"DIGI-SCIENCE" VIDEO PRODUCTION COMPETITION FOR HONG KONG SECONDARY SCHOOLS 2021-2022

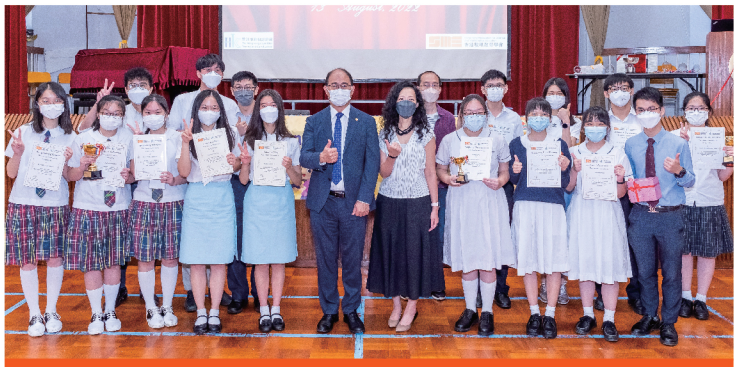
CONTEST WINNERS APPLIED SCIENTIFIC TESTING TO SOLVE DAILY PROBLEMS

The Hong Kong Council for Testing and Certification (HKCTC) has co-organised the "Digi-Science" Video Production Competition for Hong Kong Secondary Schools 2021-22 with the Hong Kong Association for Science and Mathematics Education since 2016. The theme of this year's contest was "Materials Testing Science in Daily Life". Participating teams were required to produce a two-minute video depicting the innovative testing experiments.

Five HKCTC members, Ms Bess Choi, Dr Gray Ho, Ms Stephanie Lam, Dr Ann Leung, and Ms Gilly Wong, joined the judging panel to assess the entries based on creativity and originality of the experiment idea, video quality and clarity of the presentation. Prof. Wong Wing Tak, Chairman of HKCTC, and Dr Ann Leung, Member of HKCTC, presented the awards to the winning teams at the award presentation ceremony which was successfully held on 13 August 2022.

This year, finalists probed into topics related to daily life, ranging from environmental, health to hygienic issues. The judges were impressed by how the student teams applied their scientific knowledge to solve everyday problems and conducted different tests in verifying their hypotheses and ascertaining the performance of products. "We're happy to see that most of the teams grasped the basic idea of how testing should be conducted. Nowadays, we place a strong emphasis on the standard of living. In this regard, testing is indispensable as it guarantees the quality of products," the judges pointed out.

The judges believed that the competition could strengthen students' skills not only in scientific testing but also for their personal growth as a whole. "By working on a science project, students learn to make a hypothesis and substantiate it through coming up with methodologies and tests. They also need to overcome tricky problems or hurdles encountered during the process. It helps cultivate their scientific mindset, sharpen their logical thinking and unlock their creativity. These experiences are definitely beneficial to their future pursuits in testing science and scientific research," the judges added.



Prof. Wong Wing-tak, Chairman of HKCTC, and Dr Ann Leung, Member of HKCTC, with the winning teams

Winners of "Digi-Science" Video Production Competition for Hong Kong Secondary Schools 2021-2022

Champion	**St. Paul's Convent School**
First Runner-up	**Shun Lee Catholic Secondary School**
Second Runner-up	**South Tuen Mun Government Secondary School**
Merit	**Maryknoll Convent School, STFA Leung Kau Kui College**

Champion: *Project: Burn and Pollute? No! We have BioPlastics!*

St. Paul's Convent School: Crispina Chan, Jasmine Lam, Chloe Wong

Owing to COVID-19 restrictions, online shopping and e-retailing have become popular. However, the increased amount of non-biodegradable plastic packaging generated from online shopping poses a serious threat to the environment. Attempting to alleviate the problem, this year's winning team aimed to develop a bioplastic wrapping film using corn starch to replace the existing plastic material. The team also added a layer of silver nanoparticle so as to provide antibacterial property to the film.

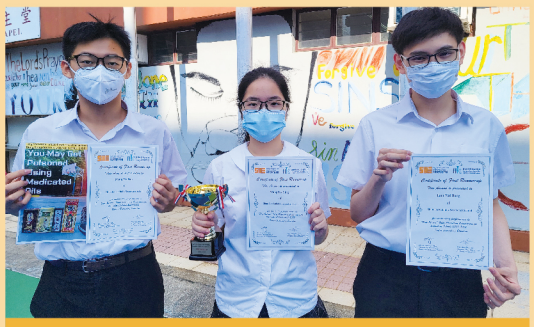
Making reference to research papers, the team conducted a wide range of tests, including tensile strength, absorbency and decomposition tests, to ensure the best performance of the bioplastics. "We have tried to do some experiments at home in light of school suspension during the COVID-19 outbreak. However, after conducting the tensile strength test, we realised that the data acquired might not be accurate. We looked into the problems, repeated the experiments and dealt with them eventually," the team remarked.

Another challenge was making the video, which needed a succinct presentation to explain steps of experiment in just two minutes, as well as careful editing to attract the eyeballs of the judges. "We injected dramatic elements into the script and touched on hot topics in our daily lives, like masks and e-retailing, so the video would resonate with the audience," the team said.

St. Paul's Convent School: (from left) Crispina Chan, Jasmine Lam, Chloe Wong

First runner-up: *Project: You May Get Poisoned Using Medicated Oils*

Shun Lee Catholic Secondary School: Lam Wai-hong, Wong Ho-fan, Wong Tsz-ying



Shun Lee Catholic Secondary School: (from left) Wong Ho-fan, Wong Tsz-ying, Lam Wai-hong

A news report about an athlete killed by overexposure to methyl salicylate (MS) contained in pain-relieving medicated oil caught this team's attention. While medicated oil is widely used by the elderly and athletes, the team was alarmed to find that some brands don't specify the MS concentration in their products. To enhance public awareness of the risk of these medicated oils, they decided to produce a video showing how tests could identify the concentration of MS in eight brands of medicated oils, which can be bought over the counter or via online shopping platforms.

The team found that the MS reacts with iron(III) chloride to form a violet complex. The MS concentration could then be determined by measuring the absorbance of the violet complex at 380 nm using a colorimeter. "We repeated the experiment many times using different standard concentration of MS to generate a calibration curve. We could then find out the MS concentration of a medicated oil by referring to this curve," the team explained.

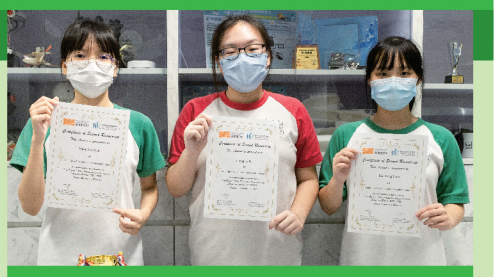
"Through this competition, we learnt a lot of practical skills of conducting experiments. For example, we got to know how to dilute solutions effectively. We also realised that products without being tested may not be safe to use. In extreme cases, untested products can be dangerous, or even fatal," the team said.

Second runner-up: *Project: Why Shouldn't We Use DIY Masks?*

South Tuen Mun Government Secondary School: Cheng Ka-po, Ran Meng-xuan Alice, Wang Man-nga

When COVID-19 first hit Hong Kong, there were acute shortages of surgical masks. Because of that, social media platforms swarmed with videos teaching viewers to make their own masks. Aiming to explore the effectiveness of DIY masks, this team conducted a series of tests on a number of materials like non-woven fabric, kitchen towels, polyester fabric and cotton, to identify a viable alternative to the widely-used, commercially available surgical masks. Based on the results, the team found that non-woven fabrics have the potential of becoming an urgent alternative of surgical masks.

Taking safety into consideration, the team didn't use human saliva droplets in their experiments. Instead, they had to develop a simulation by culturing a probiotic complex. "We sprayed the probiotic complex on to the various materials, using carefully calibrated amounts and distances, to simulate people talking without a mask," the team said. "The experience definitely ignited our interest in testing science. We believe that rigorous testing is important as it protects consumers from getting substandard products."



South Tuen Mun Government Secondary School: (from left) Wang Man-nga, Cheng Ka-po, Ran Meng-xuan Alice