

2019 年探究與實作工作坊

---物理辯論競賽模擬賽---

一、日期：2019 年 12 月 21 日

二、活動地點：國立彰化女中(500 彰化縣彰化市光復路 62 號)，科學館 2 樓普朗克實驗室

三、主辦單位：國立彰化師範大學

四、協辦單位：彰化女中

五、指導單位：教育部

六、參加對象：

1. 已報名或預計報名第十二屆 TYPT 的隊伍為主。
2. 同時歡迎其他對物理辯論感興趣的隊伍:中部地區高一及高二學生，以每隊 5 人為原則進行報名。
3. 各隊需要薦派 1~2 位指導教師隨行培訓，同時開放高中、國中教師觀摩。

七、活動目標：

108 課綱下有多元選修課程和彈性學習時間，為使學生能更了解這兩課程的目的，故舉辦本次模擬比賽，希望可以促進學生的學習態度，更進而協助學生找出學習興趣，確定未來走向。

八、活動課程表：

時間	活動名稱	主講人
08:00~08:15	報到	
08:15~08:25	開幕致詞	陳香妘校長
08:30~09:30	分組模擬辯論與討論 I	徐鏞元教授-英文辯論於普朗克實驗室 吳仲卿教授-中文辯論於物理實驗室
09:30~10:30	分組模擬辯論與討論 II	徐鏞元教授-英文辯論於普朗克實驗室 吳仲卿教授-中文辯論於物理實驗室
10:30~11:30	分組模擬辯論與討論 III	徐鏞元教授-英文辯論於普朗克實驗室 吳仲卿教授-中文辯論於物理實驗室
11:40~12:20	評審講評	徐鏞元教授-英文辯論於普朗克實驗室 吳仲卿教授-中文辯論於物理實驗室
12:30~	賦歸	

九、報名

1. 本活動由教育部國民及學前教育署計畫相關經費支應，提供活動材料費、公共意外責任險等計畫相關費用。
2. 本次模擬賽分為中文場和英文場進行，每一場的基本隊數為3隊，請於報名時勾選。(為方便比賽順利進行，本次模擬賽由各隊自行指定題目。)
3. 請於108年12月15日前填妥報名表【附件一】，寄送主辦單位吳哲源先生，Email: killuasoul@cc.ncue.edu.tw，或電 04-7232105 轉 3313，由主辦單位確認資料無誤後回信通知。
4. 本活動結束後，主辦單位將頒發參加證明。

十、其他相關事項

- 一、請參加學生於研習期間自備具拍照功能之手機或平板及筆電，以利即時操作 exel、ppt、tracker 等相關軟體。
- 二、研習期間應請確實遵守活動地點之規定，不得藉故缺席，未全程參與課程之學生，恕不頒發結業證書。
- 三、本計畫如有未盡事宜，得隨時補充之。
- 四、有關本活動之相關問題，請電詢主辦單位 04-7232105 轉 3313 吳哲源先生，或協辦單位 04-7240042 轉 1222 李政憲老師。

附件一：

2019 年探究與實作工作坊---物理辯論競賽模擬賽--- 報名表

隊名			
模擬賽題目	(自訂)		
希望報名 <input type="checkbox"/> 英文辯論模擬賽 <input type="checkbox"/> 中文辯論模擬賽 (請勾選)			
指導老師	學校名稱	郵件地址(E-mail)	備註
隊員	學校名稱/年級	郵件地址(E-mail)	備註
			(隊長)

附件二：TYPT 賽制與題目

賽程：三隊賽制：Reporter(RE)，Opponent(OP)、Reviwer(RV)

在同一 PF 的各回合中，隊伍角色的輪換依照下列規劃進行：

<i>Three teams PF</i>					<i>Four teams PF</i>				
Stage Team	1	2	3		Stage Team	1	2	3	4
1	Rep	Rev	Opp		1	Rep	Obs	Rev	Opp
2	Opp	Rep	Rev		2	Opp	Rep	Obs	Rev
3	Rev	Opp	Rep		3	Rev	Opp	Rep	Obs
					4	Obs	Rev	Opp	Rep

he performance order in the Stage of a PF:	Reserved time in minutes
Preparation of the Reporter	3
Presentation of the report	12
Questions of the Opponent to the Reporter and answers of the Reporter	2
Preparation of the Opponent	3
The Opponent takes the floor, maximum 4 min. and discussion between the Reporter and the Opponent	14
The Opponent summarizes the discussion	1
Questions of the Reviewer to the Reporter and the Opponent and answers to the questions	3
Preparation of the Reviewer	2
The Reviewer takes the floor	4
Concluding remarks of the Reporter	2
Questions of the Jury	5

The official language of the TYPT is English.

第 12 屆臺灣青年學生物理辯論競賽題目

以下為第 12 屆 TYPT 選入的題目。

2. Inconspicuous Bottle

Put a lit candle behind a bottle. If you blow on the bottle from the opposite side, the candle may go out, as if the bottle was not there at all. Explain the phenomenon.

3. Swinging Sound Tube

Sound Tube is a toy, consisting of a corrugated plastic tube, that you can spin around to produce sounds. Study the characteristics of the sounds produced by such toys, and how they are affected by the relevant parameters.

4. Singing Ferrite

Insert a ferrite rod into a coil fed from a signal generator. At some frequencies, the rod begins to produce a sound. Investigate the phenomenon.

5. Sweet Mirage

Fata Morgana is the name given to a particular form of mirage. A similar effect can be produced by shining a laser through a fluid with a refractive index gradient. Investigate the phenomenon.

6. Saxon Bowl

A bowl with a hole in its base will sink when placed in water. The Saxons used this device for timing purposes. Investigate the parameters that determine the time of sinking.

7. Balls on a String

Put a string through a ball with a hole in it such that the ball can move freely along the string. Attach another ball to one end of the string. When you move the free end periodically, you can observe complex movements of the two balls. Investigate the phenomenon.

9. Magnetic Levitation

Under certain circumstances, the “flea” of a magnetic stirrer can rise up and levitate stably in a viscous fluid during stirring. Investigate the origins of the dynamic stabilization of the “flea” and how it depends on the relevant parameters.

10. Conducting Lines

A line drawn with a pencil on paper can be electrically conducting. Investigate the characteristics of the conducting line.

13. Friction Oscillator

A massive object is placed onto two identical parallel horizontal cylinders. The two cylinders each rotate with the same angular velocity, but in opposite directions. Investigate how the motion of the object on the cylinders depends on the relevant parameters.

14. Falling Tower

Identical discs are stacked one on top of another to form a freestanding tower. The bottom disc can be removed by applying a sudden horizontal force such that the rest of the tower will drop down onto the surface and the tower remains standing. Investigate the phenomenon and determine the conditions that allow the tower to remain standing.

15. Pepper Pot

If you take a salt or pepper pot and just shake it, the contents will pour out relatively slowly. However, if an object is rubbed along the bottom of the pot, then the rate of pouring can increase dramatically. Explain this phenomenon and investigate how the rate depends on the relevant parameters.

17. Playing Card

A standard playing card can travel a very long distance provided that spin is imparted as it is thrown. Investigate the parameters that affect the distance and the trajectory.