To whom it may concern,

Learning Experiences in STEM Elective, Commonwealth Secondary School (CWSS)

TAY XIN YU HESTIA was a student of CWSS STEM Elective 2021 – 2022.

Background of the STEM Elective:

The STEM Elective, first offered in 2020, encourages students to learn beyond the defined curriculum and beyond examinations. It is a 2-year, non-O-Level-examinable course that a student can choose to take in place of an O-Level subject in Secondary 3-4.

Complementing existing subjects, our STEM Elective allow students to tap on knowledge across disciplines and from external partners to create new solutions to authentic problems. It also leverages on our school's strong niche in Eco-Stewardship to provide our students insights and hands-on experiences on application of STEM for sustainable development. Through the course, students are nurtured to become self-directed and confident learners who think critically, communicate and collaborate effectively; compassionate leaders and imaginative trailblazers who are passionate at championing good causes and able to put forward sustainable solutions.

Our supporting partners include World Wide Fund for Nature (WWF), Singapore Food Agency (SFA), National Parks Board (NParks), MOE programmes such as Scientists-in-School (SiS) and Science Mentorship Programme (SMP), academics and industrial experts.

The following table lists the key learning experiences Hestia had in STEM Elective from Jan 2021 to May 2022:

Modules	**Examples of Module Learning Experiences**
Year 1 (2021, Secondary 3)	
Foundation Modules: Fundamentals of Research & Scientific Communications	Fundamentals of Research: The Scientific Method & Research Questions Literature Review
	Scientific Communications: Verbal & Non-Verbal Communication, Data Representation Dialogue with WWF: Scientific Communications
	MOE Scientist-in-School (SiS): 3 Mentoring Sessions with Dr Zach Pang (Bioprocessing Technology Institute, A*STAR) on Science Career Possibilities, Emerging Trends, and Research Skills
Core Module 1: Nature Conservation	Debate on Central Strategy in Combating Climate Change
	Nurturing Tree Seedlings in Plant Nursery (Nparks OneMillionTrees Programme)
	Assessment Project: ***Literature Review on Mangrove Conservation in Singapore***
Core Module 2: Food Security	Farming and Interdisciplinary Learning with the Indoor Urban Farming Systems
	Dialogue with Singapore Food Agency (SFA)

	Assessment Project: ***Infographic on Agroecology***
Core Module 3: **Water Resources**	Climate Resilience Webinar - Singapore Youth Water Conference (by Raffles Institute)
	Dialogue with Dr Kim Irvine: The Value of Nature-based Solutions in Urban Water Management
	Assessment Project: ***Design Challenge on Harnessing Water Resources in School***
Core Module 4: **Clean Energy**	Webinar from Borneo Motors Singapore – Electric Vehicles
	Engineering of Solar Powered Devices
	Mini Design Challenge: "Turn Off Your Air-Con!"
Year 1 Assessment Project: ***Urban Farming: Literature Review, Design Challenge, and Pitch Presentation***	
External Research Event Completed: ***MOE Science Mentorship Programme (SMP):*** ***Ultrasonic Measurements of Gas Syringe Positions for the Kinetic Study of Reactions between Acids and Aluminium***	
Year 2 (2022, Secondary 4)	
Core Module 5: **Biomimicry**	Blended Learning from Biomimicry Institute Online Toolkit
	Assessment Project: ***Biomimicry Design Process Applied in School: Biologise and Discover, with Nature's Unifying Pattern***
Core Module 6: **Healthcare & Wellbeing**	Debate on Perception of Vaccination
Capstone Project: *(Individual Project of Choice)* ***Correlation between Degradability of Plastics and Its Tensile Strength*** *(Ongoing)*	

Hope the above provides useful information.

Thank you.

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