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EcoSmartPlaydough:

Nurturing Young Scientists through Play-Based Microbiology, Hygiene and Sustainability Education

Marine Research Group (MaReG), Faculty of Pharmacy UiTM and Malaysian Society for Microbiology Promote Sustainable Science Education (Microbiology) Through the EcoSmartPlaydough initiatives

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Marine Research Group (MaReG), Faculty of Pharmacy, Universiti Teknologi MARA (UiTM), successfully organised a community outreach programme entitled "Play-Based Learning for Children Using Safe, Eco-Friendly Playdough from Butterfly Pea Flower: Integrating Microbiology, Hygiene Awareness, and Sustainability" on 9 July 2026 at the Pavilion and MPG Laboratory, Faculty of Pharmacy, UiTM Puncak Alam.

The programme was supported by the Malaysian Society for Microbiology (MSM) Community Outreach Grant 2025 and conducted in collaboration with Dzul Iman Smart Khalifah Puncak Alam. The initiative brought together preschool children, parents, teachers, researchers, academic staff, and student volunteers for a day of interactive learning that combined science, creativity, and environmental sustainability.

OFFICIAL OPENING CEREMONY

The programme commenced with welcoming remarks by Dr. Siti Alwani Ariffin, Programme Director, followed by an address from Madam Roshada Harun, Managing Director of Dzul Iman Smart Khalifah Puncak Alam. The event was officiated by Associate Professor Dr. Siti Sabariah Buhari, Deputy Director of Social Creativity and Innovation at Research Nexus UiTM (ReNeU).



During her speech, Dr Siti Alwani emphasised the importance of integrating play-based learning into early childhood education as an effective approach to nurture creativity, fine motor development, problem-solving skills, and scientific curiosity. She also highlighted the importance of providing children with safer educational materials by introducing environmentally friendly alternatives to conventional commercial playdough.

ECOSMARTPLAYDOUGH: A SUSTAINABLE INNOVATION



Children participating in the EcoSmartPlaydough Workshop.

A major highlight of the programme was the EcoSmartPlayDough Workshop, where children created their own playdough using a formulation developed from natural butterfly pea flower (*Clitoria ternatea*) extract. Unlike many commercial products that contain synthetic colouring agents and chemical preservatives, EcoSmartPlayDough is designed to be safe, non-toxic, and environmentally friendly. Through this hands-on activity, participants developed fine motor coordination while exploring colours, textures, and creativity in a fun and engaging learning environment. The workshop also demonstrated how scientific research can be translated into practical innovations that benefit both children and the wider community.

PROMOTING MICROBIOLOGY AND HYGIENE AWARENESS



Children practising the WHO Seven-Step Handwashing Technique.

The programme also incorporated several interactive microbiology activities aimed at promoting healthy hygiene practices among young learners. Children participated in the WHO Seven-Step Handwashing Demonstration, where they learned the correct handwashing technique to reduce the spread of harmful microorganisms.

This was followed by the Magic Soap Experiment, an engaging activity that demonstrated how soap effectively removes germs. These science-based activities enabled participants to understand basic microbiology concepts through enjoyable, age-appropriate learning experiences.

INTERACTIVE LEARNING FOR PARENTS

In addition to children's activities, parents participated in a dedicated microbiology awareness session led by the MaReG, Faculty of Pharmacy team. The session included microscope exploration, observation of



Microscope exploration session for parents.



Parents engaging in the Antibiotics Combat Game.

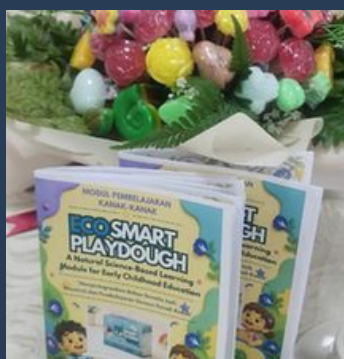
of microbial cultures, and participation in the Antibiotics Combat Game, which introduced concepts related to infection prevention and responsible antibiotic awareness. These activities encouraged family involvement in science education while strengthening public understanding of microbiology and personal hygiene.

SUSTAINABILITY THROUGH SCIENCE



Another unique feature of the programme was the introduction of an innovative organic hand soap produced from recycled fruit peel waste. Developed through laboratory research, the product demonstrates how organic waste can be transformed into useful hygiene products containing natural antimicrobial properties. This initiative reinforces the concept of waste-to-wealth, promotes sustainable innovation, and supports responsible environmental practices within the community.

COMMUNITY IMPACT



The programme concluded with a souvenir presentation, appreciation session, group photography, and lunch.

More importantly, the initiative successfully strengthened collaboration among the Faculty of Pharmacy UiTM, the Malaysian Society for Microbiology (MSM), Research Nexus UiTM (ReNeU), MaReG, and Dzul Iman Smart Khalifah Puncak Alam to promote science education through community engagement.

By integrating microbiology, hygiene awareness, sustainability, and play-based learning,

the programme contributed towards achieving the United Nations Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), and SDG 12 (Responsible Consumption and Production). The Faculty of Pharmacy remains committed to developing impactful outreach initiatives that inspire future generations to appreciate science and foster healthier, more sustainable communities.