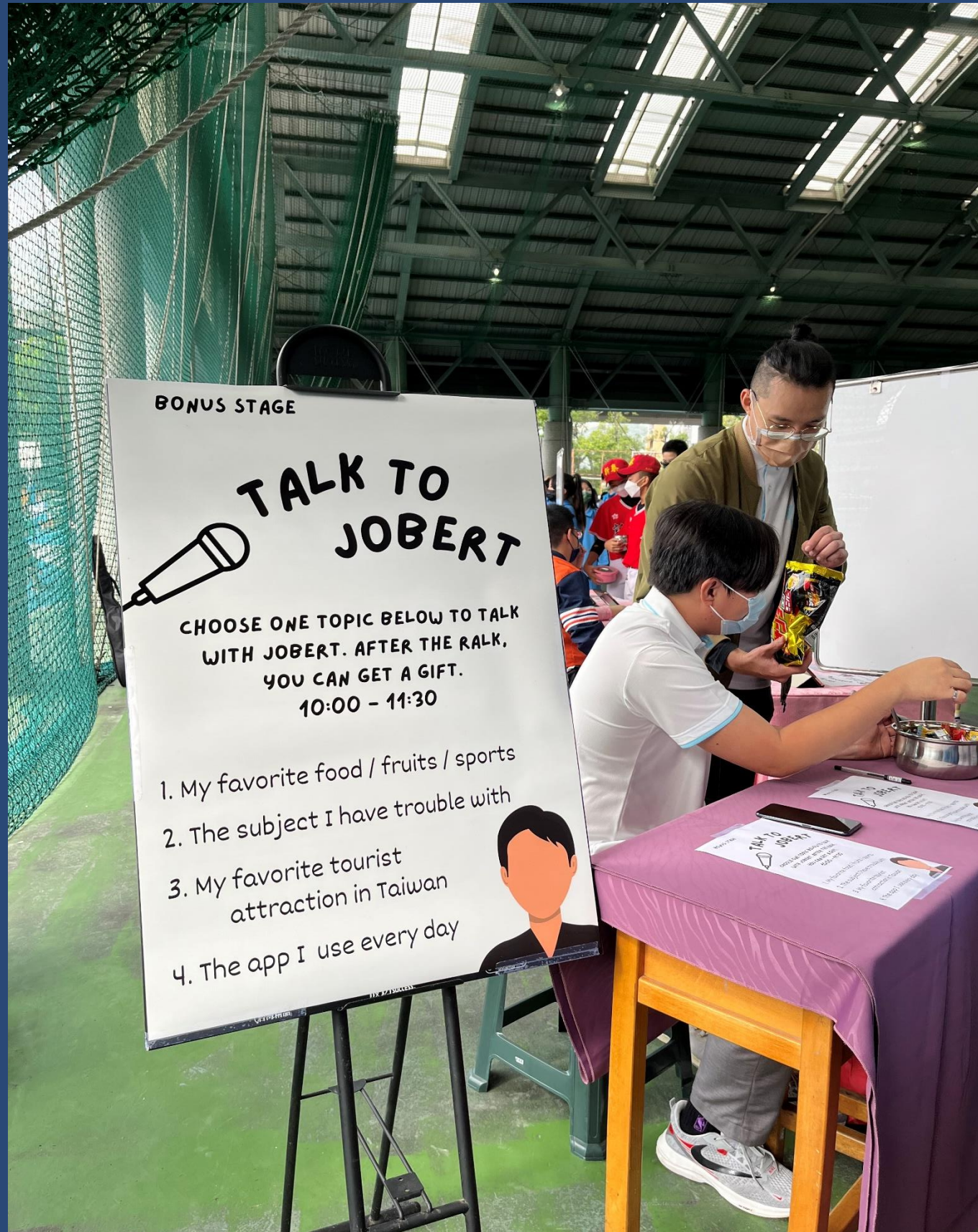
全美語的閱覽室，藏書5000多本

- 每學期英語老師帶學生入館閱讀
- 每學期全班至少讀一本英文書
- 寒暑假安排英文閱讀作業
 - 辦理快閃借書活動



全校性雙語活動

雙語園遊會



全校性雙語活動

聖誕節雙語闖關活動



全校性雙語活動

聖誕節雙語闖關活動



全校性雙語活動

行政雙語廣播、升旗儀式(雙語)

ABOUT US

Xintai Junior High School, established in 1976, is located in Xinzhuang District, New Taipei City. Its vision is to pursue Truth, Goodness, and Beauty. Our teaching and administrative staff participate in innovative educational projects conscientiously and actively, including becoming a core school in New Taipei City and a promotor of art education and experimental English classes.

Starting with Xintai, we intend to develop a global vision for the school, and bring it to the world. Therefore, we plan to visit different countries with teachers and students to know more about the world through cultural and educational exchanges.



The school occupies an area of 3.273863 hectares. As a three-year junior high school, it provides education to students aged 13 to 15. There are 53 regular classes, 6 sport talent classes, 2 special education classes as well as 7 kindergarten classes.



雙語介紹校園的手冊

教師專業社群

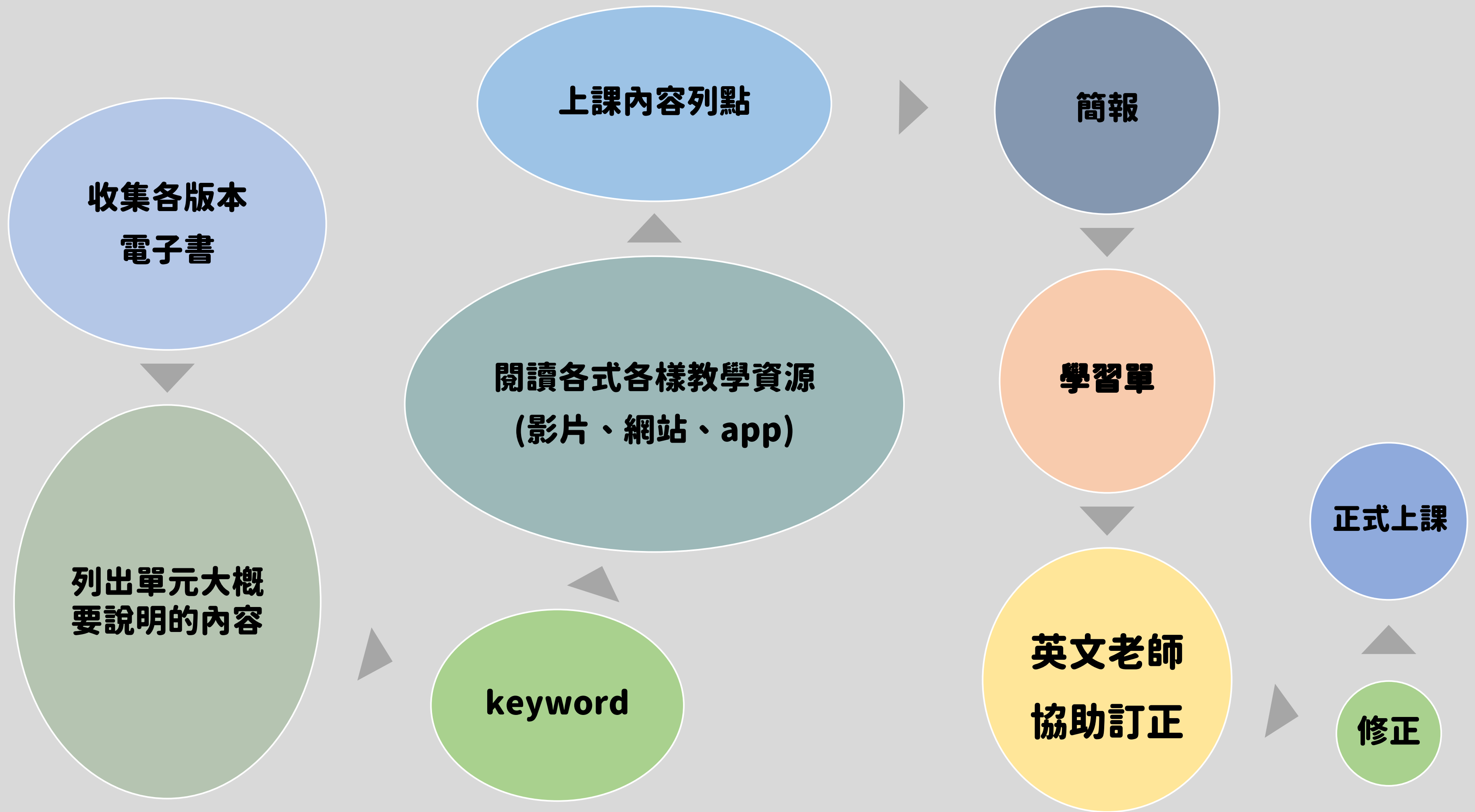
校內開設多益班，協助老師提升英語能力



如何準備一份雙語教學教案？

以康軒課本chapter 2動力越野車為例





收集各版本
電子書

上課內容列點

簡報

閱讀各式各樣教學資源
(影片、網站、app)

學習單

列出單元大概
要說明的內容

keyword

英文老師
協助訂正

正式上課

修正

收集各版本
電子書

康軒
南一
翰林
(當參考)

1111_03生科2上第2章動力越野車教備 (1)

圖書館利用教育_創新所 (2021) | 論文排版 | 行事曆 | 1111_03生科2上第2章動力越野車教...

抵達終點。

A 平齒輪

手錶中的平齒輪



平面齒輪為常見的齒輪，將兩齒輪的輪齒互相咬合，可以傳遞動力。

B 雙層齒輪

燃油機車引擎中的雙層齒輪



同一齒輪中，同時具有大小不同的齒輪。藉由雙層齒輪的連接、搭配不同大小的齒輪咬合，可以達到增速或減速的效果。

▲圖2-2-22 常見齒輪種類。

212 生活科技篇



keyword

Gear

Mechanism

Gear simulator app for kids

Gear for kids

Types of gear

Chain and gear

Gear application in daily life

Gear gif (動畫檔)

閱讀各式各樣教學資源 (影片、網站、app)

Google Gear application in daily life

YouTube: Uses of Gears in Our Daily Life, General Science Le...

Prezi: Gears in Everyday Life by sophie tjahja

Prezi: Gears In Everyday Life by Jovie wilson

Motion Control Tips: Gearsets in action – Real-world motion syste...

Google Sites: Real World Gear Examples - Te...

Energy Education: Gear - Energy Education

Byju's: Types Of Gears and its Practical Application in Real Life

Thomasnet: How Gears Work - Different Types of Gears, their F...

Google Gear simulator app for kids

全部 圖片 新聞 影片 地圖 更多

algodoo lords mobile generator spur gear generator simulation software design software

Softonic: Gears simulator - Download

iGameMom: Fun STEM App for Kids...

Google Play: Gear Design - Apps on Googl...

App Store - Apple: Crazy Gears on the App Store

148Apps: Gear Simulation & Calc...

App Store - Apple: Gear Simulation & Calc...

LESSON

What Are Gears and What Do They Do?

★★★★☆ (3 Ratings)

[Click here to rate](#)

Legacy Curriculum


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Questions? We're here to help: leave us a [comment](#).



Quick Look

| | |
|-----------------------|---|
| GRADE LEVEL: | 5 (5 - 7) |
| LESSONS IN THIS UNIT: | 1 2 |
| TIME REQUIRED: | 45 minutes |
| SUBJECT AREAS: | Physics Science and Technology |

 [Print this lesson](#) v

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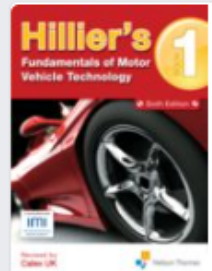


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Hillier's fundamentals of motor vehicle technology. Book 1

626 Pages · 2011 · 205.61 MB · 45,724 Downloads · **New!**

Intake, exhaust valves and valve-operating gear Valve-operating mechanisms Intake manifolds Air cleaners



Rules of Thumb for Mechanical Engineers - A Manual of Quick, Accurate Solution...

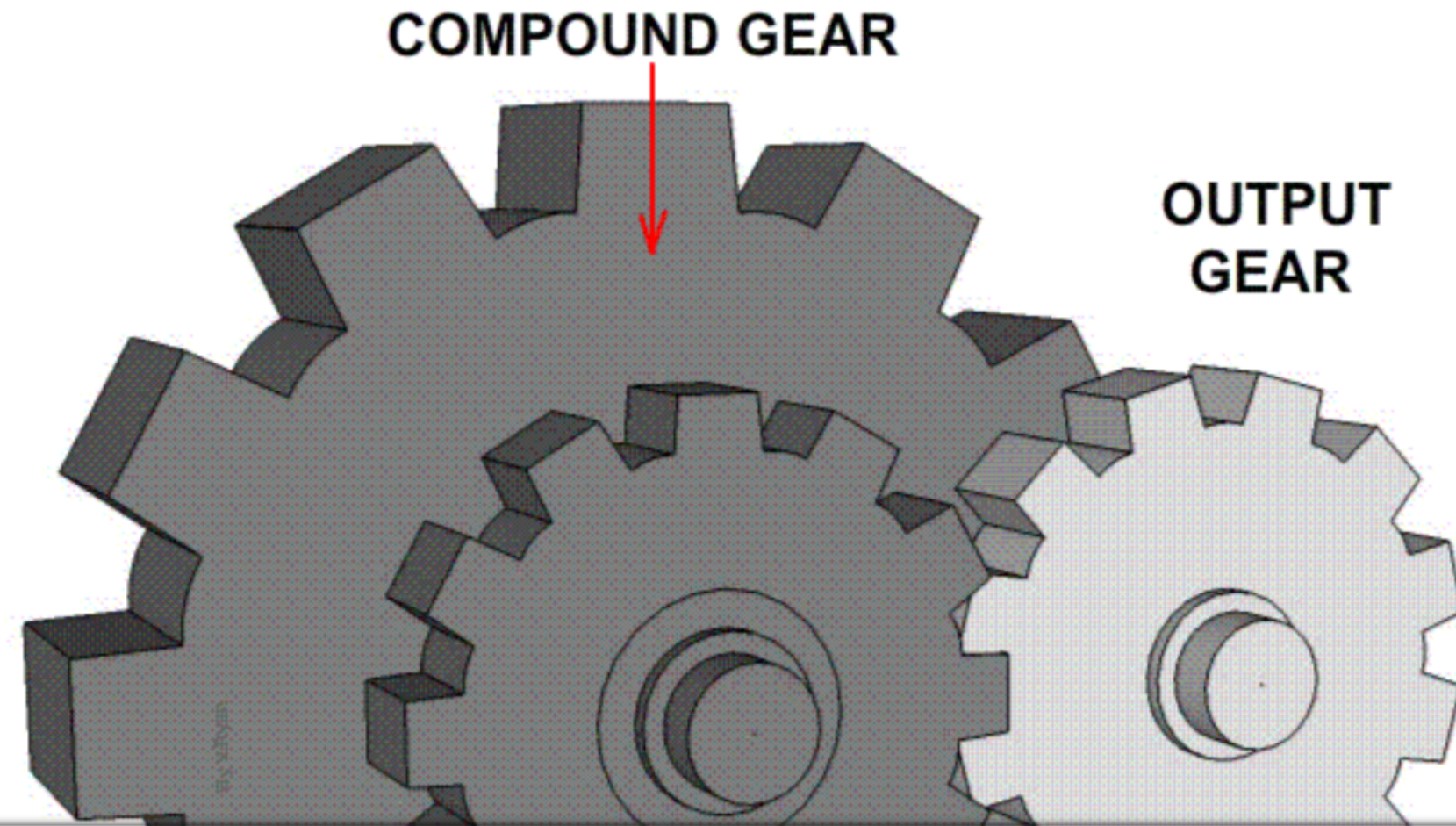
[Pdfdrive:hope](#) Give books away. Get books you want.

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- Children & Youth
- Environment
- Fiction & Literature
- Health & Fitness
- Lifestyle
- Personal Growth
- Politics & Laws
- Religion
- Science & Research
- Technology

A compound gear is a number of gears fixed together. Consequently, they rotate at the same speed. An example can be seen below.

The gears that make up a compound gear usually differ in size and have a different number of teeth. This is useful if there is a need to speed up or slow down the final output.

For the example seen opposite, the output speed will be faster than the input speed.



大量閱讀國外相關網站或是書籍或是pdf然後統整出自己課堂的上課內容

Part A . Relation among machine parts (_____) and mechanism(_____) and machine (_____) 機件、機構與機器的關係

1. _____ (機件，機械零件)：

存於機械中的單獨元件便是機件。例如：齒輪、齒條、鍊條、桿、軸承……等



2. _____ (機構)：

兩個或兩個以上的機件組合在一起時，當推動其中一個機件，相連接的其它機件便產生規律相對運動或限制運動便形成機構。



3. _____ (機械)：

機械是由多個不同功能的機構所構成，除了傳達動力與做出可預期動作外，能將能量轉變為有效的功輸出。



中英對照

剪下 複製 複製格式 剪貼簿

版面配置 重設 章節 投影片

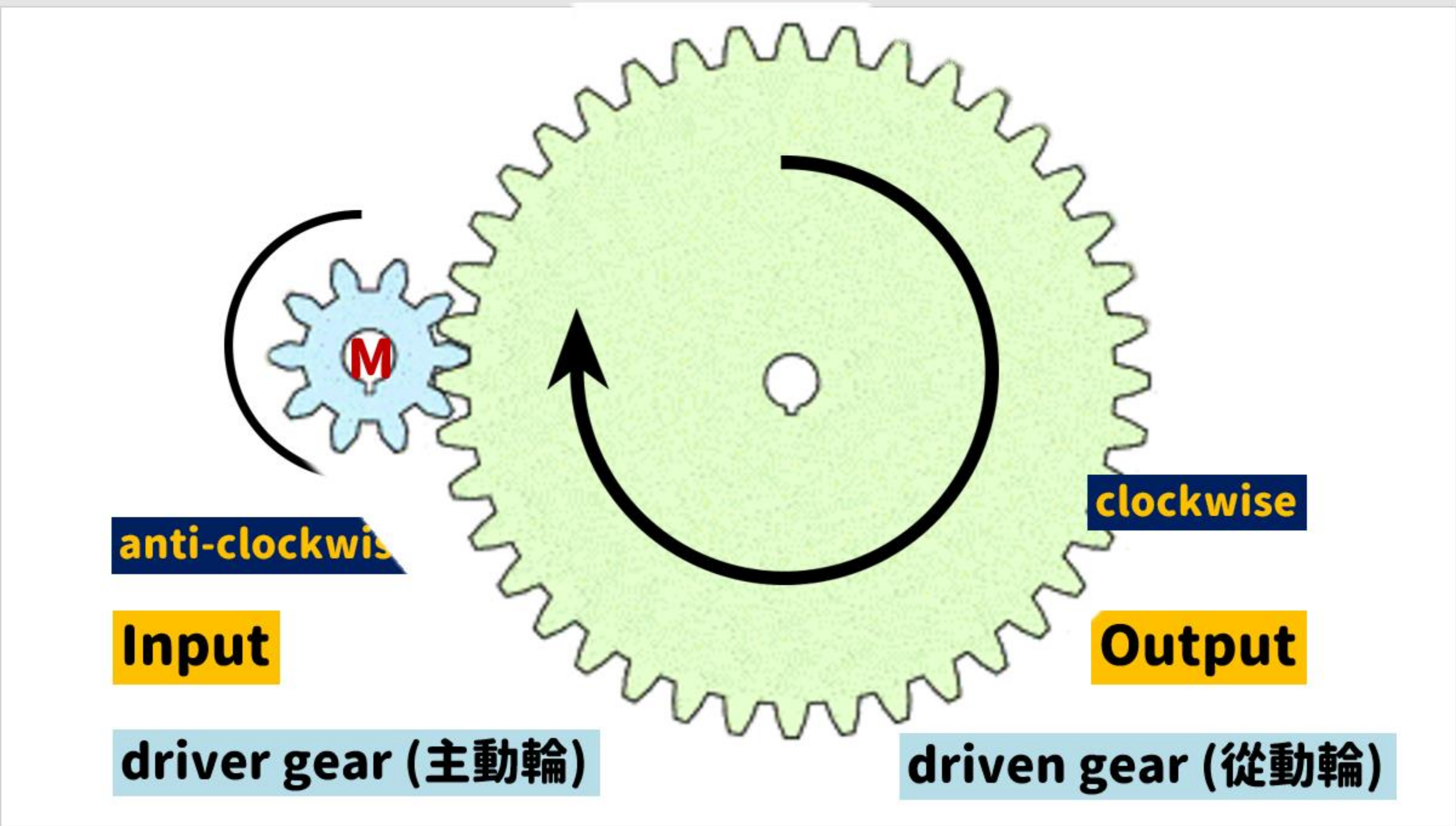
字型: B I U S abc AV - Aa - ab - A -

段落: 文字方向, 對齊文字, 轉換成 SmartArt

繪圖: 圖案填滿, 圖案外框, 圖案效果, 排列, 快速樣式

編輯: 尋找, 取代, 選取

- 19 Gear train (輪系)
- 20 Same(相同的) gear
- 21 **★** anti-clockwise, clockwise, Input, Output, driver gear (主動輪), driven gear (從動輪)
- 22 driver gear (主動輪), driven gear (從動輪)
- 23 **★**



Driver and driven gear

Grade 7

Lessons

- 科技的起源與演進
- 創意思考與設計
- 工具使用 (電動工具 / 手工具)

outline

- 1. What is Technology ?**
- 2. What is the difference between Technology and Science ?**
- 3. The categories of Technology**
- 4. The evolution of Technology**
- 5. Group discussion : Super changes**
- 6. Homework : Is technology making life better or worse?**

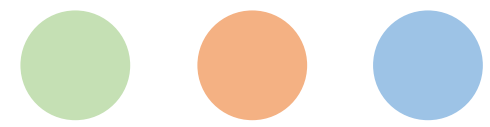
Guess

- **Look at the pictures below and circle the picture which is technology?**



Technology is



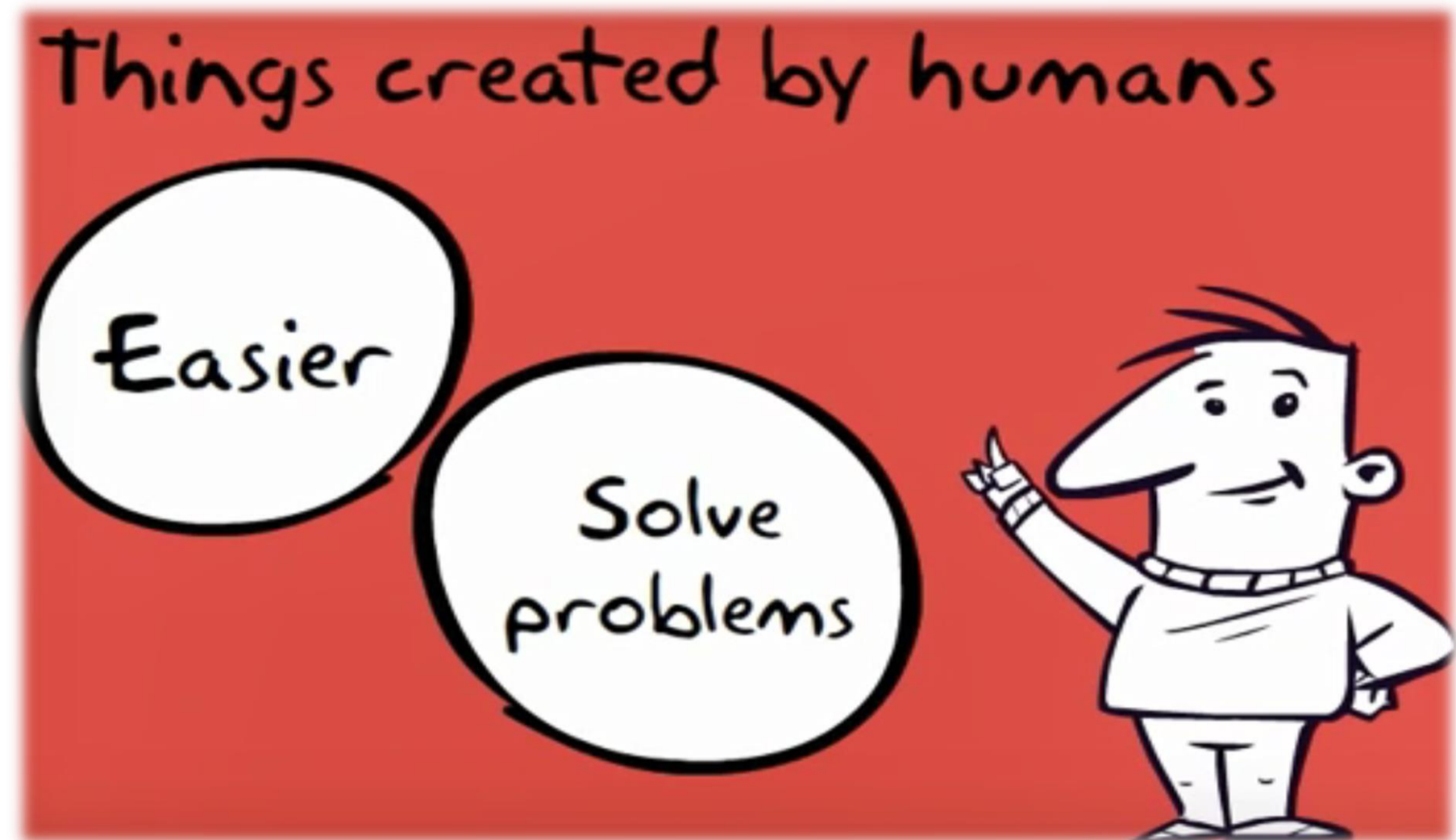


影片播放的時候會到一個段落後暫停

- What is technology ?

For kids

多模態教學



The categories of Technology

奈米科技

生物科技

製造科技

傳播科技



Technology

營建科技

運輸科技

能源與動力科技

Construction Technology

- **營建科技** : 各種結構物的設計與建造。



Transport Technology

運輸科技

- _____ : 使貨物或人員從一個地方移動到另一個地方的一個活動。



輸電塔的建立屬於哪一種科技？



Skip

6



0
Answers

▲ Transport technology

◆ Construction technology

● Communication Technology

■ Biotechnology

Group discussion : super changes



**每一項科技產物過去、現在、未來的面貌都不相同，
演進必然伴隨著某些原因或是更進步的方法技術。**

PEN

Pens are important in our daily life, we usually do homework with pen, all of us are familiar with it. But have you ever curious about the evolution of pen?

today, we are going to tell you:

the past, present and future of
pen



PAST

Quill pens

The reason for
its improvement:

need to re-cut,
sharpen, mend or
temper frequently

Service time:

600–1830 A.D

Disadvantage:
the nib tended to
split and break

Advantages:

balance and
stability

Quill pen



Present

Service time:

1888 ~ 2021 A.D

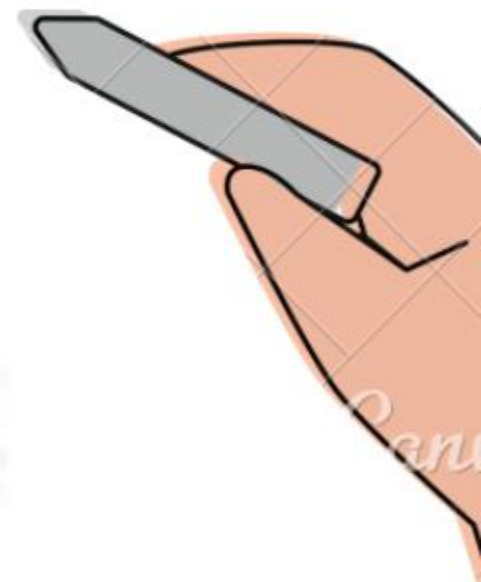
Advantage:
convenience

Disadvantage:
blot and out of ink easily

Ball Point pen

The reason for
its improvement:
only for
writing

Ball Point pen



SCAMPER 奔馳法

- **S**ubstitute
- **C**ombine
Adapt
- **M**odify
- **P**ut to other uses
- **E**liminate
- **R**earrange

替代
合併
調適
修改
其他用途
消除
重排

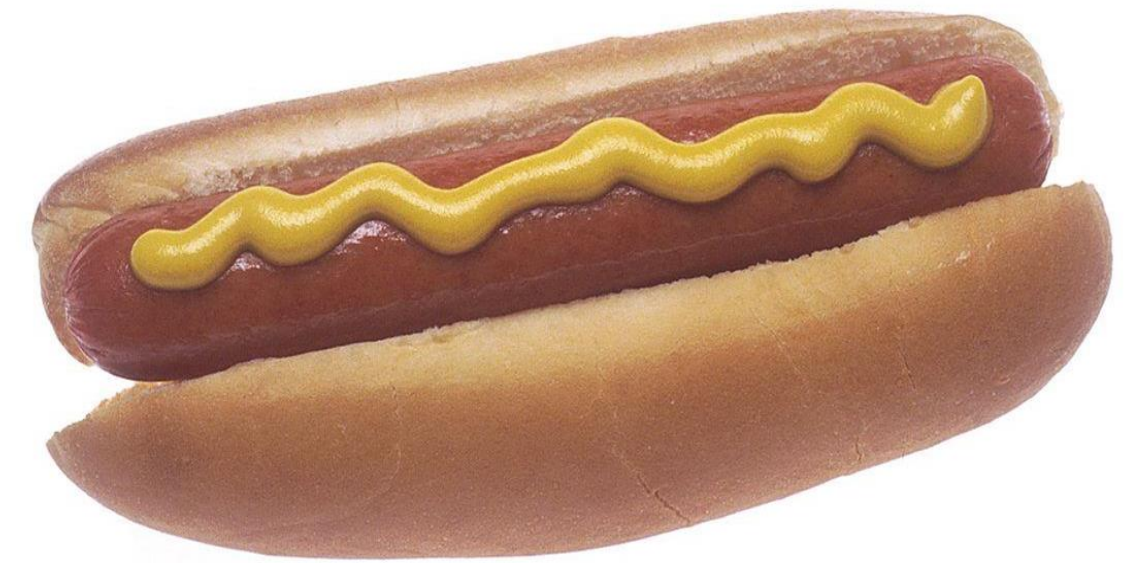
Combine



合併

Unite ! What ? Who ? Materials

結合某些東西



<https://www.dezeen.com/2020/10/10/toilet-roll-holder-marta-under-over-matino-gamper-design/>

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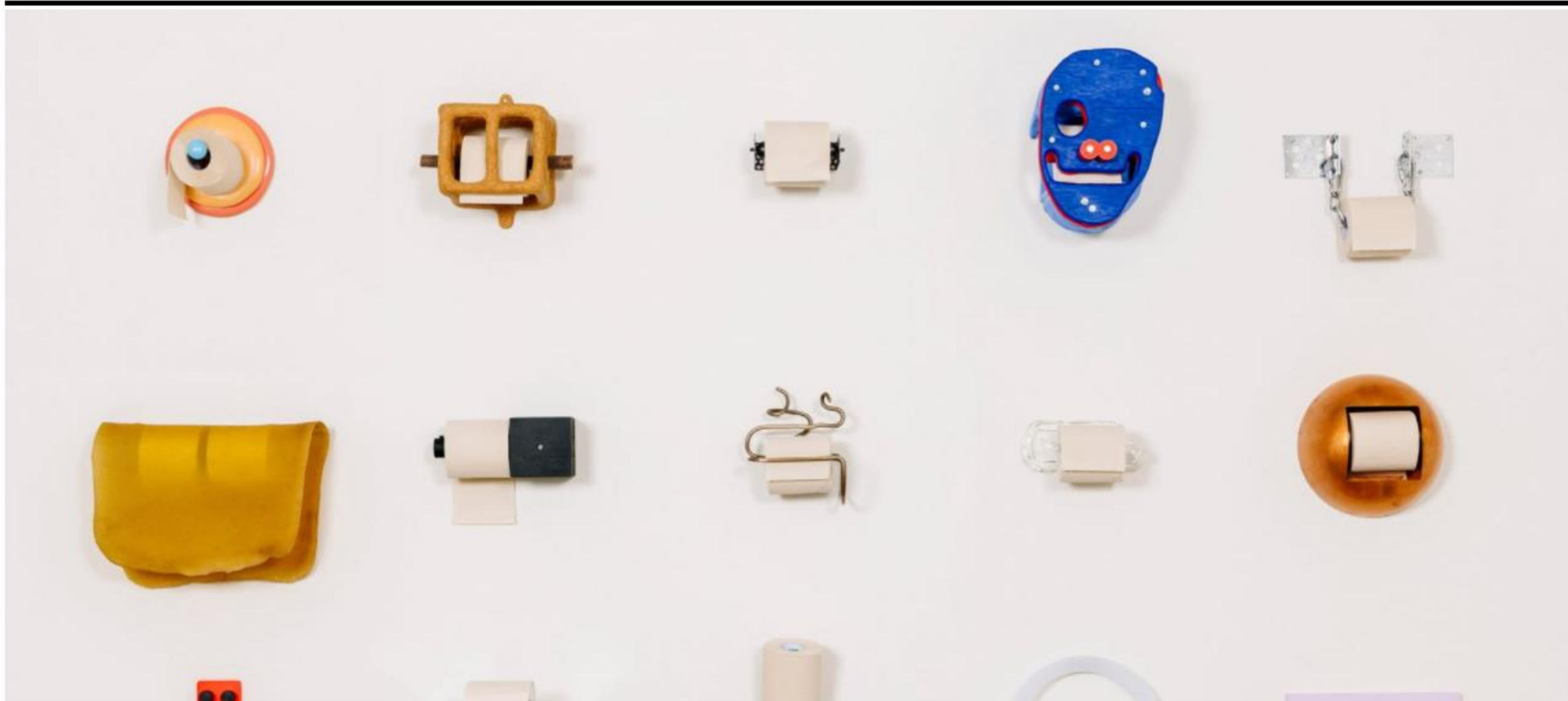


de zeen

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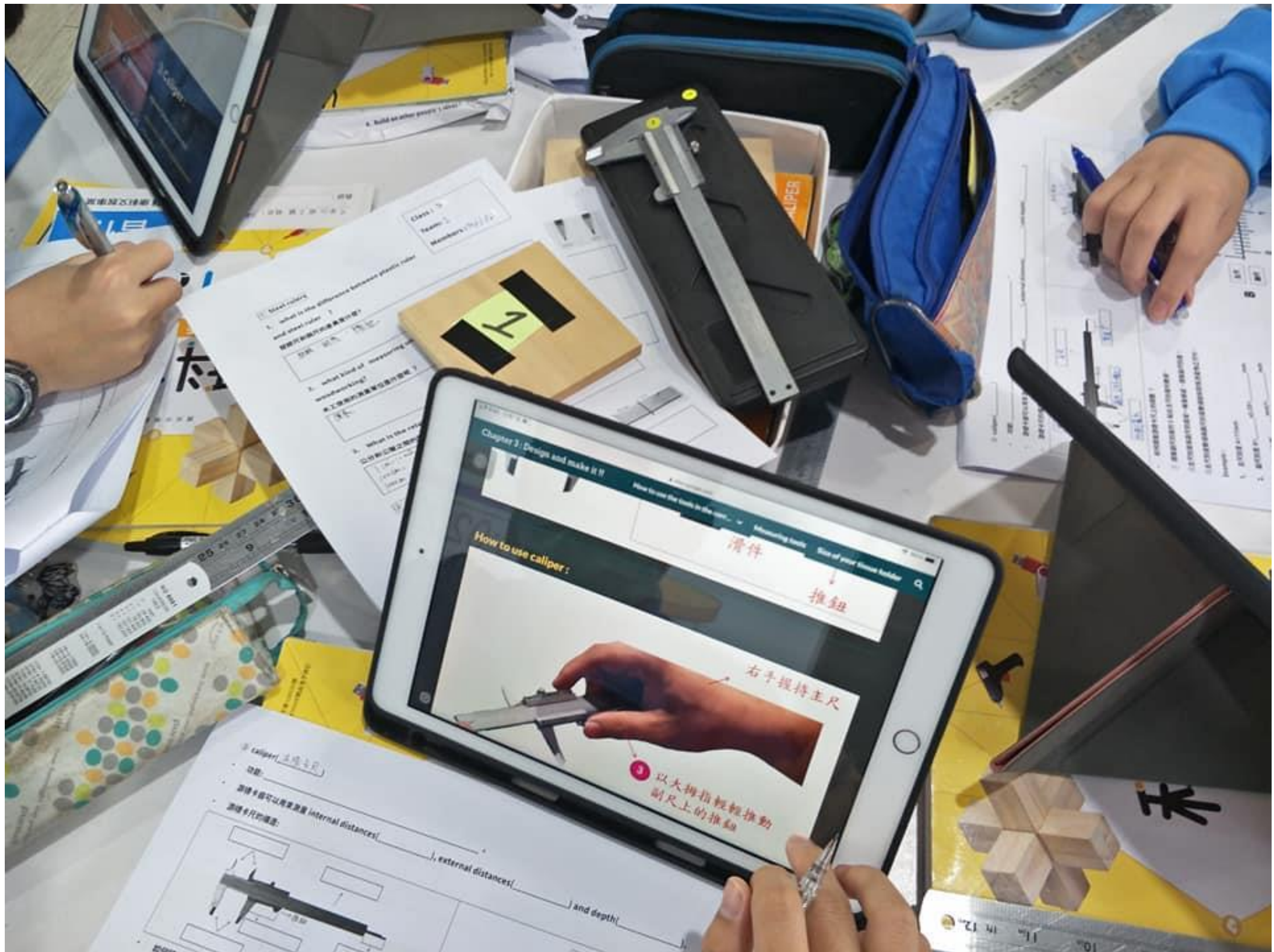


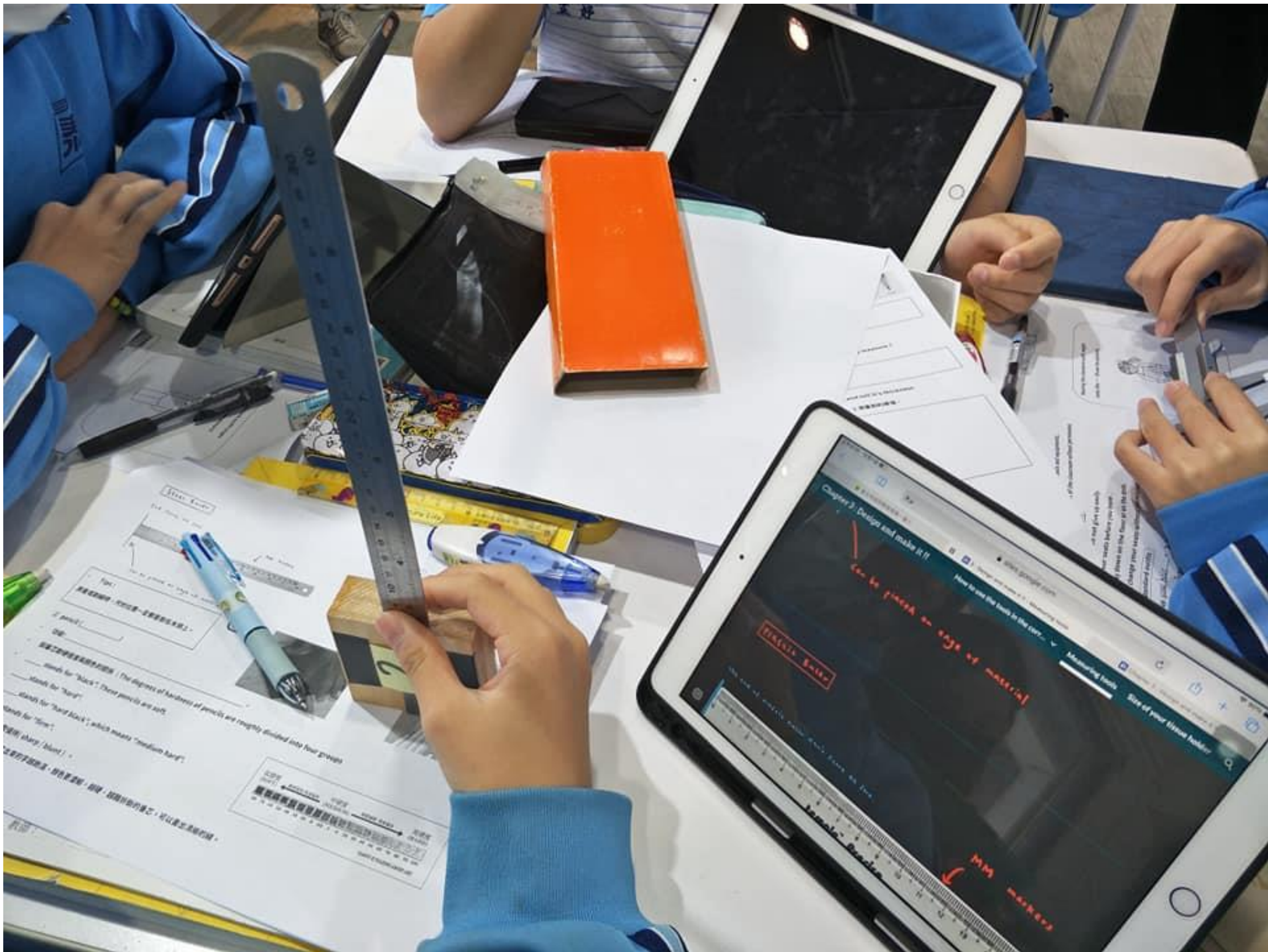
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Most popular

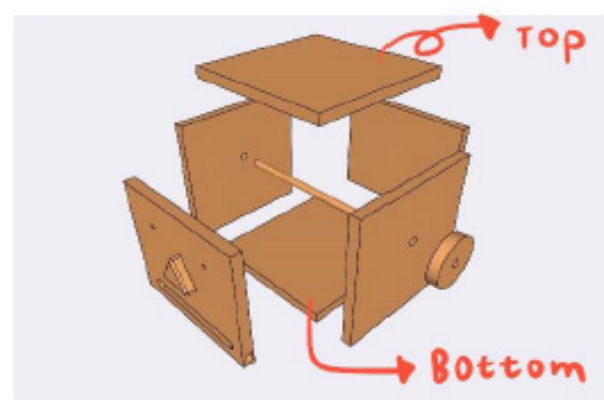
Most recent







Top/Bottom
(120x140mm)



My tissue holder : 請於下列詳細列出你們的設計需要的額外材料，老師會根據你們所列的尺寸給予相關額外的材料

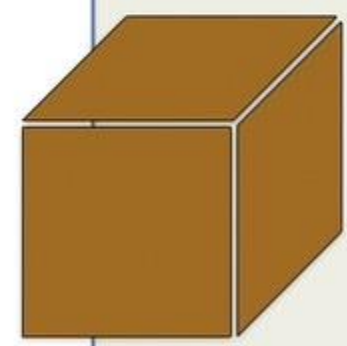
A large, empty rounded rectangular box intended for students to list additional materials needed for their tissue holder design.

- 1 Tissue Holder Making Review
- 2 Post my Tissue Holder
- 3 Ask & my Tissue Holder 問問我的作品
- 4 Answer the following questions
- 5 Answer the following questions
- 6 Answer the following questions
- 7 Answer the following questions
- 8 Answer the following questions
- 9 Answer the following questions
- 10 Answer the following questions
- 11 Answer the following questions

Post my Tissue Holder



等角圖示意圖



- 1 Tissue Holder Making Review
- 2 Find my Tissue Holder
- 3 Use & my Tissue Holder 使用中的注意
- 4 Answer the following questions
- 5 Answer the following questions
- 6 Answer the following questions
- 7 Answer the following questions
- 8 Answer the following questions
- 9 Answer the following questions
- 10 Answer the following questions
- 11 Answer the following questions



Answer the following questions

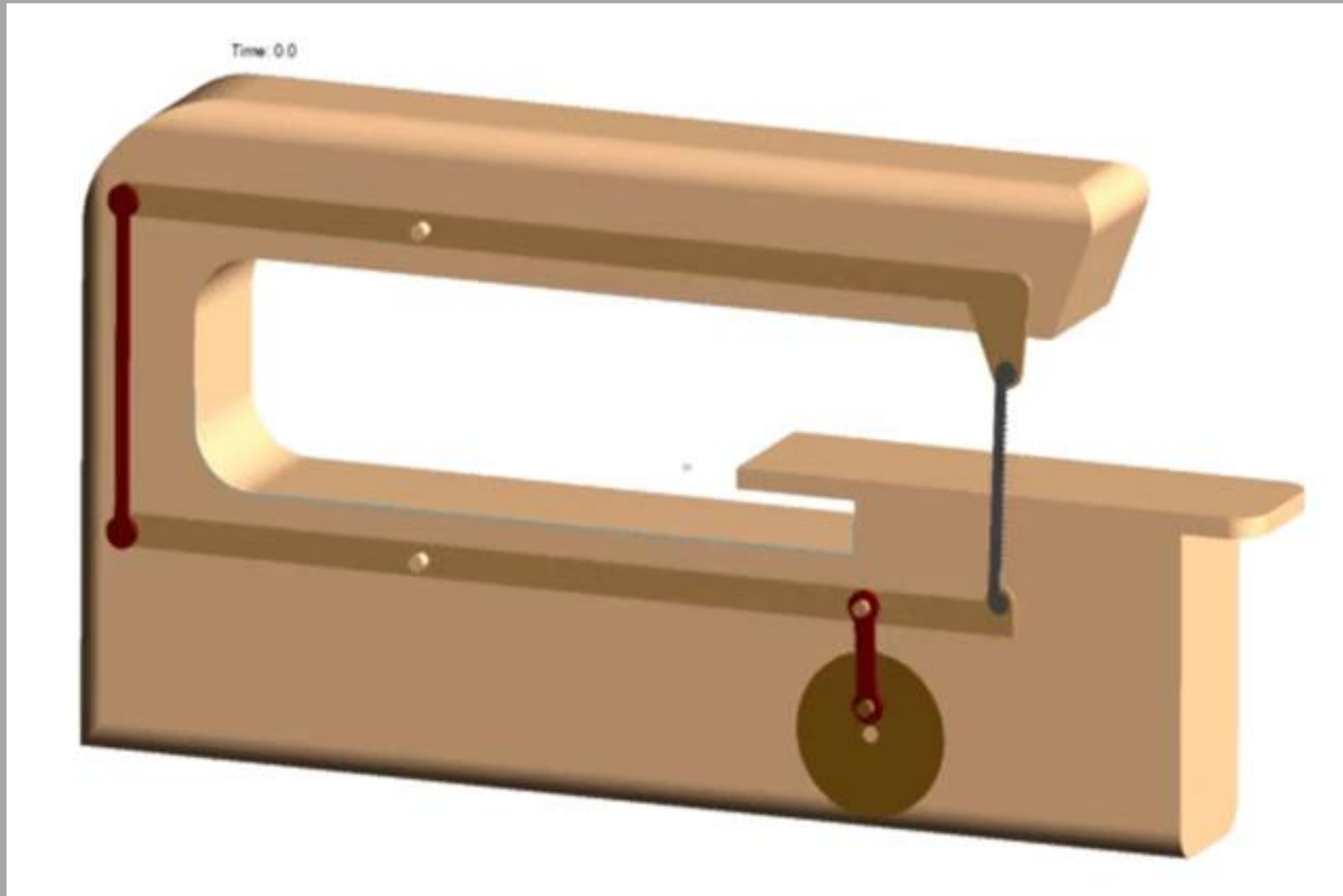
Disc Sander 砂磨機

下圖為實作過程中使用的砂磨機，
請問為什麼木頭要放置在砂磨機的**左側**
呢？



木頭放左邊就可以讓木屑順著砂磨機的方向往下掉

Reciprocating (往復式) motion



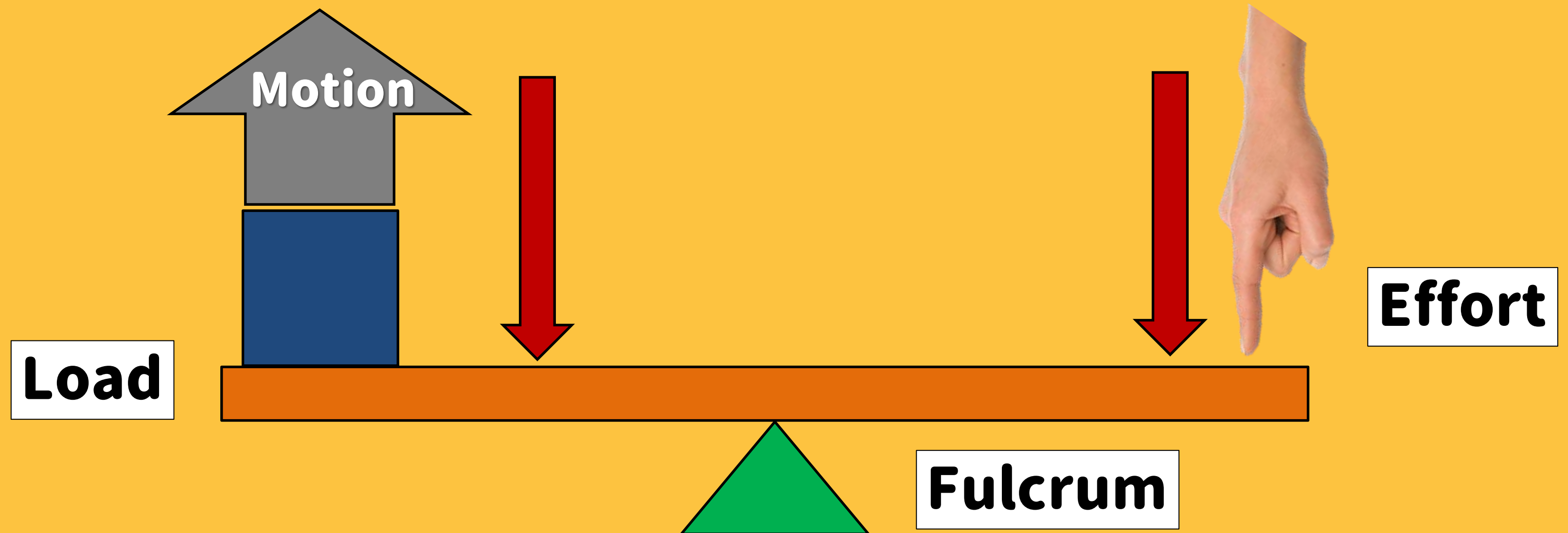
s (後退) in a

Scroll saw 線鋸機

First class lever 第一類槓桿



- The **fulcrum** is between the load and the effort.
- First class levers always change the direction of the input **force(力量)**.
- If the fulcrum is **closer(靠近)** to load , it will be easier to **lift up(抬起)** the load.

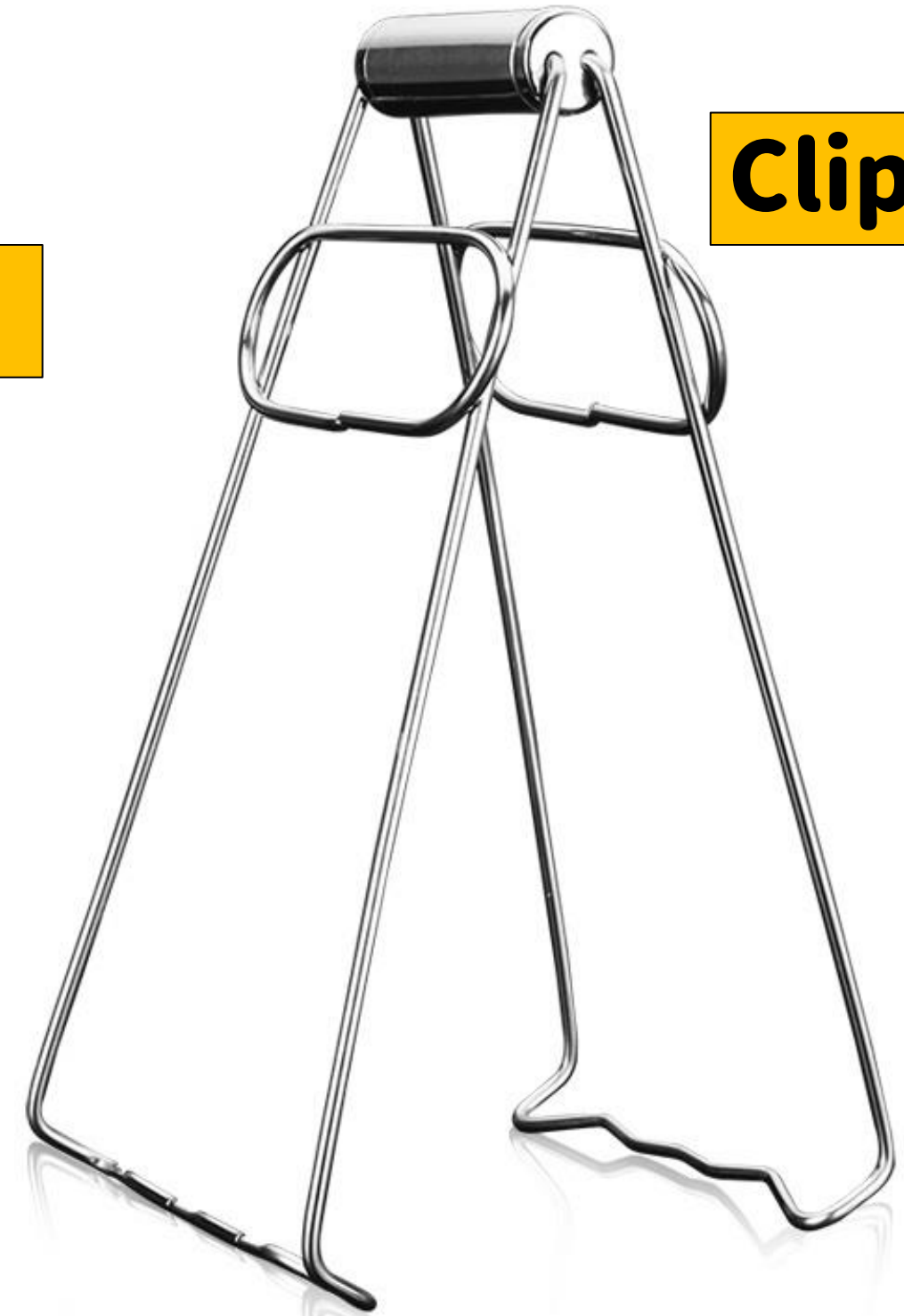


Look at the following tools which are used in our daily life and think what kind of lever they are .

Bottle opener 開瓶器

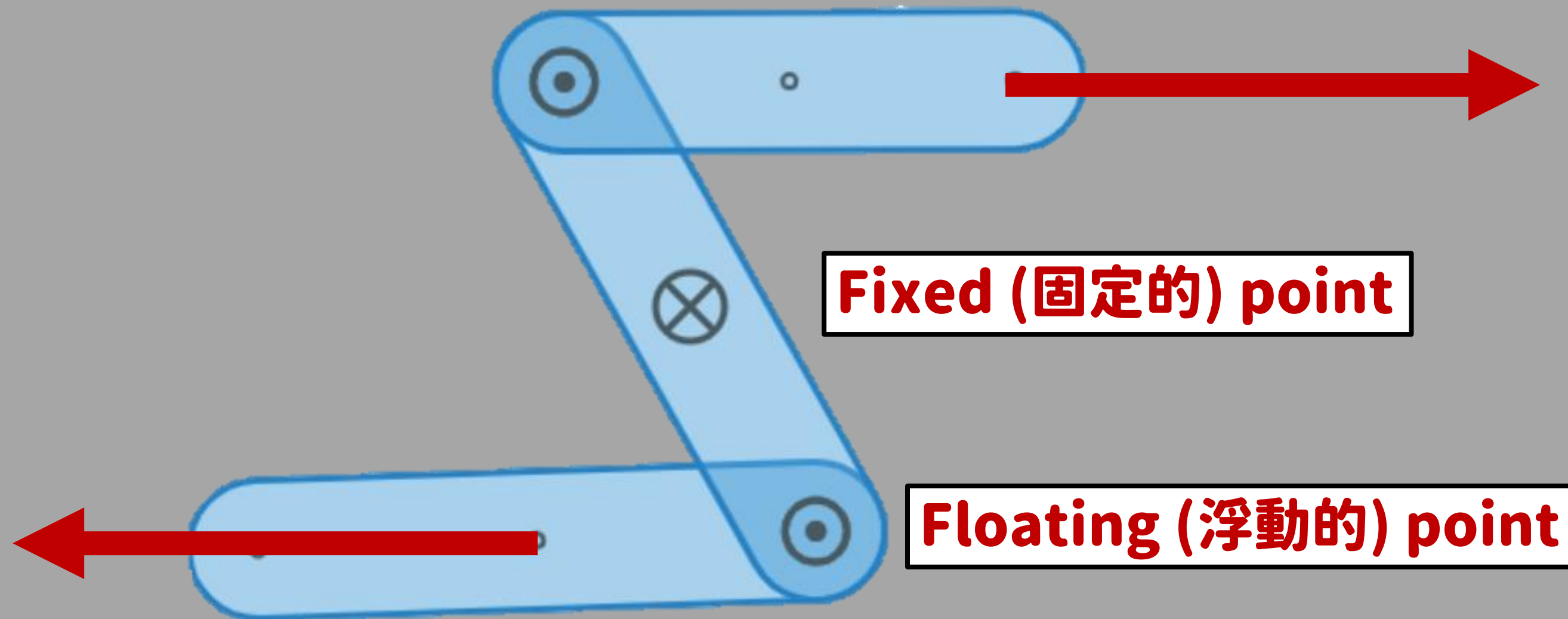


Broom 掃把




Clip 夾子

The movement of the linkages **depend on (取決於)** how the **fixed (固定的)** and **floating (浮動的)** point are used.

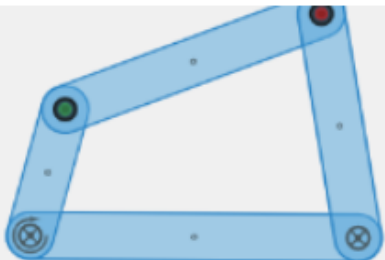


<https://beta.swappsforkids.com/>


 Likes 5  Riffs -  Staff Picks -

All Apps 

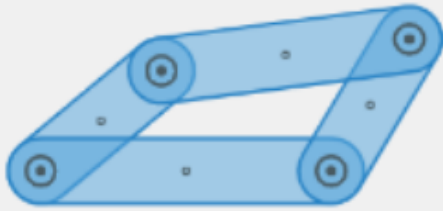
My Projects (14) [View All](#)



Untitled ...
just now



Untitled ...
9 months ago



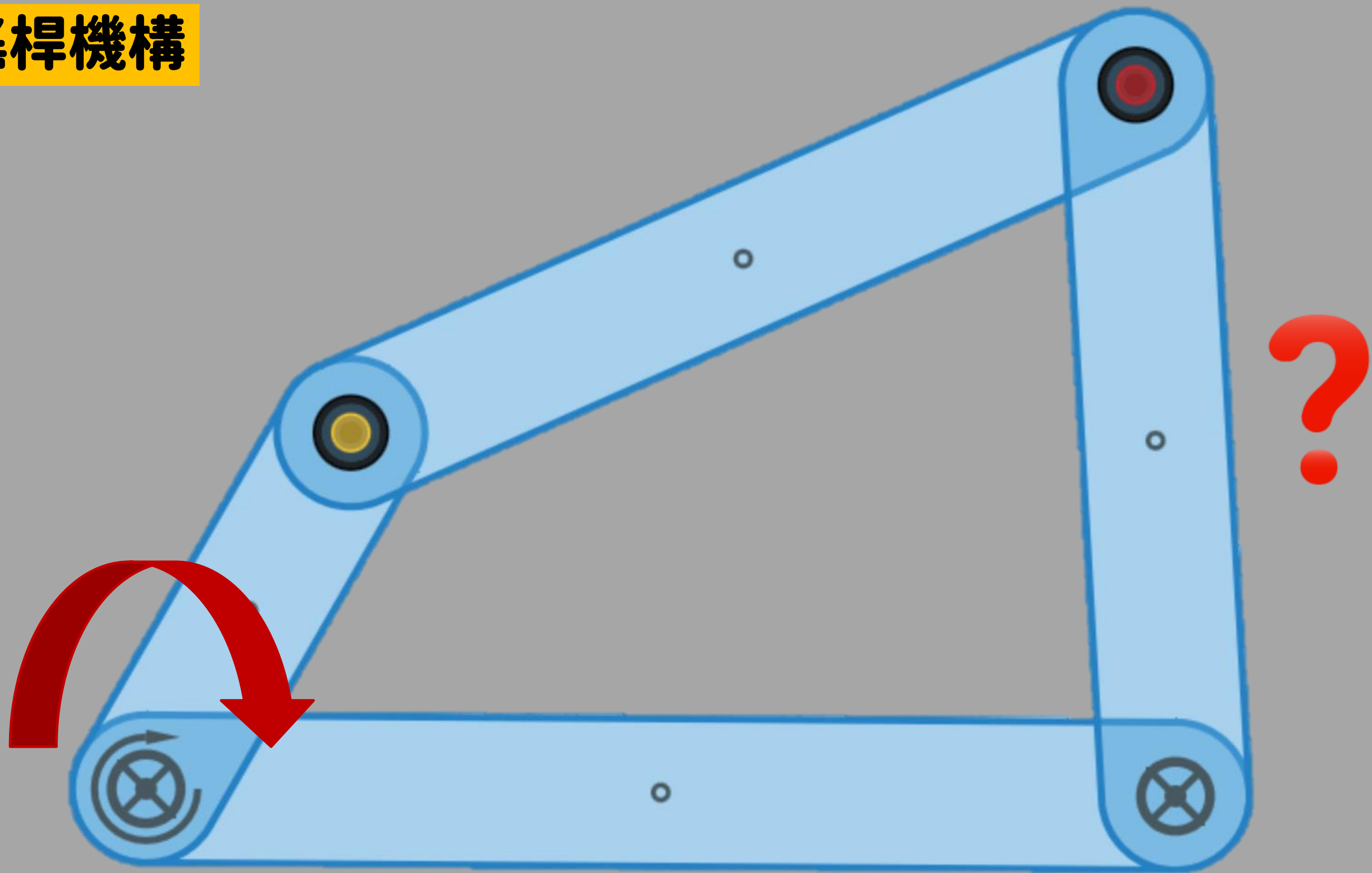
Untitled ...
13 months ago

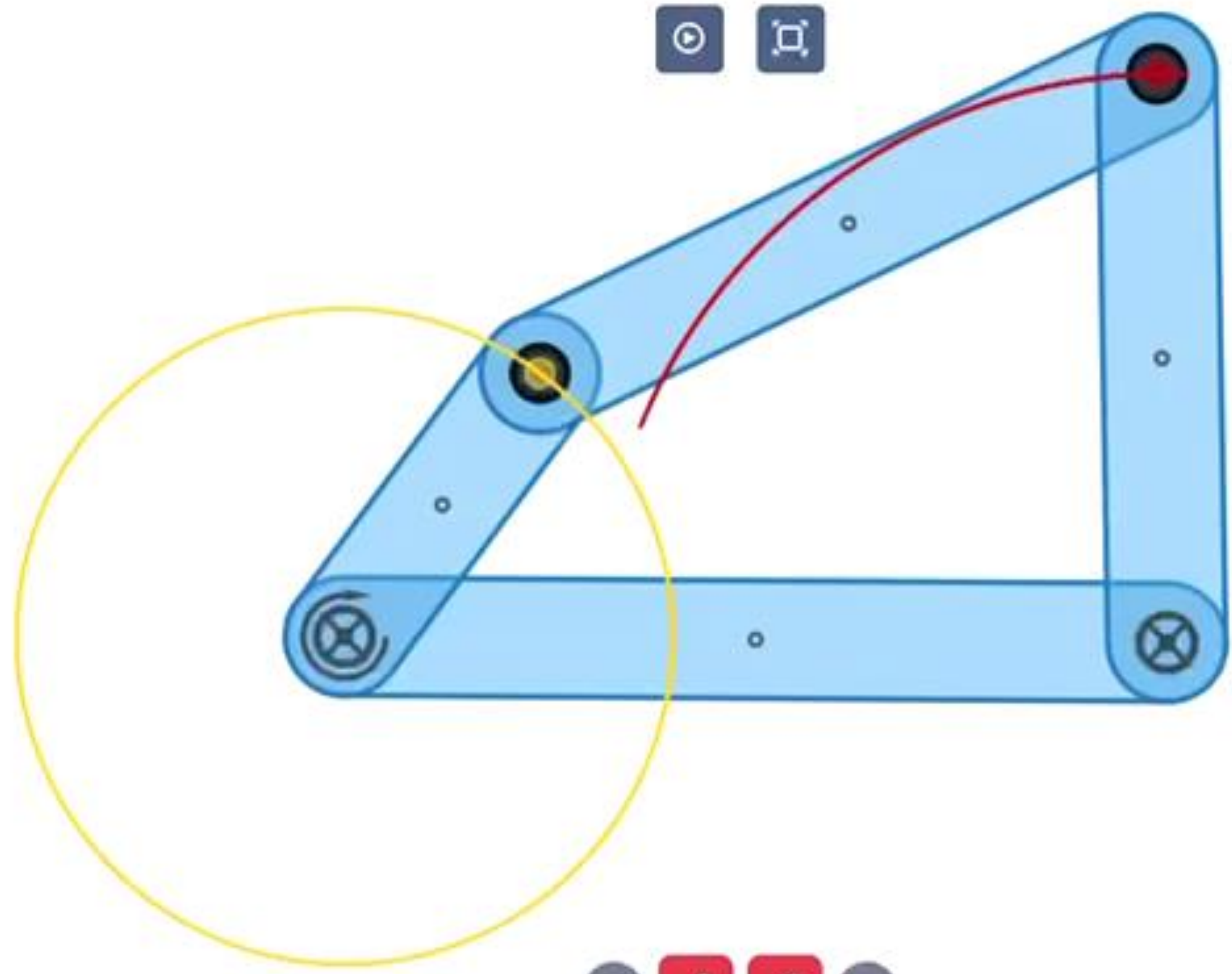


Public Projects (31539) [View All](#)

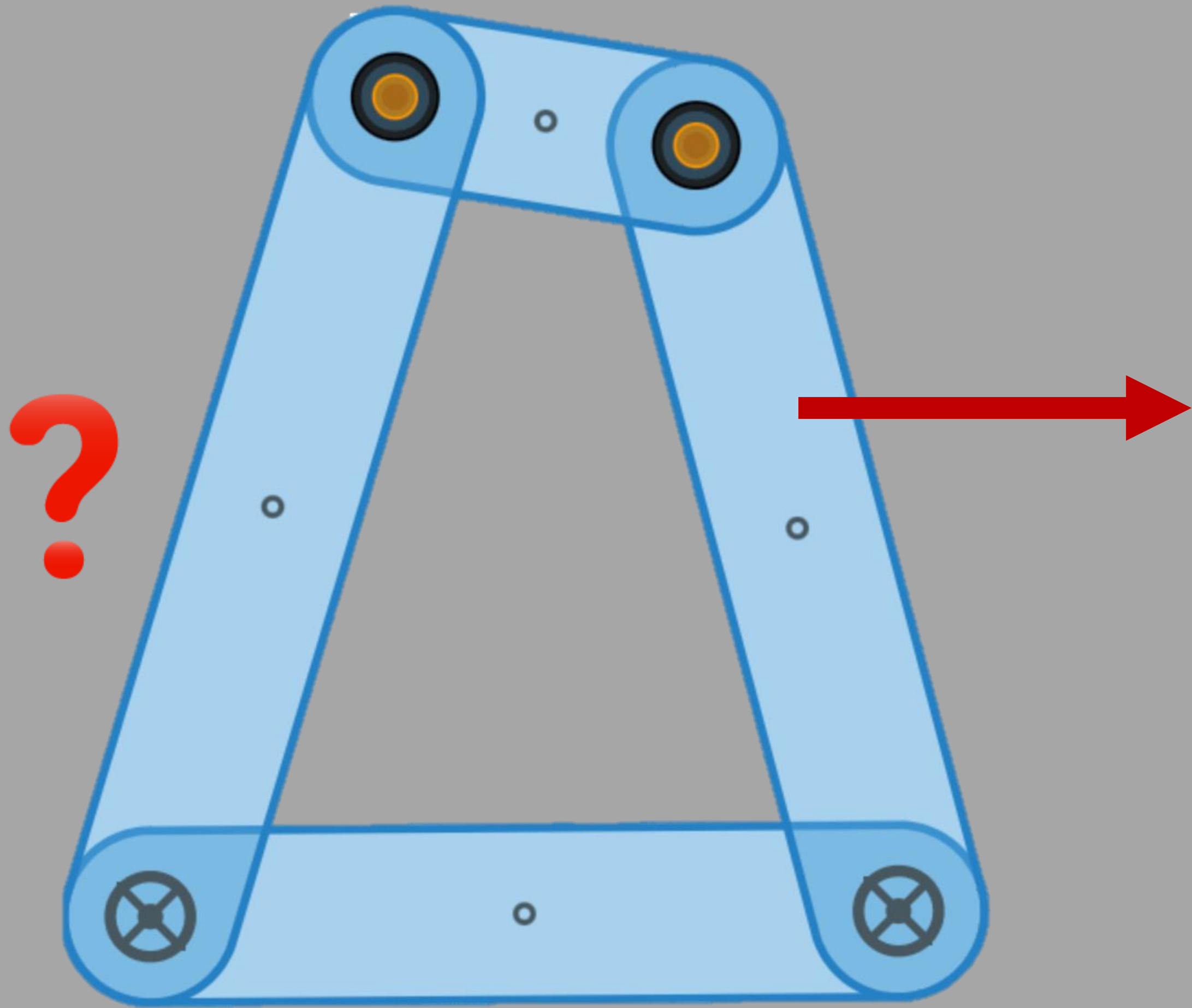


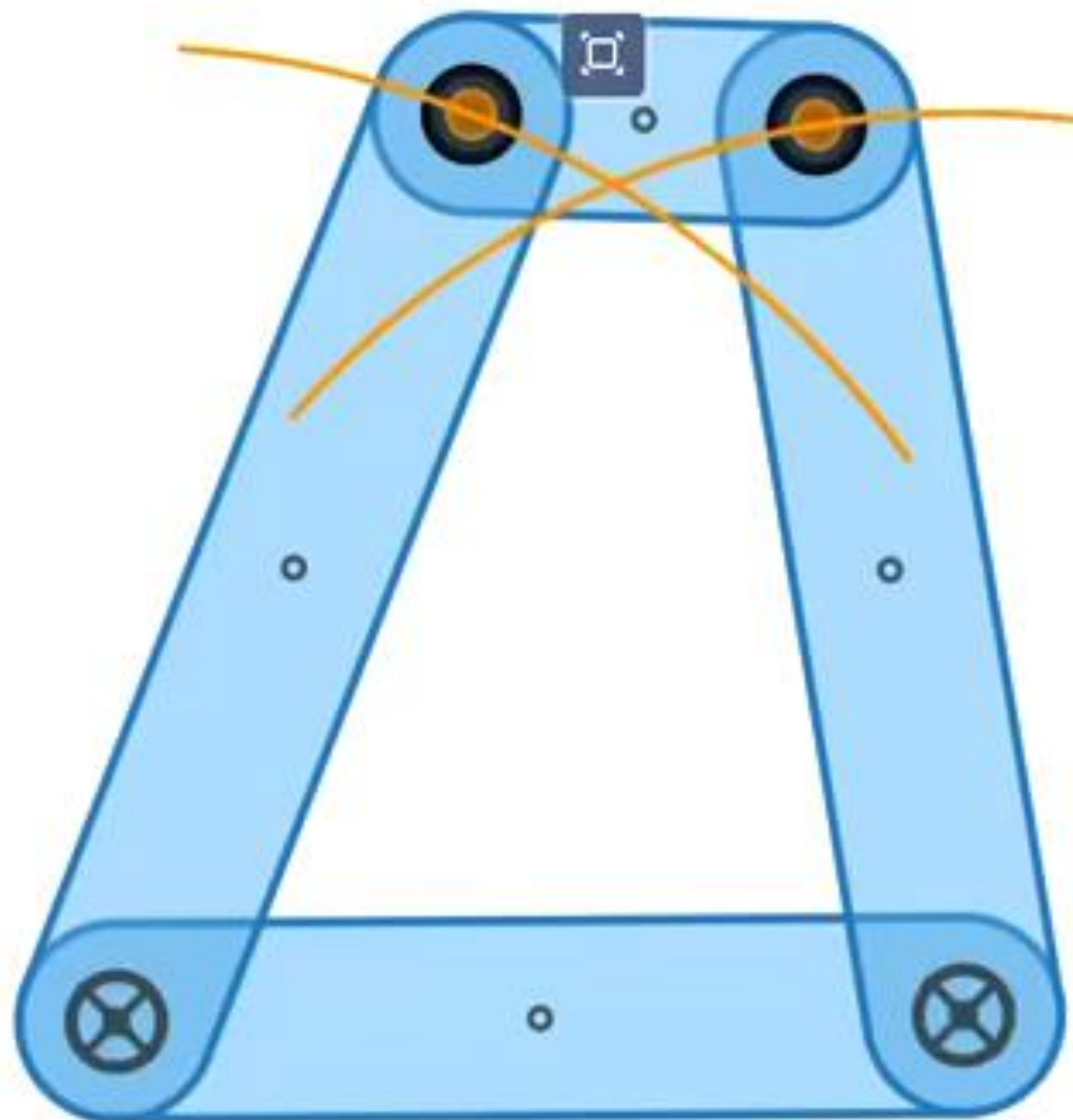
曲柄搖桿機構





雙搖桿機構

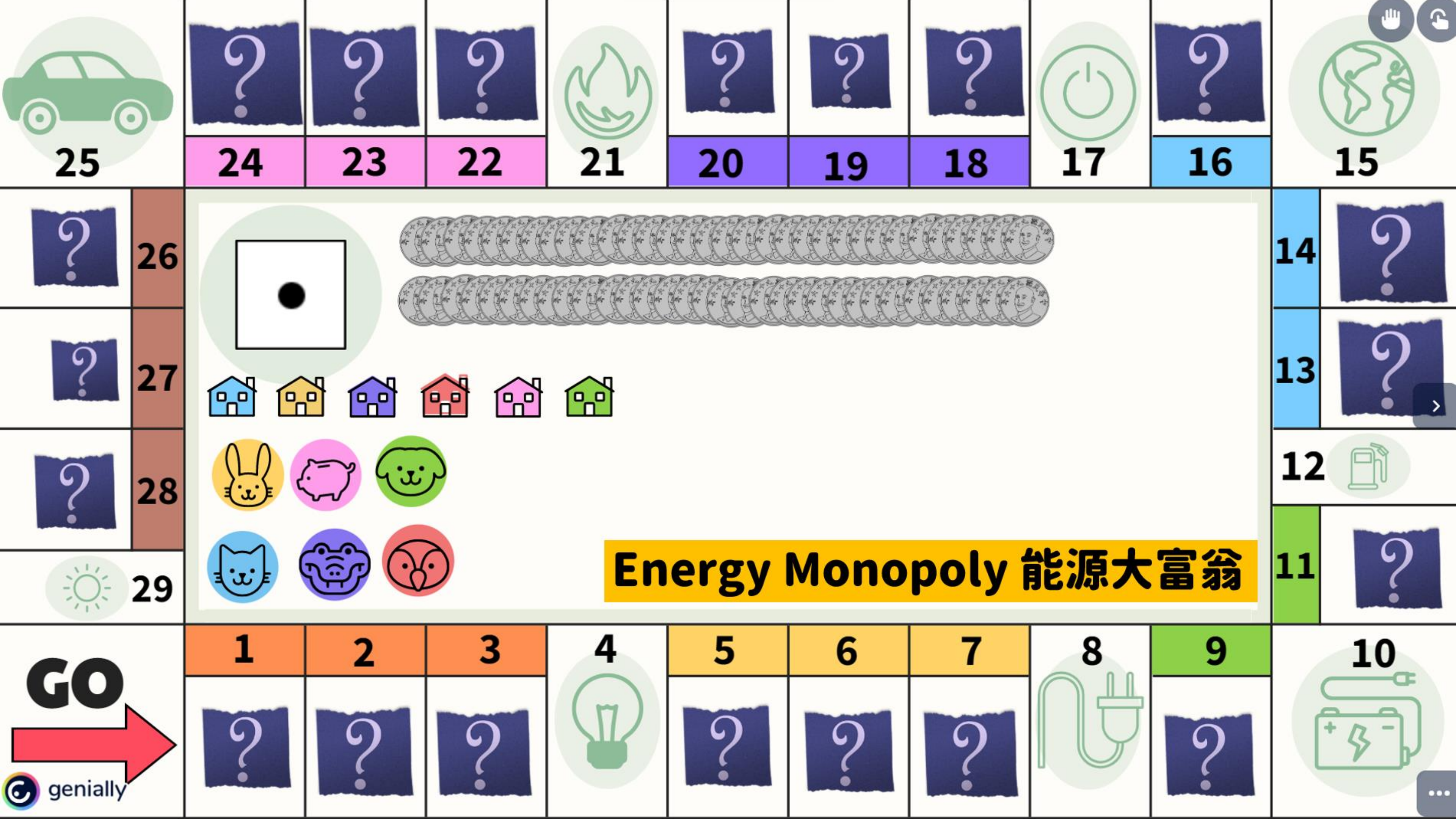




Grade 8

Lessons

- 能源與動力
- 製圖與視圖



25

24

23

22

21

20

19

18

17

16

15

26

27

28

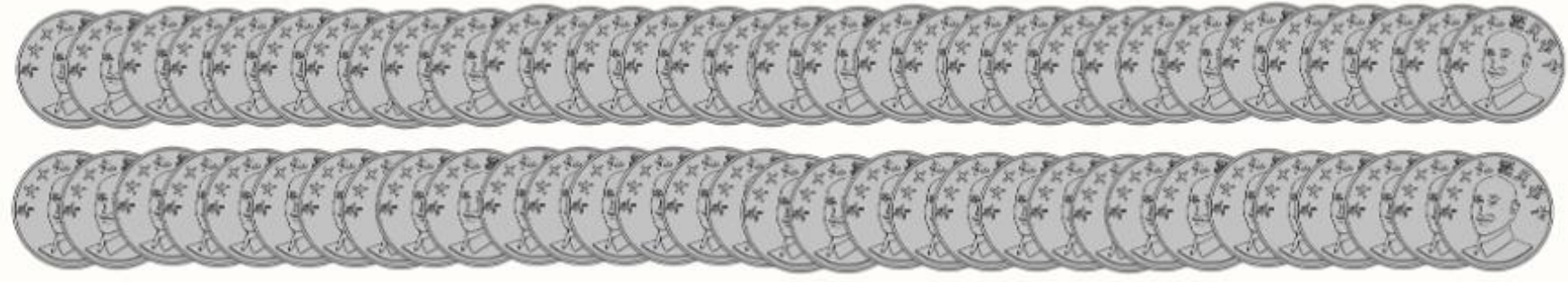
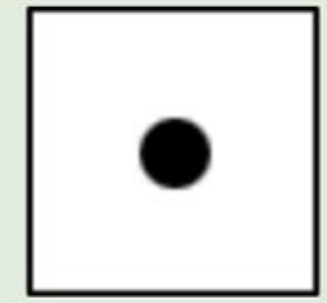
29

14

13

12

11



Energy Monopoly 能源大富翁

1

2

3

4

5

6

7

8

9

10



利用能源桌遊內的牌卡，當作能源大富翁當中每一格的問題，讓學生能先理解本單元要學到的能源內容。說明如何移動以及得到多少分時，視以肢體語言以及英語說明。

<https://view.genial.ly/63f1ee8cd9a4a00018d89040/interactive-content-energy-and-power>

Step1. Roll the dice.

Step2. Answer the questions.

Step2. Get the cash !



Today's Outlines

- A. What is energy ?**
- B. Forms of energy**
- C. Energy **policy** (政策) in Taiwan**
- D. Solar energy**
- E. Kahoot**



Renewable Energy



Marine



Solar



Hydropower



Biomass



Wind



Geothermal

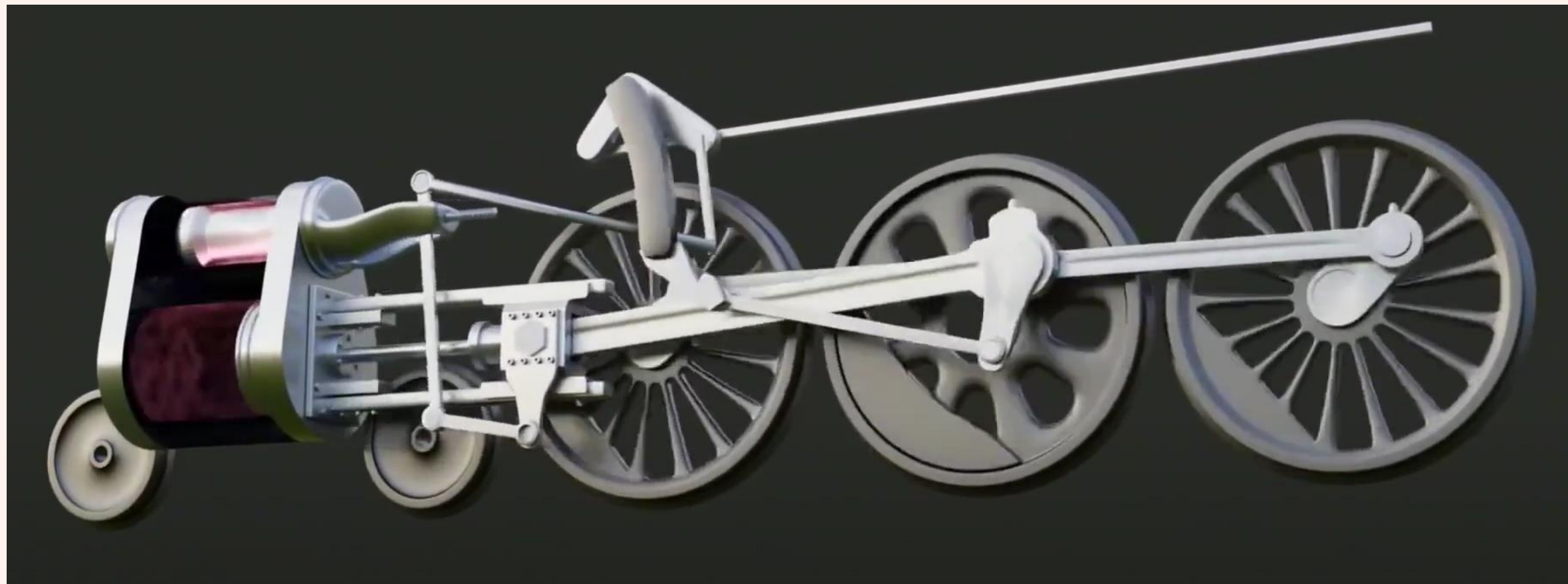
6. Mechanical Energy

機械能

Forms of energy 能量的形式

機械能可以分爲兩種：**動能(kinetic energy)**和**位能(potential energy)**。

2. 物體**運動**時所擁有的能量稱爲**動能 (Kinetic Energy)**。



蒸汽火車

1. Chemistry Energy

化學能

2. Nuclear Energy

核能

3. Thermal Energy

熱能

4. Radiant Energy

輻射能

5. Electrical Energy

電能

6. Mechanical Energy

機械能

7. Sound Energy

聲能

Energy

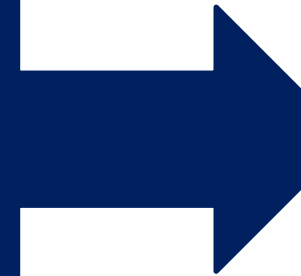
Try it!



plug and socket

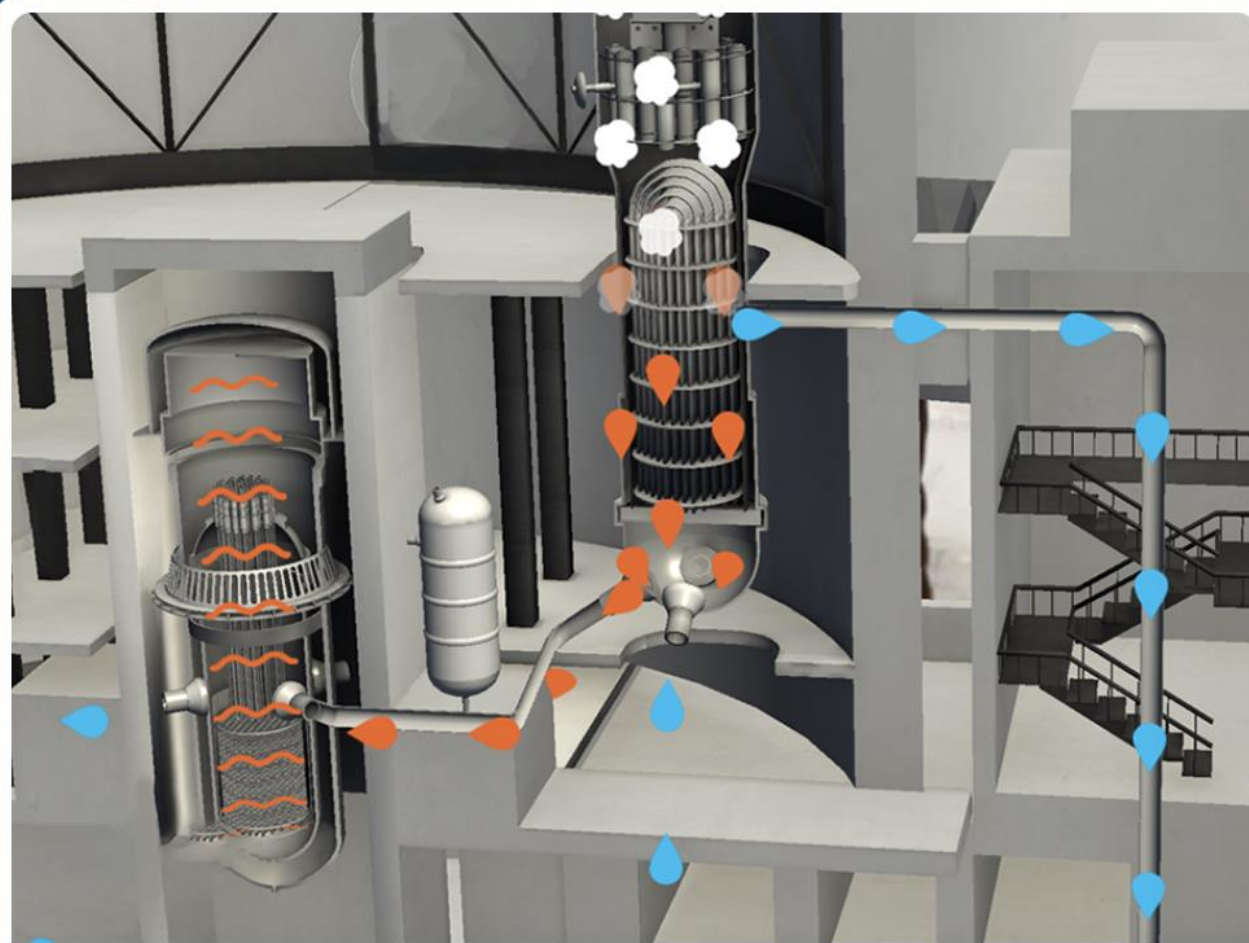


**Change
into**



Toaster

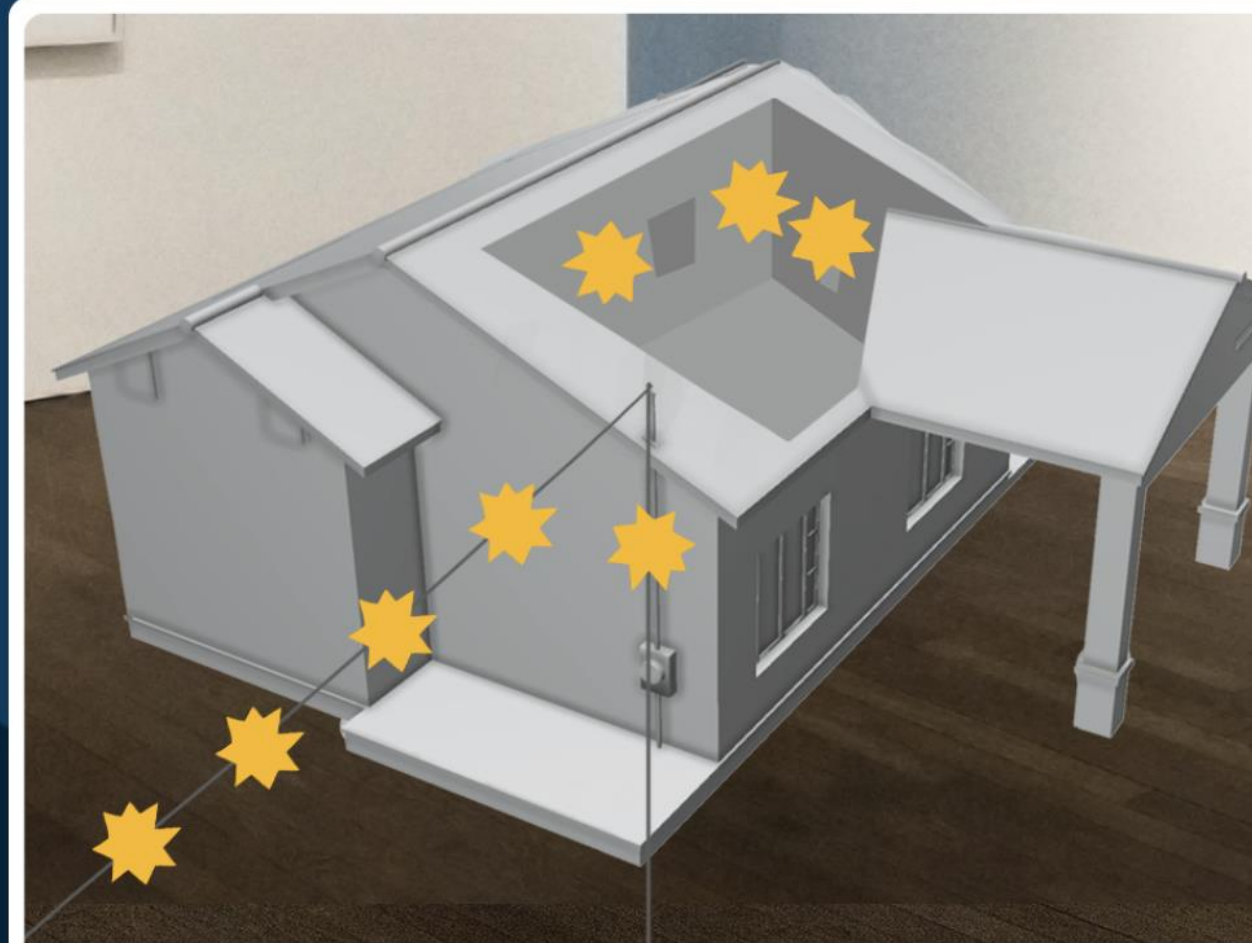




AR Nuclear

Middle & High School

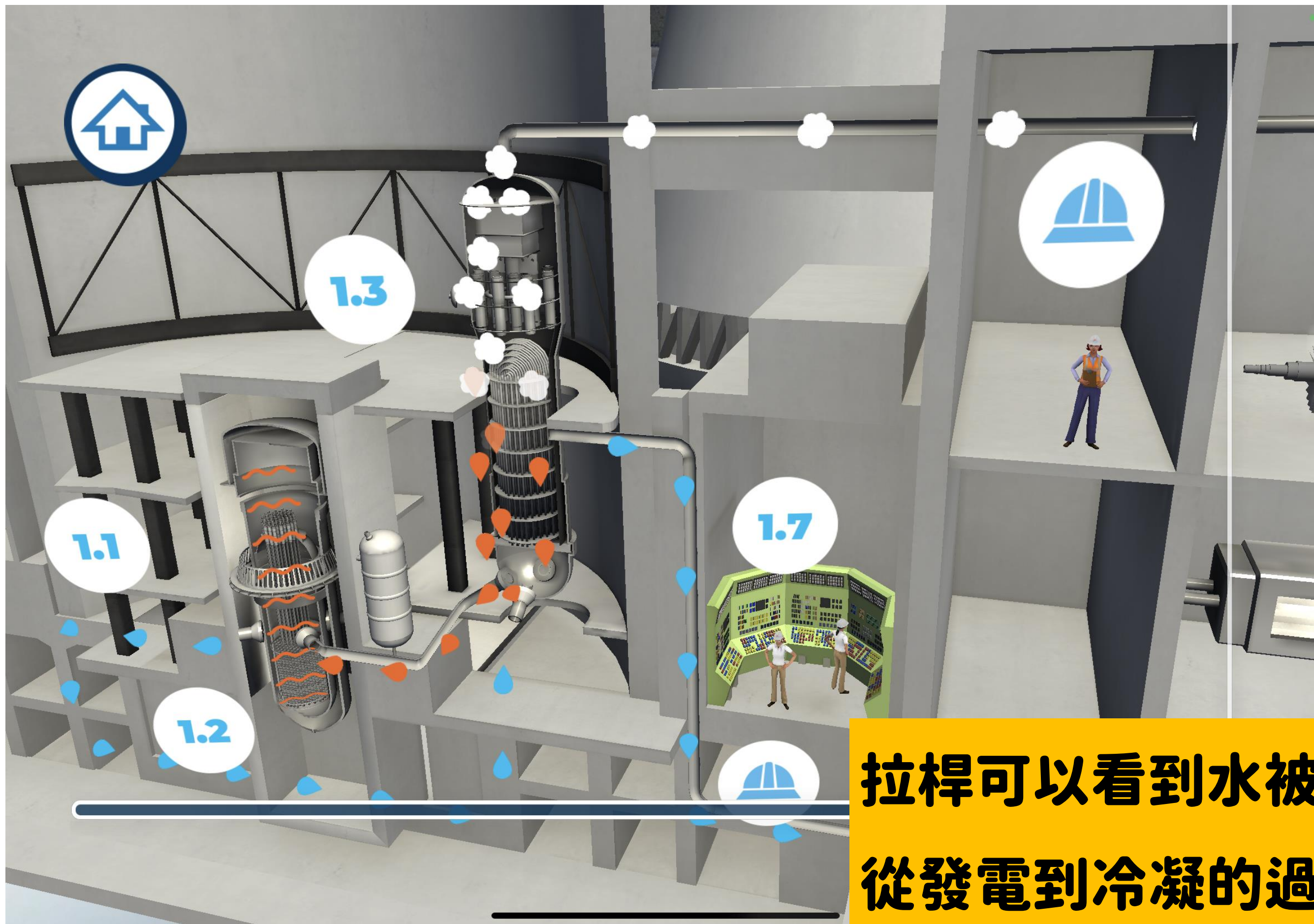
Explore a nuclear facility in augmented reality.



AR Grid

Middle & High School

Explore a Smart Power Grid in augmented reality.



**拉桿可以看到水被加熱產生蒸氣後，
從發電到冷凝的過程。**



**當作引起學生學習動機的小遊戲，
並且搭配課本圖片和教師上課講義中文的說明**

**① Cooling tower : 冷凝塔將蒸氣冷卻
形成水後回到循環中**

**② Transformer : 電能透過變壓器升降
壓之後傳輸至家中插座**

**③ Steam generators : 蒸氣製造機當
中的水被大量的熱氣化成具動能的水蒸
氣**

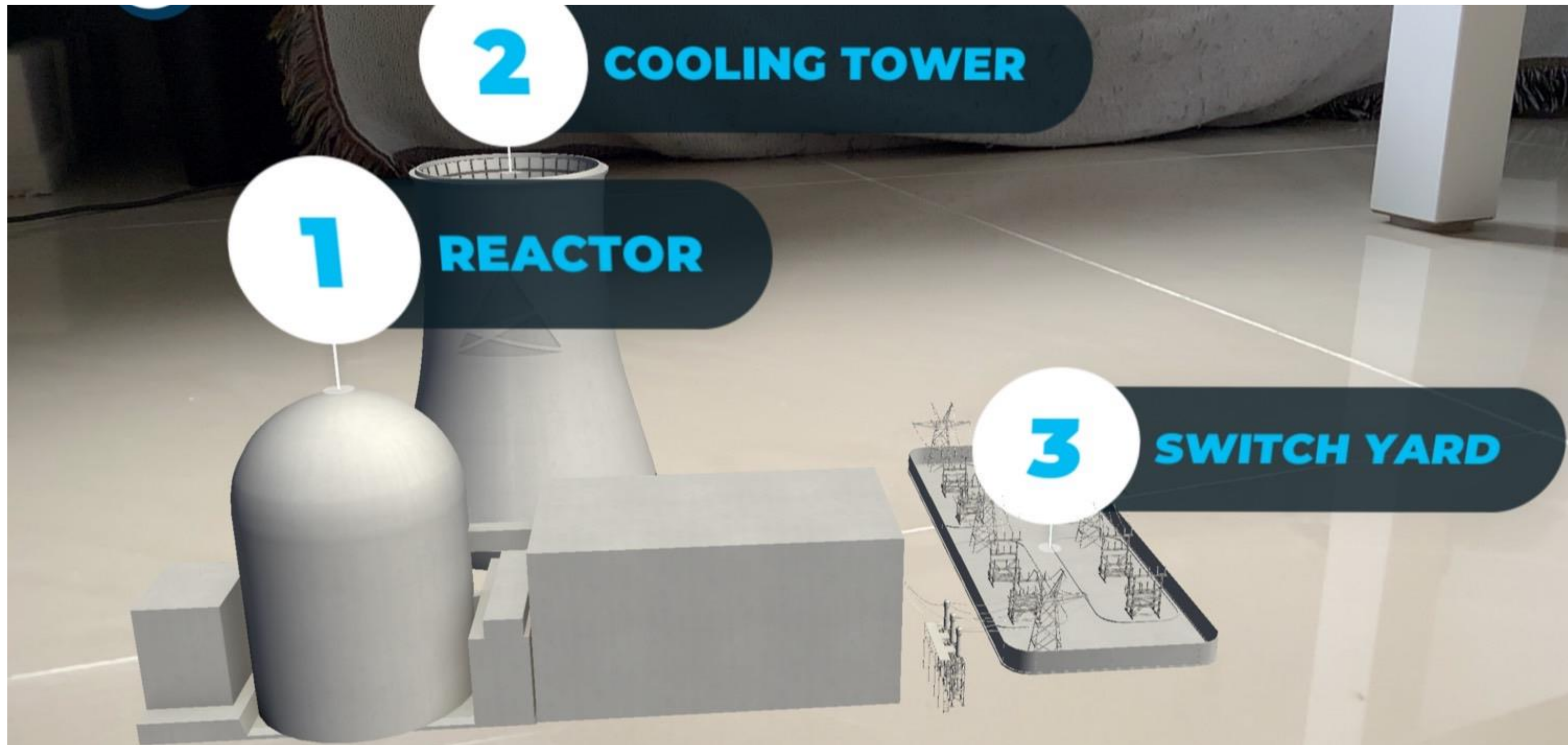
**④ Reactor vessel : 核反應爐中的燃料
棒產生核分裂連鎖反應並產生大量的熱
能**

**⑤ Turbines : 高溫水蒸氣推動渦輪機轉
動**

**⑥ Generator : 發電機被帶動旋轉產生
電能**

Try it !

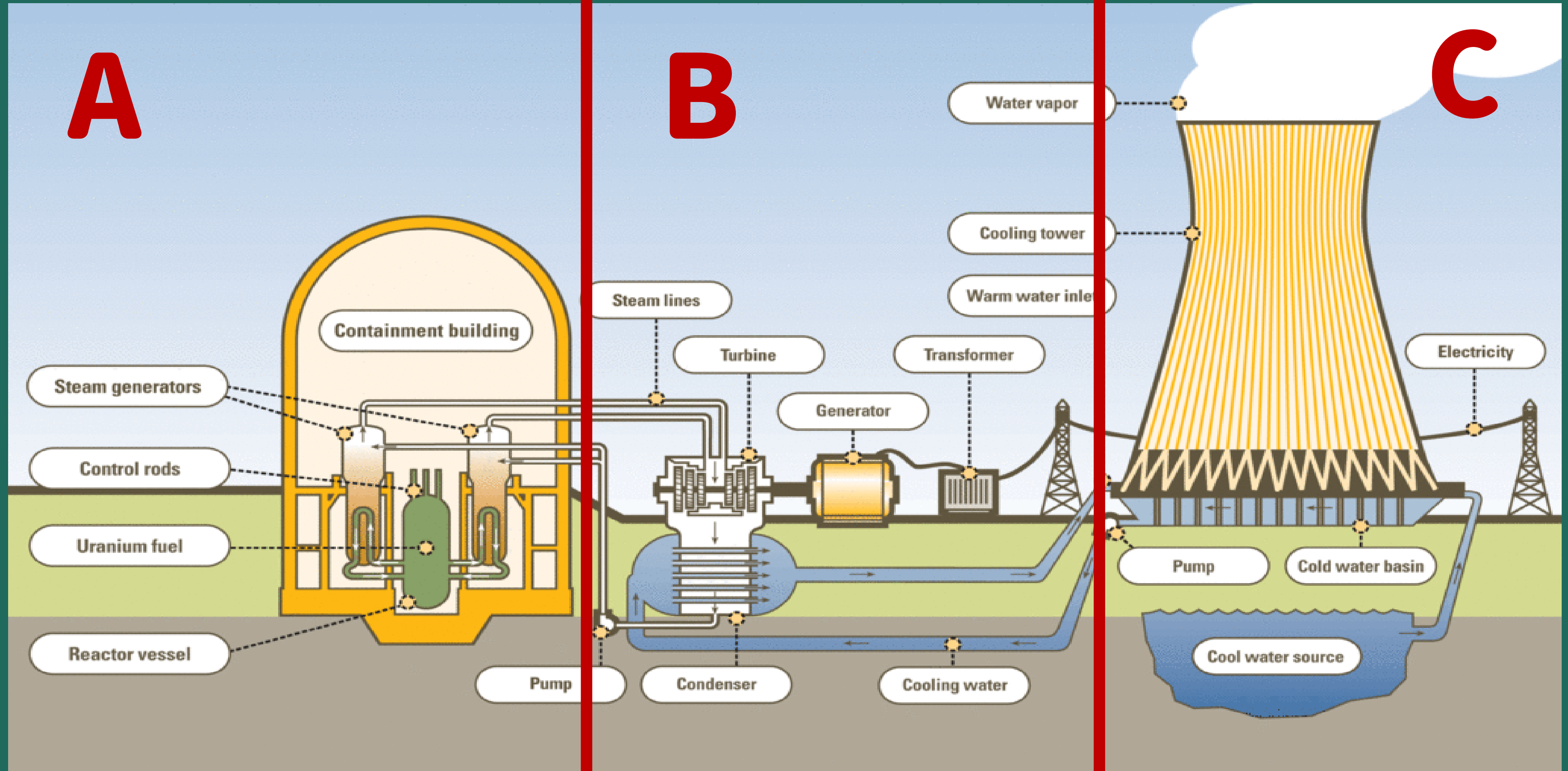
根據平板上的AR模型，試著排列看看核能發電原理的順序。



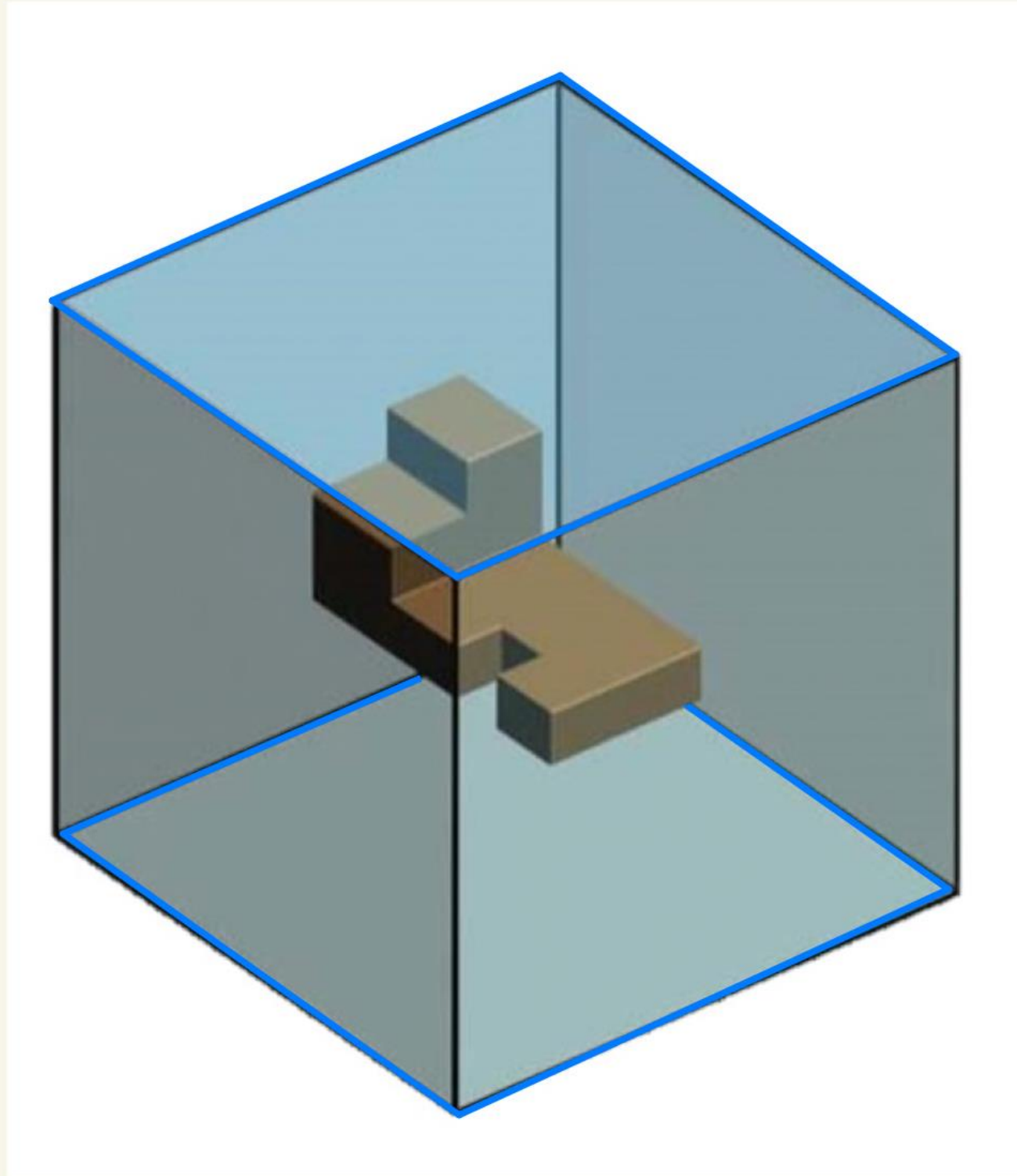


引起學生學習動機的活動

How does the nuclear power station work? 核能發電的原理



六個視角



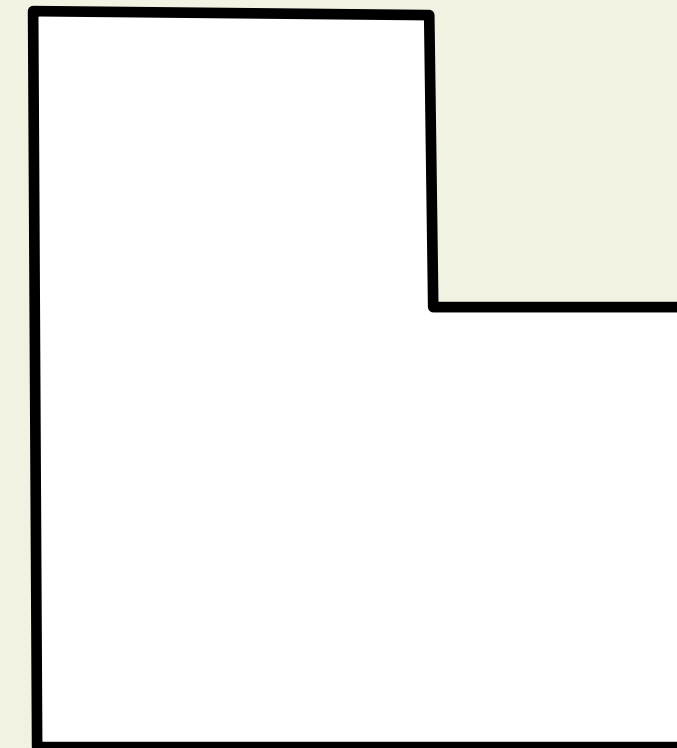
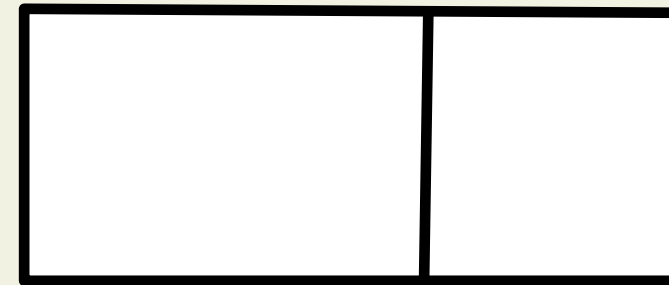
Top 俯視

Bottom 仰視

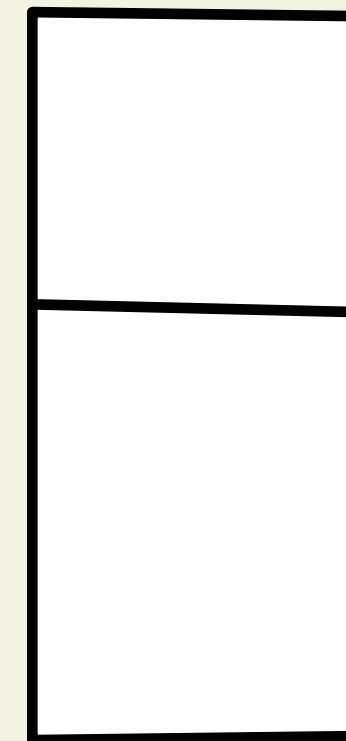
三視圖最終結果



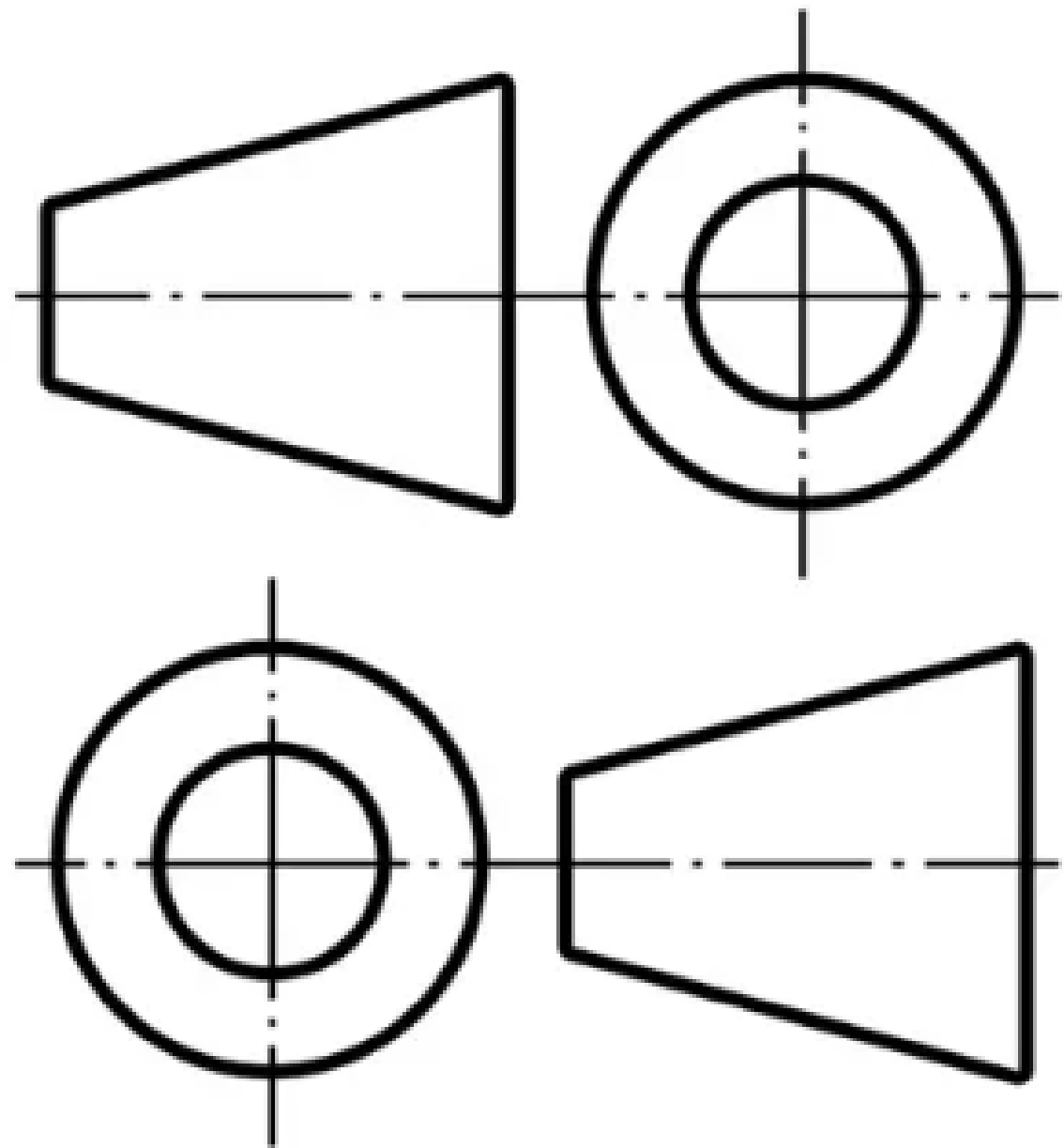
Top view



Front view



Side view



Orthographic Projection 4+

Stefan Hajdu

\$90.00

付費版本的遊戲，

教師用個人平板作為小組回答的競賽內容

Different types of gear

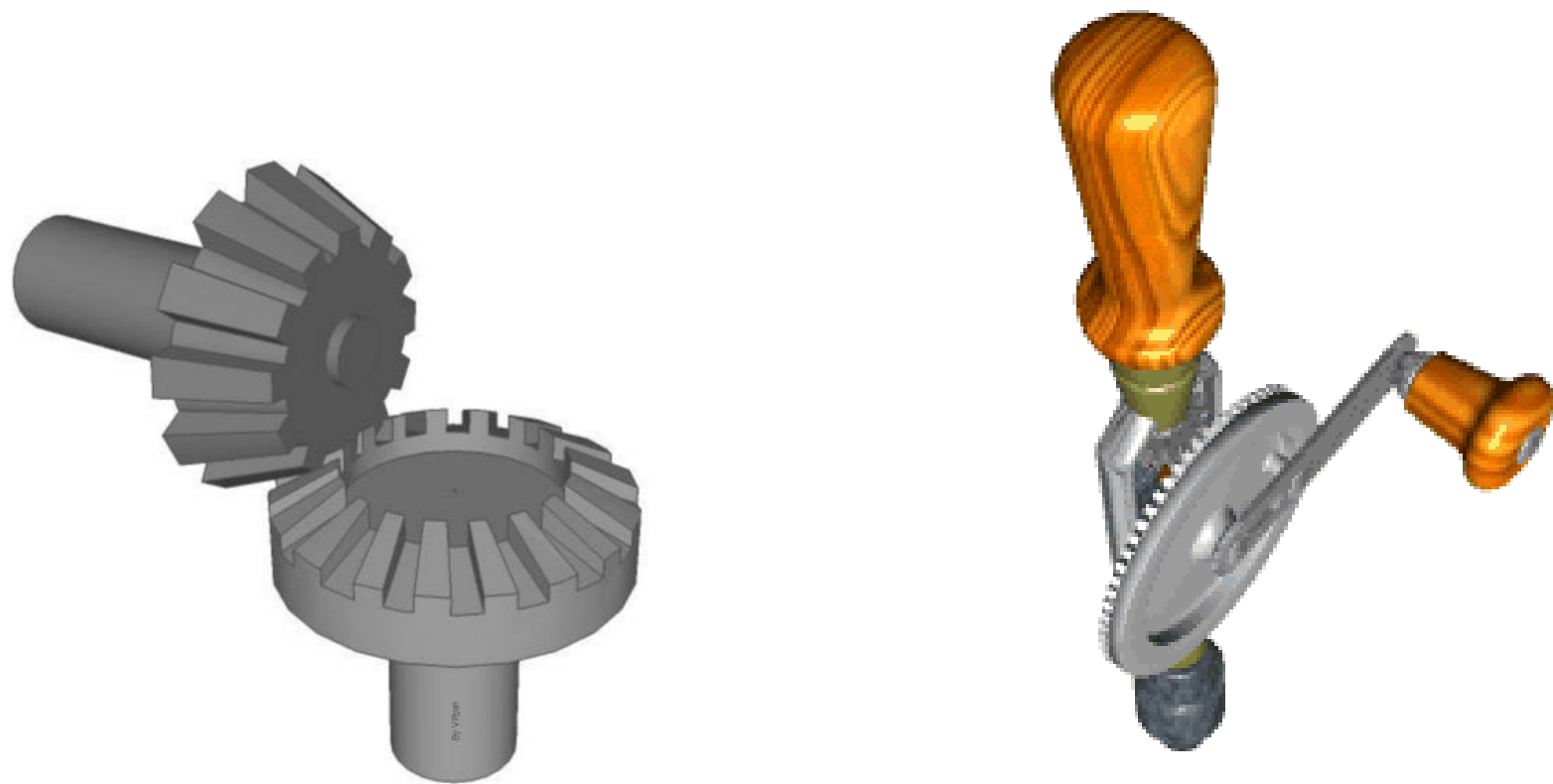
(齒輪的種類)



Bevel gear (傘齒輪)

Bevel gears are used when you want to **change the direction** of turning

功能：將齒輪的運動方向**改變90度**



應用：手搖鑽

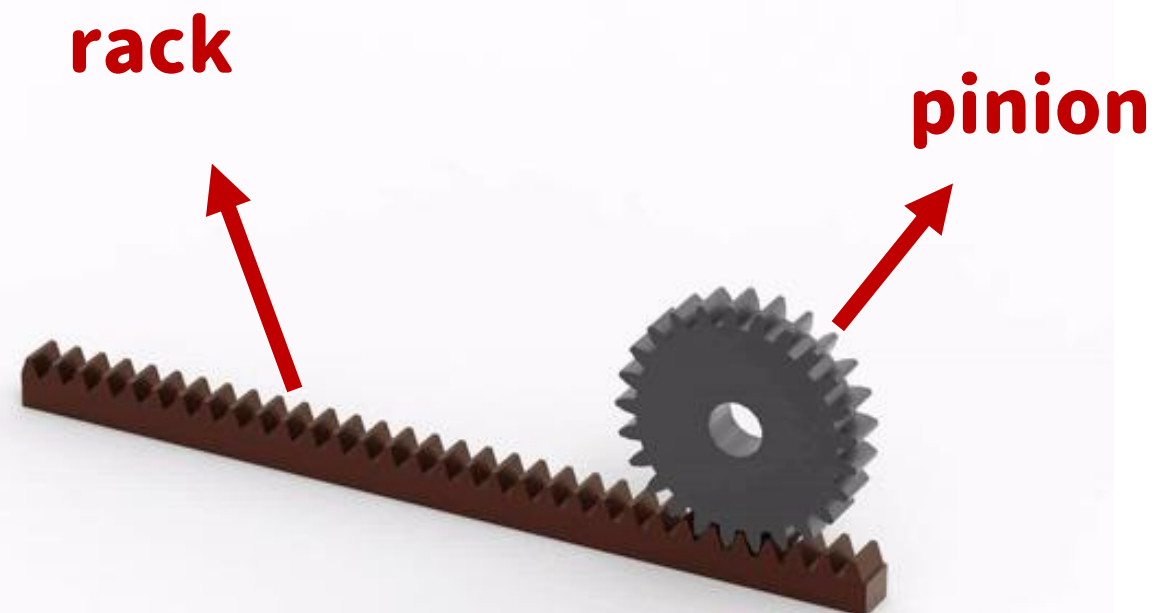
Rack-and-pinion gears 齒條與齒輪

The gear wheel is called the **pinion** gear

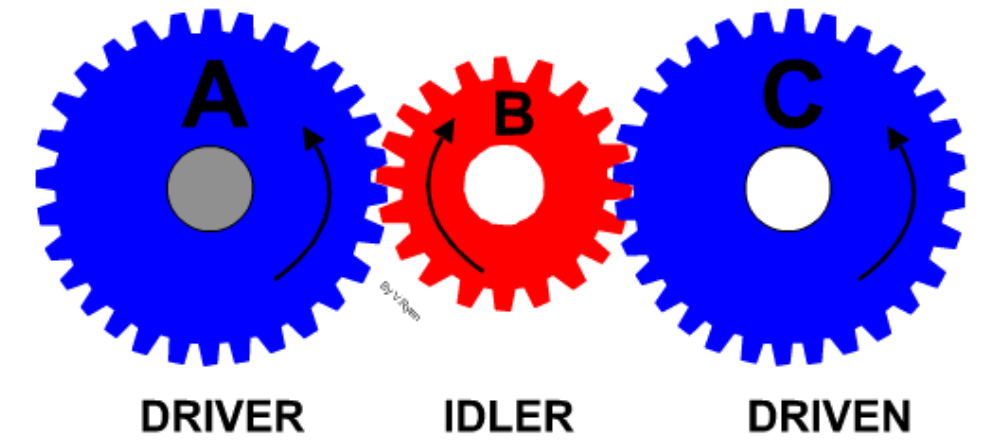
The straight bar with teeth is called the **rack** gear

功能：用於回轉運動與直線運動間之轉換

應用：汽車轉向系統



Functions (功能) of gear :

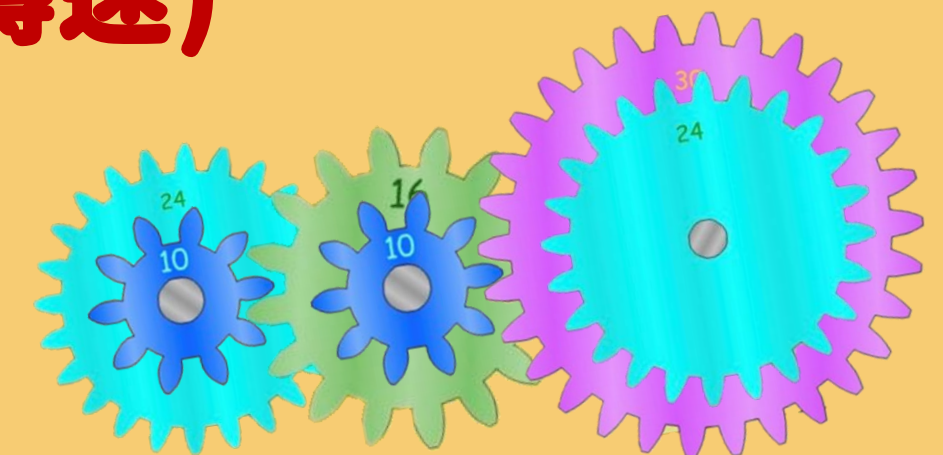
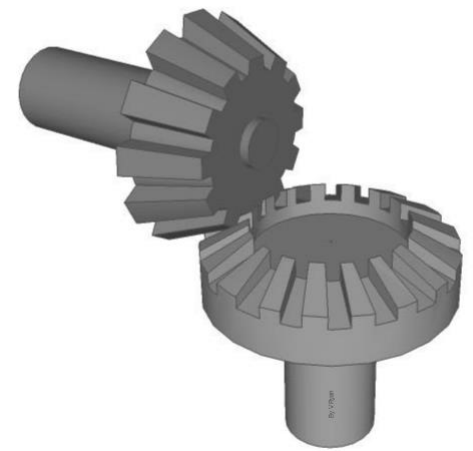


① Gears for **transmitting power** (傳達動力)

② Gears for **changing torque** (改變扭矩)

③ Gears for **Changing the Power Direction** (改變運動方向)

④ Gears for **Setting the Rotate Speed** (調整轉速)

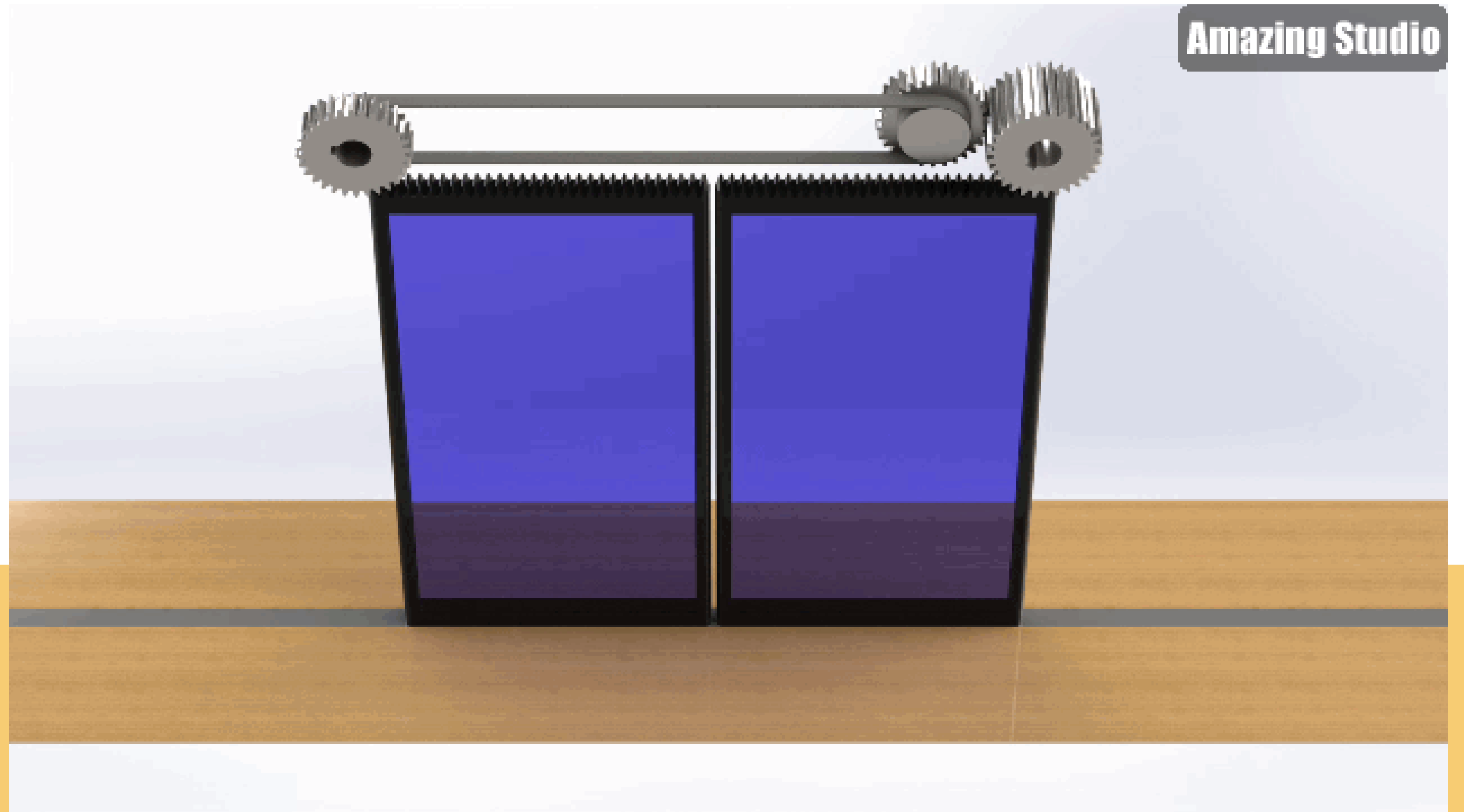


Analyze (分析) the functions (功能) and motion of gear mechanism in these daily life things.





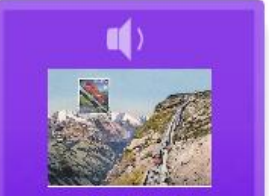
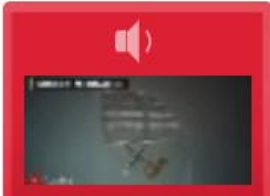



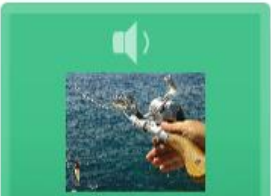


Correction Tape

電動滑門



wordwall

0:05

| | | |
|--|---|---|
|  merry go round |  sliding door |  climbind slope train |
|  car wind shield |  paper shredder |  watch |
|  fan |  fishing pole | |
|  hand drill |  correction tap | |



Bevel gear

| | | |
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| | | |
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Spur gear

| | | |
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Rack and pinion gear

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worm gear

| | | |
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| | | |
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Submit Answers



Mechanism

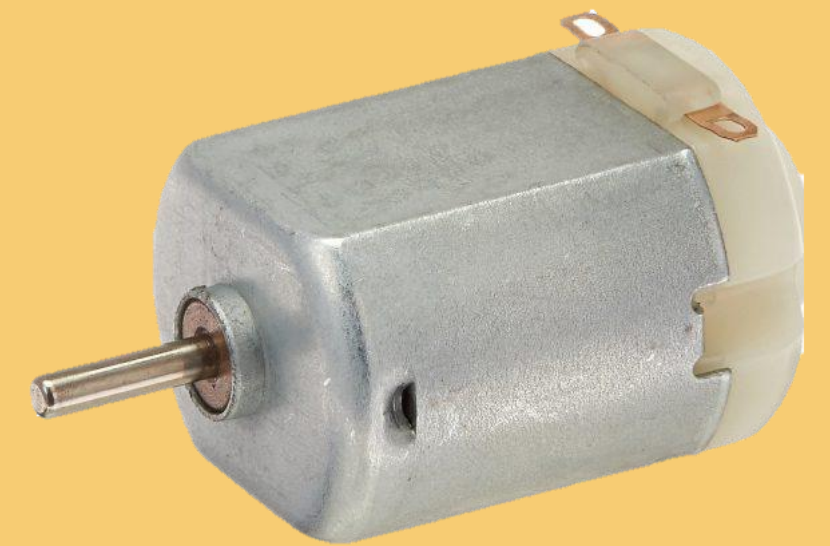
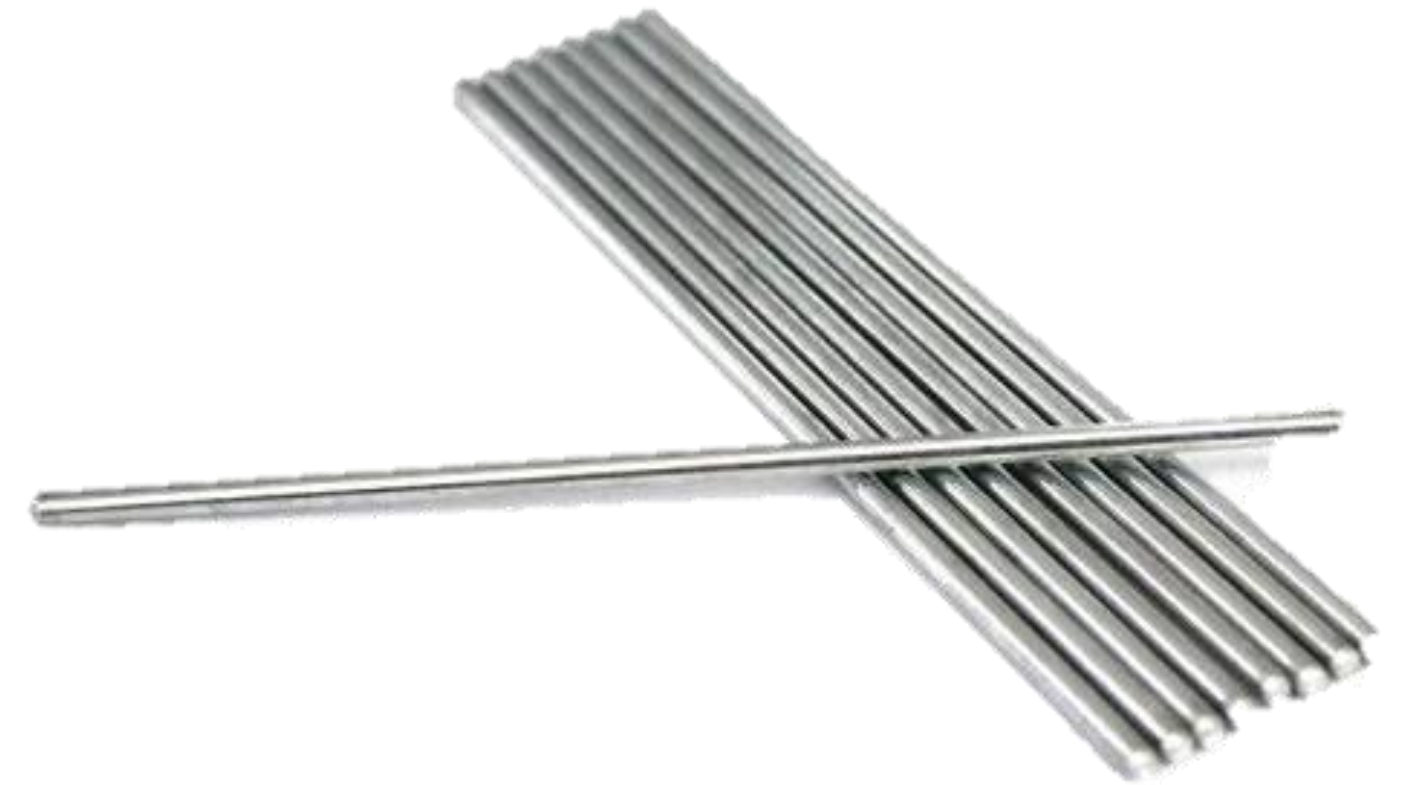


3V電池
直流馬達
約20000rpm

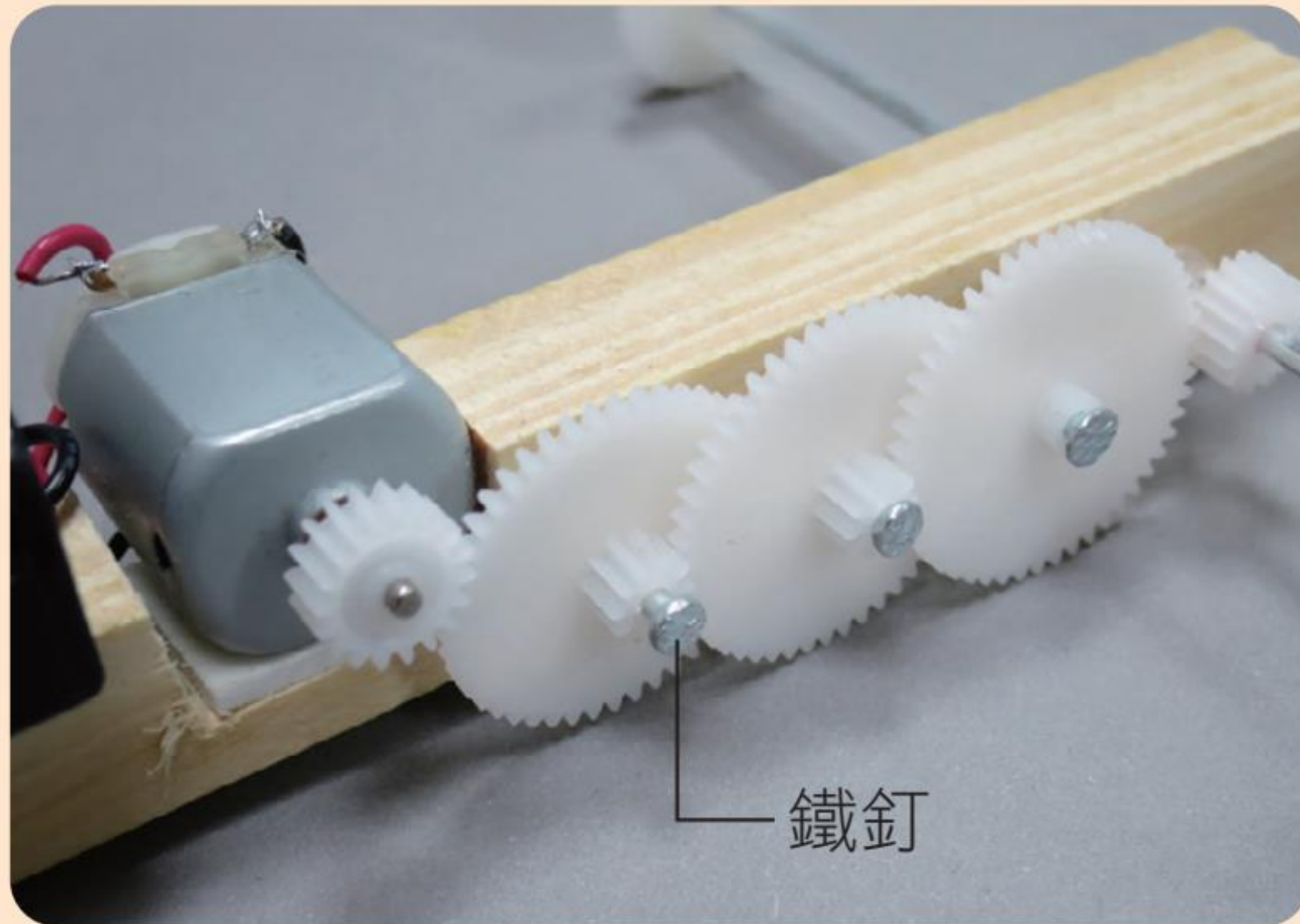


速度慢
扭力大

You will get the gears below :



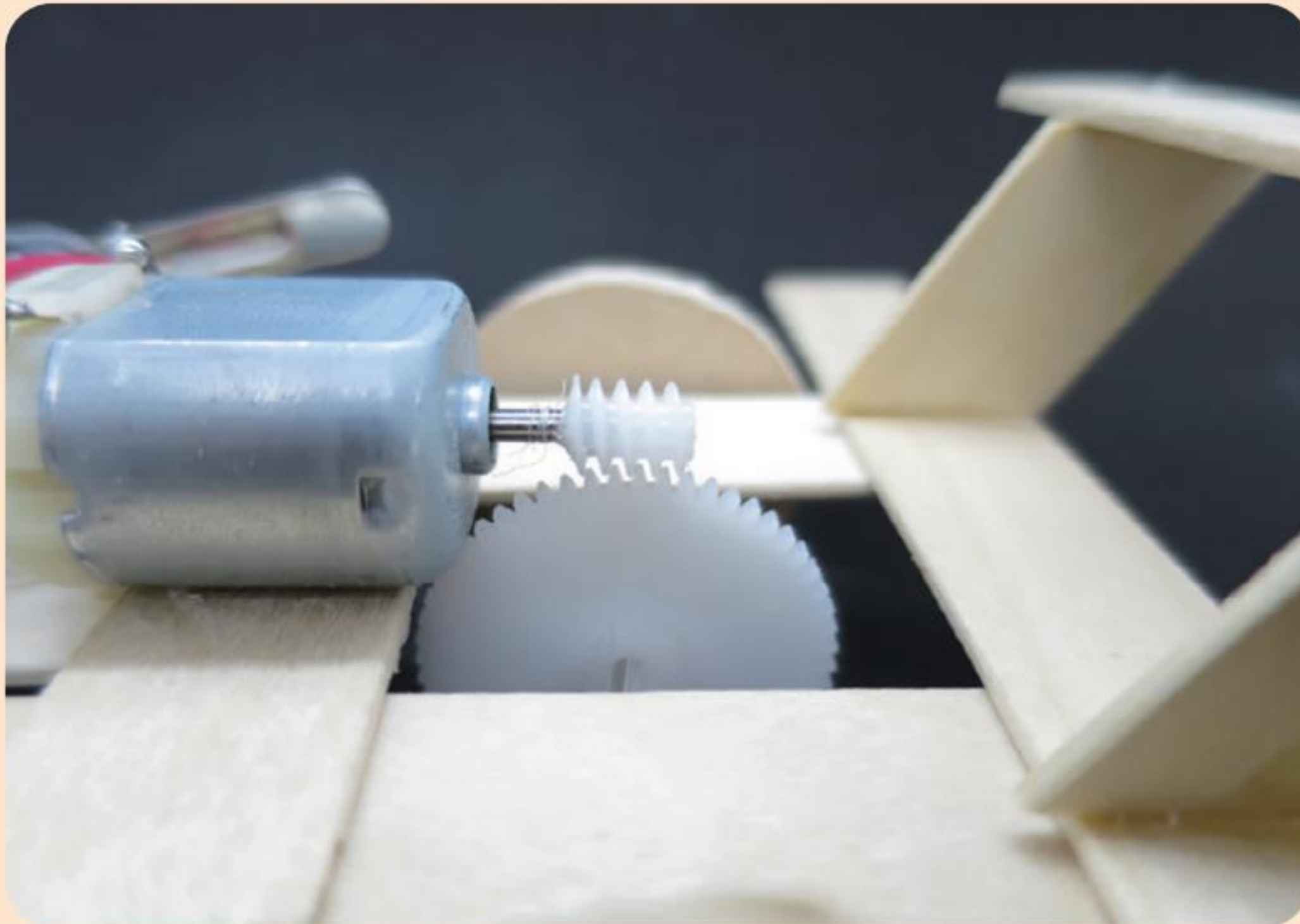
1. gear train 輪系



雙層齒輪

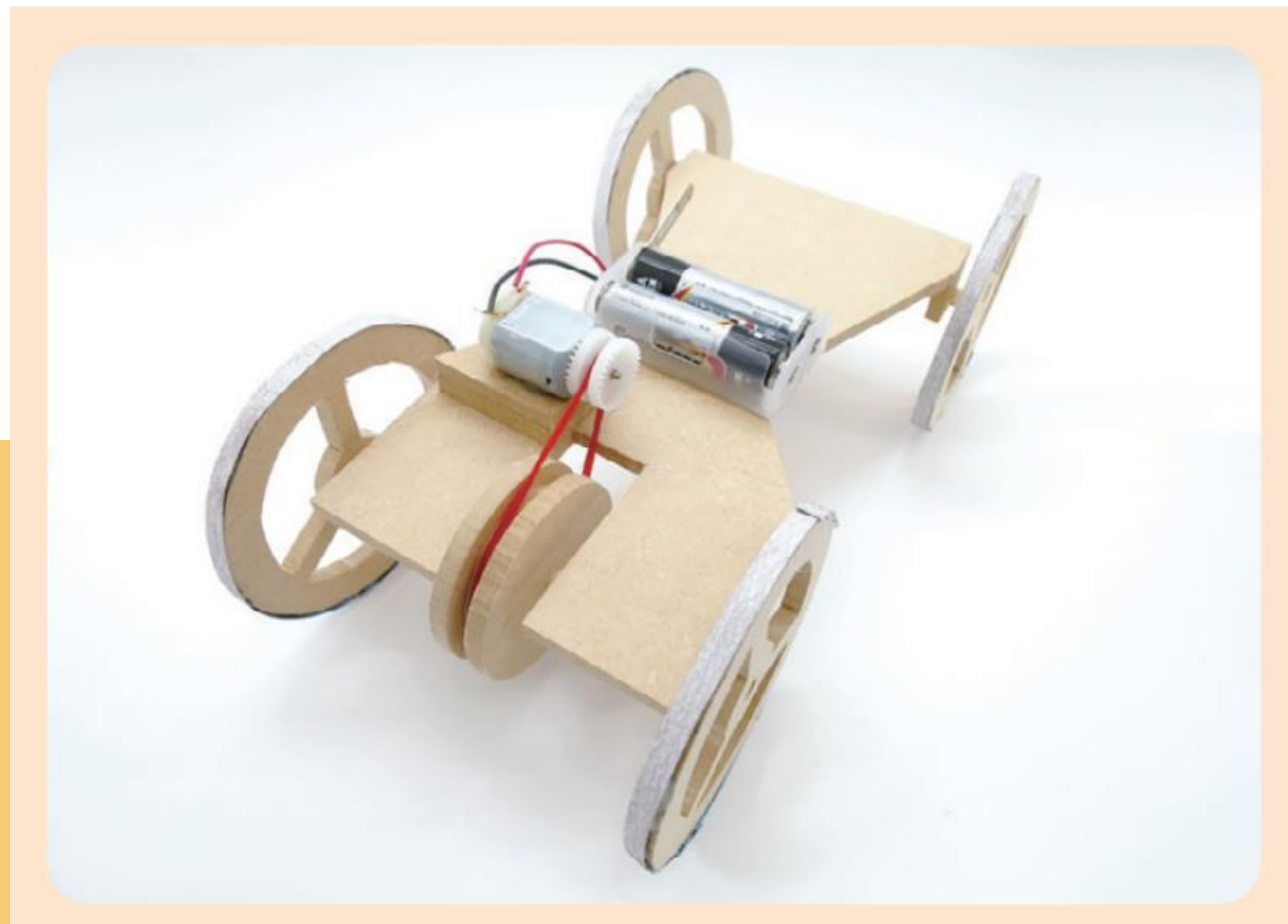
以小齒輪帶動大齒輪的方式，
將馬達的動力傳遞到車輪

2. Worm gear 蝸桿與蝸輪



蝸桿齒輪安裝於馬達輸出軸，直接帶動車軸上的平齒輪，達到**減速**的目的。

3. Pulley 皮帶輪



利用兩個小的冠齒輪安裝在馬達上作為主動輪，
透過橡皮筋帶動輪軸上的大輪，以達到減速目的

Resources

備課過程中搜尋過的相關網路資源



國家教育研究院

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NATIONAL ACADEMY for EDUCATIONAL RESEARCH | NAER Web of Words

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國家發展委員會 NATIONAL DEVELOPMENT COUNCIL

關於本會 重大政策 主要業務 資訊專區 服務園地

國家發展規劃

國家發展計畫

雙語政策

行政院所屬各機關施政計畫

國際合作及交流

經建專題研究

經建資訊與宣傳

首頁 > 主要業務 > 國家發展規劃 > 雙語政策

雙語政策

臺灣經貿立國，在全球供應鏈佔有關鍵性地位，近年來越來越多跨國企業來台投資，對我國本土雙語專業人才的聘用需求亦隨之大幅增加。同時，我國企業因應供應鏈全球佈局，亦需大量兼具專業，尤其具有英文溝通能力，以及國際移動競爭力的人才。為強化台灣年輕世代的競爭力，讓下一代有能力獲得更好的就業機會與薪資所得，政府推動2030雙語政策，期基於臺灣已掌握華語使用的優勢，在專業知識之上，進一步強化我國人，尤其年輕世代的英文溝通能力，增強全球競爭力。

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。

國家發展委員會

雙語資料庫學習資源網

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七年級

單字

| | | | |
|--------------------------|-------------|----------------------------------|-------------|
| active cell | 作用中儲存格 | label | 標籤 |
| animation | 動畫 | left-click | 滑鼠左鍵 |
| average | 平均 | like/prefer | 偏好 |
| bark | 樹皮 | loop | 環 |
| bend | 折 | main topic | 主題 |
| Caps Lock | 大小寫切換鍵 | marker | 重點標示 |
| cell | 儲存格 | motion paths | 動態路徑 |
| charts | 表單 | new | 開新檔案 |
| column | 欄 | note | 筆記 |
| copper wire | 銅線 | open | 開啟舊檔 |
| copy | 複製 | password | 密碼 |
| Delete | 刪除 | paste | 貼上 |
| desktop sander | 桌上型砂磨機 | picture toolbar | 圖表工具列 |
| desktop wire saw machine | 桌上型線鋸機 | print screen | 截圖 |
| double-click | 滑鼠點擊兩下 | rank | 等級 |
| download | 下載 | rasp | 銼刀 |
| drag | 拖曳 | tight-click | 滑鼠右鍵 |
| drill | 鑽 | round-nose pliers | 圓嘴鉗 |
| electrical wire | 電線 | sandpaper | 砂紙 |
| enter key | 確認鍵 | save as | 另存新檔 |
| export | 匯出 | Space Bar | 空白鍵 |
| file | 檔案 | sum | 總和 |
| fish bone | 魚骨圖 | summary | 摘要 |
| floating topic | 浮動標題 | table | 表格 |
| glue | 膠水 | table drill and circular saw bit | 桌上型鑽床及圓穴鋸鑽頭 |
| Google drive | Google 雲端 | tool box | 工具列 |
| Google account | Google 帳號 | underline | 底線 |
| Google classroom | Google 雲端教室 | upload | 上傳 |
| grouping | 群組 | white glue | 白膠 |
| guide settings | 指令設定 | wire cutters | 剪線鉗 |
| hand in | 繳交 | wire end inwards | 線圈端向內 |
| insert | 輸入 | | |

句型

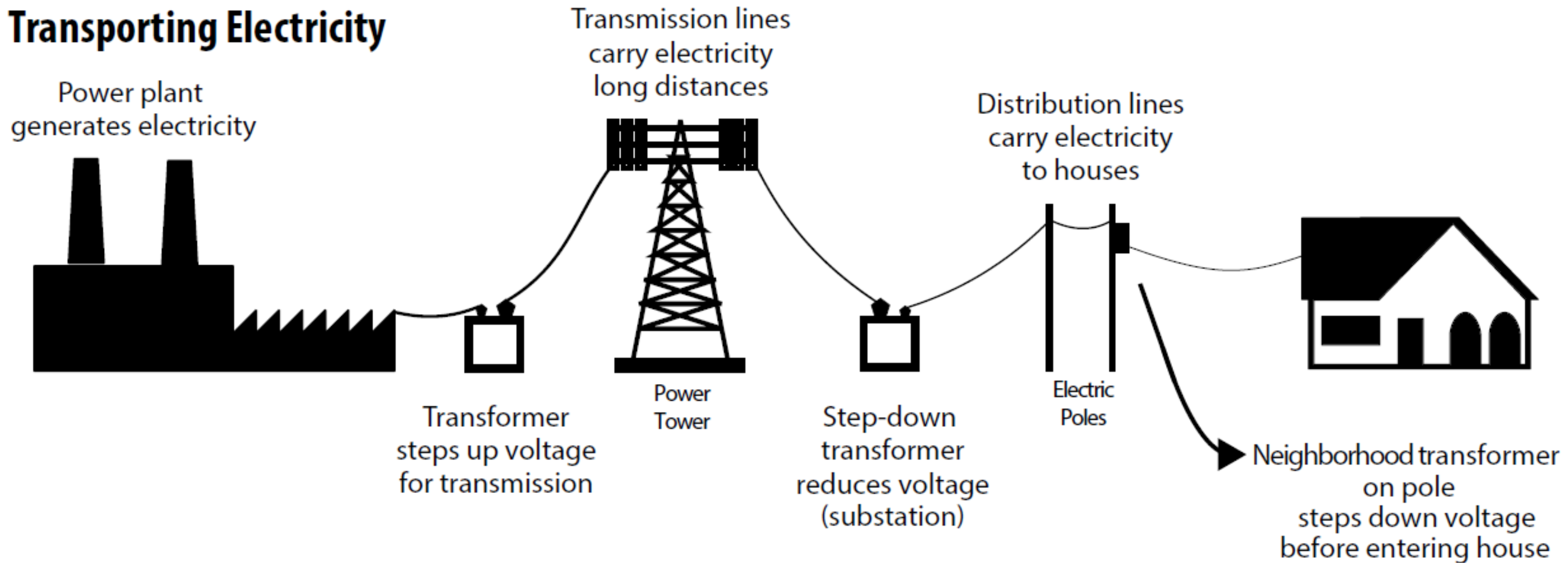
| | |
|---|-----------------------------|
| Be careful, the _____ (tool) can be hazardous. | 小心，工具有可能很危險。 |
| Can anyone tell me what you saw in the video and what ... is? | 有誰能告訴我你在影片中看到什麼，以及_____是什麼？ |
| Discuss in groups of 4/5. | 請4/5人一組進行討論 |
| Do you get it? | 明白嗎？ |
| Do you know what ... is? | 你知道_____是什麼嗎？ |
| Do you understand? | 理解嗎？ |
| Follow instructions, step by step. | 請依指示逐步進行 |
| Good job/Excellent/Awesome! | 很棒 |
| Handle tools with care. | 使用工具請小心 |
| Have you finished? | 完成了嗎？ |
| He/She is planning to (build) a new _____. | 他正要做一個_____。 |
| Here are ... | 這些是_____。 |
| How do you build/fix a _____? | 你是怎麼做/修理_____的？ |
| I like/ I would like to/ I prefer ... | 我喜歡/我想要/我偏好_____。 |
| I'm afraid it's time to finish now. | 時間到 |
| It's time to finish. | 該完成了 |
| Just a moment, please. | 再等一下 |
| Let's watch a video/film. | 我們一起看影片。 |
| Listen carefully. | 專心聽 |
| Next one, please. | 下一位，謝謝。 |
| Next week we will begin to construct/build a _____. | 下周我們會開始做_____。 |
| Pay attention. Be quiet! | 注意!請安靜! |
| Please pay attention to what is ... and guess what ... is. | 請注意_____是什麼，並猜猜_____是什麼。 |
| Please upload your file. | 請上傳檔案 |
| Raise your hands if you have problems/questions. | 若有問題請舉手 |
| Tell your classmates. How did you do it? | 告訴同學們你怎麼做的。 |
| There are many kinds of ... | 有許多的_____。 |
| Today we will build/fix/create a _____. | 今天我們要做/修理/創造一個_____。 |
| Try it. You can make it. | 試試看。你可以做到的! |
| We have an extra five minutes. | 還有五分鐘 |
| Would you please share your ideas with your classmates? | 你能否向同學們分享一下你的想法呢？ |



Electricity

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Transporting Electricity



Power to the People

Everyone knows how important electricity is to our lives. All it takes is a power failure to remind us how much we depend on it. Life would be

hydropower and can be put into operation in minutes because they require little start-up time. The more this equipment is used, the higher



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How to Determine Gear Ratio

Author Info

Last Updated: May 19, 2023 Approved

In mechanical engineering, a gear ratio is a direct measure of the ratio of the rotational speeds of two or more interlocking gears. As a general rule, when dealing with two gears, if the drive gear (the one directly receiving rotational force from the engine, motor, etc.) is bigger than the driven gear, the latter will turn more quickly, and vice versa. We can express this basic concept with the formula **Gear ratio = T2/T1**, where T1 is the number of teeth on the first gear and T2 is the number of teeth on the second.

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METHODS

- 1 Finding the Gear Ratio of a Gear Train
- 2 Making Ratio/Speed Calculations

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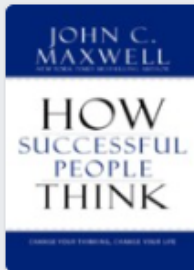
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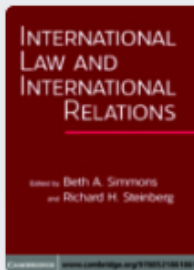
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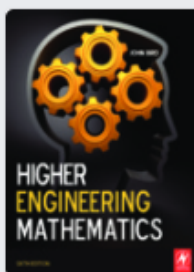
Also by John C. Maxwell: .. of the evening, as Steve and I were walking to our car, he said to me, "John, I bet



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