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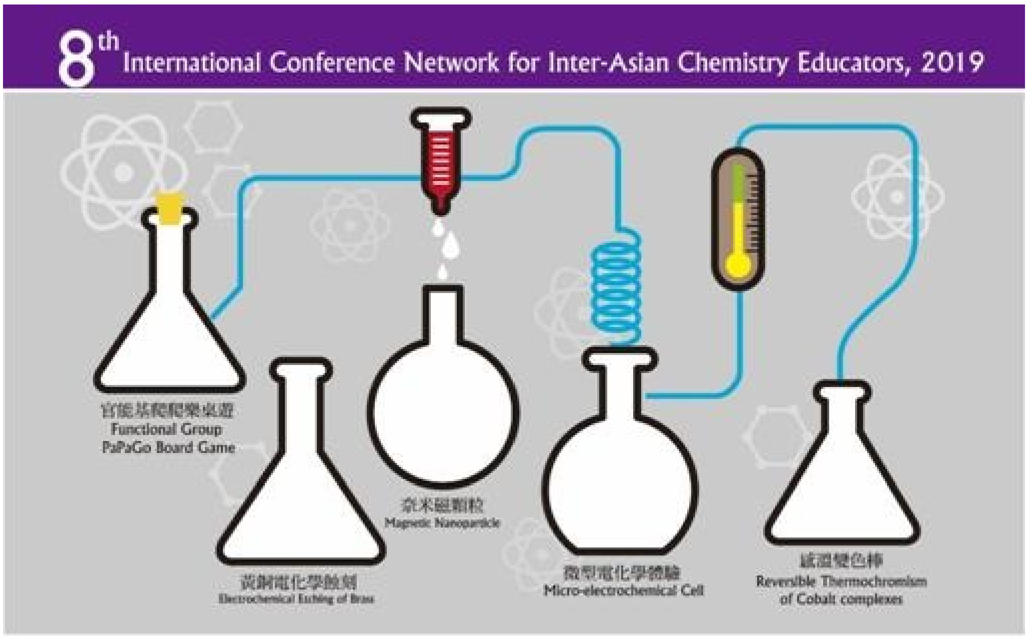
8th International Conference Network for Inter-Asian Chemistry Educators, 2019
官能基爬爬樂桌遊
Functional Group
PaPaGo Board Game
奈米磁顆粒
Magnetic Nanoparticle
黃銅電化學蝕刻
Electrochemical Etching of Brass
微型電化學體驗
Micro-electrochemical Cell
Reversible Thermochromism
of Cobalt complexes

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[illegible]“Synthesis of magnetic nanoparticles in microcentrifuge tubes”[illegible]

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[illegible]“Making thermochromic tube via the cobalt chloride equilibrim”[illegible]

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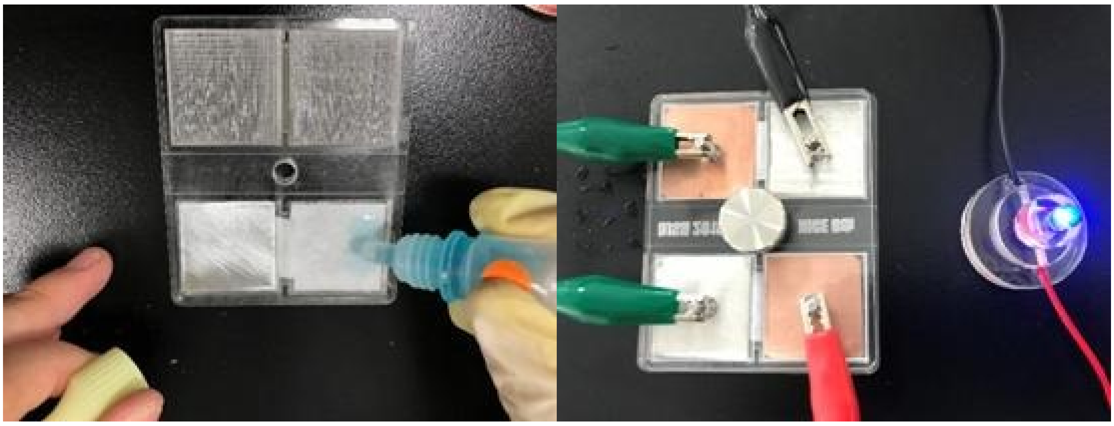

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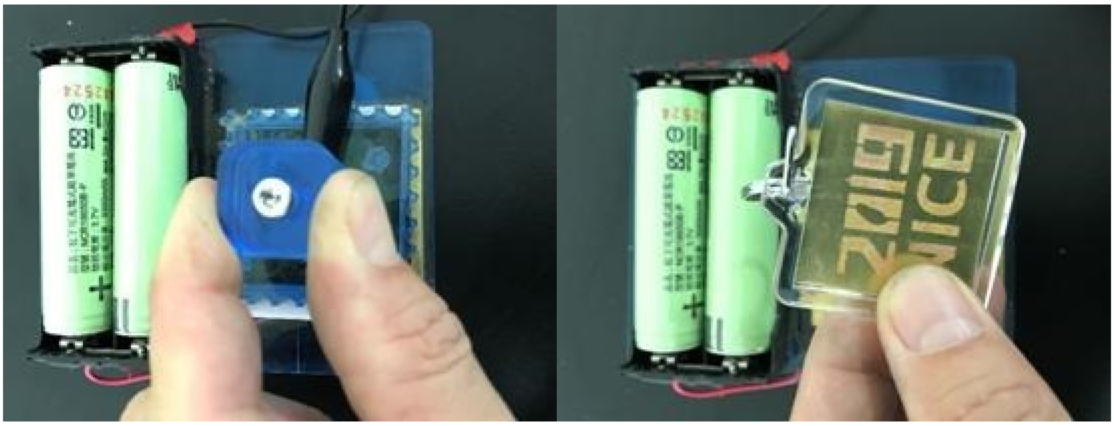

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2019 NICE
The Eighth International Conference on Network for Inter-Asian Chemistry Educators
in Taipei

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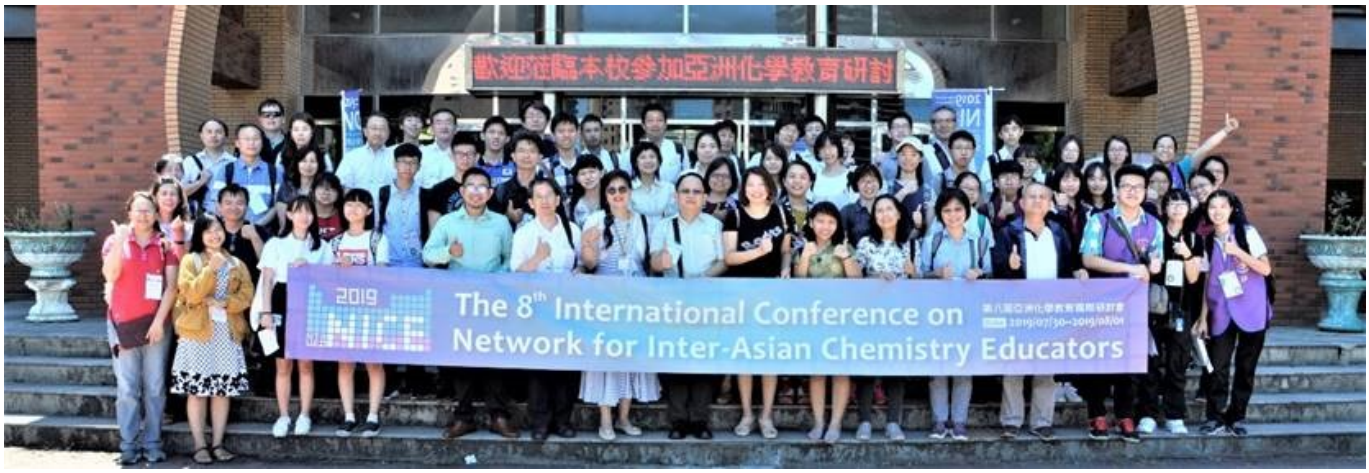
歡迎蒞臨本校參加亞洲化學教育研討
2019
NICE
The 8th International Conference on
Network for Inter-Asian Chemistry Educators

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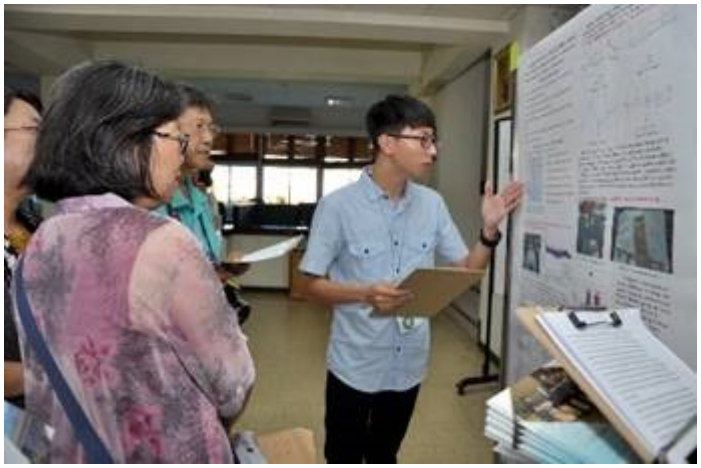
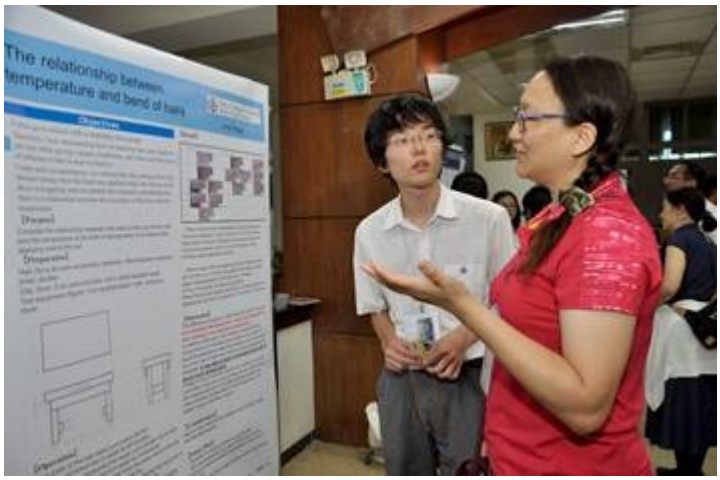
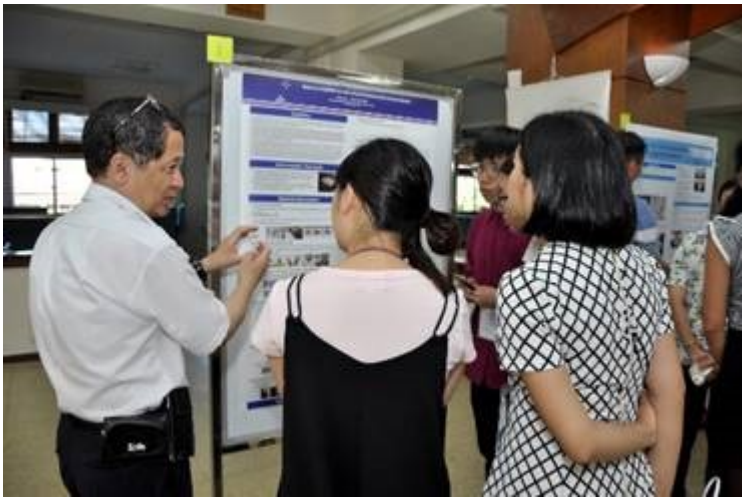



The relationship between
temperature and bend of hair



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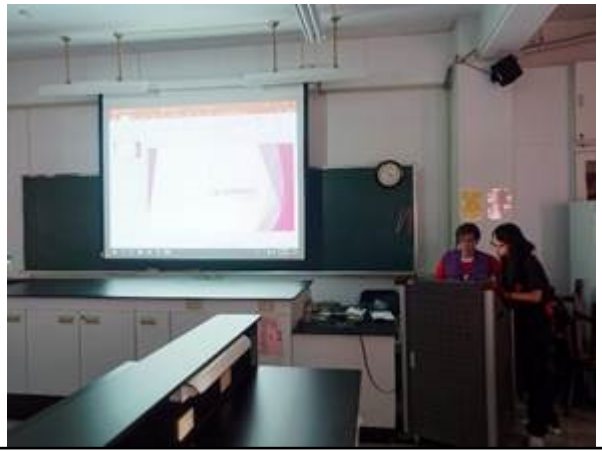

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2019 International Conference on Network
for Inter-Asian Chemistry Educators
第八屆亞洲化學教育
研討會
臺北教育大學

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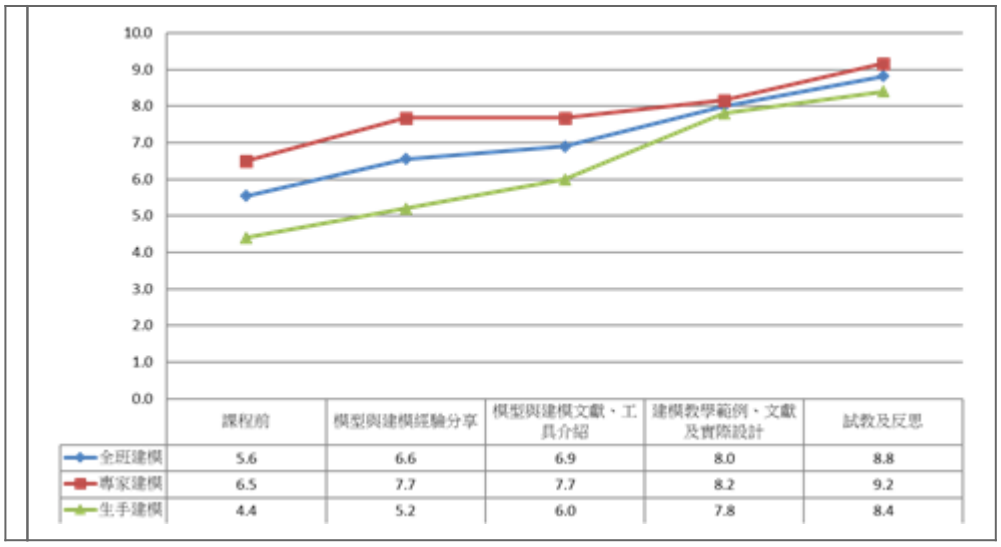

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* maozeng@dcsh.tp.edu.tw

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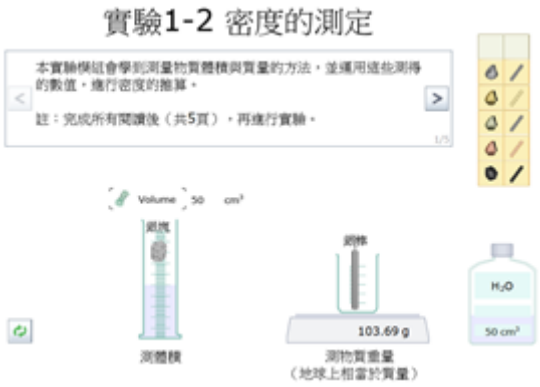

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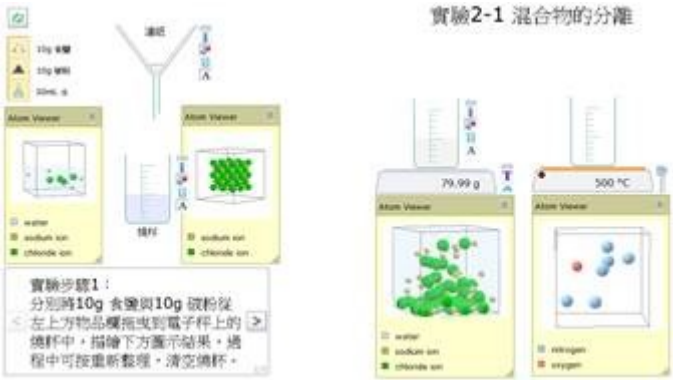

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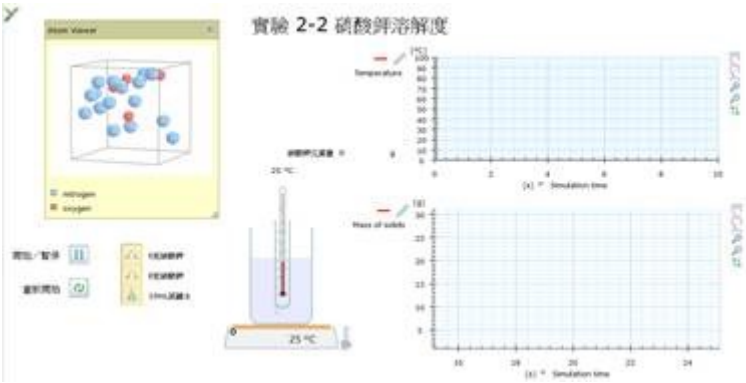

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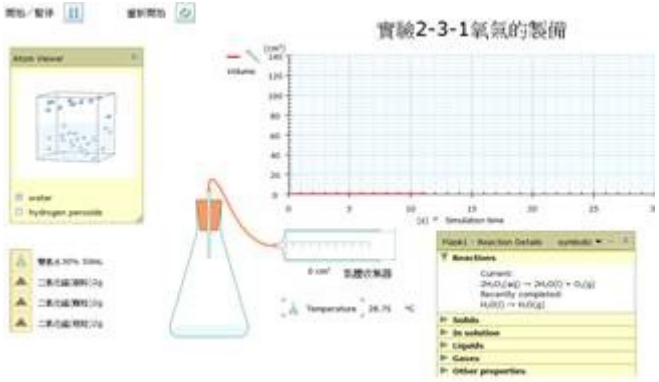

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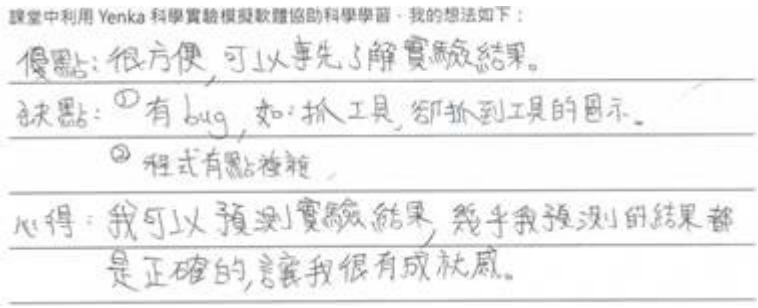

課堂中利用 Yenka 科學實驗模擬軟體協助科學學習，我的想法如下：

優點：很方便，可以事先了解實驗結果。

缺點：① 有 bug，如：拖工具卻拖到工具的圖示。

② 程式有點複雜

心得：我可以預測實驗結果，幾乎我預測的結果都是正確的，讓我很有成就感。

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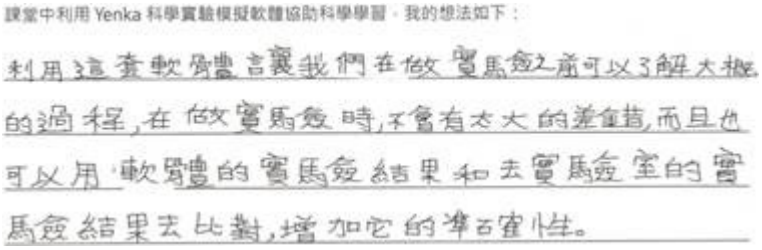

課堂中利用 Yenka 科學實驗模擬軟體協助科學學習，我的想法如下：

利用這套軟體讓我們在做實驗之前可以了解大概的過程，在做實驗時，不會有太大的差異，而且也可以用軟體的實驗結果和去實驗室的實驗結果去比對，增加它的準確性。

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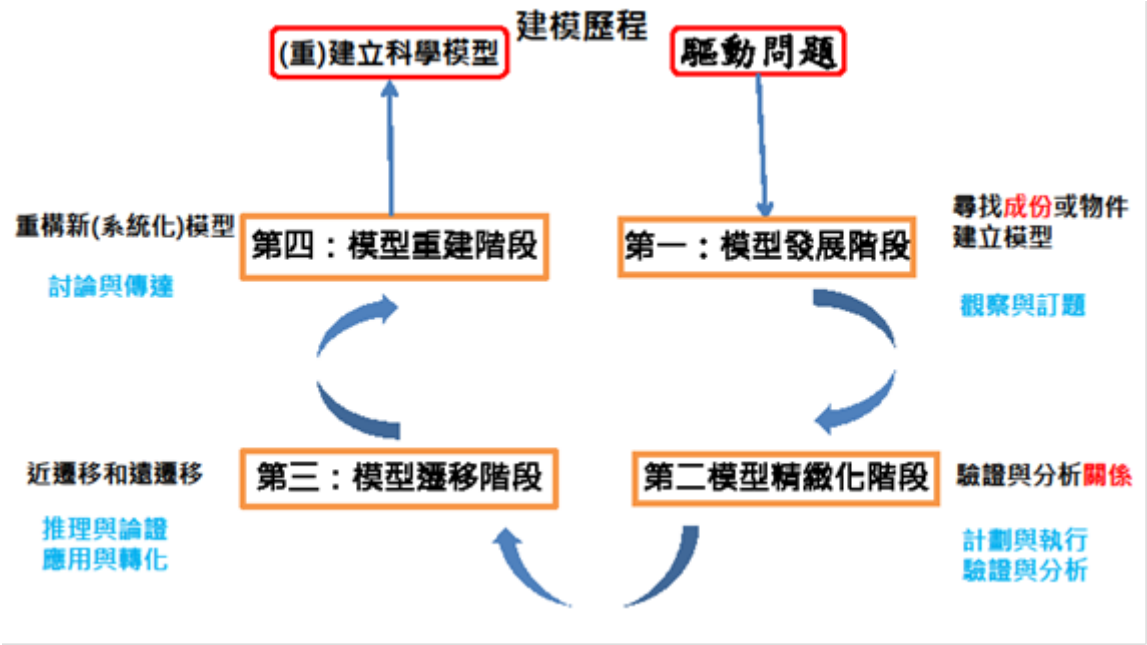

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C	1,086	2,353	4,620	6,223	37,830	47,276		
N	1,402	2,856	4,578	7,475	9,445	53,265	64,358	
O	1,314	3,338	5,300	7,469	10,989	13,326	71,333	84,076
F	1,681	3,374	6,050	8,408	11,022	15,164	17,867	92,036
Ne	2,081	3,952	6,122	9,370	12,177	15,238	19,179	23,269
Na	496	4,562	6,912	9,543	13,353	16,610	20,114	23,489
Mg	738	1,451	7,733	10,540	13,030	17,995	21,703	25,655
Al	578	1,817	2,745	11,577	14,831	18,378	23,294	27,459
Si	786	1,577	3,232	4,355	16,091	19,784	23,786	29,251

P	1,012	1,903	2,912	4,956	6,274	21,268	25,397	29,854
S	1,000	2,251	3,361	4,564	7,013	8,950	27,106	31,669
Cl	1,251	2,297	3,822	5,158	6,542	9,362	11,018	33,604
Ar	1,521	2,666	3,931	5,771	7,238	8,781	11,995	13,841
K	419	3,051	4,411	5,877	7,975	9,049	11,343	14,942
Ca	591	1,145	4,912	6,474	8,144	10,496	12,321	14,206

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國際化學元素週期表年
IYPT
International Year of the Periodic Table of Chemical Elements

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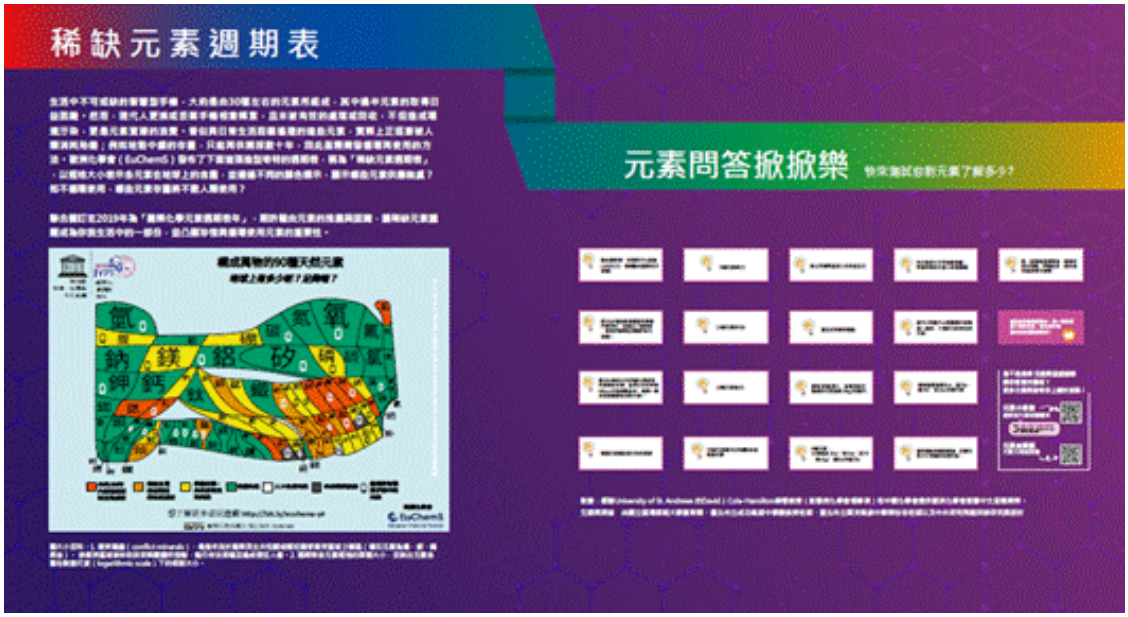

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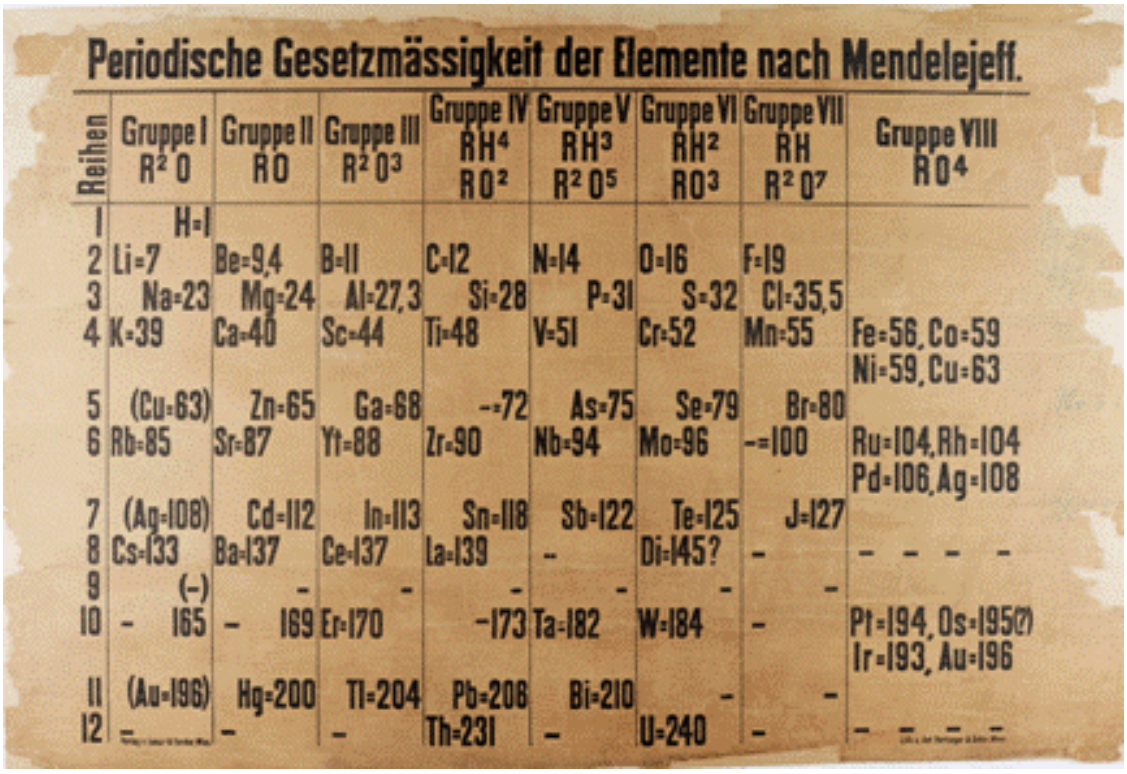

Periodische Gesetzmässigkeit der Elemente nach Mendelejeff.

Reihen	Gruppe I R^2O	Gruppe II RO	Gruppe III R^2O^3	Gruppe IV RH^4 RO^2	Gruppe V RH^3 R^2O^5	Gruppe VI RH^2 RO^3	Gruppe VII RH R^2O^7	Gruppe VIII RO^4
1	H=1							
2	Li=7	Be=9,4	B=11	C=12	N=14	O=16	F=19	
3	Na=23	Mg=24	Al=27,3	Si=28	P=31	S=32	Cl=35,5	
4	K=39	Ca=40	Sc=44	Ti=48	V=51	Cr=52	Mn=55	Fe=56, Co=59 Ni=59, Cu=63
5	(Cu=63)	Zn=65	Ga=68	-=72	As=75	Se=79	Br=80	
6	Rb=85	Sr=87	Yt=88	Zr=90	Nb=94	Mo=96	-=100	Ru=104, Rh=104 Pd=106, Ag=108
7	(Ag=108)	Cd=112	In=113	Sn=118	Sb=122	Te=125	J=127	
8	Cs=133	Ba=137	Ce=137	La=139	-	Di=145?	-	- - - -
9	(-)	-	-	-	-	-	-	
10	- 165	- 169	Er=170	-173	Ta=182	W=184	-	Pt=194, Os=195(?) Ir=193, Au=196
11	(Au=196)	Hg=200	Tl=204	Pb=206	Bi=210	-	-	
12	-	-	-	Th=231	-	U=240	-	- - - -

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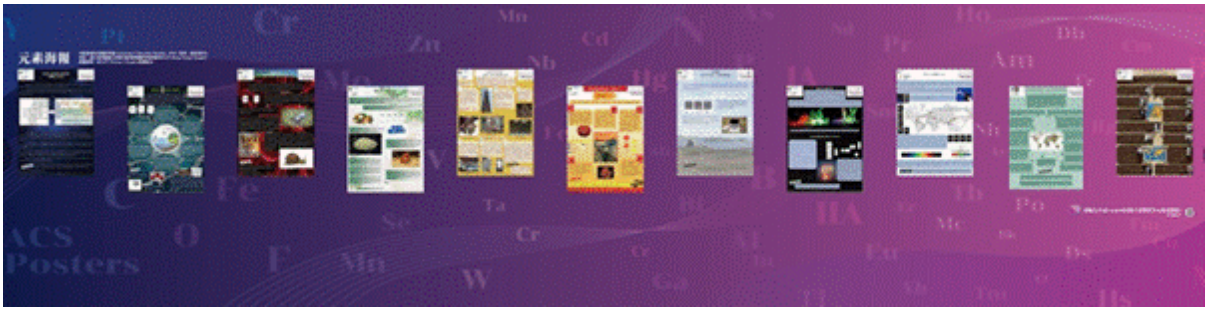

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mhchiu@gapps.ntnu.edu.tw

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