

**MATHEMATICS**

**I. AIMS**

1. Basically followed the CDC Mathematics syllabus to attain the following aims:
  - (i) To introduce to students necessary basic mathematical concepts, to continue the development of numeracy and spatial senses, and to help students acquire and apply the related skills.
  - (ii) To provide, at all levels, more experience with numbers, symbolic algebra, geometrical figures and their underlying principles involved.
  - (iii) To prepare students to understand and master applications of mathematics in daily life, and can nurture dynamic and open mind in facing problems
2. To cultivate among students an interest in mathematics.
3. To encourage students who have ability and interest in mathematics to pursue further and develop their potentials.
4. To arouse students a sense of appreciation in the work of mathematics of mankind.
5. To cultivate and acquire students with the following attitudes and skills:

<b>Attitudes</b> <ol style="list-style-type: none"><li>1. interest and enjoyment in studying the subject</li><li>2. appreciation over mathematics as a valuable human heritage and wisdom of mankind.</li><li>3. application of mathematics into our daily real life</li><li>4. appreciation of the working of some famous mathematicians, understanding of some of their history and attitudes.</li><li>5. find the subject useful to them, have confidence in facing the subject.</li></ol>
<b>Practical skills</b> <p>Students should be able to:</p> <ol style="list-style-type: none"><li>1. Think and analyze problem logically and independently.</li><li>2. Inductive and deductive thinking skill.</li><li>3. Break down problems and gain problem solving techniques.</li><li>4. gain the ability of making analogy on observation of pattern , making inference and reasonable determination.</li><li>5. work accurate mathematical calculation, look through and understand geometrical objects, manage and handle statistical data.</li></ol>

**II. SITUATIONAL ANALYSIS**

**A. Strengths**

1. Students have comparatively higher confidence in the subject, and some are willing to attempt and follow teachers' instructions.
2. The teachers are enthusiastic over the subject and the teaching of it, they fulfill their work and often take initiatives to try out new ideas in teaching and share the experience with others.
3. The panel possesses sufficient teaching resources and facilities. ( e.g. reference, IT tools, project model, demonstrative softwares, etc. )
4. Senior form students are able to help junior form students to serve as assisting tutor and also give help in extra-curricular training activities.

**B. Weaknesses**

1. Students, especially in junior forms, are quite weak in algebraic manipulations.
2. Students are passive in learning and some are rather lazy and not attentive.
3. Students' expectations of their performance are lower than their actual abilities.
4. Students tend to study the subject by memorization and factual recall, lack of the cognitive aspects and comprehension of it.
5. Some students have difficulty in learning through EMI.
6. Time resource is very tight in the panel.

### III. MAJOR CONCERNS 2008-09

Committee/Subject Major Concerns	Address to School Major Concern
1. To enhance students' reading and comprehensive ability, they are able to do problem solving in English medium. Arouse interest in the subject through reading; broaden the horizon and exposure in the subject.	to enhance the use of English inside and outside the classroom
2 To promote self-access learning and acquire necessary mathematical skills and logical, analytical thinking dynamically, facilitate the learning of the subject for various levels of ability.	To strengthen students' confidence and independence in academic and non-academic areas
3 To prepare for the school NSS curriculum and to develop teachers' professionalism	Addressing to the School 3 <sup>rd</sup> Major Concern.

### IV. OPERATIONAL STRATEGIES

Task	Description	Expected Outcomes	Success Criteria/ Evaluation Method	Time Scale	Resources Required/ Budget	Person-in-charge
<b>Major Concern 1: To enhance students' reading and comprehensive ability through the English medium of learning</b>						
1 Reading to learn	Recommended readers for interest, IQ training or historical works and theorems of some mathematicians, introduce some interesting articles or books through the E-class	Book report or sharing by students on pre-assigned contents. Their exposure over the subject or horizon	Able to finish or understand the or the application of the reading materials	Oct 08- May 09	Sufficient classified reading materials. Good recommended list of readings	panel + all teachers IT coordinator ( E-class)
2 Upgrade English Proficiency/ EMI	Offer bridging program for F.1 students.	Facilitate learning through the program and its activities.	Ss can understand through EMI, and no blocking in communication and perceiving learning concept Ss are confident to ask and answer questions	Whole year	Textbook Worksheets for The bridging Program. Reference Dictionary.	All form Teachers
	- Glossary table. - Cross-word puzzle - Matching games.	Learning more Basic terms in the subject.				
	Group discussion, oral Presentation.	Ss can express clearly, confidently				
<b>Major Concern 2: To promote the independent learning and acquire subject knowledge and mathematical skills through various levels of abilities</b>						
1 IT in interactive learning & teaching	1. Subject based or related websites visiting 2. Conducting lesson with aids of PowerPoint 3. Mathematical softwares to facilitate learning. 4. Encourage Ss to work online test and exercises.	- Using websites, Math softwares, PowerPoint to assist teaching. Better demonstration - Ss access related websites for interest and self-inquiry.	Ss can learn more effectively, with deeper impression or better comprehension Facilitating stronger motivation for learning.	Whole year	Sufficient resources on web.. PowerPoint set Math softwares CD-ROM, Test banks and Self assessment System Online exercises. or test	IT coordinator LOKL in panel + all teachers
2 Project learning	F.1: Statistics project F.2: Trigonometric survey F.3: 3-D model making ( or some other assigned topics ) Senior students : Presentation of assigned math topics	Students gain learning experiences such as collaborative working and all related necessary generic skills.	Meet the purpose of the project and Show the quality product under collaborative work Ss reveal good an positive feedback on project.	Nov 08 –Jan 09  Apr09- May09	- IT support. -Demonstration models Reference provision - Storage spaces	Form Coordinator + all teachers+ LKL
3 Integrating moral and civic education	Selected topics in the subject to infuse civic & moral education.	Ss learn positive values and correct personal judgments.	Ss show positive responsible value judgments, respect to others' opinions	Whole year	Reference materials, some discussion issues	All form Teachers + LKL
4 Upgrading high achievers	- Provide extra drillings - Provide greater learning exposure and dimension - HKMO training team - Gain external open contest experience	Greater independent learning stronger motivation and problem solving ability.	Ss have built-up confidence. Greater exposure HKMO question techniques	Whole year	- Extra training time HKMO question - Competition participation. -Awards to Ss	LKL TCW FKL YKK
5 Improving low achievers	- Setting up of the Math Clinic and mobilizing more capable student nurses to help. - Supplementary classes. - Small group learning. - Consolidate Basic questions coping techniques	Improvement of the Low achievers in both academic and learning attitudes	- Time of teachers - Ss are willing to learn and improve gain basic techniques	Whole year	- Financial support. - Time resources - Enough manpower. - External tutors	Math Clinic Coordinator HSS LMY WWL LCS

Major Concern 3: To prepare teachers well for the implementation of the New Senior Secondary Curriculum and upbringing teaching profession.						
Staff development	Preparing colleagues for the NSS curriculum, attending necessary seminars / workshops,	Colleagues are familiar to and know the details and requirement of the NSS curriculum	Related colleague attended enough amount of relevant seminars, workshop or talks	Whole year	- Training information from EMB or relevant organizations - Availabilities of time of teachers	All teachers ready to teach up to senior forms
		implementing NSS curriculum as trial run.	Gathering enough necessary information or teaching techniques to be equipped with			
Pedagogical innovations	- Review curriculum - Review teaching Methodologies or techniques - Accommodate new approaches of learning and teaching.	- Meet the changing trends of Math - Education, infuse New approaches in the subject in teaching and learning	- Have enough resources, time, manpower and - Innovative insights - Mature and broad viewpoints	Whole year	References Math journals & Activity books, Related websites External seminar Or workshops  Enrich insights and sharing	LKL + All teachers
Others						
1 Administration	Routine work : - panel duties : reporting, budgeting, evaluating, foresee and review, staff appraisal. - panel meetings - lesson observation & - Filing of documents & Resources	Effective and Smooth running and well organization Good documentation and evaluation, strategies for making development	- Good allocation and effective team work, - Good communication among Staff. - Enough School level supports	Whole year	- Good team work - School level Support - IT support - Adequate Financial supports	LKL + Form Coordinators
		Staff development - Attending seminars or workshops - staff communication and ideas sharing. - External communication	- Sharing teaching ideas, methodologies & experiences - Upgrading staff teaching competency	Staff team more professional, mature and deeper insight on mathematics education and teaching.	Whole year	Seminars and training workshops from EMB or relevant organizations
2 Homework Policy & Quizzes	- Regular exercises & assignments to Ss - Chapter quizzes for consolidation	Ss accomplish assigned work and gain enough consolidation and revision over working, practicing and quizzes	- Ss can solve and successfully tackle problem encountered based on the theorems, skills or methods they learnt - Teachers' frequent & quality markings, follow-up and feedbacks.	Whole year	Textbook Workbook Worksheets CD-ROM Web materials Extra exercises  Quizzes : Test banks References Online quizzes	LKL + all teachers
3 Extra-curricular activities	- Mathematics Society - Marh competition. - Math games -topic enriching - Math talk - IQ games for fun -off-campus activities(e.g. exhibition )	- Cultivating interest and introducing math through activity approach	- Participation - Feedback on Ss - Interest over the activities.	Oct 08- Dec08  Feb 09 – May 09	- Financial support - Time - manpower and students leaders.	LKL + all teachers

## V. EVALUATION

Focuses	Ways of Evaluation and indicators
1. Students' learning progress	i. students' performance in using newly taught concepts and solving problems ( teachers' observations in daily classroom teaching.) ii. the performance of low-achieving students after they have received remedial instructions ( teachers' observations in daily classroom teaching) iii. continuous assessment through homework and quizzes.
2. Students' effort in learning Mathematics	i. completion of assignments , responses over the lessons on questions raised by teachers. ii. satisfactory attainment in the tests and examinations.

3. Students' academic achievement	<ul style="list-style-type: none"> <li>i. the results of internal and external examinations.</li> <li>ii. the result of attainment tests. ( inter-school basis )</li> <li>iii. Academic awards.</li> </ul>
4. Evaluation on teaching progress and students' performance.	<ul style="list-style-type: none"> <li>i. Class visits</li> <li>ii. Regular form-meetings and panel meetings</li> <li>iii. Students' responses and their motivation on the lessons.</li> </ul>
5. Exchange of ideas and teaching experience	<ul style="list-style-type: none"> <li>i. regular form-meetings and panel meetings</li> <li>ii. Class visits</li> <li>iii. Seminars or interflow workshops</li> </ul>
6. EMI in teaching.	<ul style="list-style-type: none"> <li>i. regular form-meetings and panel meetings</li> <li>ii. % of using English in the lesson.</li> <li>iii. Students' responses.</li> </ul>
7. Extra-curricular Training	<ul style="list-style-type: none"> <li>i. Responses of students towards activities ( observation by Teachers in activities. )</li> <li>ii. Attendance of students and their involvement</li> </ul>

## VI. TEAM MEMBERS

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|----------------------------|--------|--------------------------|
| 1. Mr. Lee Ka Luen         | (LKL)  | [Head]                   |
| 2. Mr. Tang Chun Wai       | (TCW)  | [Lower Form Coordinator] |
| 3. Mrs. Yip Lo Ka Lai      | (LOKL) |                          |
| 4. Mrs. Choo Ho So Sheng   | (HSS)  |                          |
| 5. Mr. Yau Ka Kui          | (YKK)  |                          |
| 6. Mrs. Yim Lo Mei Yee     | (LMY)  |                          |
| 7. Mr. Leung Chun Kit      | (LCK)  |                          |
| 8. Mr. Fung Kai Lun        | (FKL)  |                          |
| 9. Mrs. Chan Wong Wing Lam | (WWL)  |                          |
| 10. Mr. Lau Chi Shing      | (LCS)  |                          |