Preface
Science is the study of events and phenomena in the natural world through observation and experimentation. We believe that students should be cultivated with curiosity and interest about the world and we need to enhance their scientific thinking through learning science. Science education in our school provides learning experiences through which students nurture interests and acquire scientific literacy. By means of scientific investigation and enquiry, students are expected to develop scientific knowledge and the method of science. Systematic inquiries in the curriculum prepare our students to deal sensibly with problems, and this often involves evidence, quantitative considerations, logical arguments, creativity and uncertainties. To lead a fulfilling and responsible life, our students need to be able to learn, reason, think creatively, make informed decisions, and solve problems. In order to develop students' capability for lifelong learning, maintaining their sense of wonder about the world around them is also very important.

Objectives
Science education in our school aims to enable students to:
1. develop the interest, curiosity and experience the challenge in science;
2. acquire knowledge and understanding of concepts in various streams of science;
3. develop the skills in conducting scientific investigation and problem solving;
4. foster scientific mind and the language as well as skills to communicate ideas in the contexts related to science;
5. evaluate the usefulness and limitation of science in solving daily life problems;
6. participate in public discourse and arguments in societal science issues and make decision based on evidence; and
7. recognize the interconnections between science, technology and society and develop respect to the environment and the concern towards the impact brought by the application of scientific technology.

Importantly, to keep abreast of the needs of the fast developing knowledge-based society in the 21st century, science education in our school also enables students to acquire the generic skills and higher order thinking skills for lifelong learning. We believe that students who are equipped with scientific habit of mind can deal sensibly with problems which involve evidence, quantitative considerations, logical arguments, creativity and uncertainties. The understanding of science and the associated process skills can guide students to co-operate, reason, think critically, make decision and solve problems. As one of the key learning areas in the LKKC school curriculum, science education aims to develop students’ capability for lifelong learning while maintaining their sense of wonder about the world around them.
Learning and Teaching Strategies of Integrated Science in LKKC

To realize the above-mentioned aims, strong emphasis is put on building a strong foundation on the skills and rationale of scientific investigation in Integrated Science lessons from Form 1 to 3. Various crucial skills facilitating communication, co-operation and argumentation are also introduced via well-designed classroom activities in junior science. The strategies aim at arousing students’ interests and at the same time equipping students with the necessary skills appropriate for studying Integrated Science, Physics, Chemistry and Biology in senior forms. Apart from acquiring good understanding of scientific knowledge and methods of science, senior students are provided with opportunities inside and outside the classroom to consolidate their concepts and evolve the essential skills for science and lifelong learning to a more sophisticated level.

(A) Promoting scientific thinking and active participation in scientific investigation

Scientific investigation allows scientists to actively create, modify, or discard an explanation for a phenomenon. Students should learn how to carry out scientific investigation, not just learn about the facts/concepts which are the products of investigation. Our students in all forms, especially for the students in NSS Integrated Science, have been given sufficient opportunities to acquire the science process skills, including observing, classifying, measuring, handling equipment and apparatus, inferring, predicting, hypothesising, interpreting and analysing, in experimental work in the laboratory. The mastery of these science process skills will enable students to carry out scientific investigation by themselves.

1. The concept and importance of scientific thinking in understanding the physical world is to be introduced and reinforced in junior forms.

2. Students have to perform scientific investigations on selected topics in different forms at different levels of difficulty. Senior form students have to ask relevant questions, to pose and define problems, to formulate hypotheses, to plan what to do and how to research, to predict outcomes, to conduct experiments, to interpret results, to draw conclusions and suggest ideas for improvement.

3. The performance of students in scientific investigation will be part of the formative assessment of the students in all forms.
**B) Nurturing interest in science**

It is important to nurture students’ interest in science learning. Students are generally intrigued by new things. They are interested in problems that puzzle them and have a natural urge to find solutions to settle them. Activities should be made relevant to daily life, so that students will experience science subjects as interesting, relevant and important to them.

1. Learning programs including popular science lectures, debates and forums, field studies, museum visits, invention activities, science competitions, science projects and science exhibitions which allow students to be actively engaged in the learning process, are effective ways to motivate learning and to develop generic skills.

2. Every year, all Form 2 students visit the Science Museum in Tsim Sha Tsui. Students achieve self-learning by completing different tasks assigned to them in the work-sheets. They learn a lot by studying the exhibits and models in the Museum as well as by performing some of the experiments on display themselves.

3. Every year, students and teachers take part in a two-day camp jointly organized by the Science Club and the Astronomy Club. In the camp, students and teachers are mixed up and divided into groups for various activities and competitions. By staying together all the time and by participating in the activities, competitions, star observations, talks and lectures in the camp, students learn co-operation, communication skills, thereby enriching their knowledge of science.

**C) Teachers’ preparation**

Teachers of Integrated Science are recruited with expertise in the Physical, Chemical or Biological Sciences. As such, the interdisciplinary themes of the I.S. curriculum can be explored and transformed into classroom strategies and lesson designs with relevance to our already established framework of science pedagogies and facilities. Meetings of collaborative lesson planning have become a professional development routine for teachers involved.

**The Road Ahead**

The aim of Integrated Science curriculum is to empower students to be inquisitive, reflective and critical thinkers through participation in a range of science learning experiences, so that they develop a level of scientific literacy that will permit them to participate in scientific discussion in our rapidly changing knowledge-based society, prepare for further study or a career in fields where a knowledge of science will be useful, and become lifelong learners in science and technology.