1. Ultimate goals

The subject Biology aims at contributing to the achievement of the School Mission. The goals of this subject are dividing into two levels.

2. Year Focus

(a) Aims aligning with School’s Development Project
- To improve the academic performance
- To reinforce the using of IT in teaching and learning

(b) Major Targets
- To develop collaborative lesson planning
- To develop better Classroom observation
- To reinforce the using of IT in teaching and learning

(c) Targets of different groups of students

Form 3 to 5

1. To establish basic biological concepts through the course of study.
2. To encourage careful observation and analysis of data through experimentation.
3. To increase students' awareness of the social implications of biological knowledge and ideas.
4. To equip students to obtain satisfactory results in HKCEE.

Lower & Upper 6

1. To encourage biological studies in a broad sense and in relation to the needs of mankind.
2. To enable students to acquire knowledge and understanding of basic biological principles.
3. To encourage careful observation, recording, planning, performing and handling of the results from simple experiments and to develop ability to assess new situations in the light of the scientific results.
4. To develop students’ power to think creatively, analyze critically and scientifically on biological issues and to make rational decisions.
5. To develop students' awareness of and concern for biological issues in social, environmental and technological contexts.
6. To equip students to obtain satisfactory results in HKALE.

3. **Internal Analysis**

   **A. Strengths**
   1. The teachers in the department are competent, hardworking and enthusiastic in teaching, and sincere in helping pupils in learning. They are willing to take part in seminars concerning subject matters so as to update their biological knowledge. The teachers are willing to share their ideas and experience.
   2. Teachers always prepare a lot of notes, exercises and test materials.
   3. The Department keeps a stock of relatively sufficient teaching materials including wall charts, video tapes, teaching kits, reference materials, models, micro-slides, preserved specimens, CD-ROM & DVD ROM, question bank, PowerPoint files, video clips and transparencies.
   4. The laboratory is equipped with an overhead projector, two screens, a 29” TV set with VCR, a microscopic connected to the computer for video and graphic capturing and a LCD projector. These have facilitated both teaching and learning more effectively and efficiently.
   5. Models and audio-visual aids can also be more fully utilized to arouse students' interest in biology and help students understand better some biological concepts.
   6. The laboratory technician is helpful in maintaining the laboratory in good condition and in preparing the apparatus for the experimental work. Besides, he keeps a good stock for the laboratories.

   **B. Weaknesses**
   1. Students are weak to recall English biological terms and concepts.
   2. Students are very dependent on teachers and materials given by teachers. They are mostly “examination-oriented”, thus lacking self-initiative in exploring book knowledge and information from other sources.
   3. Some students lack initiative in learning. Some may be late in submitting homework or have no intention to do practical work but wait for answers. They are not used to recording the results during the practical lessons. Some have short concentration span.
4. Objectives

A. Knowledge and understanding

(i) Students will acquire knowledge and develop understanding of

1. the nature of biology;
2. biological terms, biological concepts and principles;
3. biological practical techniques
4. the skills required of studies and examination in higher form.
5. the applications and uses of biology in everyday life
6. the implications of biology for society and the environment;
7. current issues and developments in biology; and
8. the historical development of biological concepts.
9. the skills to find the biological resources in the internet.

(ii) Teachers should take courses to upgrade themselves.

B. Scientific Process Skills

Students will acquire or develop the following skills so that they can study biological phenomena through the scientific process:

1. developing scientific thinking and problem-solving skills;
2. recognising biological problems; such problems are often characterised by the presence of a range of interacting variables;
3. planning and performing investigations; formulating working hypotheses and devising tests for them, using controls where appropriate;
4. searching, collecting and organising information from various sources; communicating and presenting them in a clear and logical form; and evaluating and applying them to solve problems in familiar and unfamiliar situations;
5. analysing and interpreting data, and extrapolating from them;
6. observing and describing objects and phenomena accurately;
7. interpreting drawings and photographs of biological structures;
8. formulating generalisations in the light of both first-hand and second-hand evidence;
9. using instruments and apparatus to the limits of accuracy appropriate to a given problem; and
10. performing common laboratory techniques and handling chemicals, instruments,
apparatus and biological materials carefully and safely.

C. Values and Attitudes

Students will develop the following values and attitudes:

1. an interest and enjoyment in studying living organisms and their interrelationships;
2. a responsible regard for both the living and non-living components of the environment;
3. ethical behaviour;
4. a critical and inquiring mind;
5. an objective attitude towards evidence;
6. a positive attitude in discussing biological issues in personal, social, economical, environmental and technological contexts;
7. an awareness that the body of biological knowledge is not static; and that experimental and investigatory work are important for its advancement;
8. an awareness of the need for appropriate safety procedures;
9. an awareness of both the usefulness and limitations of hypotheses in making predictions and explaining biological phenomena; and
10. a desire for critical evaluation of the consequences of the applications of science and recognising their responsibilities to conserve, protect and maintain the quality of all environments for future generations.

D. Laboratory management

Laboratory Technician is able to

1. keep good stock of the laboratory apparatus and equipment.
2. keep a good quality of these things.
3. replace them if needed.
4. communicate effectively with teachers.
5. keep a clean, hygienic and safety laboratory.
## 5. Implementation plan

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Measures</th>
<th>Implementation period</th>
<th>Performance indicator</th>
<th>Evaluation tool</th>
<th>Support</th>
<th>teacher-in-charge</th>
<th>EMB indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A(i)2, B1</td>
<td>Students will be asked to do problem-solving questions in class right after each topic.</td>
<td>9/2006-6/2007</td>
<td>Student can finish all the classwork</td>
<td>School homework computer system</td>
<td>PKY</td>
<td>TKC, LMY</td>
<td>2.5</td>
</tr>
<tr>
<td>2. A(i)2</td>
<td>Tests will be given to students right after each topic.</td>
<td>9/2006-6/2007</td>
<td>Passing rate in regular tests: F.3(60%), F.4(50%), F.5(40%), F.6(75%), F.7(80%) Passing rate in internal Exams: F.3(60%), F.4(50%), F.5(45%), F.6(70%), F.7(80%)</td>
<td>School mark evaluation system</td>
<td>TKT</td>
<td>TKC, LMY</td>
<td>2.5</td>
</tr>
<tr>
<td>3. A(i)4</td>
<td>Handouts on question words and answering skills will be given to students. Discussion will be made so that students can answer concisely and precisely</td>
<td>9/2006-6/2007</td>
<td>90% of the students find it useful at the Subject Evaluation.</td>
<td>Subject evaluation questionnaire</td>
<td>Jacky</td>
<td>TKC, LMY</td>
<td>2.3</td>
</tr>
<tr>
<td>4. A1, C1, C3</td>
<td>Teachers will use various types of teaching aids, including videotapes, models, slides, PowerPoint slides and other multimedia software.</td>
<td>9/2006-6/2007</td>
<td>80% of the students find it useful at the Subject Evaluation.</td>
<td>Subject evaluation questionnaire</td>
<td>Jacky</td>
<td>TKC, LMY</td>
<td>2.3</td>
</tr>
<tr>
<td>5. B1, B3, C9</td>
<td>Classroom teaching will be supported with practical lessons.</td>
<td>9/2006-6/2007</td>
<td>20% classroom teaching is supported with practical lessons. Recorded by the lab technician.</td>
<td>Lab recording report</td>
<td>CKH</td>
<td>TKC, LMY</td>
<td>2.3</td>
</tr>
<tr>
<td>6. D5</td>
<td>Teachers will remind the students about the laboratory safety at the beginning of each term and demonstrate the skills in handling equipment and chemicals in the laboratory.</td>
<td>9/2006-6/2007</td>
<td>A total of 10 cases reporting on broken glass wear occur. No accident occurs in laboratory</td>
<td>Accident report</td>
<td>CKH</td>
<td>TKC, LMY</td>
<td>2.2</td>
</tr>
<tr>
<td>7. C8</td>
<td>Reward students who are capable of communicating their knowledge effectively. F.4 students start to be trained in this area so as to prepare in public examinations. 2 marks will be allocated in the final examination of F.4 and each examination in F.5. Therefore, teachers will set some questions that require lengthy answers.</td>
<td>9/2006-6/2007</td>
<td>10% students can get 1 mark</td>
<td>Teacher’s record</td>
<td>TKC, LMY</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>8. A6,7, B, C3,6,10</td>
<td>L6 students are required to design and construct projects about STS.</td>
<td>February</td>
<td>All students can score 70 marks for their report.</td>
<td>Teacher’s record</td>
<td>TKC, LMY</td>
<td>2.5</td>
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<tr>
<td></td>
<td></td>
<td>Assignment will be given during long holidays. Exercise books will be recommended to students in order to reinforce and evaluate the concepts learnt.</td>
<td>Long holidays</td>
<td>All students submit their homework on time.</td>
<td>School homework computer system</td>
<td>TKC, LMY</td>
<td>2.5</td>
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<tr>
<td>10</td>
<td>A(i)2, A(i)4</td>
<td>F5 students need to do past HKCEE papers right after each topic. Teachers will discuss with students their common mistakes in doing various types of questions.</td>
<td>9/2006-6/2007</td>
<td>All students will do past papers right after each topic.</td>
<td>Teacher’s record</td>
<td>TKC, LMY</td>
<td>2.5</td>
</tr>
<tr>
<td>11</td>
<td>A(i)2, A(i)4</td>
<td>Teachers will organize supplementary lessons and tutorial for their class(es) or groups of students in holidays or after school in order to raise academic achievement of senior-form students (F.4 to 7).</td>
<td>9/2006-6/2007</td>
<td>Two supplementary lessons and tutorial for each F.4 to F.7 classes in holidays</td>
<td>Teacher’s record</td>
<td>TKC, LMY</td>
<td>2.3</td>
</tr>
<tr>
<td>12</td>
<td>A(i)5,6,7,8,9</td>
<td>Useful and related websites will be introduced to students</td>
<td>9/2006-6/2007</td>
<td>10 related websites will be introduced to students. They will be evaluated at the Subject Evaluation.</td>
<td>eclass</td>
<td>TKC, LMY</td>
<td>2.3</td>
</tr>
<tr>
<td>13</td>
<td>A(i)2,7,8,9, A(ii)</td>
<td>Five e-classes will be set up in F.3 and F.7</td>
<td>9/2006</td>
<td>Five e-classes will be set up from F.3 to U6</td>
<td>eclass</td>
<td>IT team</td>
<td>TKC, LMY</td>
</tr>
<tr>
<td>14</td>
<td>B</td>
<td>Some practical lessons require the students to take notes or results. Marks will be given.</td>
<td>9/2006-6/2007</td>
<td>All students can finish and submit their reports.</td>
<td>School homework computer system</td>
<td>TKC, LMY</td>
<td>2.3</td>
</tr>
<tr>
<td>15</td>
<td>B, C</td>
<td>Two visits or field trips will be launched to F.6 students. Reports will be handed in after the field trips.</td>
<td>9/2006-6/2007</td>
<td>Two visits or field trips can be launched to F.6 students. Report will be handed in after the field trips.</td>
<td>Teacher’s record</td>
<td>CKH</td>
<td>TKC, LMY</td>
</tr>
<tr>
<td>16</td>
<td>A(i)4,5,6</td>
<td>Students need to attend one academic seminar or talk</td>
<td>9/2006-6/2007</td>
<td>Students can attend one academic seminar or talk.</td>
<td>Teacher’s record</td>
<td>TKC, LMY</td>
<td>2.3</td>
</tr>
<tr>
<td>17</td>
<td>B</td>
<td>Guidelines on TAS will be given to F.6 students at the beginning of the term</td>
<td>9/2006</td>
<td>All students find it useful at the Subject Evaluation.</td>
<td>Subject evaluation questionnaire</td>
<td>Jacky</td>
<td>TKC, LMY</td>
</tr>
<tr>
<td>18</td>
<td>A(ii)</td>
<td>Teachers need to take courses to upgrade themselves.</td>
<td>9/2006-6/2007</td>
<td>A total of 6 seminars / workshop or training courses are attended.</td>
<td>e-service</td>
<td>TKC, LMY</td>
<td>1.6</td>
</tr>
<tr>
<td>19</td>
<td>A(ii)</td>
<td>Collaborative lesson planning</td>
<td>9/2006-6/2007</td>
<td>Teachers attend all the session.</td>
<td>Teacher’s survey</td>
<td>TKC, LMY</td>
<td>1.5</td>
</tr>
<tr>
<td>20</td>
<td>A(ii)</td>
<td>Classroom observation</td>
<td>9/2006-6/2007</td>
<td>Teachers attend all the session.</td>
<td>Teacher’s survey</td>
<td>TKC, LMY</td>
<td>2.1</td>
</tr>
<tr>
<td>21</td>
<td>D</td>
<td>A supportive laboratory can be maintained.</td>
<td>9/2006-6/2007</td>
<td>All teachers and students think the management of lab is satisfactory at the Subject Evaluation.</td>
<td>Subject evaluation questionnaire</td>
<td>Jacky</td>
<td>TKC, LMY</td>
</tr>
</tbody>
</table>
6. Budget

<table>
<thead>
<tr>
<th>Items</th>
<th>Related objectives</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Reference books</td>
<td>A, B and C</td>
<td>$3000</td>
</tr>
<tr>
<td>2. Laboratory consumable items</td>
<td>B</td>
<td>$4900</td>
</tr>
<tr>
<td>3. CD-ROMs and DVD ROMs</td>
<td>A and C</td>
<td>$500</td>
</tr>
<tr>
<td>5. Replacement of aging / damaging equipment and apparatus</td>
<td>B, D</td>
<td>$2000</td>
</tr>
<tr>
<td>6. Addition of new equipment and apparatus</td>
<td>B, D</td>
<td>$20000</td>
</tr>
<tr>
<td>7. Excursion / Seminar</td>
<td>B and C</td>
<td>$2500</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$33400</strong></td>
</tr>
</tbody>
</table>

7. Program team

1. Mr Tsang Ko Cheung (TKC, Team leader)
2. Miss Li Ming Yi (LMY)
3. Mr Chan Kwan Hing (CKH, Lab Technician)