Life-wide Learning: Science Education

Curriculum Aims

Science education is an integral part of the school curriculum. It provides learning experiences through which students develop scientific literacy from Key Stage 1 to Key Stage 4. Students can develop the necessary scientific knowledge and science process skills, generic skills, as well as values and attitudes for their whole-person development, for participating actively in a dynamically changing society, and for contributing towards a scientific and technological world.

Learning and Teaching

- The learning and teaching of science should aim to develop students to become self directed and lifelong learners. It is necessary to help students build up deep learning competencies in order to develop the ability to acquire, integrate and apply knowledge and skills to solve authentic or real-life problems.
- A variety of learning experiences should be provided for students to collaborate with others, construct their own meaning, plan, manage and make choices and decisions about their learning, so that students could internalise newly acquired knowledge and skills, and develop a greater sense of ownership in learning.
- Owing to students' diverse needs and specific targets in different learning contexts, teachers need to have a thorough understanding of different pedagogical approaches to designing and providing meaningful learning experiences. Learning and teaching strategies such as practical work, investigation, discussion, role-play, debate, context based learning, problem-based learning and project learning are deemed suitable for the learning and teaching of science.
- Many scientific, technological and engineering advancements are cross-disciplinary in nature. Therefore, the learning elements of other STEM-related disciplines should be included in the learning and teaching of science to enhance students' interest and innovation and to develop their ability to integrate and apply knowledge and skills across disciplines.

Life-wide Learning

To extend students' learning experiences, teachers could incorporate LWL into the learning and teaching of science by arranging visits to the following places:

- The Hong Kong Wetland Park and the Kadoorie Farm & Botanic Garden, which provide guided educational visits for students to appreciate the nature and to enhance their awareness of the need for environmental conservation;

- The Hong Kong Science Museum and The Hong Kong Space Museum, which provide comprehensive exhibits and interesting hands-on activities for students, who may acquire hands-on experiences in observation and data-recording through performing simple investigations;
- Health InfoWorld (the health promotion and publicity section of the Hong Kong Hospital Authority), which has built up good connections with various organisations in the health and medical fields and provides a wealth of resources for students on topics related to health; and
- Nature reserves, country parks, marine parks and other local habitats. With community support, a wide range of learning opportunities is also available for students, e.g. science lectures, science invention competitions, science projects, science exhibitions, field trips, laboratory research and experiments.

Examples of LWL

STEM Education in Secondary School

The STEM-related events/activities proposed in the school development plan in the initial stage are based on the past experiences of the school, which include:

- An annual STEM Day/Week for which relevant KLAs will collaborate and organise exhibitions, quizzes, workshops, talks, etc. to arouse students' interest in STEM-related fields;
- The existing interest groups such as the Science Club, the Computer Club and the Mathematics Club are combined to form a STEM Club;
- Teachers of STEM-related KLAs are requested to collaborate and guide students on organisation of activities with more emphasis on cross-disciplinary knowledge and skills;
- STEM-related projects are planned for students regularly and each student is required to complete, at least, one STEM-related project during its study in the junior secondary level;
- More opportunities are arranged for students to participate in STEM-related competitions both within and outside the school. The winners within the school will be nominated to participate in relevant national and international competitions; and
- A small STEM corner is set up to showcase the students' inventions, relevant prizes won, news and photos of recent STEM events by the school, interesting science toys, news clips about recent advancement of science and technology in

the world, etc. This STEM corner is open to all students during normal school hours.

Source from Science Education Key Learning Area Curriculum Guide (Primary 1 - Secondary 6) (CDC 2017)