

The “Development and Promotion of STEM Education in New Community Schools” project is a project by the Faculty of Science in collaboration with the Academic Service Center. It has been implemented to achieve the goal of providing academic services and developing communities sustainably. It is a project under the main SDGs in section 4.3.4, which includes undertake educational outreach activities beyond campus – in local schools, in the community. This can include voluntary student-run. This project are the activities to promote off-site education. The activities are conducted at the New Community School, which is a school in the area near the university. Before the activities, we met with the school director, science teachers, and met with the sample group of students, which are grade 5 students. All those involved were happy and willing to participate in the activities.

These activities are organized to further develop students’ scientific knowledge, develop knowledge, and meet the needs of the school. The goal is to develop a prototype for integrating teaching and learning and promoting learning to develop a STEM curriculum for upper primary school (grades 4-6) that is related to the daily lives and environment of the students. This project uses 15 grade 5 students as a sample group in the academic year 2024 of New Community School. The learning activities planned to have 6 activities and aiming to develop science skills of sample students as follows: Activity 1<sup>st</sup> is “My Food” activity, learning to categorize food and classify foods in daily life. In this activity, students will learn observation skills and classification skills. Activity 2<sup>nd</sup> is “Sweet Sandwich” activity, students will learn to make nutritious sandwiches and also calculate the components of the sandwich according to the given questions. In this activity, students will practice calculation skills, observation skills and skills in recording experimental results. Activity 3<sup>rd</sup> is “Mung bean growing” activity, students will experiment with growing mung beans in 4 different conditions: watered and exposed to sunlight, not watered but exposed to sunlight, watered but not exposed to sunlight, and not watered and not exposed to sunlight. Students will see the 2 factors of plant growth: water and sunlight. In this activity, students will gain skills in recording experimental results and skills in analyzing experimental results. Activity 4<sup>th</sup> is “Carry boat from plastic straws” activity, students will make a boat from recycled plastic straws by having a competition between groups to see

which group can squeeze the most weight with the same amount of materials. In this activity, students are very enthusiastic because there is competition and making work pieces that students will improve their engineering design skills and engineering problem-solving skills. Activity 5<sup>th</sup> is a free of charge field trip to plants and zoos at the Botanical Garden, Walailak University, Students summarize their learning results by drawing pictures to show what they have learned and remembered. In this activity, students practice their observation skills and presentation skills in the form of drawing (what students have observed and remembered). Activity 6<sup>th</sup>, which is the last activity, is “making wet bin”. Students will make a bin with a new innovation using microorganisms and heat to decompose wet trash, reducing household waste and also generating fertilizer. In this activity, students will practice their engineering invention skills and presentation skills.

This project also encourages undergraduate students in the science program to integrate their knowledge and participate in the activities. There are 35 voluntary students from the science program, Walailak University, who participated in all 6 activities. They are acting as assistant lecturers and mentors to help students carry out the activities smoothly. In particular, activity 4<sup>th</sup>, the boat with plastic straws. The students jointly thought of and carried out the activities themselves, while the teacher was only an observer and advisor. From all the previous activities, it was found that voluntary students were satisfied with the activities and wanted to participate again if there was another one. In addition, the voluntary students have also developed leadership skills and volunteerism.

This project also has ad-hoc activities that are not included in the project plan. Students and teachers participated in presenting their work at the event “Development of a coastal area development plan and low-carbon identity tourism according to the sustainable development approach (SDGs)” on Monday, September 9, 2024 at the Huatapan Meeting Room, 3<sup>rd</sup> floor, Zone A, Walailak University Hospital. The two of sample students representatives were presented the activities to government agencies and interested people in general. This made students proud of their own work and students were also able to explain the knowledge gained from the activities organized to the public.

From the results of all operations, this project has been evaluated very satisfactorily. The results of the learning activities of all students were 92 percent. For the results of the evaluation of student learning, the project organizers used the results of observing students' participation behavior and the results of recording students' work. It was found that students enjoyed learning because it was mainly learning using physical movement and playing competitive games. Students also developed more skills in various sciences.