漢華中學
HON WAH COLLEGE

Physics

物理科

Physics emphasizes the training of students' self-learning skills. Teachers make use of flipped classroom teaching to let students also study at home.   Students are required to watch the pre-recorded teaching videos prepared by teacher at home and complete the worksheets by themselves, contents of which mostly talk about simple physics concepts that allow students to think freely, and raise an open-ended question for discussion in class. Teachers will then explain and go through the worksheets in depth according to students' performance and the questions raised in class, so as to enhance students' self-directed learning skills.

We also attach importance to enhancing students' interest and ability in learning Physics, as well as allowing them to apply the knowledge of Physics to explore the development of science and technology in the country through project learning.   For example, in the S5 project learning for electric and petrol vehicles, students are required to analyze the various aspects of electric vehicles and explore the development of electric and petrol vehicles in China and how they affect the ecological security and resource security, thus consolidating students' understanding on the major fields of national security. In addition, in response to the recent news about the release of nuclear effluent from Japan, S4 students were requested to conduct a project learning on the impact of nuclear effluent on the surrounding environment, so that they could apply their knowledge of Physics in a real-life scenario to study in depth the problem and solve it. For S3, students will collaborate with the Computer and Visual Arts Departments to conduct a cross-curricular project learning, in which students are expected to acquire a certain degree of understanding of the ventilation efficiency in architectural design and the selection of suitable materials for effective heat dissipation, which not only enables students to cultivate their STEAM skills, but also deepens the knowledge learnt in class.

Students will also be encouraged to make use of information technology (IT) in learning more frequent.   In group experiments, students are required to use tablet computers to collect, process and analyze data, and make presentation by groups. The application of IT can save students' time in conducting experiments and help them to develop their data processing and analysis skills, which will help facilitate their interest in Physics.

Furthermore, our Department also regularly contacts and cooperates with external organizations to provide more opportunities for students in extended learning, such as paying visits to the Science Museum and the Space Museum, and participating in the Polytechnic University's QEF Project for remote experiments, so that students can also perform experiments at home and develop their experimental skills, as well as participating in the University's theme talks in order to let students experience the integration of Physics into the everyday life in a variety of areas.

物理科強調訓練學生的自學能力，老師利用翻轉課堂教學，讓學生也可在家中學習本科知識。同學需在家中觀看老師預錄的教學短片，自行完成預習工作紙，，內容多涉獵簡單物理概念，並讓同學自由思考及發問一條開放式問題，及後在課堂中加以討論。老師也會在課堂上按同學在工作紙的表現及所提出的問題，加以講解及研究，從而提升同學的自主學習能力。

本科也重視提高學生學習物理的趣味及能力，並通過專題研習讓同學運用物理科知識去探討國家科技發展等問題。例如，中五級的電動車與汽油車專題研習，學生需對作分析，並探討電動車及汽油車在國內的發展，及如何影響生態安全及資源安全，鞏固同學對國家安全重點領域的認知。此外，因應近期的日本核污水排放新聞，要求中四級同學進行專題研習，探討核污水對周遭環境的影響，讓同學在生活化情境中套用物理學知識去探討及解決問題。在中三級會與電腦科及視藝科合作進行跨學科專題研習，學生需對建築設計的通風能力及選取合適物料來有效散熱要有一定認識，既能讓學生培養 STEAM 能力，也能深化課堂上所學的內容。

本科也會鼓勵同學多利用資訊科技進行學習。在進行小組實驗時，同學需要使用平板電腦收集、處理和分析數據，及後作分組匯報。運用資訊科技可讓同學節省進行實驗的時間，也讓同學培養數據處理及分析能力，有助提升同學對物理科的興趣。

此外，本科也會定期與校外機構接觸及合作，藉此增加同學的延伸學習機會，讓同學可以出外參觀，如參觀科學館及太空館；及參與理工大學的 QEF Project 進行遙距實驗，讓同學也可以在家中進行實驗，培養實驗技巧；也會參與大學的主題講座，期望讓同學在不同範疇體會物理與日常生活的結合。

S3 students visited the Science Museum and completed the online worksheets with IPad
中三級同學參觀科學館，利用 IPAD 完成網上工作紙

S4 students visited the Space Museum and completed the online worksheets after reading contents of the display boards
中四級同學參觀太空館，參觀展板以完成網上工作紙

S4 students making warm clothing
中四級同學製作禦寒衣物

Student borrowing Physics books from the school library for the book report
同學在圖書館借閱物理科書籍進行閱書報告

Students working in group for the experiments, and record the experimental data
同學們分組一起進行實驗，並記錄實驗數據