

ABSTRACT

This study was conducted to enhance student's 4C skills in chemistry fun learning through problem-based learning (PBL) virtually during Covid-19 lockdown. Its involved 48 students. Students work in team to design a tool or robot using technology to solve the global plastic problem in six weeks. Pupils are given minimal guidance by me to carry out their projects. Students have autonomy to form their team and use any suitable technology for their presentation and design. The PBL has three stages namely Exploration, Collaboration and Sharing and implemented virtually including online evaluation. The result shows 100% students successfully participate, and 14 ideas and designs were made. 4 teams managed to submit their project to participate 2020 BIEA International STEM Competition. Three teams won awards for Best Report Award, Best Video Award and Rising Stars Award.


OBJECTIVES

Students will able :

- To explore the use of chemicals in plastics
- To give idea to solve the global plastic problem
- To create a robot or tool on how to clear plastics waste
- To create awareness of the environment (UN SDG 13, 14, 15)


TOOLS AND METHODS

TOOLS




STAGE ONE

SET UP TASK FORCE
INFORMATION SEARCHING,
INFORMATION GATHERING
EXPLORING THE TOPIC



STAGE TWO

FINDING SOLUTION
COLLABORATION
CREATING PRODUCT



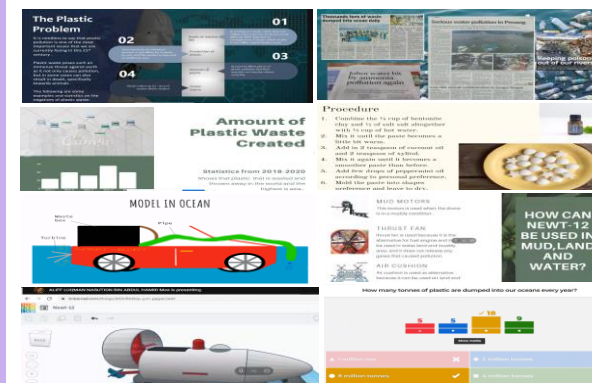
STAGE THREE

SHARING RESEARCH
SHARING DESIGN
MODIFY DESIGN

RESULTS

TEAMS	PRESENTATION	IDEA/DESIGNS
14	14 (100%)	14 (100%)

STUDENT'S WORK



STUDENT'S ACIEVEMENT



CONCLUSIONS

The response and involvement of students is very good about this PBL. 4C skills and the value of environmental love have been successfully nurtured among students. For future studies, I plan to maintain this method for appropriate topics to bring fun learning in Chemistry!

STUDENT'S FEEDBACK



REFERENCES

1. Ministry of Education Malaysia (2006). *Manual Kajian Tindakan*. Kuala Lumpur: Education Policy Planning And Research Division
2. Joseph S. Krajcik and Phyllis C. Blumenfeld(2206), *The Cambridge Handbook of the Learning Sciences*. Cambridge University Press
3. Suzie Boss and Jane Krauss (2007), *Reinventing Project-Based Learning: Your Field Guide to Real-World Projects in the Digital Age*. Eugene, OR, ISTE