

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

氧氣

Concept

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

Scientific research methods and processes

1. observation phenomenon → Raise a question → 3. Formation assumption → 4. experiment including variable → 5. get conclusion

Content: Design an experiment

Observation: 筆會滴水

Question: 為什麼筆會滴水

Assumption: 因為寫太多次上面的油往下跑

independent variable (操縱變因): 要一直寫筆 揮筆的次數

dependent variable (應變變因): 筆上面白油跑來

Control Variables (控制變因): 同一種筆

experiment group (實驗組) 一直寫筆	control group (對照組) 好好的放在桌上
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Think: Talk about your feeling in this lesson.

Dear Gary: 我學到了做實驗的方法和發生火災的生存方式和防方式。

Your student: \_\_\_\_\_

A++

**Unit 2 Burn and rust - Rusted iron**

**Warmer**

1. What could be the cause of rusting iron?

Oxygen, 酸。

**Concept**

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

**Scientific research methods and processes**

1. Observation 現象 2. Raise a question 3. Formation assumption 4. experiment including variable 5. get conclusion

**Content: Design an experiment**

Observation: 醋加牛奶。

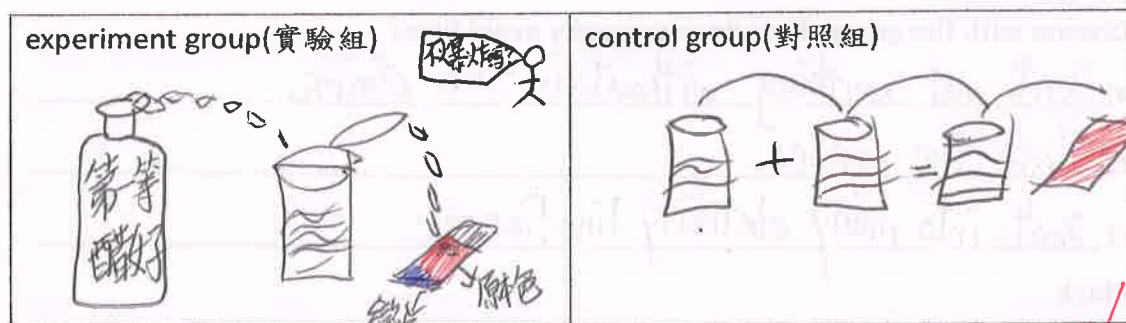
Question: 說不定會爆炸?

Assumption: 說不定等於酸奶!

independent variable (操縱變因): 牛奶加醋和牛奶加牛奶

dependent variable (應變變因): 先臭掉, 再變成酸奶。

Control Variables (控制變因): 酸性加中性。 - 搖時間, 溫度...



**Think: Talk about your feeling in this lesson.**

Dear Gary: 我喜歡這次課程感受到燃燒的應用。  
如果一個人攝取太多的酸會變得不健康?

Your student: Jerry (Yang)

2

**Unit 2 Burn and rust - Rusted iron**

**Warmer**

1. What could be the cause of rusting iron?

Concept 空氣

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

**Scientific research methods and processes**

1. observation phenomenon 2. Raise a question 3. Formation  
assumption 4. experiment including variable  
 5. get conclusion

**Content: Design an experiment**

Observation: 糖周圍有螞蟻

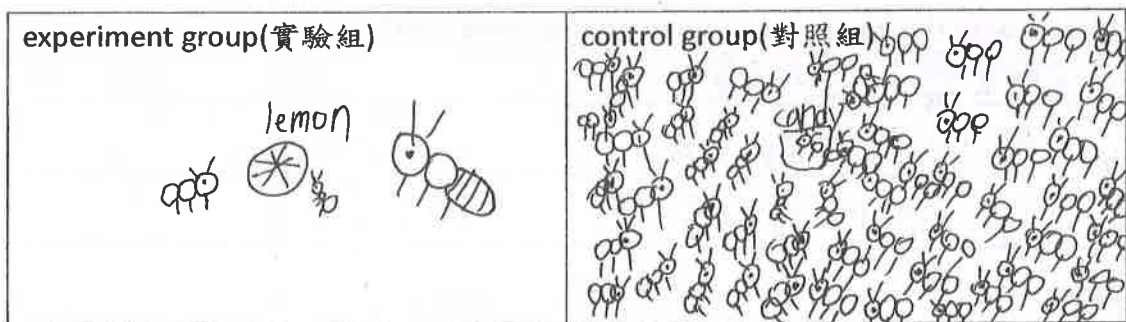
Question: 為什麼糖會吸引螞蟻?

Assumption: 應該是螞蟻會吃糖吧!

independent variable (操縱變因): 食物甜不甜

dependent variable (應變變因): 螞蟻喜歡甜食 是否聚集

Control Variables (控制變因): 食物大小、位置、溫度



Think: Talk about your feeling in this lesson.

Dear Gary: 我喜歡這個單元，希望可以多一點實驗。

Your student: Yukang



Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

Water and oxygen.

Concept

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

Scientific research methods and processes

1. observation phenomenon → Raise a question → (形成) Formation  
assumption → experiment including variable  
 → get conclusion

Content: Design an experiment

Observation: 快沒水的筆和新的筆顏色會一樣

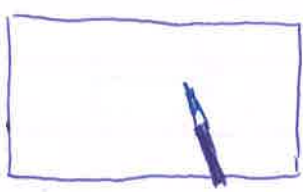
Question: 顏色會不會一樣

Assumption: 都一樣

independent variable (操縱變因): 快沒水的筆和有水的筆

dependent variable (應變變因): 差一點 顏色是否一樣

Control Variables (控制變因): 紙的顏色一樣

experiment group (實驗組) <u>沒水的筆</u> 	control group (對照組) <u>有水的筆</u> 
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Think: Talk about your feeling in this lesson.

Dear Gary: 我想燃燒一課很有趣，因為有很多實驗，而且很危險。

真的! 😊  
 😞

Your student: Vita

AT

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

氧氣

Concept

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

Scientific research methods and processes

1. observation phenomenon → 2. Raise a question → 3. Formation assumption → 4. experiment including variables → 5. get conclusion



Content: Design an experiment

Observation: 章魚會噴墨汁

Question: 為什麼章魚會噴墨汁?

Assumption: 可能是因為章魚被嚇到!

independent variable (操縱變因): 章魚會噴墨汁 是否被嚇到

dependent variable (應變變因): 章魚嚇到時會噴墨汁

Control Variables (控制變因): 章魚用什麼時後會噴墨汁 同一隻 溫度 光線

<p>experiment group (實驗組)</p> <p>章魚嚇到會噴墨汁</p>	<p>control group (對照組)</p> <p>章魚沒有嚇到時不會噴墨汁</p>
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Think: Talk about your feeling in this lesson.

Dear Gary: I am happy in the class, but sometimes I don't  
now what do you say now. I learning the variable and  
the observation and the dependent variable.

我會加油 Let You know

Your student: Jamie

**Unit 2 Burn and rust - Rusted iron**

**Warmer**

1. What could be the cause of rusting iron?

*oxygen*

**Concept**

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

**Scientific research methods and processes**

1. observation phenomenon → Raise a question → Formation

assumption → experiment including variable  
→ get conclusion

**Content: Design an experiment**

Observation: 每次把米糖放在 table 上, ants will come.


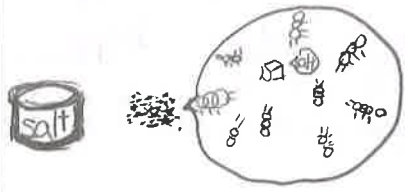
Question: If you put salt on the table will ants come?

Assumption: Ants eat every thing

independent variable (操縱變因): salt and sugar

dependent variable (應變變因): ants will come?

Control Variables (控制變因): How much salt and sugar.

<p>experiment group (實驗組)</p> 	<p>control group (對照組)</p> 
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**Think: Talk about your feeling in this lesson.**

Dear Gary:

(I am good!)

(Thank you to tell me every thing!)

(and you are smart)

Your student: Olivia

你  
好



Gary



你  
好



**Unit 2 Burn and rust - Rusted iron**

**Warmer**

1. What could be the cause of rusting iron?

oxygen ✓

**Concept**

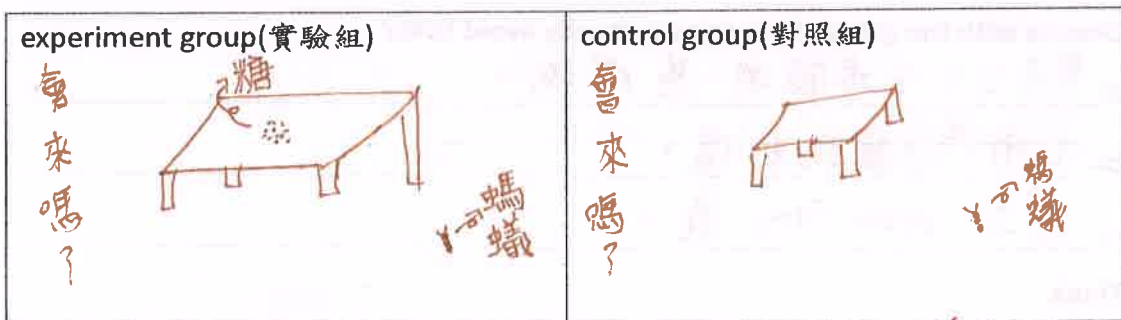
observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

**Scientific research methods and processes**

1. observation phenomenon → 2. Raise a question → 3. Formation assumption → 4. experiment including variable → 5. get conclusion

**Content: Design an experiment**

- Observation: 發現 只要有糖, 螞蟻就會過來 ✓  
 Question: 有糖螞蟻會過來吃嗎? 螞蟻很愛吃糖嗎? ✓  
 Assumption: 桌子上有糖, 很多螞蟻會爬到桌上吃糖 ✓  
 independent variable (操縱變因): 有無糖 ✓  
 dependent variable (應變變因): 螞蟻很愛吃糖, 所以有糖螞蟻就會來吃 ✓  
 Control Variables (控制變因): 螞蟻要是一樣的, 要是糖, 地點要一樣 ✓



**Think: Talk about your feeling in this lesson.**

Dear Gary:

我想問控制變因可以只有一個嗎? 有好多個。  
 我學到了 observation (觀察)

Your student:

gan

Class 6

Number Name: \_\_\_\_\_

AT

### Unit 2 Burn and rust - Rusted iron

**Warmer**

1. What could be the cause of rusting iron?

A: 氧氣

**Concept**

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

**Scientific research methods and processes**

1. observation phenomenon → 2. Raise a question → 3. Formation assumption → 4. experiment including variable → 5. get conclusion

**Content: Design an experiment**

Observation: 食物放久似乎會壞掉



Question: 為什麼食物會壞掉?

Assumption: 一個放半一個放一天 時間越久會壞掉

independent variable (操縱變因): 一個放一天一個放半年

dependent variable (應變變因): 放久後會壞掉 食物是否壞掉

Control Variables (控制變因): 都是蘋果 同天採收的

<p>experiment group (實驗組)</p> 	<p>control group (對照組)</p> 
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Think: Talk about your feeling in this lesson.

Dear Gary: 跟大家一起實驗很有趣 😊

Your student: \_\_\_\_\_



A++

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

oxygen.

Concept

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

Scientific research methods and processes

1. Observation phenomenon → 2. Raise a question → 3. Formation assumption → 4. Experiment including variable → 5. get conclusion.

Content: Design an experiment

Observation: 食物有時會發兒。

Question: 為什麼食物會發兒?

Assumption: 或許是因為太潮溼。

independent variable (操縱變因): 放置的位置。

dependent variable (應變變因): 在潮溼陰暗處的食物比在乾燥有陽光處容易發兒。

Control Variables (控制變因): 實驗物品、實驗時間長短。



Think: Talk about your feeling in this lesson.

Dear Gary:

設計實驗 it's fun!

😊

Your student: Eunice

A++

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

oxygen  
Concept

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

Scientific research methods and processes

1. observation phenomenon → Raise a question → Formation

assumption → experiment including variable

→ get conclusion

Content: Design an experiment

Observation: If you put a sugar on table, ants will come.

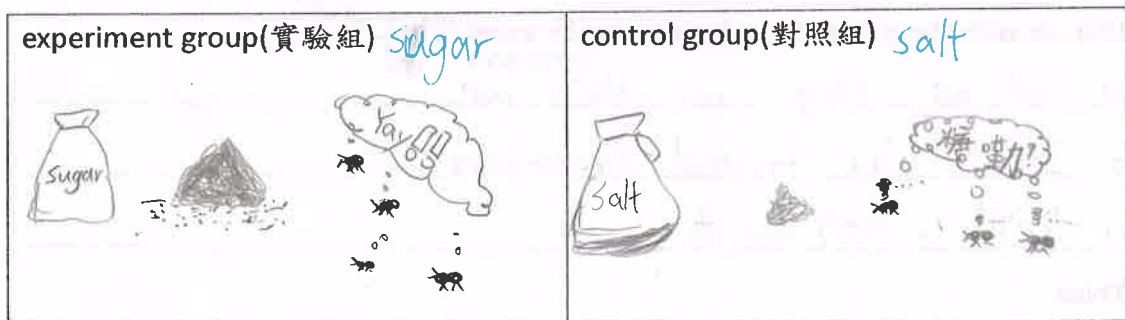
Question: If you put salt on the table will ants come?

Assumption: Ants eat only sugar.

independent variable (操縱變因): salt and sugar

dependent variable (應變變因): Ants eat both, but they prefer sugar.

Control Variables (控制變因): How much salt and sugar.



Think: Talk about your feeling in this lesson.

Dear Gary: I learned many knowledge about burning, I like this unit. They're many experiment in the Unit. I like having teacher gary's class!



Your student: Claire



Thanks.



AT

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

A: oxygen

Concept

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

Scientific research methods and processes

1. observation phenomenon → Raise a question → Formation

assumption → 4. experiment including variable

→ 5. get conclusion

Content: Design an experiment

Observation: food 放久了會發霉。

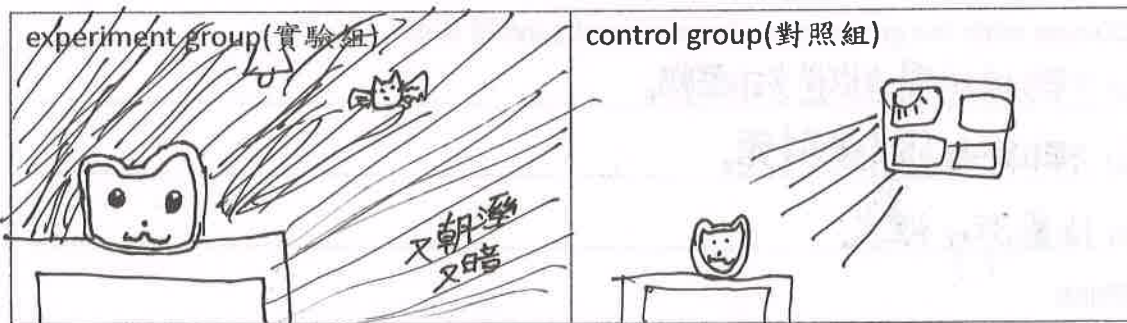
Question: Why 食物放久了發霉?

Assumption: 或許是潮濕。

independent variable (操縱變因): 一個放發霉的環境。一個放乾淨的地方。

dependent variable (應變變因): 在潮濕環境的食物比在乾淨的環境快。

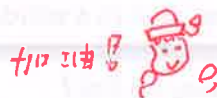
Control Variables (控制變因): 吐司機大小 and 種類 and 發霉速度時間。



Think: Talk about your feeling in this lesson.

Dear Gary:

有點複雜



Your student: Isa



Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

氧氣 ✓

Concept

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

Scientific research methods and processes

1. Observation phenomenon → 2. Raise a question → 3. Formation assumption → 4. experiment including variables → 5. get conclusion

Content: Design an experiment

Observation: 為什麼鰐魚會噴墨汁 ✓

Question: 為什麼鰐魚要噴墨汁?

Assumption: 因為他很生氣 ✓

independent variable (操縱變因): 他是否會噴

dependent variable (應變變因): 鰐魚嚇到或生氣會噴墨汁 ✓

Control Variables (控制變因): 有很多種, 會生氣, 嚇到會噴 ✓

<p>experiment group (實驗組)</p> <p>鰐魚受到<u>驚嚇</u>到時會噴墨汁。</p>	<p>control group (對照組)</p> <p>鰐魚<u>沒有被嚇</u>會不會噴墨汁。</p>
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Think: Talk about your feeling in this lesson.

Dear Gary: 這堂課我學到應變變因和控制變因操縱變因, 讓我知知道實驗的變因, 希望下次老師還能學到更多東西, 讓我知知道

Your student: Matthew

## Unit 2 Burn and rust - Carbon dioxide

## Warmer

1. What are the properties of carbon dioxide?

No dor and oder, cant help to burn. 使澄清石灰水變混濁

2. What are the three elements of burning

a combustible, com burent, ignition point.

3. How to use a fire extinguisher?

Pull, aim, Push, swing 拉掛壓掃

## Concept

carbon dioxide (二氧化碳)	fire extinguisher (滅火器)	fire (火災) ✓
combustible (可燃物) ✓	comburent (助燃物) ✓	ignition point (燃點) ✓

1. fire ✓ : disaster caused by burning.

2. carbon dioxide ✓ : gases produced after burning.

3. fire extinguisher ✓ : In case of fire, the tool to put out the fire.

4. ignition point ✓ : Reach the temperature at which it can burn, the name of this temperature.

5. comburent ✓ : Substances that help burning, such as oxygen.

6. combustible ✓ : Something that can be burned.

## Content

Discuss with the group, how do you usually avoid fires?

a) 不讓電器靠近 comburent. ✓

b) 不任意 play 煙火. ✓

c) 不在樓梯堆放雜物. ✓

## Think

Practice escaping actions in the event of a fire.

a) When you hear someone shouting fire? Call 119.

b) When you find yourself going through a smokey area? I can not smell.

c) When moving to a balcony(陽台) or next to a window? Say help.

d) When you found out the building was on fire? Call 119.

e) When you notice the fire is just starting to burn? Use fire extinguisher or water. ✓

**Unit 2 Burn and rust - Carbon dioxide**

**Warmer**

1. What are the properties of carbon dioxide?

No odor, no color, not to help burn,

2. What are the three elements of burning?

Combustible - Comburent

3. How to use a fire extinguisher?

Pull, aim, push, sweep

**Concept**

carbon dioxide (二氧化碳)	fire extinguisher (滅火器)	fire (火災)
combustible (可燃物)	comburent (助燃物)	ignition point (燃點)

1. fire : disaster caused by burning.

2. carbon dioxide : gases produced after burning.

3. fire extinguisher : In case of fire, the tool to put out the fire.

4. ignition point : Reach the temperature at which it can burn, the name of this temperature.

5. comburent : Substances that help burning, such as oxygen.

6. combustible : Something that can be burned.

**Content**

Discuss with the group, how do you usually avoid fires?

a) don't put combustibles near electrical appliances.

b) When the time is up, check up the fire extinguisher

c) \_\_\_\_\_

**Think**

Practice escaping actions in the event of a fire.

a) When you hear someone shouting fire?

b) When you find yourself going through a smokey area?

c) When moving to a balcony (陽台) or next to a window?

d) When you found out the building was on fire?

e) When you notice the fire is just starting to burn?

Use water or fire etting



**Unit 2 Burn and rust - Rusted iron**

**Warmer**

1. What could be the cause of rusting iron?

oxygen ✓

**Concept**

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

**Scientific research methods and processes**

1. observation phenomenon <sup>現象</sup> 2. Raise a question 3. Formation assumption 4. experiment including variable 5. get conclusion ✓

**Content: Design an experiment**

Observation: 人在睡覺時會作夢

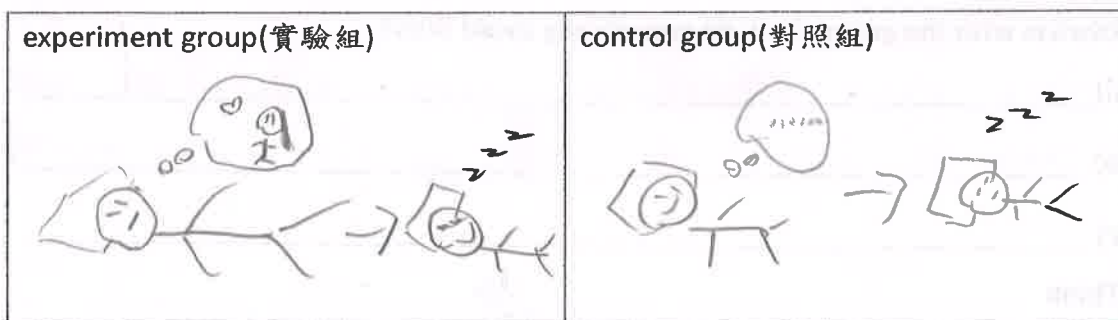
Question: 為什麼人會作夢

Assumption: Because 人會一直在想事情, 睡覺時也會想, 所以會作夢

independent variable (操縱變因): 人①在想事情時睡著, 人②不想事情時睡著。

dependent variable (應變變因): 作夢 ?

Control Variables (控制變因): 同一個人, 睡的時間一樣, 睡同一張床同一顆 pillow.



Think: Talk about your feeling in this lesson.

Dear Gary:

為什麼火的底部是 blue? <sup>溫度較高</sup>

Oxygen

Your student: \_\_\_\_\_

B+

**Unit 2 Burn and rust - Rusted iron**

**Warmer**

1. What could be the cause of rusting iron?

氧氣

**Concept**

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

**Scientific research methods and processes**

1. observation phenomenon → 2. Raise a question → 3. Formation  
assumption → 4. experiment including variable  
 → 5. get conclusion

**Content: Design an experiment**

Observation: 不寫作業會被罵

Question: 寫作業不會被罵嗎?

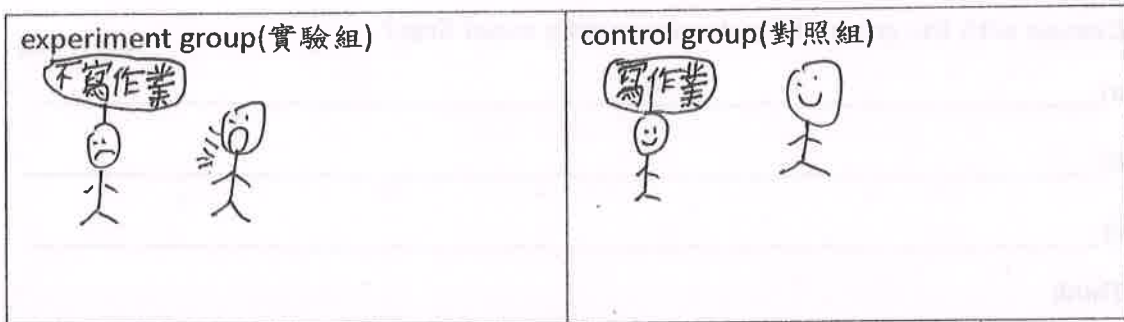
Assumption: 可能老師心情不好

Independent variable (操縱變因): 老師心情好不好

dependent variable (應變變因): 老師心情不好加上不寫作業, 就會被罵

Control Variables (控制變因): 不寫作業

需改變的因素 (x)  
 結果 (x)  
 (不能改變的因素) (無限制)



**Think: Talk about your feeling in this lesson.**

Dear Gary: 我不知道

Your student: \_\_\_\_\_

A-

### Unit 2 Burn and rust - Rusted iron

#### Warmer

1. What could be the cause of rusting iron?

oxygen

#### Concept

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

#### Scientific research methods and processes

1. observation phenomena 2. Raise a question 3. Formation  
 including \_\_\_\_\_

5. get \_\_\_\_\_

#### Content: Design an experiment

Observation: 筆芯一定會用完 ← 這不是好題目.



Question: 為什麼筆芯會用完

Assumption: 筆芯有可能會用完 ?

independent variable (操縱變因): 不同筆芯

dependent variable (應變變因): 筆芯會用完

Control Variables (控制變因): 同個筆殼、同張紙

experiment group (實驗組) 	control group (對照組) 
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Think: Talk about your feeling in this lesson.

Dear Gary: I want to know why world have a oxygen.

Your student: Victor



甘  
興



Class 1 Number Name: 韋韋

A++

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

Oxygen

Concept

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

Scientific research methods and processes

1. observation phenomena → Raise a question → Formation  
assumption → experiment including variable  
 → get conclusion

Content: Design an experiment

Observation: Why the box have a holl, the water well go out.

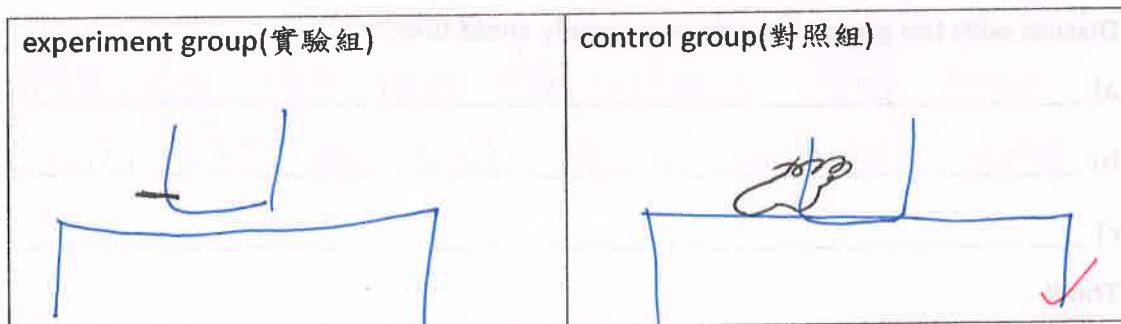
Question: The rock holl, made water go out.

Assumption: IS water want will to go out.

independent variable (操縱變因): 1. USE 針 to make a holl.

dependent variable (應變變因): 2. use rock to make a holl. have a holl, the water will go out.

Control Variables (控制變因): USE the same of box...



Think: Talk about your feeling in this lesson.

Dear Gary: I am very happy in this listen.  
 you can talk more English.  
 I know what is experiment.

Your student: wei-wei

A++

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

氧氣

Concept

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

Scientific research methods and processes

1. observation phenomenon → 2. Raise a question → 3. Formation  
assumption → 4. experiment including variable  
 → 5. get conclusion

Content: Design an experiment

Observation: 章魚會噴墨汁



Question: 為什麼章魚會噴墨汁

Assumption: 可能是因為章魚被嚇到

independent variable (操縱變因): 章魚會噴墨汁 是否嚇到

dependent variable (應變變因): 章魚嚇到時會噴墨汁

Control Variables (控制變因): 章魚什麼時候噴墨汁 環境、同一隻、溫度

experiment group (實驗組) <u>章魚嚇到時會噴墨汁</u> 	control group (對照組) <u>章魚嚇到時會噴墨汁</u> 
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Think: Talk about your feeling in this lesson.

Dear Gary: I am happy in the class, but sometimes I don't now what do you say now. I learning the variable and the observation and the dependent Variable,

Your student: Victoria

A++

**Unit 2 Burn and rust - Rusted iron**

**Warmer**

1. What could be the cause of rusting iron?

Oxygen.

**Concept**

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

**Scientific research methods and processes**

1. Observation phenomenon → Raise a question → Formation  
assumption → experiment including variable  
 → get conclusion

**Content: Design an experiment**

Observation: 章魚會噴墨汁  
 Question: 什麼章魚噴墨汁?  
 Assumption: 可能是因為牠嚇到了。  
 independent variable (操縱變因): 有無章魚  
 dependent variable (應變變因): 章魚嚇到會吐墨。  
 Control Variables (控制變因): 牠什麼時候會噴墨。 環境, 同一隻, 水溫。



**Think: Talk about your feeling in this lesson.**

Dear Gary: I'm very happy at this class, but sometimes

I think you give 我們的 worksheet is too easy.

You can 讓我們挑戰 more 難的。 I learn

how to 計設 experiment and Your student: Karen

they're name (independent.....)



A

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

氧 ✓

Concept



observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

Scientific research methods and processes

1. observation phenomenon → 2. Raise a question → 3. Formation  
assumption → 4. experiment including variable  
 → 5. get conclusion ✓

Content: Design an experiment

Observation: 鯉魚會噴墨汁 ✓  
 Question: 為什麼鯉魚會噴墨汁 ✓  
 Assumption: 可能是鯉魚有毒液 ✓  
 independent variable (操縱變因): 鯉魚會噴墨汁 是否噴到 ✓  
 dependent variable (應變變因): 鯉魚在被噴墨汁時會噴墨汁 ✓  
 Control Variables (控制變因): 鯉魚什麼時候會噴墨汁 ✓  
 同一隻, 溫度, 環境相同.

experiment group (實驗組) <u>鯉魚被噴到會噴墨汁</u> 	control group (對照組) <u>鯉魚沒有被噴到不會噴墨汁</u> 
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Think: Talk about your feeling in this lesson.

Dear Gary: 鯉魚一次能噴多少墨汁?

討論的科學程序內容?

Your student: Leonard

A++

**Unit 2 Burn and rust - Rusted iron**

**Warmer**

1. What could be the cause of rusting iron?

oxygen

**Concept**

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

**Scientific research methods and processes**

1. observation phenomenon → 2. Raise a question → 3. Formation  
assumption → 4. experiment including variable  
 → 5. get conclusion

**Content: Design an experiment**

Observation: ever time I put but the suger on table the ants will come.

Question: If I put the salt on the table will the ants come?

Assumption: salt - suger put salt the ants will come.

independent variable (操縱變因): salt - suger

dependent variable (應變變因): ants like suger better than salt. *ants will come or not.*

Control Variables (控制變因): How much suger and salt

<p>experiment group (實驗組)</p>	<p>control group (對照組)</p>
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**Think: Talk about your feeling in this lesson.**

Dear Gary: I like this class.



Your student: Lydia

AT

**Unit 2 Burn and rust - Rusted iron**

**Warmer**

1. What could be the cause of rusting iron? <sup>生鏽鐵</sup>

Oxygen

**Concept**

observation (觀察)	question (問題)	assumption (假設)
experiment (實驗)	conclusion (結論)	variable (變因)

**Scientific research methods and processes**

1. Observation <sup>phenomenon</sup> → 2. Raise a question → 3. Formation  
assumption → 4. experiment including variable  
 5. get conclusion

**Content: Design an experiment**

Observation: 在哪裡灰塵最多? <sup>有地方有灰塵, 有地方沒有</sup>

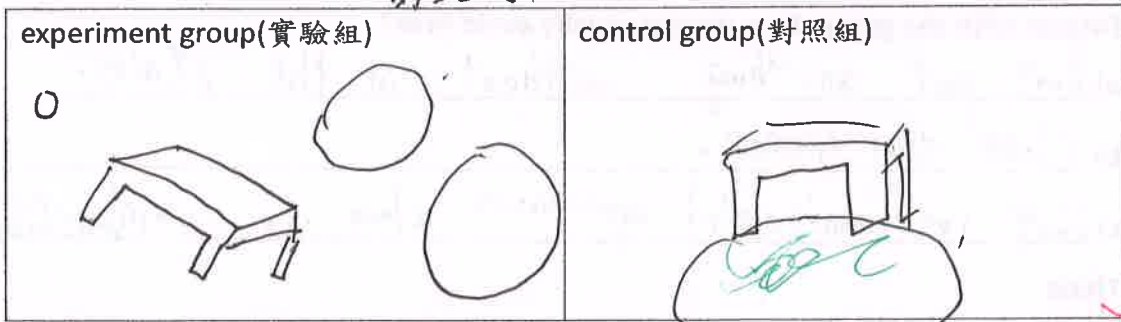
Question: 在太空嗎? <sup>為什麼有灰塵?</sup>

Assumption: 在地球檯有灰塵。

independent variable (操縱變因): 在宇宙放一張桌子, 在地球放一張。 <sup>環境不同</sup>

dependent variable (應變變因): 灰塵量的多寡

Control Variables (控制變因): 讓地球的那一張, 放在一個會依宇宙那張的溫度而變  
的地方。 <sup>桌子大小, 時間, 放置時間...</sup>



**Think:** Talk about your feeling in this lesson.

Dear Gary: 如果沒有地心引力, 我們蓋出來的房子也會一樣嗎?

<sup>應該不一樣吧!</sup>  
<sup>樣。</sup>

Your student: 尤彥博