



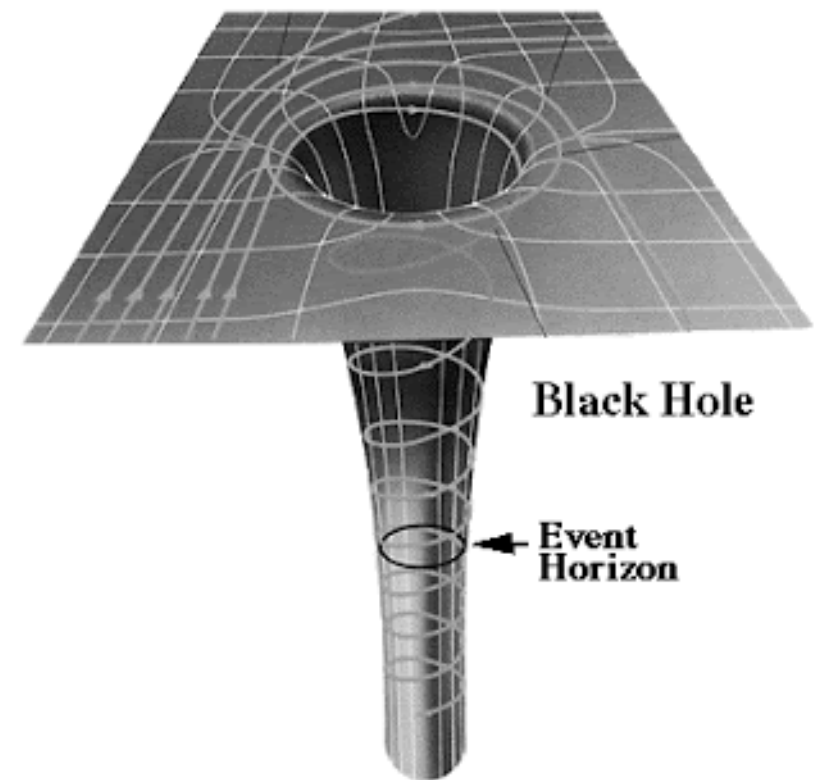
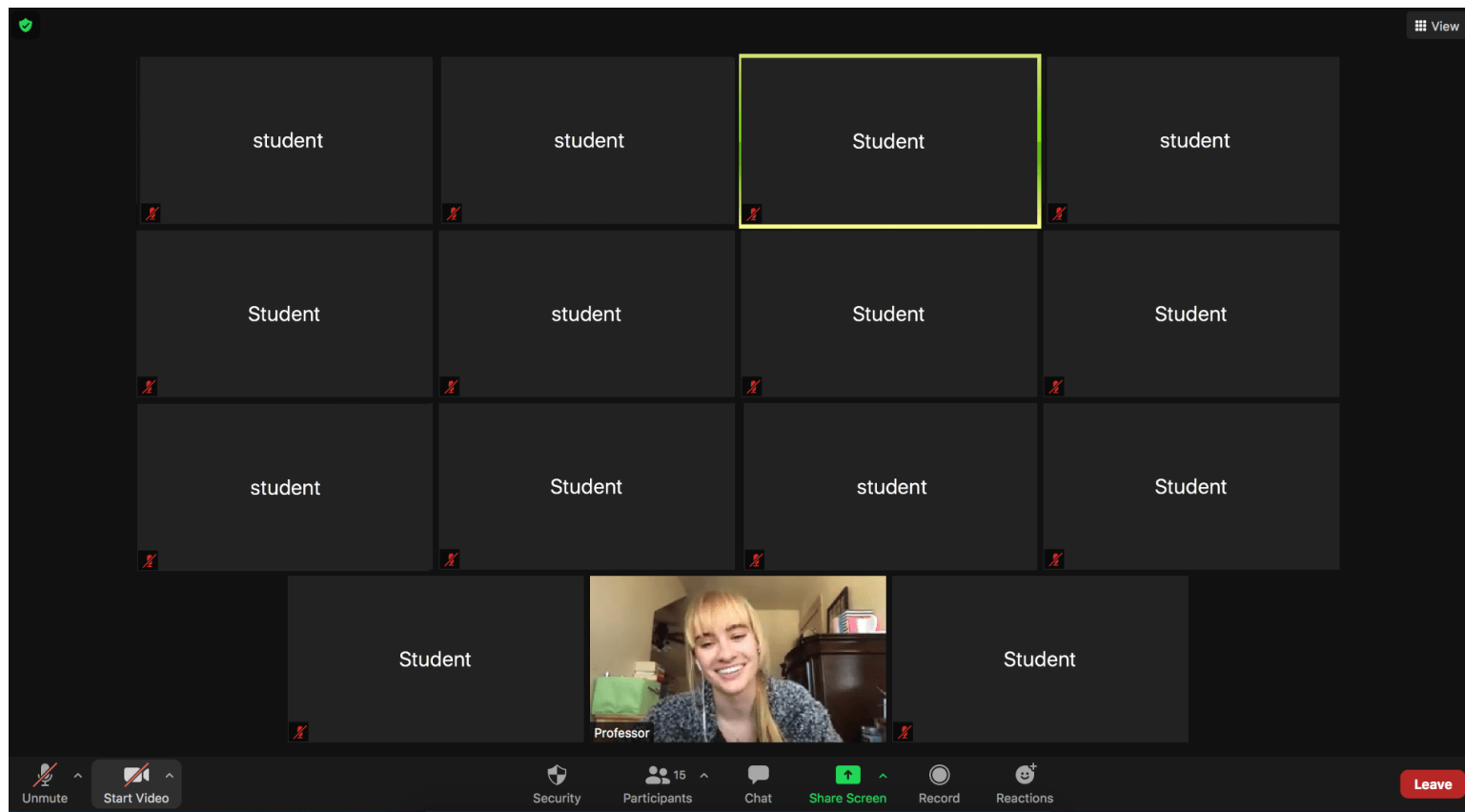
# 結合遊戲、科學 及線上模式的全 新學習體驗

文佩欣老師  
聖士提反女子中學

# 學生眼中的網課

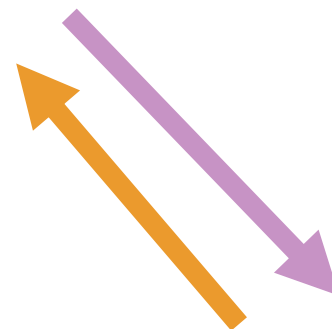
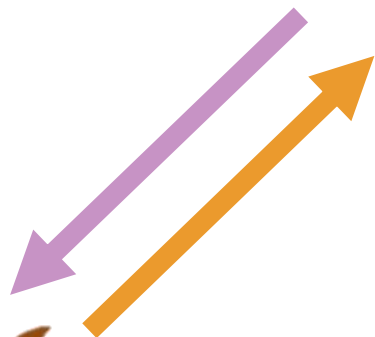
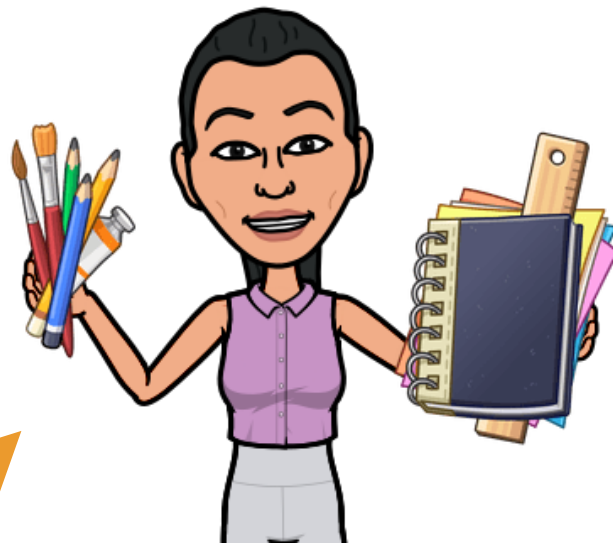


# 老師眼中的網課



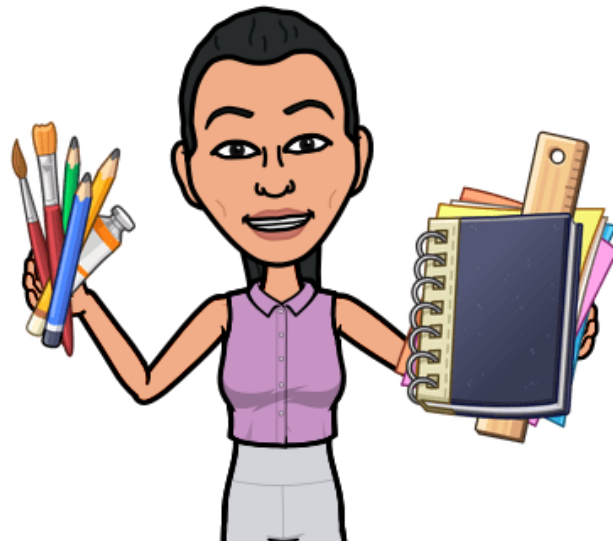


# 網課中的互動

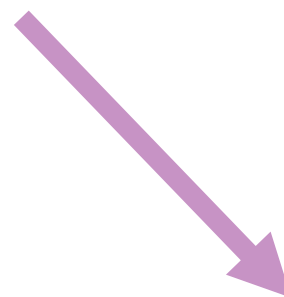
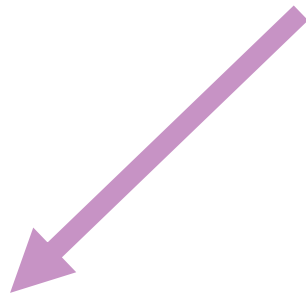




edpuzzle



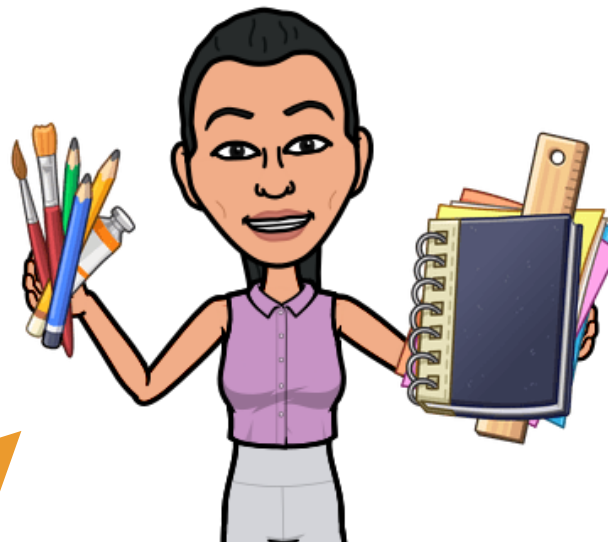
zoom



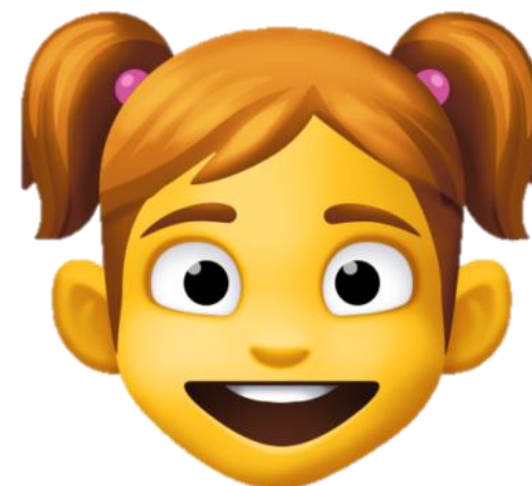
聊天室

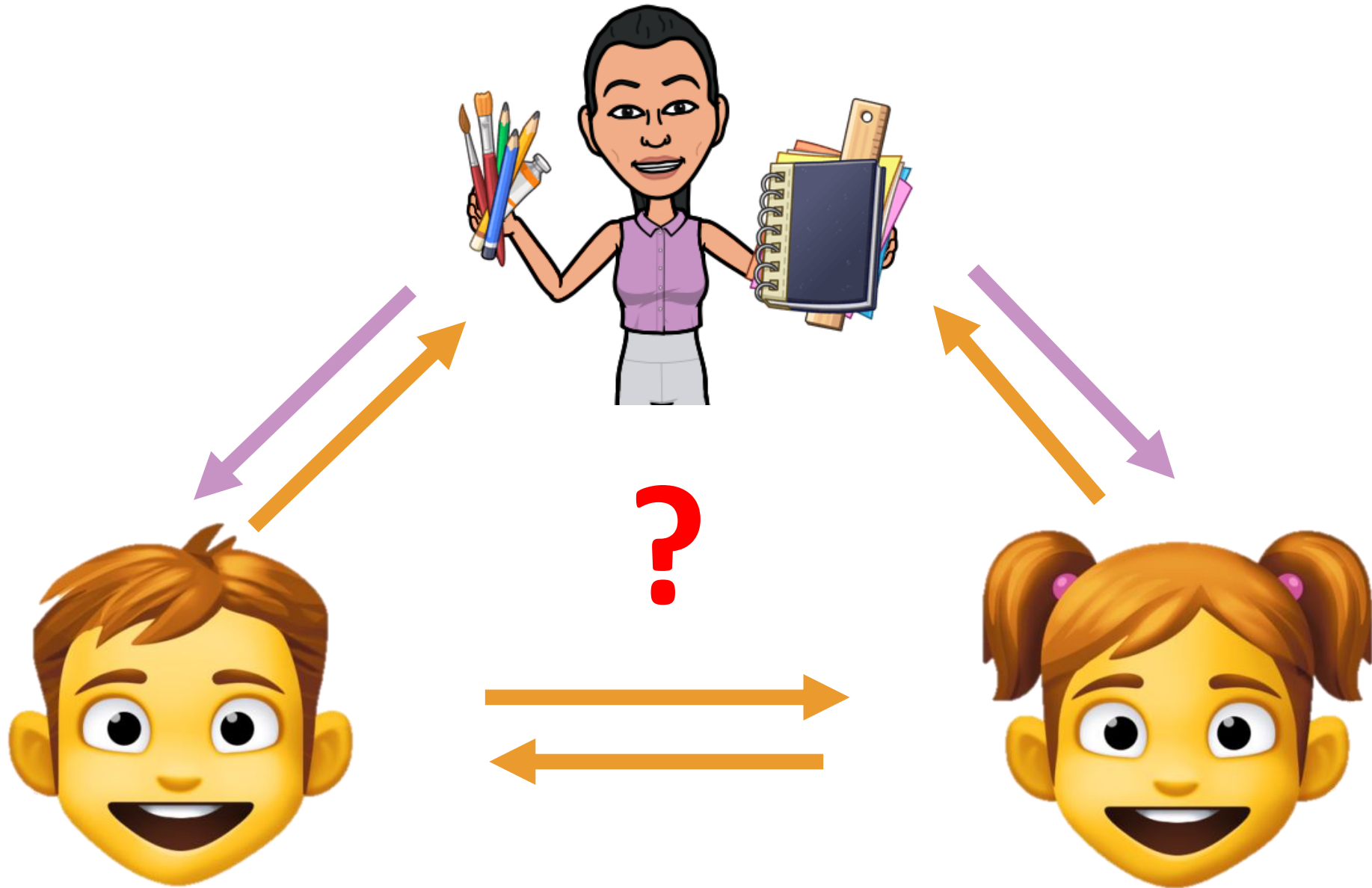


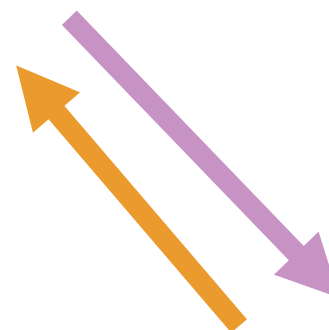
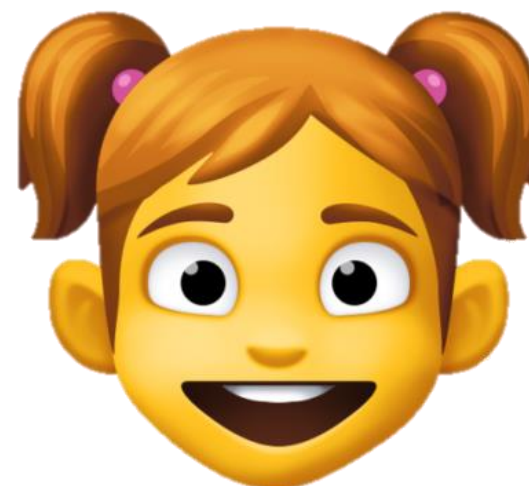
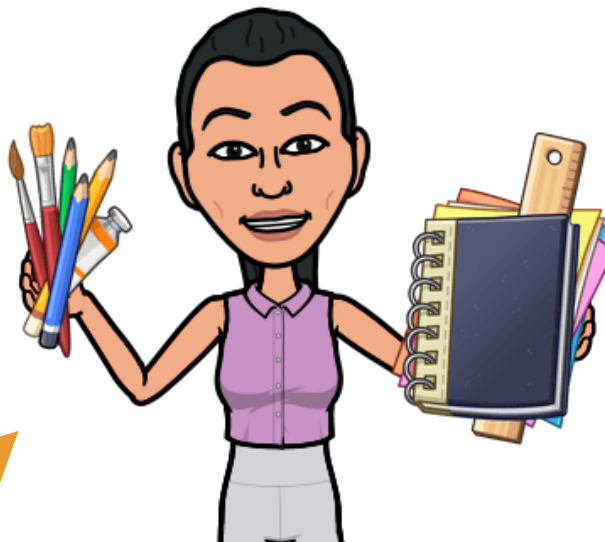
Kahoot!



即時投票











**miro**

遊戲模式1：  
虛擬遊樂場

# 虛擬 遊樂 場

動手  
參與

多人  
參與

互動

大量  
道具

# 遊戲 元素

非單  
一任  
務

不同  
難度

自由  
選擇

合作/  
競賽



**miro**

進來玩玩吧！

[https://miro.com/app/board/o9J\\_ICIRDMA=/](https://miro.com/app/board/o9J_ICIRDMA=/)





**miro**

探究溶解速度



上課前

下課後

上課中

# 課題：影響溶解速度的因數

## 課前預備

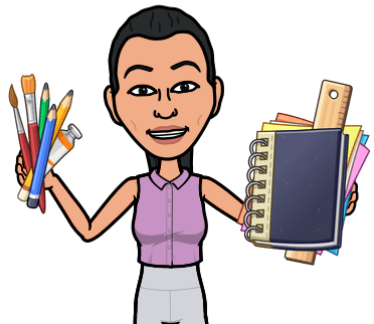


預備材料

紙杯 匙羹 砂糖/方糖 熱及冷水

分組

自由分組



miro board

安排不同目標 → 每組目標也不一樣

取分方法 → 越難越高分

每組有自己的遊樂場

Copy of New frame

Gp 3 Mission: Find out how stirring action affects the rate of dissolving sugar

You have to get all as many STARS as possible	Identify the IV / DV in this investigation (2 STARS)	State clearly the method your group used to measure the DV (1 STAR1)	Construct a table and put all your data in it (3 STARS)	videos to show the process of your experiment (5 STARS)	Control experiment is included (1 STAR)
---	---	---	--	--	--

Your mission playground

Pool of STARS



## 每組所得到的目標

Copy of New frame

Gp 3

Mission: Find out how stirring action affects the rate of dissolving sugar

You have to  
get all as  
many STARS  
as possible

identify the IV /  
DV in this  
investigation

(2 STARS)

State clearly the  
method your  
group used to  
measure the DV

(1 STAR1)

Construct a  
table and put all  
your data in it

(3 STARS)

videos to show  
the process of  
your experiment

(5 STARS)

Control  
experiment is  
included

(1 STAR)

Your mission playground

目標下的不同小任務

上課前

下課後

上課中



# 課題：影響溶解速度的因數

## 課堂進行時



決定策略

要找出一個在限定時間內取得最多分數的策略

分工合作

安排不同組員完成不同任務



miro board

給予清晰指引  
給予鼓勵

技術支援  
提問

# Gp 1 Mission: Find out how the temperature affects the rate of dissolving sugar

Group 1:

You have to get all as many STARS as possible

Identify the IV / DV in this investigation  
(2 STARS)

State clearly the method your group used to measure the DV  
(1 STAR)

Construct a table and put all your data in it  
(3 STARS)

videos to show the process of your experiment  
(5 STARS)

Control experiment is included  
(1 STAR)

Grace Cheng  
Gladys Lam  
Sofia Leung

## Your mission playground

IV:  
Different temperature

DV:  
Affections of the rate of dissolving sugar

Control Vs:  
-Same amount of sugar  
-Same amount of water  
-Same type of sugar

Method to measure DV:

2) Prepare two same cups then add 100 mL hot water into one cup and 100 mL cold water into the other.

2) Put 24g sugar into each cup and start that stopwatch.

3) Use a spoon to stir both hot and cold water until the sugar have been completely dissolved.

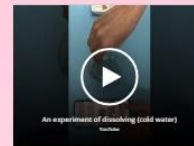
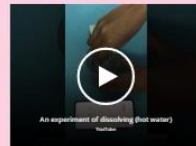
4) stop the stopwatch to count the time taken to dissolve.

5) The shorter the time of the sugar to be dissolved, the higher the rate of dissolving.

New grid

Temperature of water	TIME TAKEN TO DISSOLVE	THE RATE OF DISSOLVING
Hot water	00:37:90	higher
Cold water	00:57:70	lower

## The process of our experiments



24g of sugar

two spoons

100ml of hot water

100ml of cold water



100mL water

100mL hot water

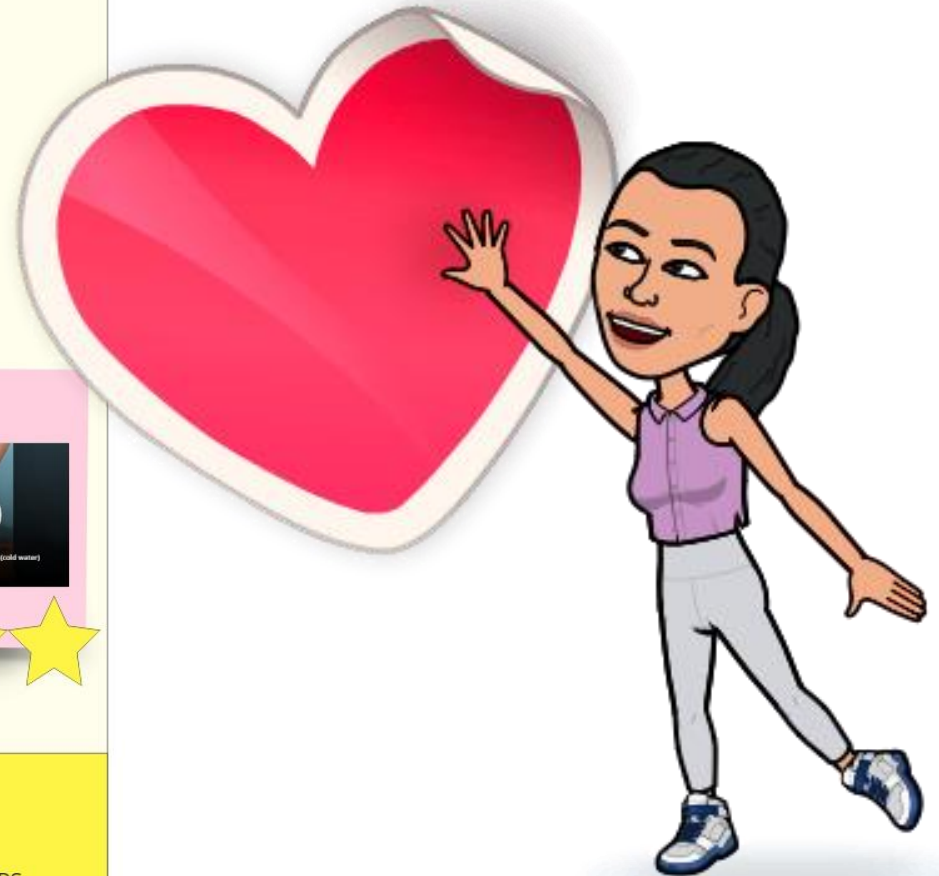
two spoons

a stopwatch

The conclusion is that with higher temperature, the solute can dissolve faster.

Pool of STARS

<https://miro.com/welcomeonboard/oMWF70bC3mI2X8Rm9VTwgy3FuOHLfwCxF4Z5i73cPlqm4XcVynwLQff8zJ1ycrFY>





上課前

下課後

上課中

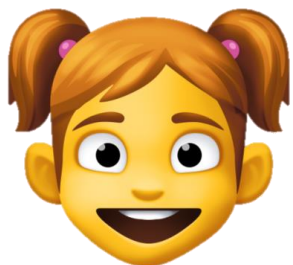


# 課題：影響溶解速度的因數

課後跟進

決定策略

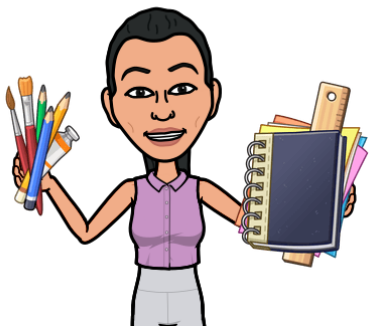
改良



回饋

留言

比星星





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下課後的遊樂場



# 上課

課題：魚類、  
鳥類、爬行  
類、兩棲類  
及哺乳類的  
生物特徵

# 下課



- 設計一張海報以介紹一種有脊椎生物
- 向同學提問
- 回應問題



# 自由 選擇

You may choose to work on one of these vertebrates  
or you can have your free choice to work on any other vertebrates.



*Sea horse*



*platypus*



*bat*



*Anteater*



*penguin*



*Sea snake*

# 任務內容

1

Name of the animal	Photo(s) of the animal
The habitat where the animal lives	live in water? live on land? ??
external features	How many legs it has? How many legs it has? vertebrate or invertebrate? with beak? with fins?
with hair?	with scales? The scales are dry or wet? With slimy skin?
breath by lungs?	breath by gills? with mammary gland?
warm blooded or cold blooded	internal fertilization or external fertilization? lay eggs for reproduction or by other methods?
Other features	wings antenna etc

3

Task 1: Vote for the favorite poster  
each student has two votes for your favorite poster!  
Put a star with your name on the poster you vote for!



4

Task 2:  
Post one question to any poster. The question is about the vertebrate.  
The poster owners need to answer the questions from your classmates! :)

How do seahorses breathe?  
Ms. Man

The questions you need to address	The answers to the questions
What is the habitat it lives?	
What external features does it have?	
Is it cold-blooded or warm blooded?	
How does it breathe?	
Does it have mammary gland?	
Is it viviparous 胎生的/ Oviparous 卵生的/ Ovoviviparous 卵胎生?	
Is it a vertebrate or invertebrate? If it is a vertebrate, which groups (fish, amphibians, reptiles, bird or mammal) does it belong to?	
Two interesting facts related to this animal.	

This table may help you to design your poster

Rubrics

	A	B	C
Word content	5 <ul style="list-style-type: none"> <li>Informative</li> <li>The content addresses ALL the questions in the guideline.</li> <li>Contains extra information which is interesting and inspiring.</li> </ul>	3 <ul style="list-style-type: none"> <li>Informative</li> <li>The content addresses SOME of the questions in the guideline.</li> <li>Contains extra information.</li> </ul>	1 <ul style="list-style-type: none"> <li>The content addresses only few the questions in the guideline.</li> <li>Contains no extra information.</li> </ul>
Visual content	3 <ul style="list-style-type: none"> <li>Contain more than 3 photos which illustrate the features / characteristics mentioned in the poster.</li> <li>Good graphics / diagrams to illustrate the content.</li> </ul>	2 <ul style="list-style-type: none"> <li>Contain photo(s) which illustrate(s) the features / characteristics mentioned in the poster.</li> <li>Graphics / diagrams to illustrate the content.</li> </ul>	1 <ul style="list-style-type: none"> <li>No photo to illustrate the features / characteristics mentioned in the poster.</li> <li>No graphics / diagrams to illustrate the content.</li> </ul>
Communication	3 <ul style="list-style-type: none"> <li>All the content is original.</li> <li>The content is very easy to understand.</li> <li>The layout is very easy to follow.</li> </ul>	2 <ul style="list-style-type: none"> <li>Part of the content is original.</li> <li>The content is easy to understand.</li> <li>The layout is easy to follow.</li> </ul>	1 <ul style="list-style-type: none"> <li>The content is not original.</li> <li>The content is difficult to understand.</li> <li>The layout is messy.</li> </ul>

Marking rubrics

2



# 課題：魚類、鳥類、爬行類、兩棲類及哺乳類的生物特徵



The content of the ...



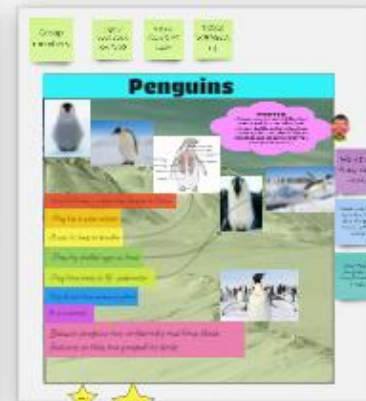
Organisms



Group 1



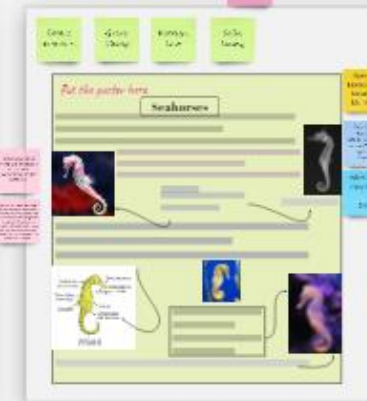
Group 5



Group 2



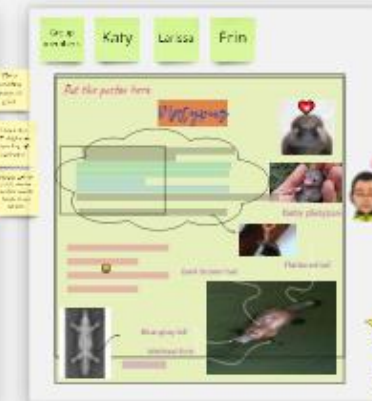
Group 6



Group 3



Group 7



Group 4



Group 8



<https://miro.com/welcomeonboard/5fnqiVb3ozuy2xfMoQxWHytCIldGMz4igFShtIGtATsKrN6tI2jC8SW9KRIWx8UR>



# 上課

課題：魚類、  
鳥類、爬行  
類、兩棲類  
及哺乳類的  
生物特徵

# 下課

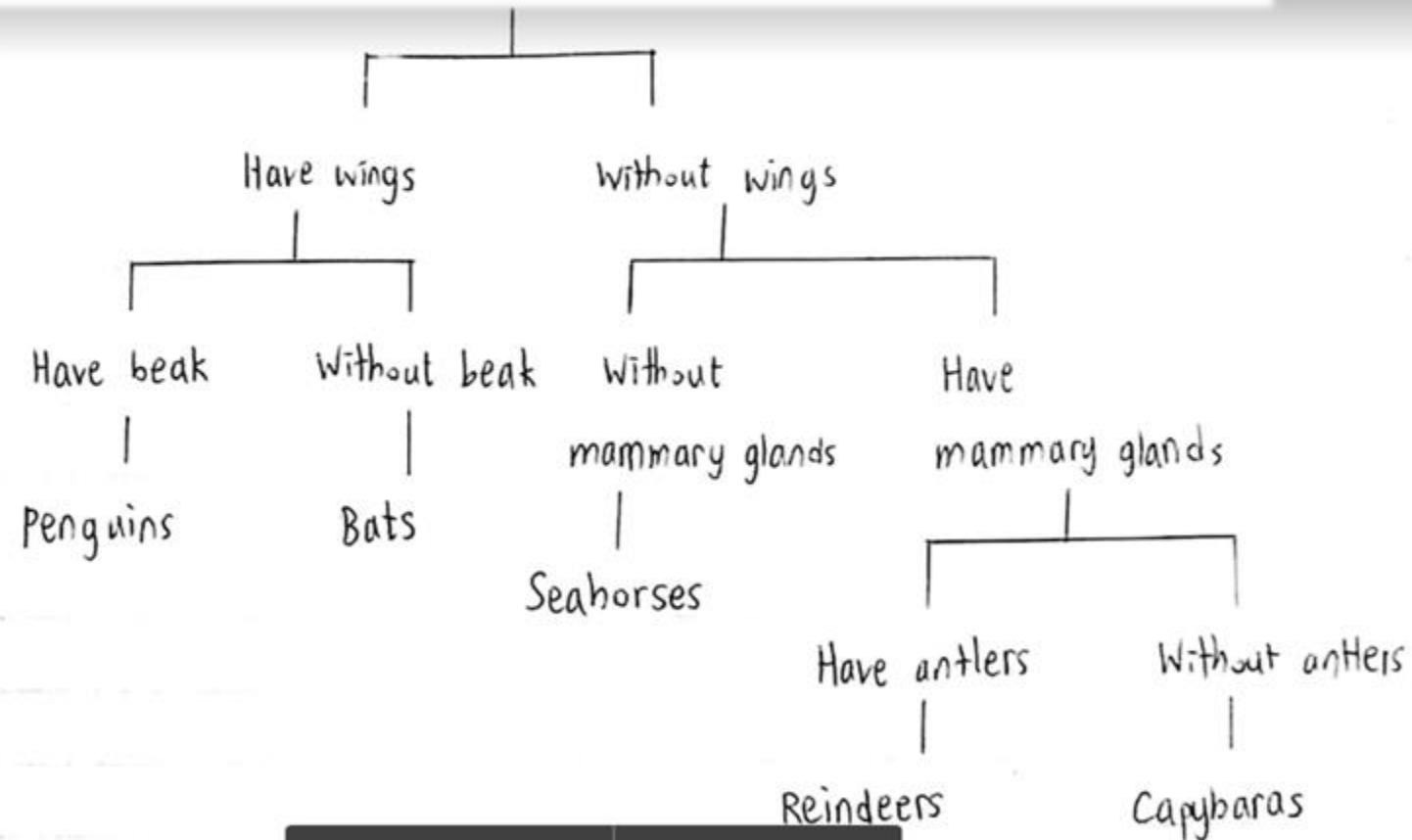
- 設計一張海報以介紹一種有脊椎生物
- 向同學提問
- 回應問題
- 選出最愛的海報

# 上課

- 課題：製作  
檢索表
- 選擇4種海報有介紹過的生物去製作檢索表

Construct a classification key for identifying 5 vertebrates you have selected

5/5



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Product ↓

By Use Case ↓

By Team ↓

Pricing

Enterprise

Contact Sales

Go to the Dashboard

# Apply for a free Education account

Your role

☐ Student

☒ Educator



<https://miro.com/contact/education/>



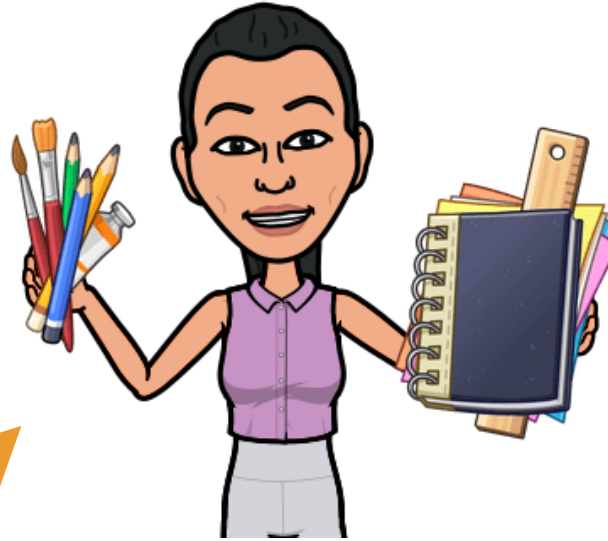


Google Slides

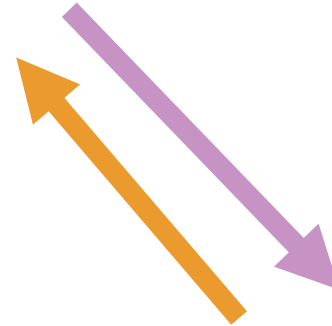
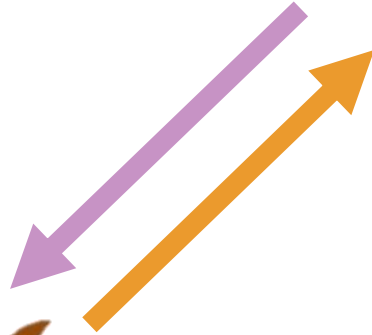
# 遊戲模式2： 以文字闖關



Google Slides



Google Docs



# 遊戲 元素

進級

限時

不斷  
嘗試/  
修訂

合作/  
競賽



# 植物的向光生長



Pui-yan MAN posted a new material: Investigation Game!



Posted Jan 5

Click the correct file according to you group number.

Chapter 1

From zero to something

**Group 1-Story**

Google Slides

Chapter 1

From Zero to Something

**Group 2-Story**

Google Slides

Chapter 1

From Zero to Something

**Group 3-Story**

Google Slides

Chapter 1

From Zero to Something

**Group 4-Story**

Google Slides

Chapter 1

From Zero to Something

**Group 5-Story**

Google Slides

<https://docs.google.com/presentation/d/1dqkxGlk5GLfGxIE-88Fy1AQKUiPuiylaKeG25JN6yil/edit?usp=sharing>

# Chapter 1

From Zero to Something

# Chapter 2

The Key is the Nature

# Chapter 3

The Hidden Secret



# Chapter 4

Move Towards the Light

# Final Chapter

The Dilemma



# Reveal the answers!

Question	Your answer
What was "question" in Charles Darwin's mind which drove him to do these experiments?	<p>Which part of the coleoptile caused the plant to grow towards the light source?</p> <p>Great! You are right!</p> <p>Thank you Ms Man ^o^</p>
What insight did Charles Darwin get from these experiments?	<p>The tip of the plant is necessary for growth. And the tip is sensitive to light that are coming from the side of the plant. It detect the direction of sunlight.</p>
After seeing these results, is there any further question coming up in your mind?	<p>What made the tip detect and grow towards the light source?</p> <p>Level UP!</p>



play  
with  
purpose