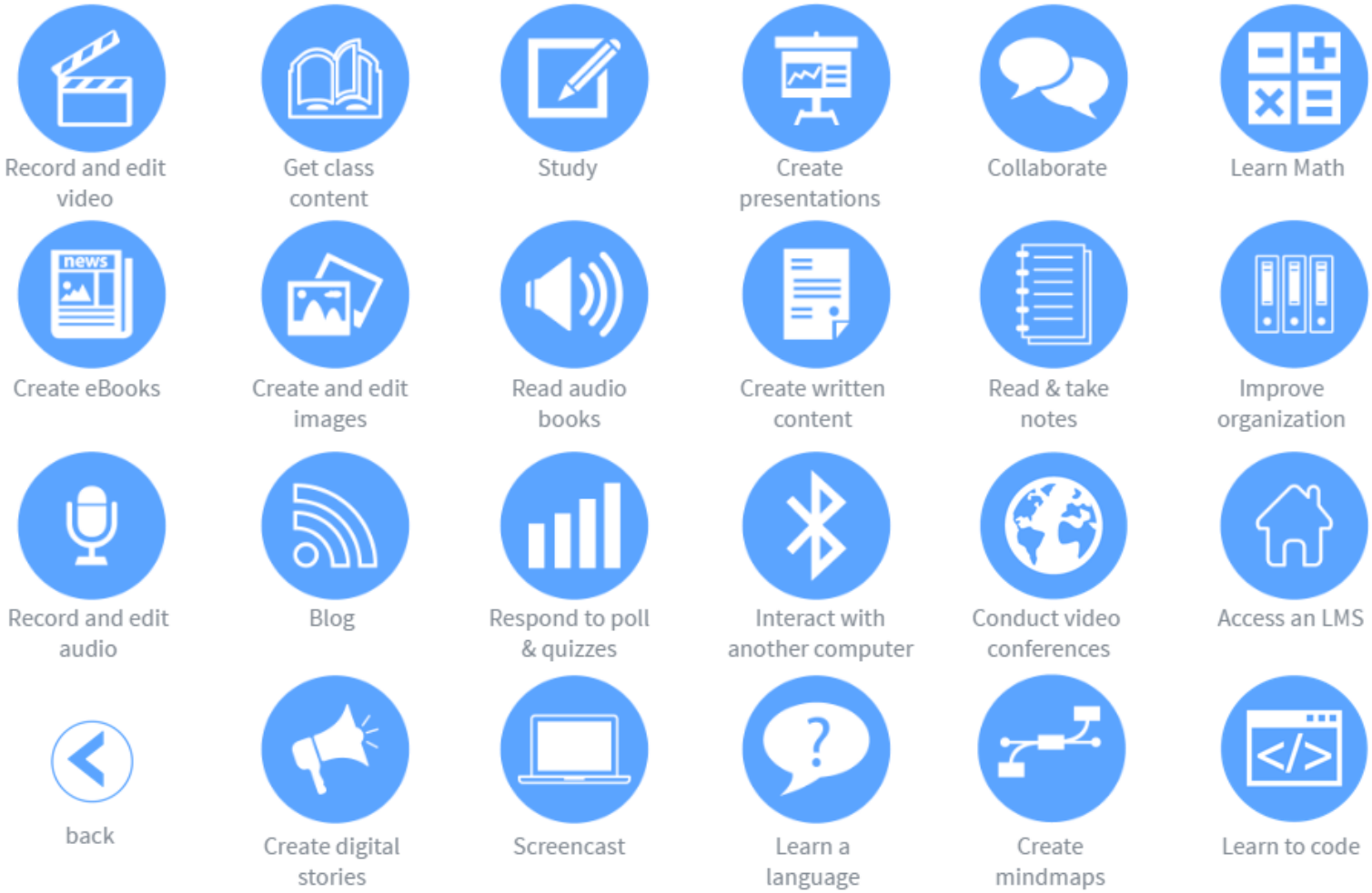
Sharing on Using iPad for promoting the eLearning and eAssessment in chemistry

Kwong Tsz Kin
Kwun Tong Kung Lok Govt Sec School
15 December 2016

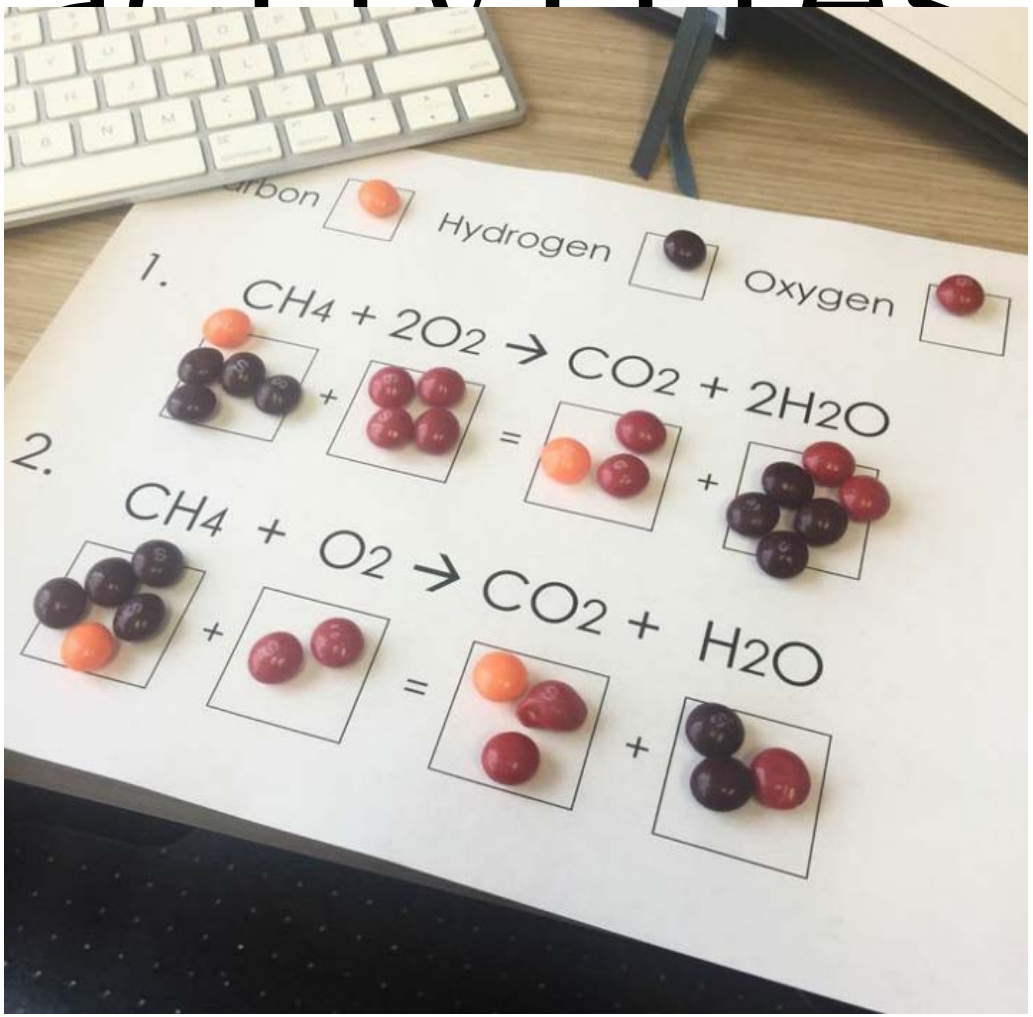
edtechteacher

What do you want your students to do?



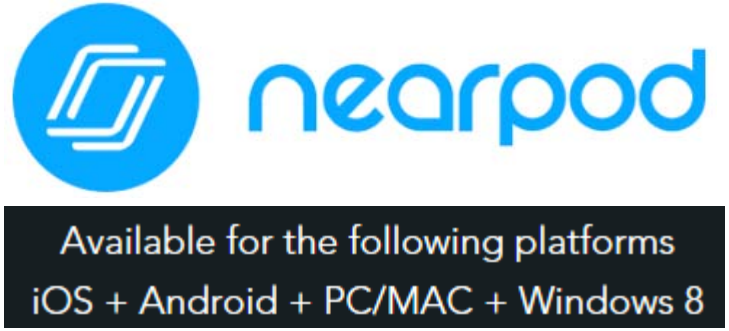
http://edtechteacher.org/apps#Begin

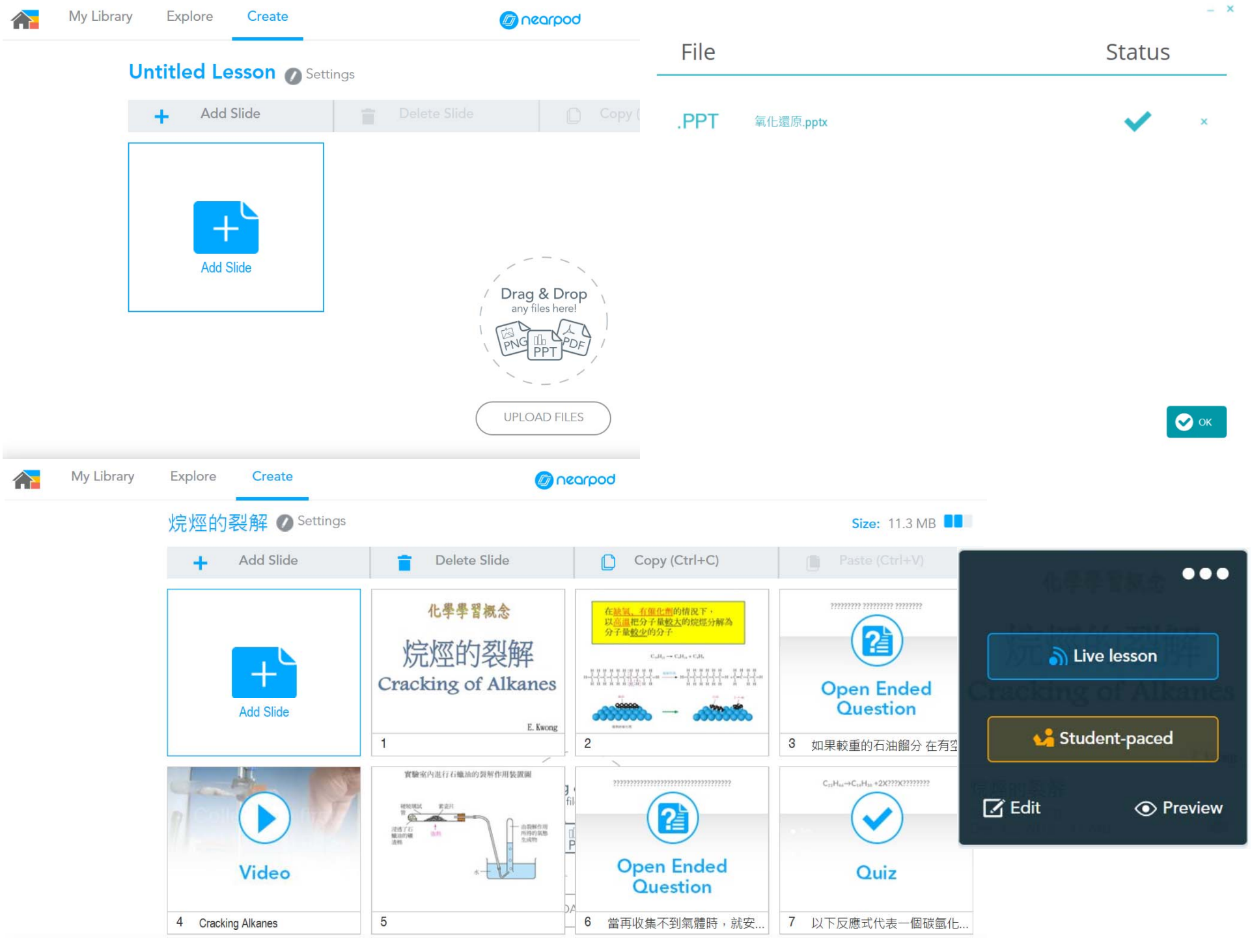
In lesson activities



Interactive Lesson with Nearpod

- Interactive slide show
- Control by teachers (Great for classroom management and engagement)
- Across platform

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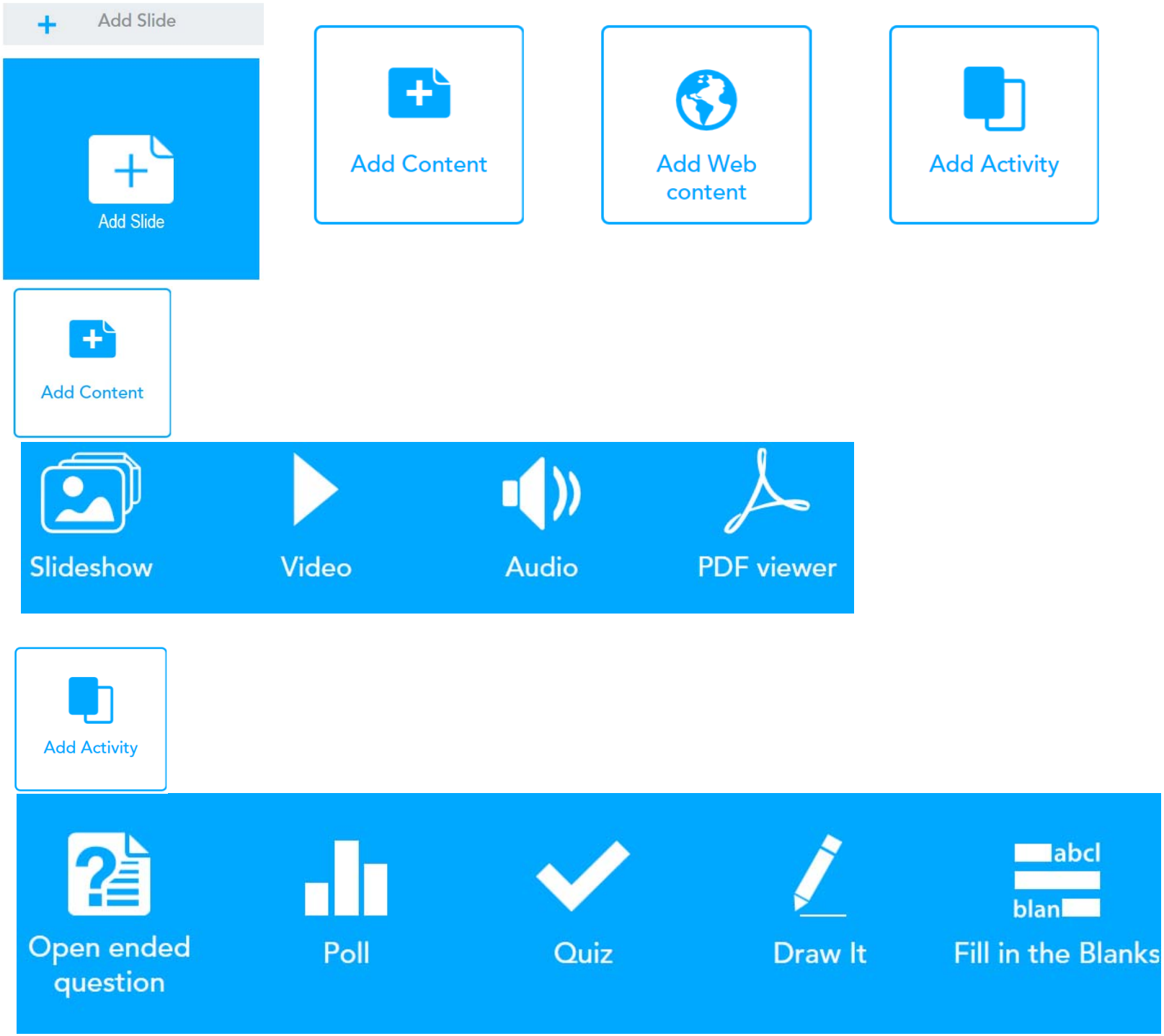
Add Slide
化學學習概念
烷烴的裂解
Cracking of Alkanes
E. Kwong
1
2
Open Ended Question
3 如果較重的石油餾分 在有
Live lesson
Student-paced
Edit
Preview
Video
4 Cracking Alkanes
5
Open Ended Question
6 當再收集不到氣體時，就安...
Quiz
7 以下反應式代表一個碳氫化...


Add Slide
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Add Content
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Add Activity
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Slideshow
Video
Audio
PDF viewer
Add Activity
Open ended question
Poll
Quiz
Draw It
abcl
blan
Fill in the Blanks

Open Ended Question

1 如果較重的石油餾分 在有空氣的情況下加 熱，會發生甚麼？ f(x)

Please help us improve Nearpod by **sending your feedback!**

Cancel Save

Poll

1 Enter question f(x)

1.1 Enter answer f(x)

1.2 Enter answer f(x)

ADD ANSWER

Please help us improve Nearpod by **sending your feedback!**

Cancel Save

Quiz

Enter Quiz title (optional)

1 以下反應式代表一個碳氫化合物的裂解：$C_{22}H_{46} \rightarrow C_{14}H_{30} + 2X$化合物X的化學式是什麼？ f(x)

1.1 C_8H_6 f(x)

1.2 C_4H_8 f(x)

1.3 C_8H_{16} f(x)

1.4 $C_{14}H_{28}$ f(x)

Draw It

寫出丙烯與溶於1,1,1-三氯乙烷的溴的生成物

Drag your image or PDF here

(Max 3 Mb)

Session Report

SUMMARY **Quiz** Poll Open Ended Draw It

烷烴的裂解

Author: Eric Kwong - Slides: 9 - Date: Monday, December 12, 2016

以下反應式代表一個碳氫化合物的裂解：

$C_{22}H_{46} \rightarrow C_{14}H_{30} + 2X$化合物X的化學式是什麼？

Student	Response
Eric	C_8H_{16}
John	C_4H_8
Peter	C_4H_8

67 Correct Answer
33 Wrong Answer
0 No Answer

SUMMARY Quiz Poll **Open Ended** Draw It

如果較重的石油餾分 在有空氣的情況下加 熱，會發生甚麼？

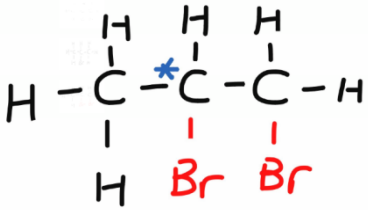
Student	Response
Eric	烷烴會燃燒
John	發生爆炸
Peter	在高溫及有空氣情況下，使烷烴燃燒

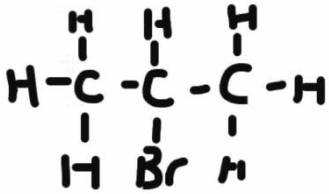
0 No Answer
100 Free Text

SUMMARY Quiz Poll Open Ended **Draw It**

寫出丙烯與溶於1,1,1-三氯乙烷的溴的生成物

Student	Drawing
Eric	
John	
Peter	

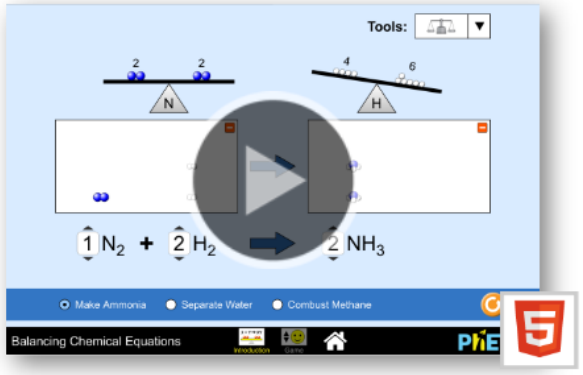




Interactive Simulations

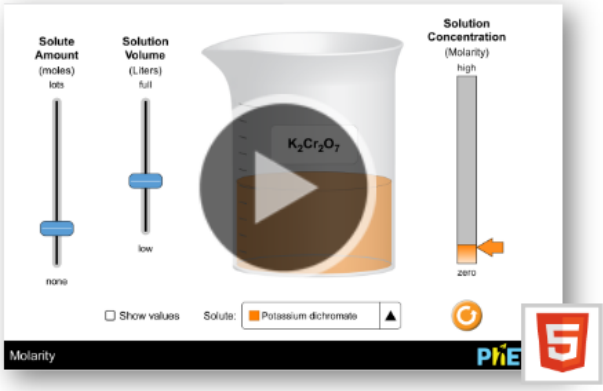
PhET Simulations HK$ 8

Balancing Chemical Equations

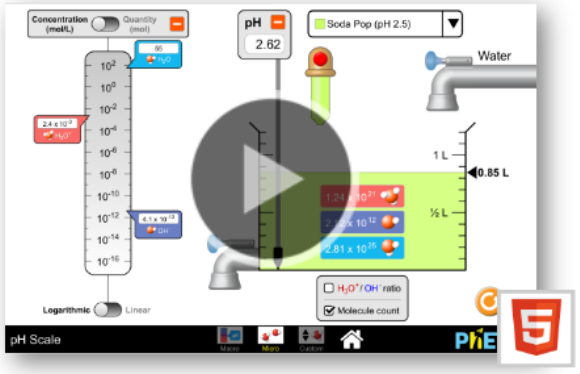


Reactants, Products and Leftovers

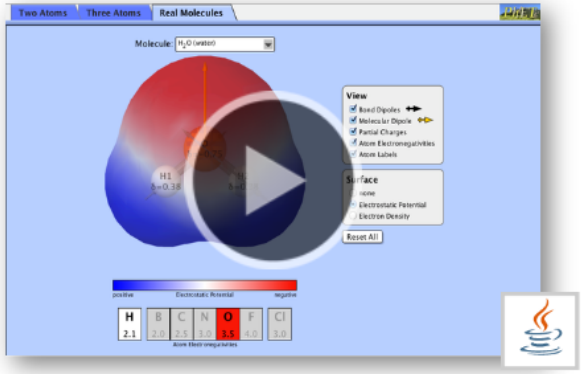
Molarity



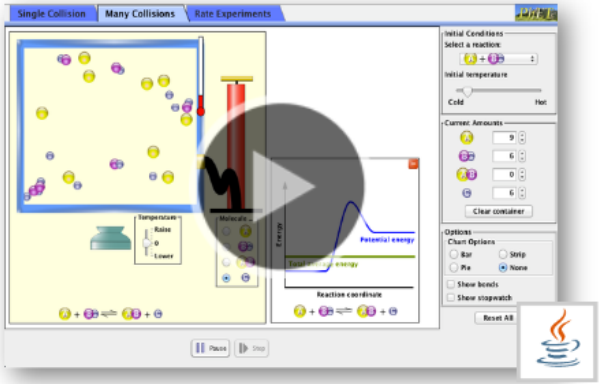
pH Scale



Molecule Polarity

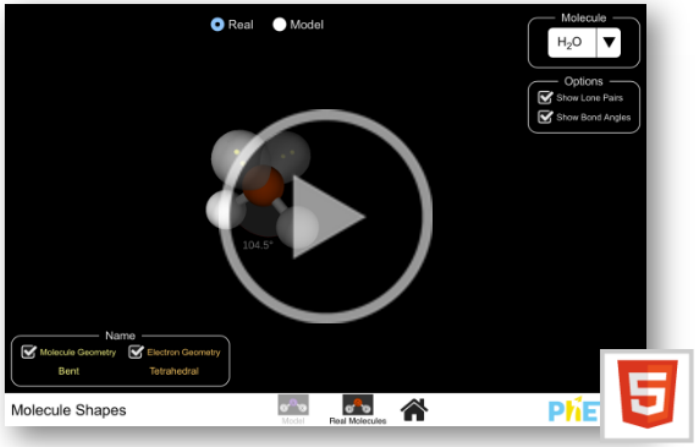


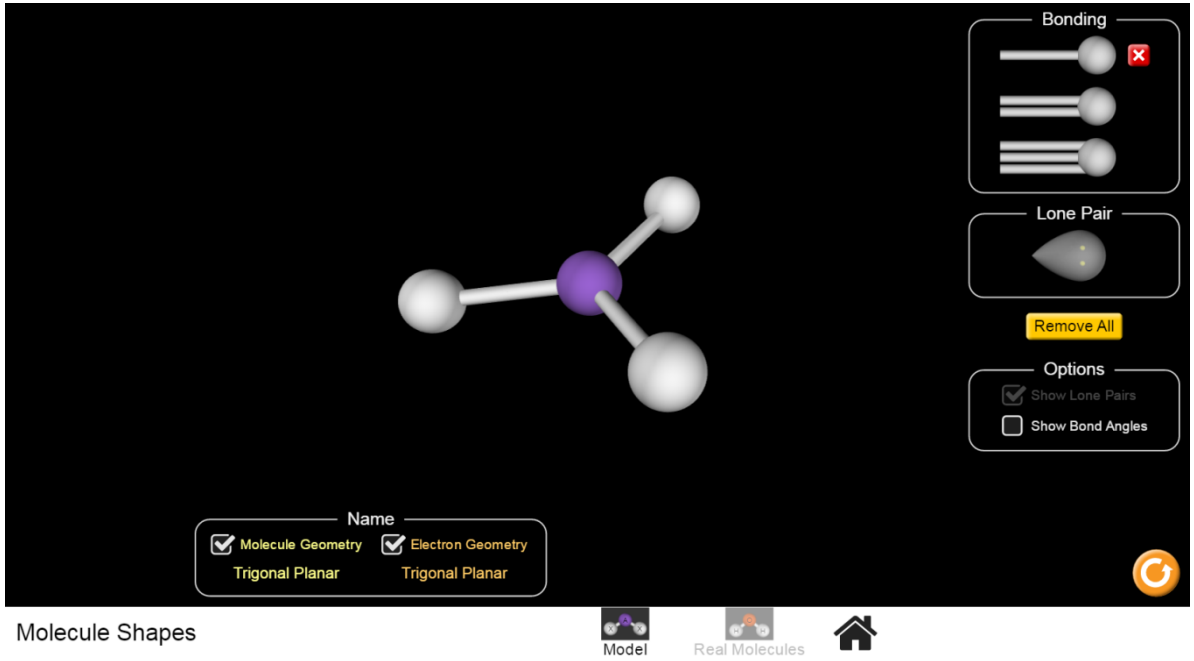
Reactions & Rates

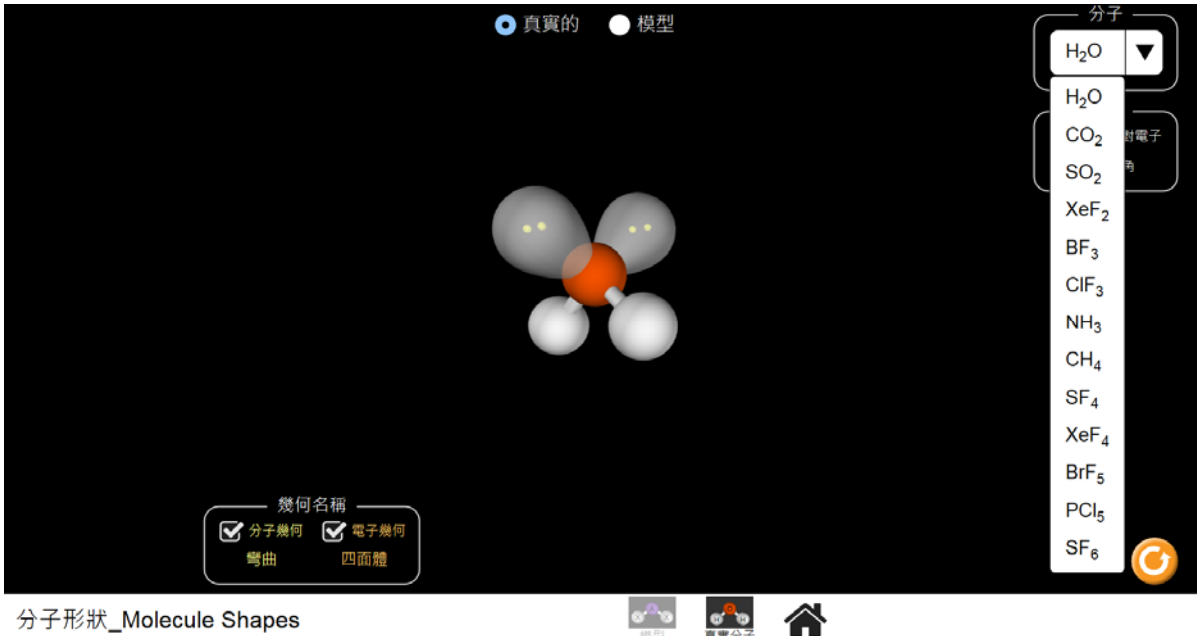


https://phet.colorado.edu/en/simulations/category/new

Molecule Shapes



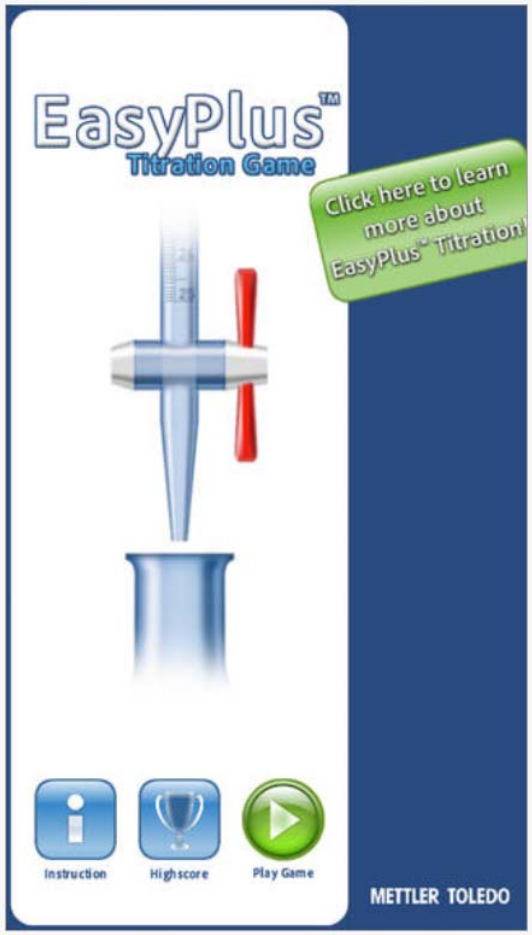


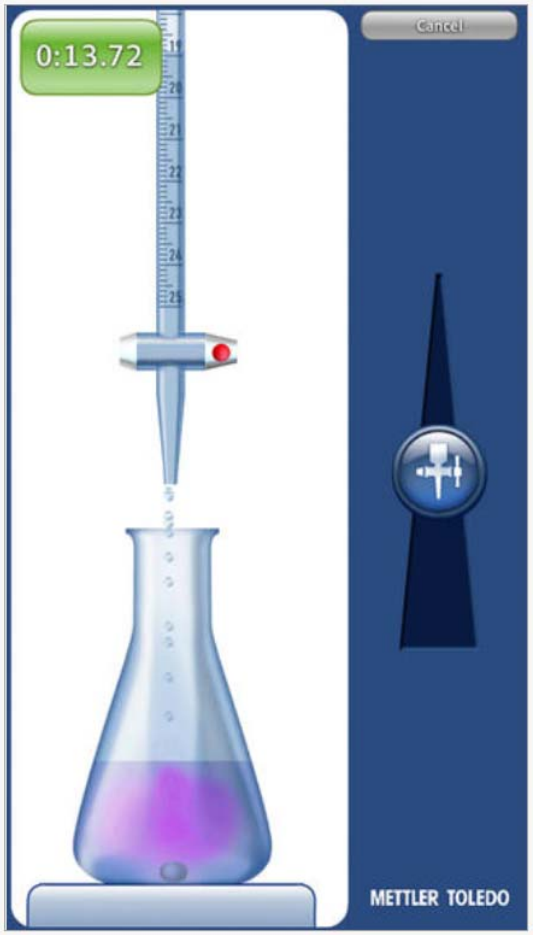


Titration Simulations

uTitrate

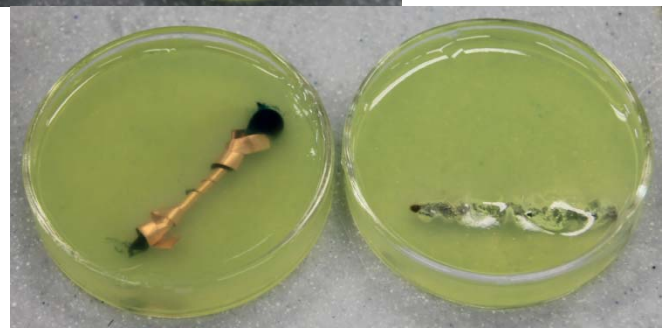
Freeware





Students use iPads in Recording experimental results

Rusting of iron nails



姓名：__程卓豪 何梓逸_____(　　)中四(　　)班　　日期:_____

觀塘功樂官立中學
中四化學
實驗 13.1

課題：__金屬腐蝕和保護__

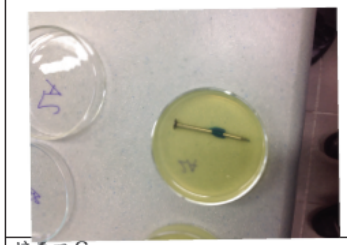
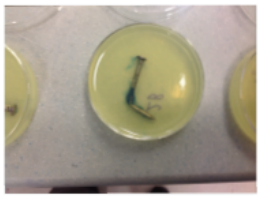
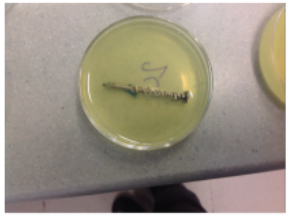
目的：

探究鐵銹蝕的實驗中使用鐵銹指示劑（六氰合鐵(III)酸鉀）時可見的現象及加速鐵生銹的因素

步驟：

1. 把 1 根鐵釘放入培養皿 A；
2. 把 1 根鐵釘屈曲後放入培養皿 B；
3. 把 1 根鐵釘以鎂帶包裹，並放入培養皿 C；
4. 把 1 根鐵釘以銅片包裹，並放入培養皿 D；
5. 把含有鐵銹指示劑的膠凝液分別倒進培養皿 A-D；
6. 靜置培養皿 30 分鐘並觀察培養皿內鐵釘的顏色變化。

結果：

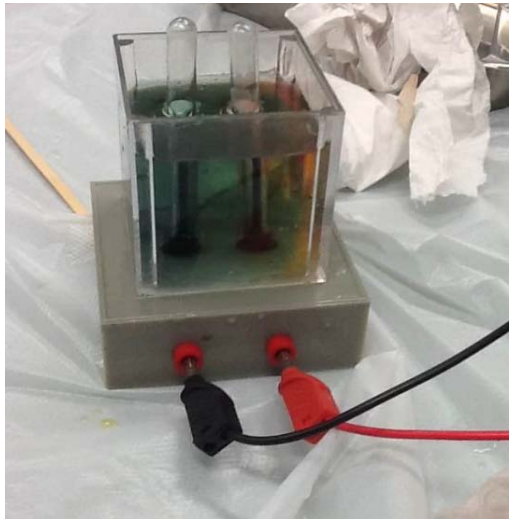
培養皿 A	培養皿 B
	
培養皿 C	培養皿 D
	

結論：

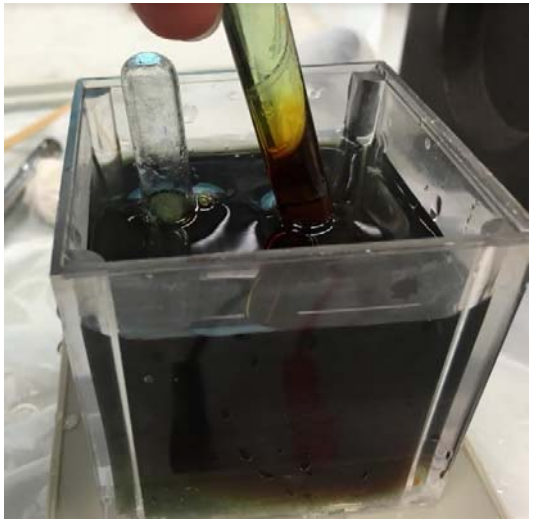
1. 鐵銹在__彎曲，尖端_____較容易進行。
2. 鐵與活潑性較__低__的金屬更容易使鐵生銹。

Students use iPads in Recording experimental results

SBA Experiment - Electrolysis



0.1M NaCl(aq)



2.0M NaI(aq)

SBA Experiment - Preparation of soap

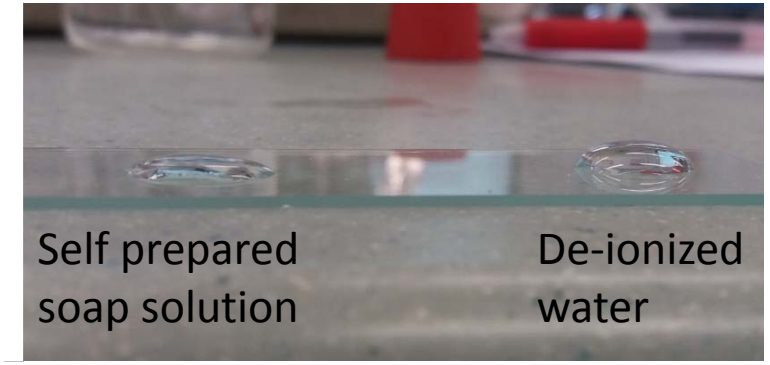
利用製成的肥皂溶液進行步驟7的測試。

7. 進行實驗以測試製成的肥皂能否作為濕潤劑和乳化劑。註6
   - ✎ 這肥皂是否一種濕潤劑？_____
   - ✎ 這肥皂是否一種乳化劑？_____

總結

8. 把 _____ 和 _____ 的混合物煮沸可製成肥皂，再加入 _____，便可把肥皂鹽析出來。
9. 肥皂具有清潔效能，因為它可作為 _____ 劑和 _____ 劑。

Wetting agent



Emulsifying agent

Students/Teachers use iPads in explaining chemistry concepts

Explain Everything

Explain Everything is an easy-to-use design, screencasting, and interactive whiteboard tool with real-time collaboration that lets you animate, record, annotate, collaborate, and explore ideas, knowledge and understanding. Explain Everything provides teachers and students an opportunity to share thinking, reflect upon knowledge building, and assess both products and processes of learning. Available for iPad, Chromebook, Android, and Windows Devices.

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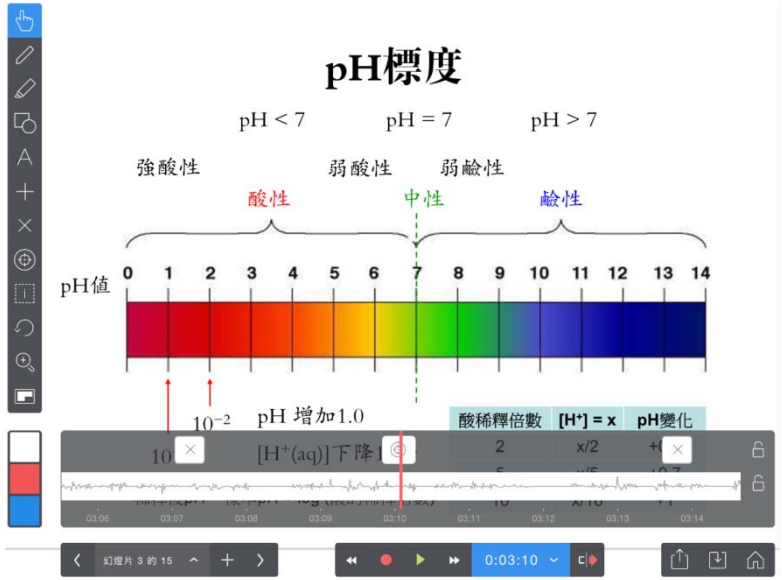

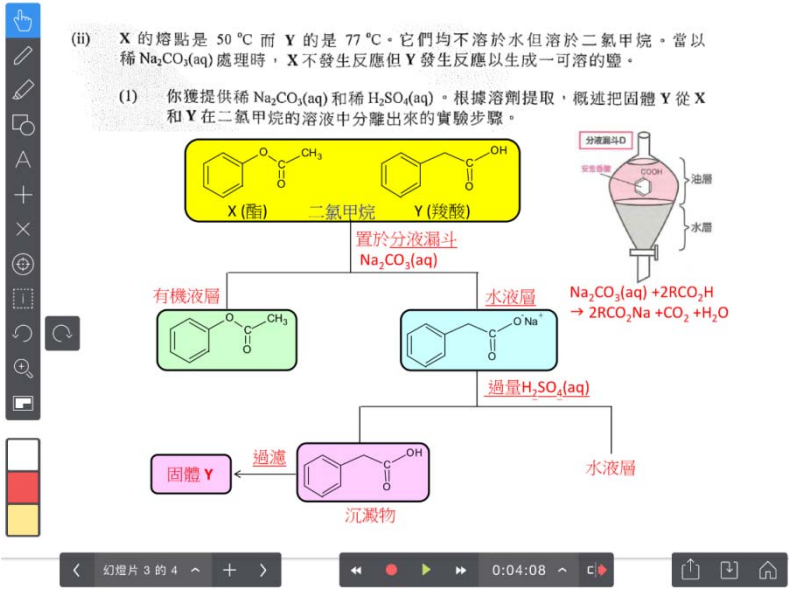

End of topic quiz

Socrative - Student Response System

Socrative Teacher

View More by This Developer

By Socrative, Inc.

Open iTunes to buy and download apps.

Description

Engage, assess and personalize your class with Socrative! Educators can initiate formative assessments through quizzes, quick question polls, exit tickets and space races all with their Socrative Teacher app. Socrative will instantly grade, aggregate and provide visuals of results to help you identify opportunities for further instruction.

Socrative Teacher Support ...More

What's New in Version 2.2.3

* Bug fix related to device detection that facilitates layout and functionality differences between phones and tablets

Can add photo and superscript and subscript in the question

http://www.socrative.com/

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available in the chrome web store

Overall Student Report

socrative
by MasteryConnect

Quiz name: 酸的反應 **Date:** 03/20/2015
Question with Most Correct Answers: #7 **Total Questions:** 8
Question with Fewest Correct Answers: #3

1. 下列哪項不是稀氫氯酸的一般性質?
4/17 (A) 它可導電。
2/17 (B) 它帶有酸味。
6/17 (C) 它把紅色石蕊試紙變為藍色。
5/17 (D) 它與鎂反應，釋出氫。

2. 下列哪種物質與稀氫氯酸反應會釋出一種氣體?
2/17 (A) 銅
5/17 (B) 鋅
5/17 (C) 氧化鐵(II)
5/17 (D) 氫氧化鉀

3. 下列哪種物質不會與稀氫氯酸反應?
2/17 (A) 氯化鎂
8/17 (B) 氫氧化銅(II)
5/17 (C) 硝酸銀溶液
2/17 (D) 碳酸氫鈉

4. 下列哪種金屬可用來製造盛載稀硫酸的容器?
4/17 (A) 鋅
2/17 (B) 鎂
3/17 (C) 鐵
8/17 (D) 銅

Individual Student Report

socrative
by MasteryConnect

Name: 何梓逸 **Date:** 03/20/2015
Quiz name: 酸的反應 **Score:** 88%

1. 下列哪項不是稀氫氯酸的一般性質?
(A) 它可導電。
(B) 它帶有酸味。
✓ (C) 它把紅色石蕊試紙變為藍色。
(D) 它與鎂反應，釋出氫。

2. 下列哪種物質與稀氫氯酸反應會釋出一種氣體?
(A) 銅
✗ (B) 鋅
(C) 氧化鐵(II)
(D) 氫氧化鉀

3. 下列哪種物質不會與稀氫氯酸反應?
✓ (A) 氯化鎂
(B) 氫氧化銅(II)
(C) 硝酸銀溶液
(D) 碳酸氫鈉

4. 下列哪種金屬可用來製造盛載稀硫酸的容器?
(A) 鋅
(B) 鎂
(C) 鐵
✓ (D) 銅

Excel Statistics

	A	B	C	D	E	F	G
1	酸的反應						
2	Friday, March 20 2015 11:29 AM						
3	Room: 608074						
4							
5	**Common Core Tags:**						
6							
7	Student Names	Total Score (0 - 100)	Number of correct answers	下列哪項不是稀氫氯酸的一般性質?	下列哪種物質與稀氫氯酸反應會釋出一種氣體?	下列哪種物質不會與稀氫氯酸反應?	下列哪種金屬可用來製造盛載稀硫酸的容器?
8	4c 24 葉國榮	25	2	它帶有酸味。	銅	硝酸銀溶液	銅
9	4C11梁潮康	13	1	它可導電。	氫氧化鉀	氫氧化銅(II)	鋅
10	程卓豪	13	1	它可導電。	氫氧化鉀	氫氧化銅(II)	銅
11	何梓逸	88	7	它把紅色石蕊試紙變為藍色。	銅	氯化鎂	銅
12	4a 20伍俊彥	25	2	它與鎂反應，釋出氫。	氫氧化鉀	氯化鎂	鎂
13	4c. 9	50	4	它把紅色石蕊試紙變為藍色。	鋅	硝酸銀溶液	鐵
14	4B(10)鄺益昌	25	2	它與鎂反應，釋出氫。	氫氧化鉀	硝酸銀溶液	鋅
15	4a02陳俊豪	88	7	它把紅色石蕊試紙變為藍色。	鋅	氫氧化銅(II)	銅
16	4d03張頌賢	13	1	它與鎂反應，釋出氫。	氧化鐵(II)	氫氧化銅(II)	鐵
17	謝佳銘	0	0	它與鎂反應，釋出氫。	氧化鐵(II)	硝酸銀溶液	鋅
18	4D16梅希淘	63	5	它把紅色石蕊試紙變為藍色。	鋅	氫氧化銅(II)	銅

Exam skills - Annotated pdf

6. 把 50.0 cm^3 的 0.6 M $FeSO_4(aq)$ 和 150.0 cm^3 的 0.2 M $Fe_2(SO_4)_3(aq)$ 混合。所得混合物中 $SO_4^{2-}(aq)$ 離子的濃度是多少？

$FeSO_4 \rightarrow Fe^{2+} + SO_4^{2-}$ + $Fe_2(SO_4)_3 \rightarrow 2Fe^{3+} + 3SO_4^{2-}$

50.0 cm^3, 0.6 M, 混合前, 混合後 $\frac{50}{200} \times 0.6 = 0.15M$

0.15M

150.0 cm^3, 0.2 M, $\frac{150}{200} \times 0.2 = 0.15M$

$0.15M \times 3 = 0.45$

150 + 50 = 200

$[SO_4^{2-}] = 0.15 + 0.45 = 0.60M$

A. 0.3 M
B. 0.4 M
C. 0.6 M
D. 0.8 M

C

7. 下列哪對水溶液在混合後會具有最低的導電性？

A. 20.0 cm^3 的 0.1 M HNO_3 和 20.0 cm^3 的 0.1 M KOH — $HNO_3 + KOH \rightarrow KNO_{3(aq)} + H_2O_{(l)}$ (K^+, NO_3^-)

B. 20.0 cm^3 的 0.1 M H_2SO_4 和 20.0 cm^3 的 0.1 M $Ba(OH)_2$ — $H_2SO_4 + Ba(OH)_2 \rightarrow BaSO_{4(s)} + 2H_2O_{(l)}$

C. 20.0 cm^3 的 0.1 M CH_3COOH 和 20.0 cm^3 的 0.1 M NH_3 — $CH_3COOH + NH_3 \rightarrow CH_3COONH_{4(aq)}$ (CH_3COO^-, NH_4^+)

D. 20.0 cm^3 的 0.1 M HCl 和 20.0 cm^3 的 0.1 M $C_6H_{12}O_6$(葡萄糖) — $HCl_{(aq)}$ (H^+, Cl^-)

非電解質

B

9. 在某些條件下，三個反應的焓變如下所示：

反應	焓變
$B_2H_6(g) + 3O_2(g) \rightarrow B_2O_3(s) + 3H_2O(l)$	ΔH_1 −2170 kJ mol^{-1}
$B(s) + \frac{3}{4}O_2(g) \rightarrow \frac{1}{2}B_2O_3(s)$	ΔH_2 −635 kJ mol^{-1}
$H_2(g) + \frac{1}{2}O_2(g) \rightarrow H_2O(l)$	ΔH_3 −286 kJ mol^{-1}

下列哪項是 $B_2H_6(g)$ 在相同條件下的生成焓變（從其成分元素）？

$2B_{(s)} + 3H_{2(g)} \xrightarrow{\Delta H_f^\ominus} B_2H_{6(g)}$

$+\frac{3}{2}O_2$, $+\frac{3}{2}O_2$, $3\Delta H_3$, $+3O_2$, ΔH_1

$2\Delta H_2$

$B_2O_{3(s)} + 3H_2O_{(l)}$

A. +42 kJ mol^{-1}
B. +614 kJ mol^{-1}
C. +677 kJ mol^{-1}
D. +1249 kJ mol^{-1}

$\Delta H_f^\ominus = 2\Delta H_2 + 3\Delta H_3 - \Delta H_1$
$= 2(-635) + 3(-286) - (-2170)$
$= +42\ kJ\ mol^{-1}$

A

續 後 頁

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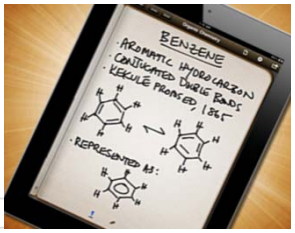

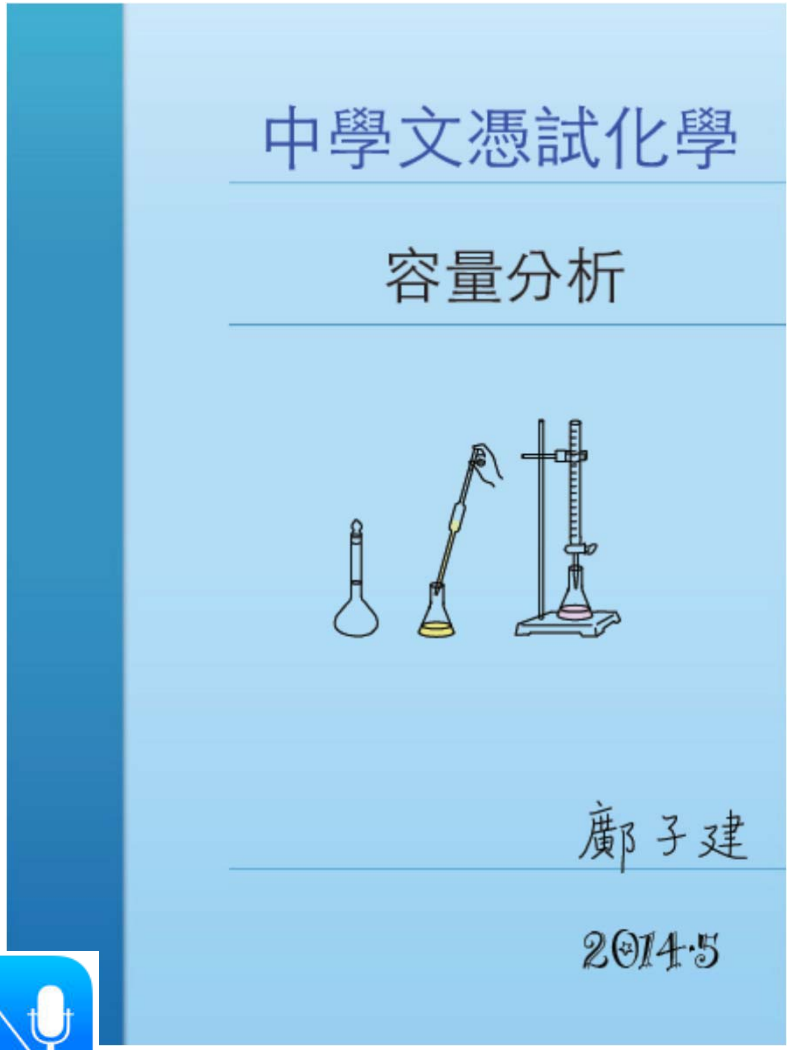

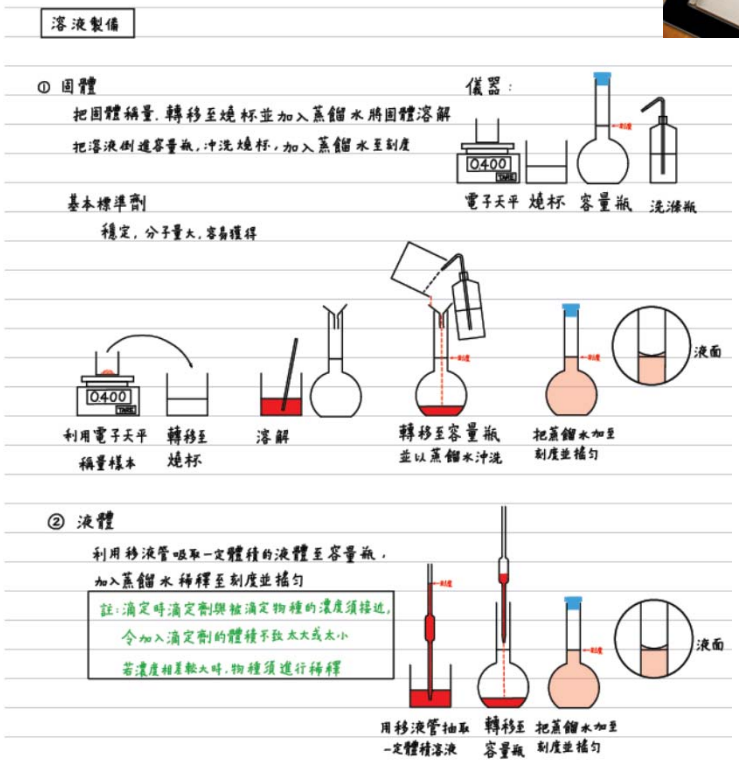

儀器

名稱	容量瓶	移液管	滴定管	錐形瓶	燒杯
圖示					
用途	溶液稀釋及製備	轉移溶液	滴定溶液	盛載滴定溶液	盛載溶液
量度體積	250.0 cm^3	25.0 cm^3	0.00 – 50.00 cm^3	—	—
準確性	準確	準確	準確	不準確	不準確
使用前清洗	蒸餾水	蒸餾水＋盛載溶液	蒸餾水＋盛載溶液	蒸餾水	蒸餾水＋盛載溶液

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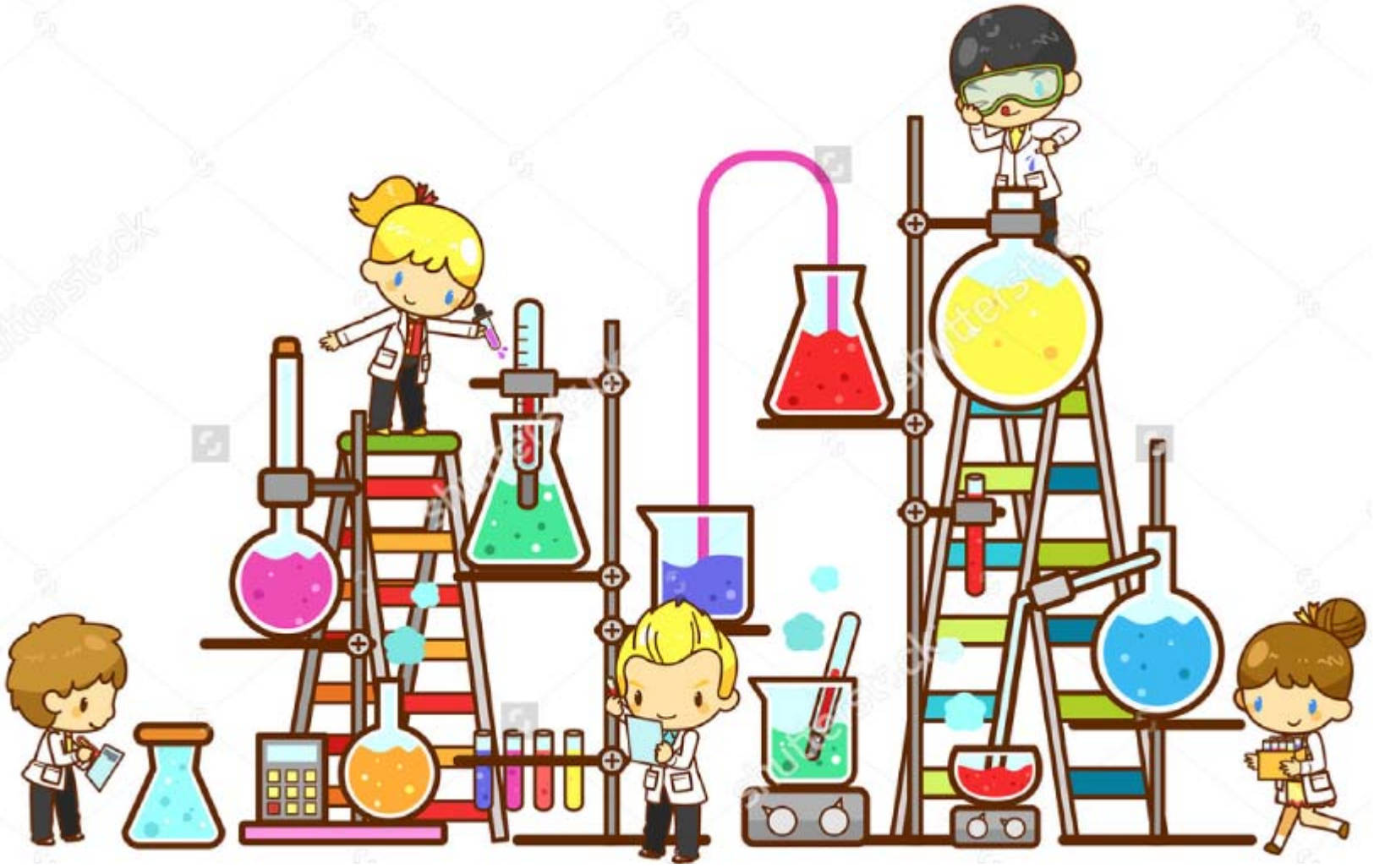
Chemistry Tools



Molarity

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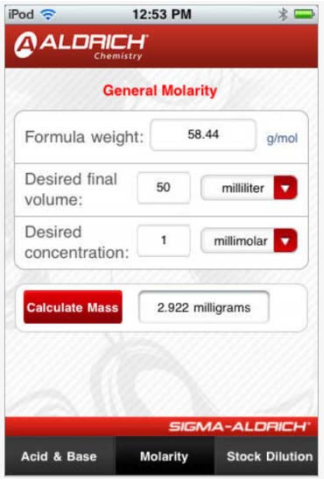
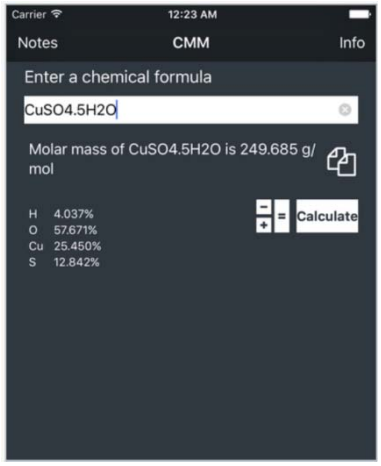


CMM | Molar Mass Calculator

Freeware



Elemental

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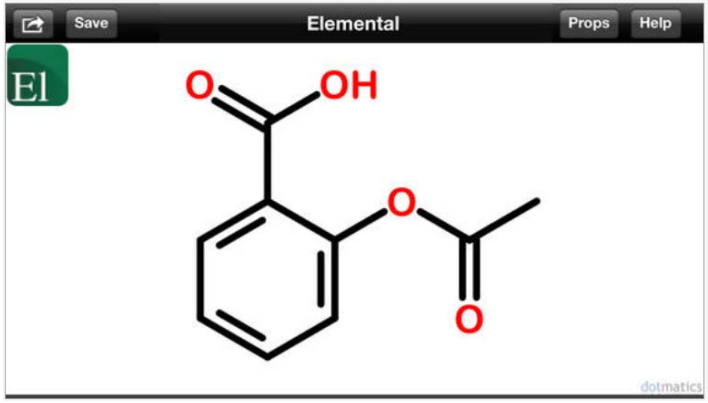

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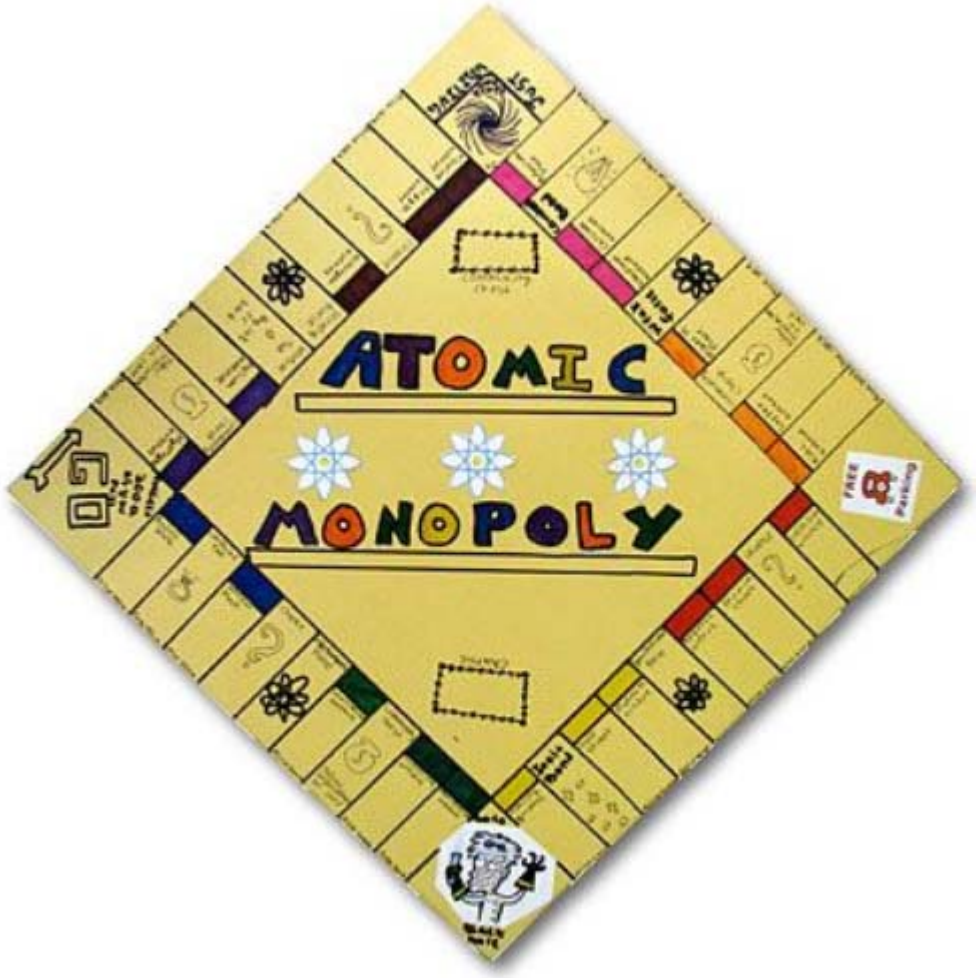
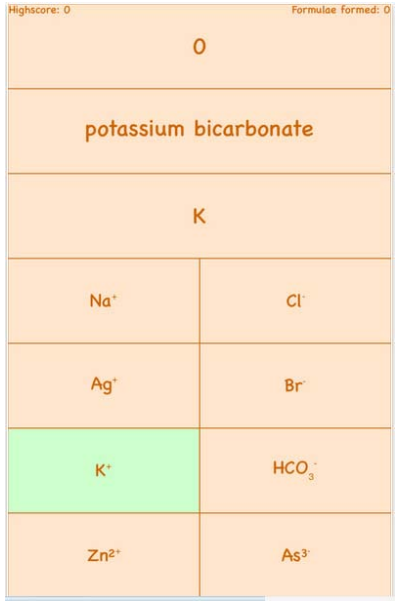
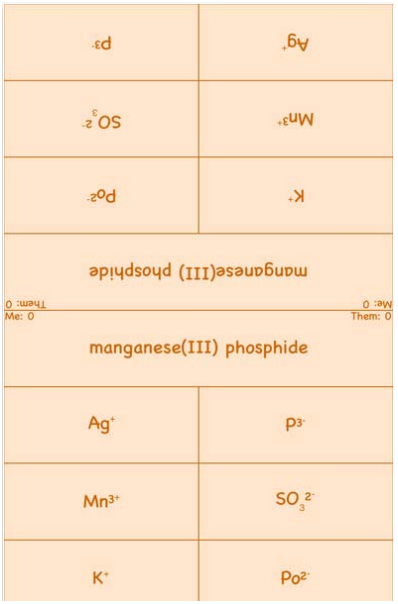


Chemical Formula

Chemical Formula Challenge





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Elements name and Atomic Number

The Elements Flashcards

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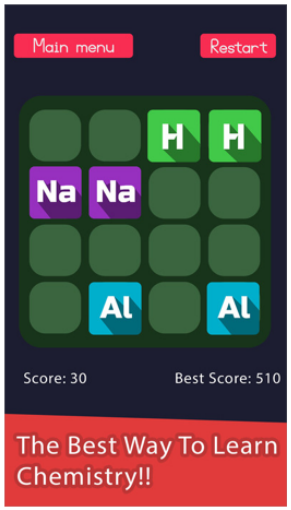

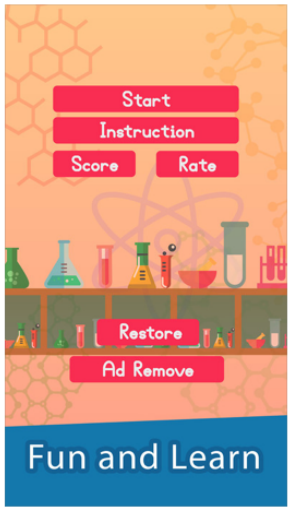

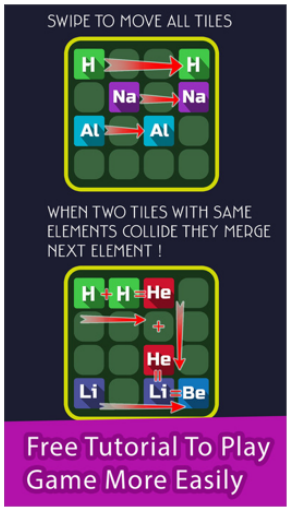

2048 in Periodic Table

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Chemical Bonding

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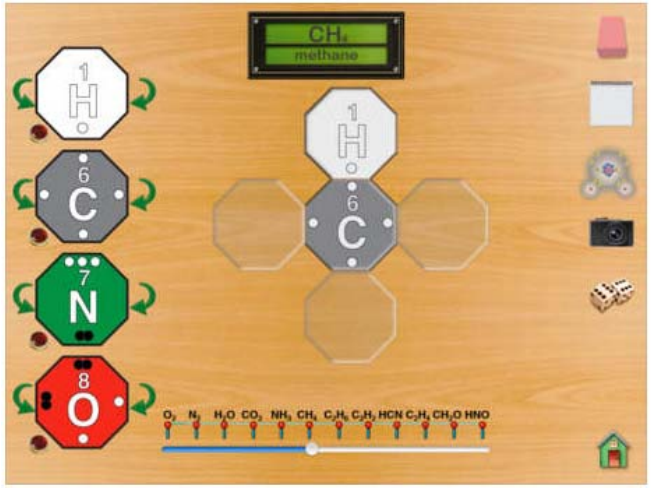

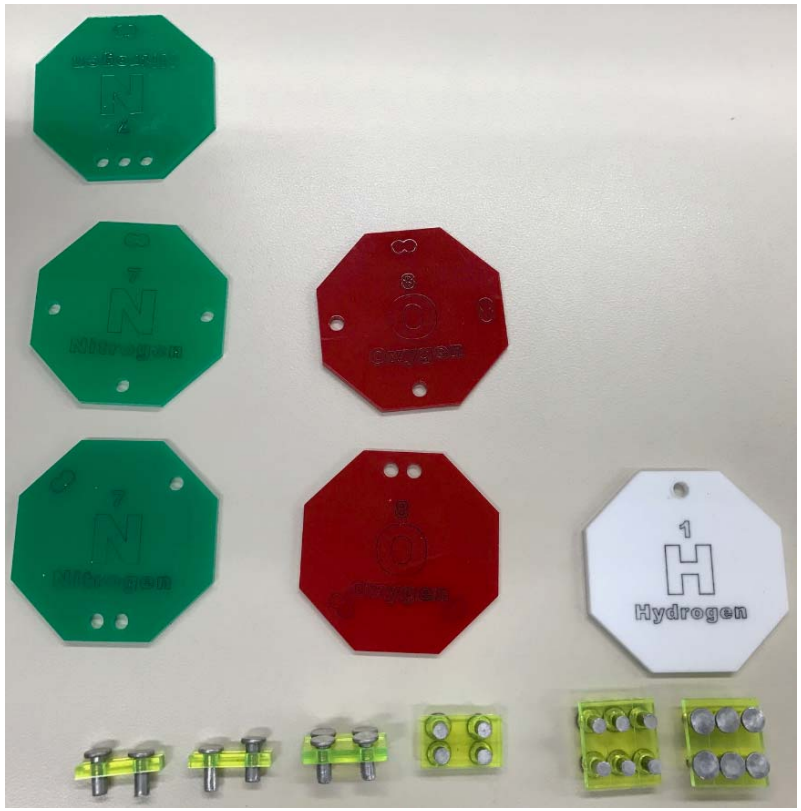

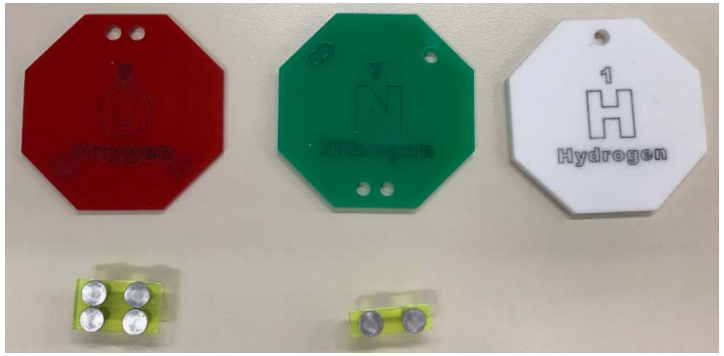

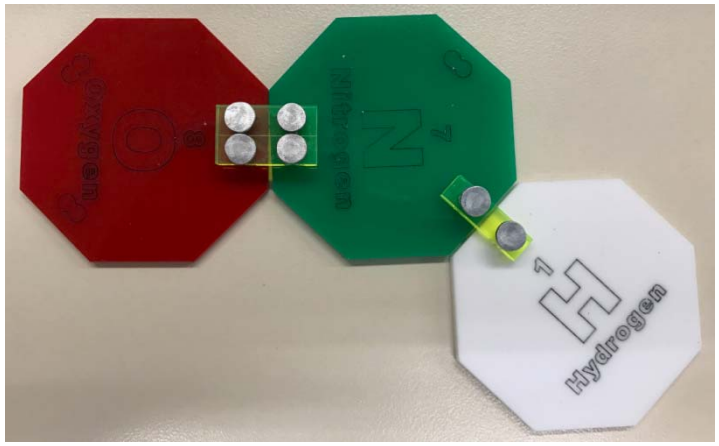

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End of Presentation

Thank you !!

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