

Unit 2 Burn and rust - Rusted iron

Warmer

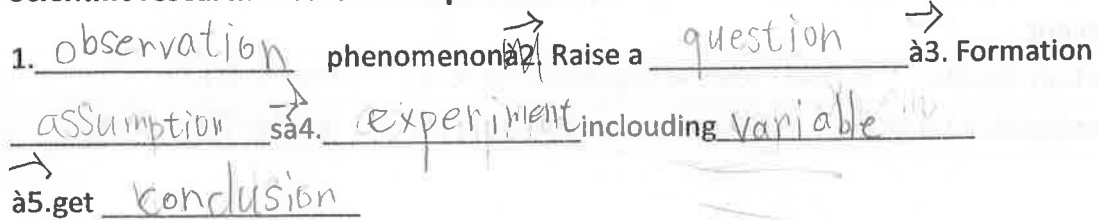
1. What could be the cause of rusting iron?

water and air and

Concept

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

Scientific research methods and processes



Content: Design an experiment

Observation: See 鐵上有生鏽。

Question: Why 鐵會生鏽。

Assumption: Because 空氣讓鐵生鏽。

independent variable (操縱變因): 有沒有空氣。

dependent variable (應變變因): 結果 is 有空氣的生鏽。

Control Variables (控制變因): 銅絲紙的 big small。

experiment group (實驗組) 無空氣的銅絲紙。	control group (對照組) 有空氣的銅絲紙。
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Think: Talk about your feeling in this lesson.

Dear Gary: (I want to sleep, because I'm so tired.)

So fun!

I want to 知道更多的知識!
 Your student: _____

Unit 2 Burn and rust - Rusted iron (鐵)

Warmer

1. What could be the cause of rusting iron? (生鏽) water, 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 assumption → 4. experiment including variable → 5. get conclusion.

Content: Design an experiment

Observation: 日常生活中發現鐵會生鏽

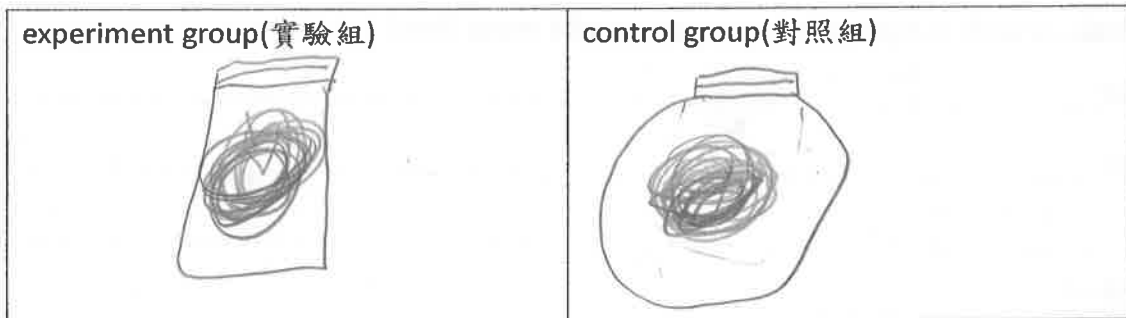
Question: Why 鐵會生鏽?

Assumption: Maybe is air 造成生鏽。

independent variable (操縱變因): Air 的有無。

dependent variable (應變變因): 有無生鏽。

Control Variables (控制變因): 鋼絲絨球 夾套 輕 big or small, 泡 water or vinegar.



Think: Talk about your feeling in this lesson.

Dear Gary: 這堂課讓我學到了如何使用賴打科學方法有 independent variable, dependent variable, control variable.

Your student: Joey 賴俊峰

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

water, 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: Notice the iron will rusting.

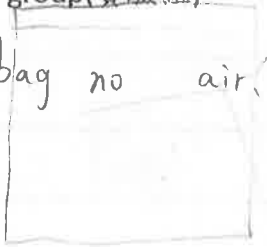
Question: Why the iron will rusting?

Assumption: Maybe ^{the} air can help iron rusting.

independent variable (操縱變因): have air or no air.

dependent variable (應變變因): rusting or no rusting.

Control Variables (控制變因): time, the bags size.

experiment group (實驗組) The bag no air. 	control group (對照組) The bag have air.
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Think: Talk about your feeling in this lesson.

Dear Gary:

I can know what you say and what the video say.

Your student: Sophia

iron: 鐵
rusting: 生鏽

phenomena
現象

Formation
形成

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

Water, air, 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

觀察 Observation: I can find rusting on the car.

提問 Question: Why iron can rusting?

假設 Assumption: Its because there are air, and air can help iron rusting.

independent variable (操縱變因): Are there any air?

dependent variable (應變變因): If it is rusting.

Control Variables (控制變因): The size of the 網絲球。

experiment group (實驗組) The 網絲球 in the air.	control group (對照組) The 網絲球 not in the air.
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Think: Talk about your feeling in this lesson.

Dear Gary: I think all the things you say are all very easy, I know all the things you say, it's very fun!

Your student: Penny

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

水、氧氣

Concept

observation (觀察) 2	question (問題) 1	assumption (假設) 3
experiment (實驗) 4	conclusion (結論) 6	variable (變因) 5

Scientific research methods and processes

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

Content: Design an experiment

Observation: 在日常生活發現生鏽

Question: 為什麼鐵會生鏽

Assumption: 因為空氣造成生鏽

independent variable (操縱變因):

dependent variable (應變變因):

Control Variables (控制變因): 溫度、時間、大小、酒精

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

Dear Gary: 老師上課很好玩可是我聽不^久?也看不^久

Your student: Nami

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

水 空氣

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 → Formation
assumption → 3. experiment including variable
 4. get conclusion

Content: Design an experiment

Observation: 在鐵上發現生鏽

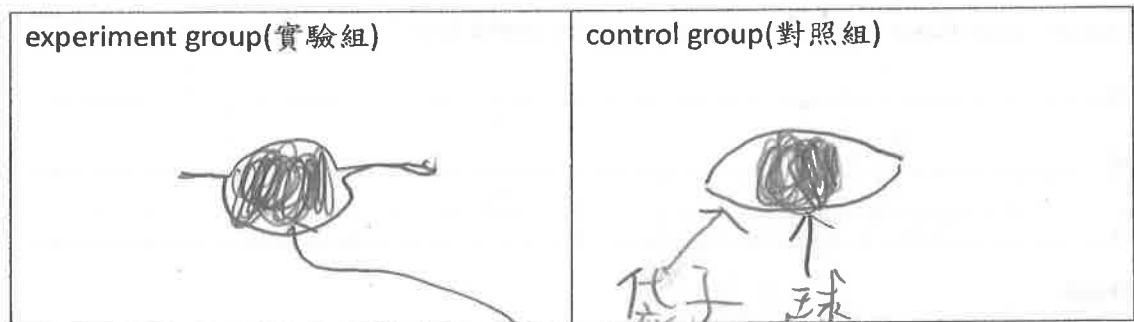
Question: 為什麼鐵生鏽?

Assumption: 因為空氣造成生鏽

independent variable (操縱變因): 有沒有空氣

dependent variable (應變變因): 有沒有生鏽

Control Variables (控制變因): 時間、地點、大小、有沒有泡過水



Think: Talk about your feeling in this lesson.

Dear Gary: 為什麼生鏽需要空氣?

Your student: Jaden

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

water, 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: 在汽車上發現生鏽



Question: 為什麼鐵會生鏽

Assumption: 也許是空氣造成生鏽

independent variable (操縱變因): no air and have air

dependent variable (應變變因): 有生鏽或沒有鏽

Control Variables (控制變因): 有泡水沒泡水、有空氣沒空氣

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

Dear Gary:

如果把一個泡水的鋼絲絨球，
 放進沒有空氣的袋子會怎樣？

Your student: _____

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

water, 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: 在日常生活發現生鏽

Question: 為什麼什鐵會生鏽?

Assumption: 也許空氣造成生鏽

independent variable (操縱變因): 有沒有空氣

dependent variable (應變變因): 有鏽或沒生鏽

Control Variables (控制變因): 時間, 環境, 溫度

experiment group (實驗組) <u>No air</u>	control group (對照組) <u>have air</u>
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Think: Talk about your feeling in this lesson.

Dear Gary:

Thank to talk about Rusted iron.

Your student: TIM

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron? 水、空氣

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: 在日常生活中發現生鏽。

Question: 為什麼鐵會生鏽?

Assumption: 也許是空氣造成生鏽。

independent variable (操縱變因): 有無空氣。

dependent variable (應變變因): 生鏽。

Control Variables (控制變因): 時間、有沒有泡過醋。

experiment group (實驗組) <u>沒空氣的金網絲絨球</u>	control group (對照組) <u>有空氣的金網絲絨球</u>
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Think: Talk about your feeling in this lesson.

Dear Gary: 如果金網絲絨球一直泡在醋裡會怎麼樣?

Your student: Anne

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of 生鏽鐵 rusting iron?

Water \ 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: 在日常生活中發現鐵會生鏽

Question: 為什麼鐵會生鏽?

Assumption: 濕空氣造成生鏽

independent variable (操縱變因): 有沒有空氣

dependent variable (應變變因): 有沒有生鏽

Control Variables (控制變因): 溫度時間-水溶液的性質-鋼絲絨球的大小

experiment group (實驗組) <p style="text-align: center;">有空氣的鋼絲絨球</p>	control group (對照組) <p style="text-align: center;">沒有空氣的鋼絲絨球</p>
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Think: Talk about your feeling in this lesson.

Dear Gary:

雖然星座比較有趣，但這畢竟是老師辛苦打出來的，還是高興的把這幾張單子寫完了。

Your student: Curry

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 → Formation

assumption → experiment including variable

→ get conclusion

Content: Design an experiment

Observation: 鐵生鏽



Question: 為什麼鐵會生鏽

Assumption: 因為空氣可能生鏽

independent variable (操縱變因): 會造成有沒有 air.

dependent variable (應變變因): 生鏽速度

Control Variables (控制變因): 鋼絲球的大小

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

Dear Gary:

老師對我的態度好多了!

謝謝!

Your student: _____

because

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

水、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 → assumption → experiment including variable → get conclusion

Content: Design an experiment

Observation: 鐵生鏽

Question: why 鐵會生鏽

Assumption: because 空氣造成的

independent variable (操縱變因): yes no yes 空氣造成的

dependent variable (應變變因): yes or no 生鏽

Control Variables (控制變因): 代了大小、時間、yes or yes 泡酒、Vinegar

Vineger

experiment group (實驗組) 沒空氣 鐵絲球	control group (對照組) 有空氣的 鐵絲球
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Think: Talk about your feeling in this lesson.

Dear Gary:

我每天都在 touch air, why we 皮 no 生鏽?

Your student: _____

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: Saw 鐵生鏽

Question: Why 鐵會生鏽

Assumption: 可能是 because air 造成的。

independent variable (操縱變因): 有沒有 air.

dependent variable (應變變因): The air one did 生鏽

Control Variables (控制變因): 鐵球的大 & 小。

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

Dear Gary:

I think this class is cool, because we experiment a lot of things, so it is very fun.

Your student: Maggie

黃兆禧

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

空氣
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 assumption
3. Formation experiment
4. variable including question
5. get conclusion

Content: Design an experiment

Observation: 在日常生沽發見生銹

Question: 為什麼鐵器會生銹?

Assumption: 因為空氣造成生銹

independent variable (操縱變因): 發生了什麼事

dependent variable (應變變因): 有銹或沒有銹

Control Variables (控制變因): 時間、地點、有沒有浸過東西

experiment group (實驗組) 有空氣 的圓形鐵片	control group (對照組) 沒空氣
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Think: Talk about your feeling in this lesson.

Dear Gary: 控制變因是什麼

Your student: 黃兆禧

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

water, 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 assumption → 4. experiment including variable → 5. get conclusion

Content: Design an experiment

Observation: 在日常生活發現鐵生鏽。

Question: 為什麼鐵會生鏽?

Assumption: 也許是空氣造成生鏽。

independent variable (操縱變因): 有沒有空氣。

dependent variable (應變變因): 有生鏽或沒生鏽。

Control Variables (控制變因): 鋼絲絨球的大小, 環境, 夾鏈袋大小。

experiment group (實驗組) <u>沒空氣的沒變化。</u>	control group (對照組) <u>有空氣, 稍微生鏽。</u>
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Think: Talk about your feeling in this lesson.

Dear Gary: 鐵生鏽到最後會不會變成液體。

Your student: Leo

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: In daily life, found that 生鏽.



Question: Why does 鐵 will 生鏽?

Assumption: 也許生鏽 cause by air.

independent variable (操縱變因): Whether have air.

dependent variable (應變變因): Whether 生鏽.

Control Variables (控制變因): 鐵絲絨的大小, 有沒有沾到水, 溫度, 放的时间.

<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:

我覺得這課很好玩, 因為有很多實驗!

Your student: Hannah

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

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

à5.get conclusion

Content: Design an experiment

Observation: 在日常生活發現鐵生鏽

Question: 為什麼鐵會生鏽?

Assumption: 因為空氣造成生鏽

independent variable (操縱變因): 有沒有空氣

dependent variable (應變變因): 結果有無生鏽/沒生鏽

Control Variables (控制變因): 有沒有泡過酸水

experiment group (實驗組) <u>沒空氣的銅絲球</u>	control group (對照組) <u>有空氣的銅絲球</u>
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Think: Talk about your feeling in this lesson.

Dear Gary: 這周我學到了許多英文但是有很多還是聽不到

Your student: 陳宇宏

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

水 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 ~~這~~ Raise a question → Formation
assumption ~~的~~ experiment including variable
~~的~~ get conclusion

Content: Design an experiment

Observation: 在日常生活發現生鏽

Question: 為什麼鐵會生鏽

Assumption: 因為空氣造成生鏽

independent variable (操縱變因): 有沒有空氣

dependent variable (應變變因): 有沒有生鏽

Control Variables (控制變因): 時間、環境、溫度

<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:

因上了這堂課讓我對火更了解

Your student: _____

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron?

Water, air, 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 →. Formationassumptions →. Experiment including variable→. get conclusion

Content: Design an experiment

Observation: 在日常發現鐵生鏽Question: 為什麼鐵會生鏽Assumption: 也許是因為空氣鐵才會生鏽independent variable (操縱變因): 有沒有空氣dependent variable (應變變因): 有沒有生鏽Control Variables (控制變因): 時間、環境、溫度

experiment group (實驗組) <u>無空氣的鋼絲絨</u>	control group (對照組) <u>有空氣的鋼絲絨</u>
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Think: Talk about your feeling in this lesson.

Dear Gary: 我想知道鐵生鏽有沒有盡頭Your student: Keira

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron? ^{生鏽 鐵}

water, 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 ^{現象} → phenomenon → 2. Raise a question ^{形成} → Formation
assumption → 3. Experiment including variable
 → 4. get conclusion

Content: Design an experiment

Observation: 在鐵製品上發現生鏽。

Question: Why the iron will rusting?

Assumption: 也許是 air 造成 rusting.

independent variable (操縱變因): The air is have or not.

dependent variable (應變變因): Rusting 的狀態。

Control Variables (控制變因): 環境, time, 有沒有泡 vinegar.

experiment group (實驗組) Doesn't have air.	control group (對照組) Have air.
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Think: Talk about your feeling in this lesson.

Dear Gary: 我學到了氧氣、二氧化碳、鐵生鏽是需要 air、water, 燃燒需要空氣。

謝謝老師用心準備學習單! ㄹ

Your student: Eva

Unit 2 Burn and rust - Rusted iron

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鏽 鐵

1. What could be the cause of rusting iron?

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} phenomenon → Raise a question ^{形成} Formation
 assumption → experiment including variable

→ get conclusion.

Content: Design an experiment

Observation: 鐵會生鏽



Question: 為什麼 iron 會 rusting

Assumption: 也許是 air 造成生鏽

independent variable (操縱變因): 有沒有 air

dependent variable (應變變因): 有 air 有生鏽, 沒有 air 沒有生鏽

Control Variables (控制變因): 袋子的 size, 有沒有泡過 vinegar, 實驗 time

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

Dear Gary:

如果鐵放在只有二氧化碳會怎樣?

Your student: 簡立茂

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
Assumption 4. experiment including variable
 5. get conclusion

Content: Design an experiment

Observation: 發現鐵生鏽

Question: 為什麼鐵生鏽

Assumption: 也許是空氣造成生鏽

independent variable (操縱變因): 有沒有空氣

dependent variable (應變變因): 有沒有生鏽

Control Variables (控制變因): 溫度、時間、環境

experiment group (實驗組) <u>No air</u>	control group (對照組) <u>have air</u>
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Think: Talk about your feeling in this lesson.

Dear Gary:

I'm still having the 銅絲絨球 But the one that only have air hasn't change, I'm still waiting for it Rusted.

Your student: Jan

Unit 2 Burn and rust - Rusted iron

Warmer

1. What could be the cause of rusting iron? water and air

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: 發現物品生鏽。

Question: Why the 鐵 will 生鏽?

Assumption: Because the air will 讓鐵生鏽。

independent variable (操縱變因): 有空氣、No 空氣

dependent variable (應變變因): 生鏽和沒生鏽

Control Variables (控制變因): 放置時間、有沒有泡醋 (vinegar)

experiment group (實驗組) (No air) 沒空氣	control group (對照組) (Have air) 有空氣
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Think: Talk about your feeling in this lesson.

Dear Gary:

I think the lessons is fun! And I think very easy. English is fun, too! Thanks for

you lessons!



Your student: Vickie