Balloon Car 動感「氣」車

Project Introduction

Abstract:
It is to carry out a workshop to make balloon cars, learn Action-Reaction Pair and investigate factors that affect the distance travelled and the stability of balloon cars.

Community Partners:
Faculty of Education, HKU; Po Yan Oblate Primary School

Date of Workshop: 3 May 2018

Time: 10:45-11:45 (1 hour)

Audience: P.5 Students

Expected Outcome:

- Increase STEM literacy for students
- Nurture students' generic skills

Instructor:
Dr Chiu, Thomas K.F.

Co-mentor:
Dr YIP, Valerie W.Y.

Assistant:
Ms CHUNG, Bella Y.L.

Students:

- Chan Cheuk Lam
- Chau Matthew
- Fan Shi Ha
- Tang Hiu Lam
- Tang Kai Wing
- Tsui Shu Wai

Design Rationale

Teaching Strategies:

- Inquiry-based learning
- Task-based learning

Procedures:

1. Introduction: *(To Engage)*

- Playing 2 Videos (Flying balloon & Rocket)
- Pressing for reasoning

2. Theory Learning: *(To Explain)*

- Teaching Newton's 3rd law (Action-Reaction Pair)
- Application on rocket and balloon car

3. Balloon Car Making: *(To Explore)*

- Explanation of basic structure, materials & car-making procedures
- Hands on activity (Task-oriented: distance & stability)

4. Reflection & Discussion: *(To Elaborate & Evaluate)*

- Evaluation on factors (i.e. size, weight & shape of Car, balloon size)
- Re-designing (i.e. selection on materials)

Individual Reflections

'I really enjoy the time spent with our encouraging mentors, helpful teammates. The lectures and workshops helped me gain lots of new knowledge about education, technology.' Shuwai said.

Checklam stated, *'Through designing a STEM workshop, I learnt to give up the less important objectives under limited time.'*

'It is truly a great experience not only to participate in but also to plan the whole STEM workshop with the help of Community Partners as well as our mentors.' Hiulam expressed.

Limitation & Difficulties

Overall:

- Lack of connection between balloon car and real-life problem
- Limited time for preparation

Workshop:

- Insufficient teaching experience about hands-on activity of Student helpers
- Unexpected acts of participants

Conclusion & Recommendations

- Conduct workshops with more practical topics
- Focus on fewer but deeper learning activities (i.e. evaluate specific factor)
- Increase learning efficacy (i.e. Car making → Components changing)
- Give more examples of Action-Reaction Pair