

"DIGI-SCIENCE" VIDEO PRODUCTION COMPETITION FOR HONG KONG SECONDARY SCHOOLS 2022-2023

"DIGI-SCIENCE" VIDEO CONTEST IGNITES STUDENTS' INTEREST IN TESTING SCIENCE

Testing and certification (T&C) may help screen out substandard products from entering the market and hence offer protection in various aspects of our daily life. The important contributions of T&C, therefore, cannot be overlooked. In an effort to raise students' awareness of the importance of T&C, Hong Kong Council for Testing and Certification (HKCTC) has teamed up with the Hong Kong Association for Science and Mathematics Education again to co-organise the annual "Digi-Science" Video Production Competition for Hong Kong Secondary Schools.

The competition is divided into two divisions – Junior Secondary Division and Senior Secondary Division. The theme of the competition this year was "Food Testing in Daily Life", encouraging students to debunk myths about food items that are consumed in everyday life. Participating teams are required to produce a two-minute video depicting their testing experiments on selected food or beverages.

Three HKCTC members, namely, Dr Gray Ho, Ms Stephanie Lam and Ms Gilly Wong, joined the judging panel of the competition. The panel took an array of criteria into consideration, ranging from project creativity, originality,

experiment video in terms of quality and the clarity of presentation.

The judges were delighted by the overall quality of the projects submitted. "All the videos demonstrated solid scientific knowledge and featured high-quality tests conducted with sound methodology," the Panel remarked. "We also evaluated other skill sets, like teamwork, as well as the audio-visual presentation of the experiment in the videos."

"The topics chosen by participating teams are closely related to everyday life, with some being particularly interesting. For example, a team delved into energy drinks with testing the ingredients in relation to the claims of energy boost and reducing sugar, while another team researched into the reasons why the red pigment of dragon fruit cannot be digested."

"Inquisitiveness is part and parcel in the field of science. The teams' entry reflected their curiosity about daily encounters and their inquisitive minds," the Panel noted. "The methodology employed by some teams was nothing short of meticulous. We understand that laboratories in secondary schools might lack professional equipment but that didn't dampen students' interest



HKCTC Chairman (from left), Prof Wong Wing-tak and HKCTC Member, Dr Gray Ho presented the awards to the winners of the competition.

in their chosen topics. Some teams surmounted the hurdle by devising an alternative experiment which, too, yielded reliable results. We are impressed by such problem-solving skills."

"Given the fierce competition, standing out from the crowd is no mean feat. The winning teams successfully caught the eyeball of the audience by incorporating role-play elements or an interesting storyline into their video. The teams were also able to explain the experiment process in a precise and concise fashion by using layman's language. We hope that the competition sparks students' interest in testing science and they would become the potential workforce of the T&C sector in the future."

Senior Secondary Division Champion: Kowloon True Light School

Project: Content of Caffeine and Reducing Sugar in Energy Drinks



Kowloon True Light School (from left): Yau Pui Ka, Wong Tsz Lok and Tse Tsz Ching

The team's video opened with a hilarious mixed martial arts fighting scene that led on to a selection on seven brands of energy drinks widely available for sale in Hong Kong. The objective of the experiment was to assess the accuracy of claims made by the individual brands about the energy boost given by caffeine and low sugar levels. The team used a solution of chloroform and a UV/VIS spectrophotometer for the caffeine tests, and Benedict's solutions when testing for levels of sugar.

After scouring relevant literature, the team identified the methodology of the research. When testing for caffeine concentration, one major challenge was to minimise the colouring in the samples as it would affect the accuracy of the results. To obtain accurate data of the caffeine concentration in

individual samples, conducting multiple times of the experiment was necessary.

Making the video within the time limit, clear and concise was also a challenge because it features two relatively complex experiments. With creativity and perseverance, the team rode out a series of challenges. After much discussion, the team came up with a screenplay that was equally educational and entertaining. Team members also put their heart and soul into video editing, which was one of the keys to their success.

Through the competition, the team learnt about techniques for advanced experiments while immersing themselves in scientific exploration. As the team members actively looked for solutions to their problems, they believe that their problem-solving skills were also sharpened.

Junior Secondary Division Champion: St. Paul's Secondary School

Project: The X-files: Bloody Tragedy



St. Paul's Secondary School (from left): Sophie Lo Chun Yee, Athena Lai Hei Man and Nidia Ho Lok Hei

The aim of the team's experiment was to solve a "mystery": why the red pigment in dragon fruit cannot be digested. Their method was to take an extract of the red pigment, diluted with deionised water, and then conduct tests with a series of enzymes, which are commonly found in the digestive system, including pepsin, amylase and lipase. Control samples were set up for comparison. All the samples underwent a 30-minute thermostatic water bath at 37 degrees Celsius to simulate human body temperature. The experiment was followed by redox titration tests to assess the antioxidant content in dragon fruit.

"We ran into some challenges in the course of the experiment.

The issues that we discovered are closely-related to our daily life and we wanted to look for an answer through conducting experiments. However, during the experiments, we realised that some knowledge and skills are only taught in the senior secondary curriculum. We, as secondary three students, required additional guidance from teachers in order to complete the experiments. Through this competition, we learned more about science knowledge and experimental skills," the team shared.

"In addition, as the experiment involved a series of procedures and tests, we had to make a careful selection of highlights to include in our video in order to make it appealing. We definitely enjoyed shooting the video because the process was full of fun. We are also grateful to our chemistry and English teachers for working on the script with us."