



Curriculum Planning

**Mathematics Education Section
Education Bureau**

Curriculum Planning

- The NSSMC allows flexibility for curriculum adaptation
- Schools may develop a coherent school-based curriculum emphasising the active role of students in the learning process to provide a rich variety of experiences and a balanced repertoire of mathematical knowledge and skills

Guiding Principles

In considering their schools-based curricula, schools and teachers are encouraged to consider:

- The cognitive development of students
- Students' prior knowledge, abilities and inclinations
- Post-secondary pathways of students
- Coherent of the curriculum
- Use of IT
- Assessment for learning
- Flexible time-tabling

Curriculum Planning Strategies

- School-based Curriculum Planning
- Cross-curricular links

School-based Curriculum Planning

Schools and teachers are encouraged to adapt the central curriculum and develop their own school-based curricula through varying

- Content, contexts and examples
- Learning and teaching strategies
- Pace of learning and teaching
- Modes of assessment

In designing school-based mathematics curricula, schools are encouraged to:

- Set and work on clear and manageable aims and targets taking into account the school contexts and the overall aims of the NSSMC
- Allow students to select modules in the Extended Part and group students into different classes
- Adapt the depths of treatment of the learning objectives and the logical coordination of the learning content
- Allow suitable and flexible lesson time for different groups of students for the Compulsory Part and the modules across year levels
- Choose and adapt appropriate textbooks and other learning resources
- Set and work on learning activities to be carried out in the school year
- Set and work on the methods and modes of assessment

Cross-curricular Links

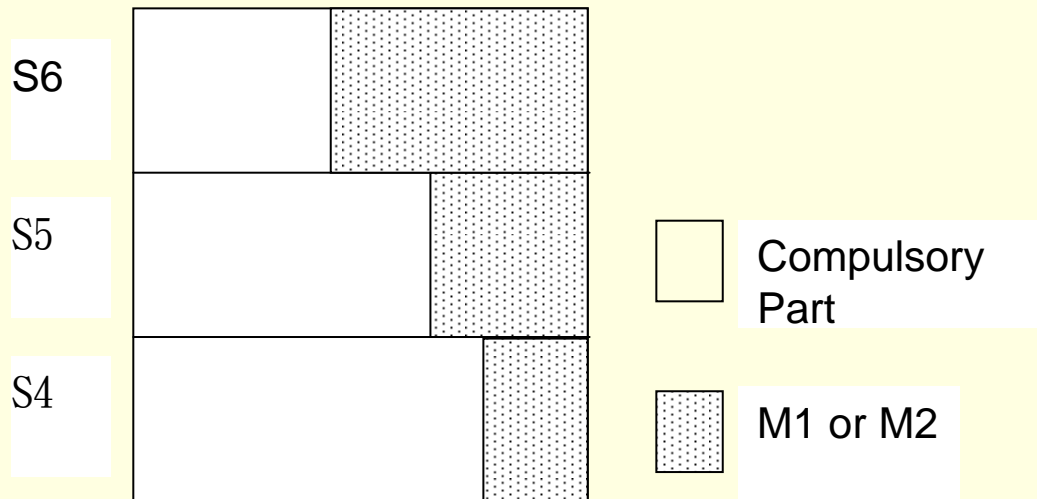
- The NSSMC provides students with
 - a foundation for understanding concepts and carrying out investigations
 - a tool for making inferences and analysing data
 - a language for presenting findings and constructing models
- Mathematics teachers should collaborate with teachers of other KLAs to set achievable goals, draw up schedules of work, design learning and teaching activities, so that students can apply their mathematics knowledge in different contexts

Progression of learning

- Schools do not have to spread the allocated lesson time uniformly over the 3 years
- Schools may arrange the lesson time flexibly according to the needs of different classes

Flexible time allocation

- For classes taking Compulsory Part with 1 module, schools may start the learning and teaching of the Compulsory Part and the module at the same time
- If teachers find it inappropriate for their students to start the module at the beginning of S4, teachers may make use of most of the allocated lesson time in S4 to teach the Compulsory Part first



Studying mathematics-related elective subjects and Applied Learning courses

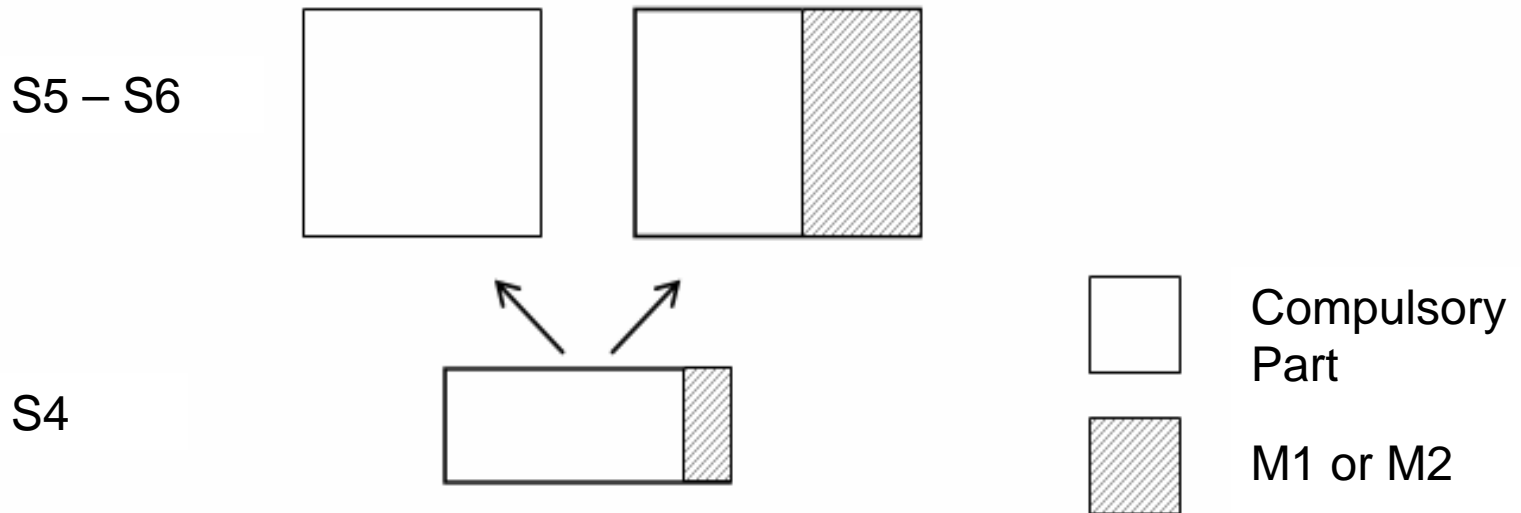
- Teachers may allocate more lesson time in S4 and relatively less lesson time in S5 and S6 on Mathematics to facilitate the learning and teaching of the elective subjects or the Applied Learning courses concerned

Change of module at S5

- Teachers may focus more on the Compulsory Part in S4
- Students did not select the module at the start need not spend too much time and effort in catching up on the areas of the module which have not been covered
- For those students who decide to drop the module in S5, the influence on their studies will be minimum

A ‘Taster’ of a module in S4

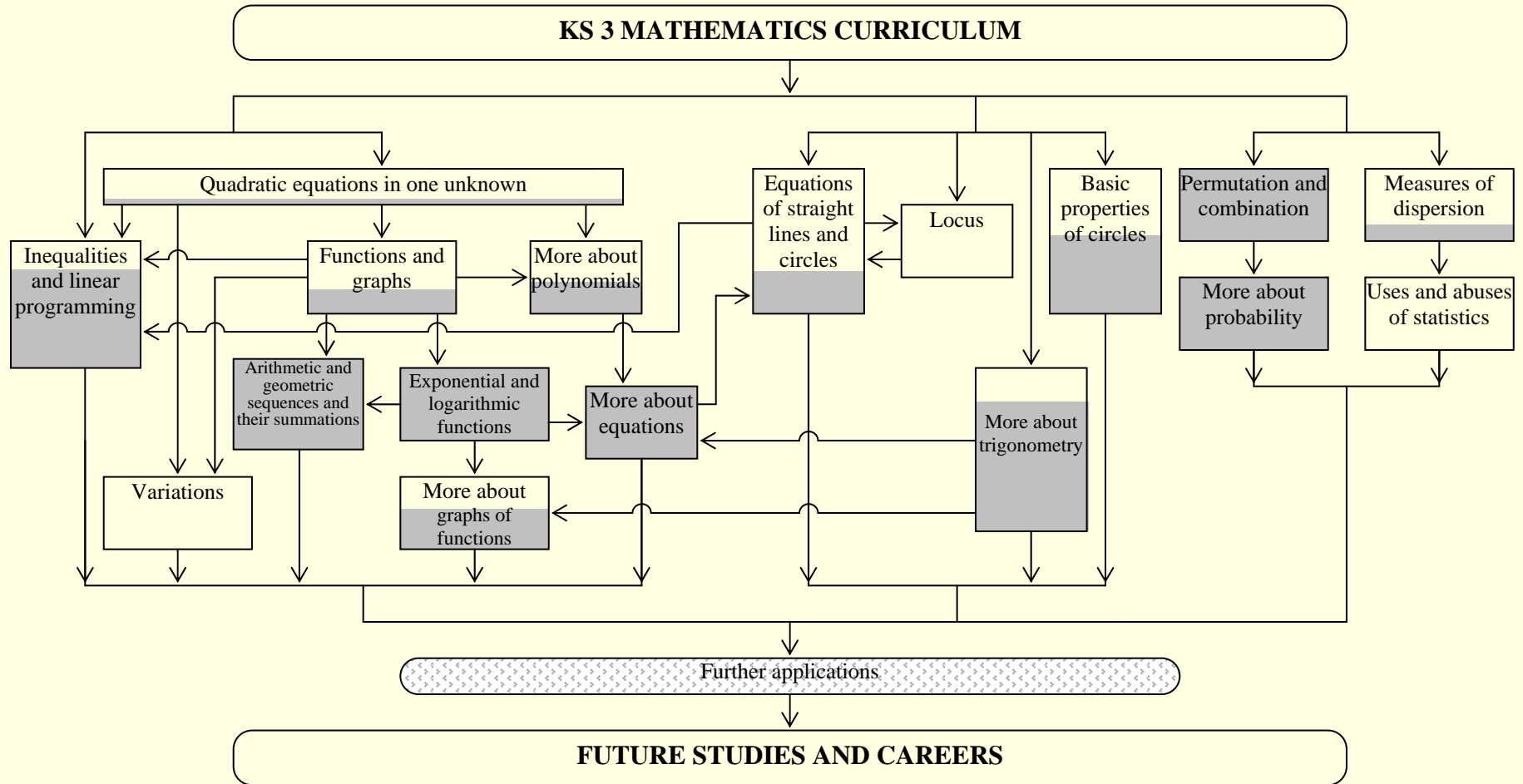
- A small portion of the lesson time may be allocated to the study of a module in S4



Sequence of learning and teaching

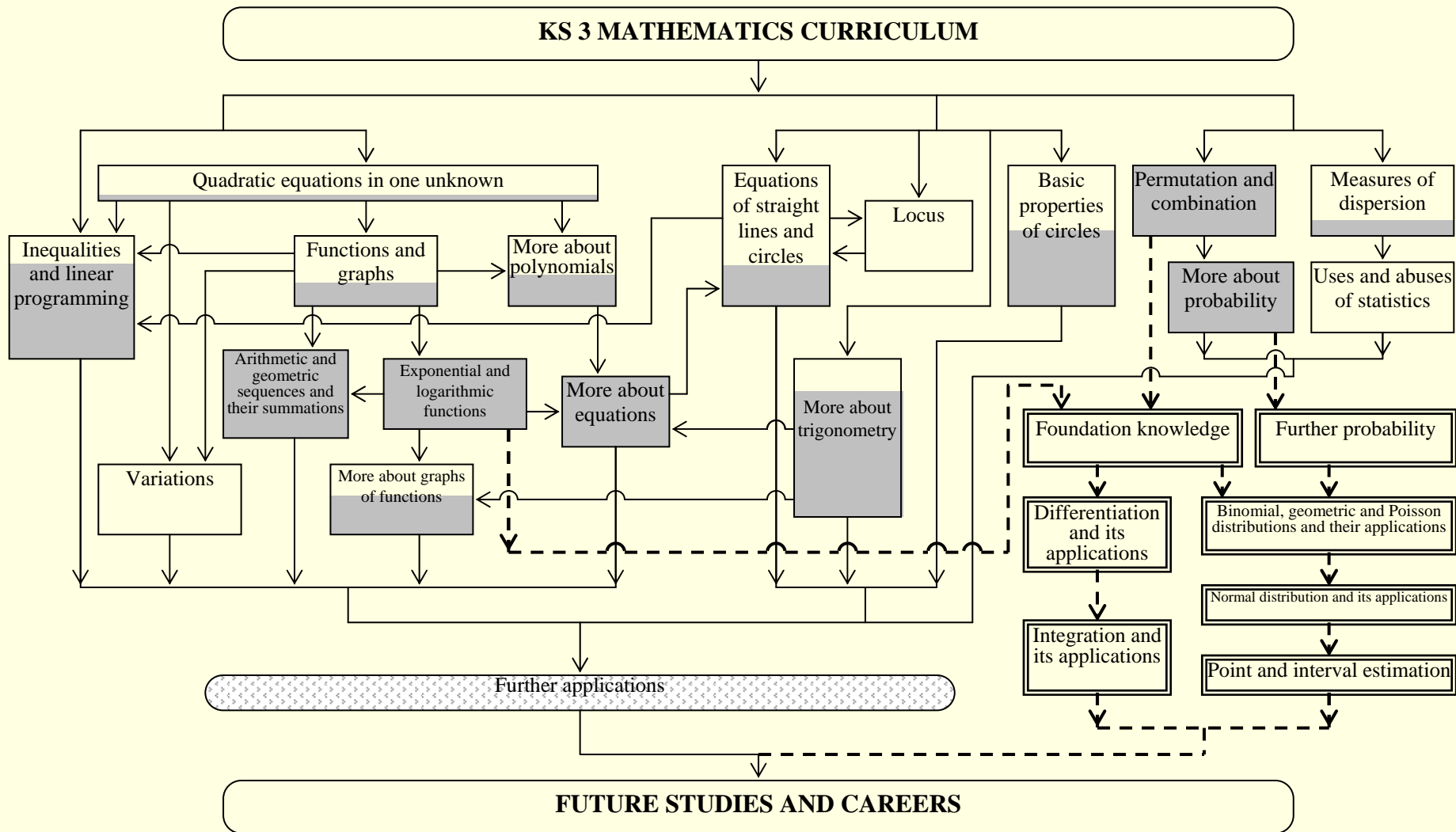
- The ordering of the targets and objectives does not represent a prescribed sequence of learning and teaching
- It is not necessary to keep the learning units intact
- Teachers may arrange the learning content in any logical sequence which takes account of the needs of their students
- Teachers may exercise their professional judgement in arranging the sequence of learning units, paying attention to the prerequisite knowledge required
- The flowcharts are included for teachers' consideration in curriculum planning and only strong links between learning units are shown

Flowchart: Compulsory Part



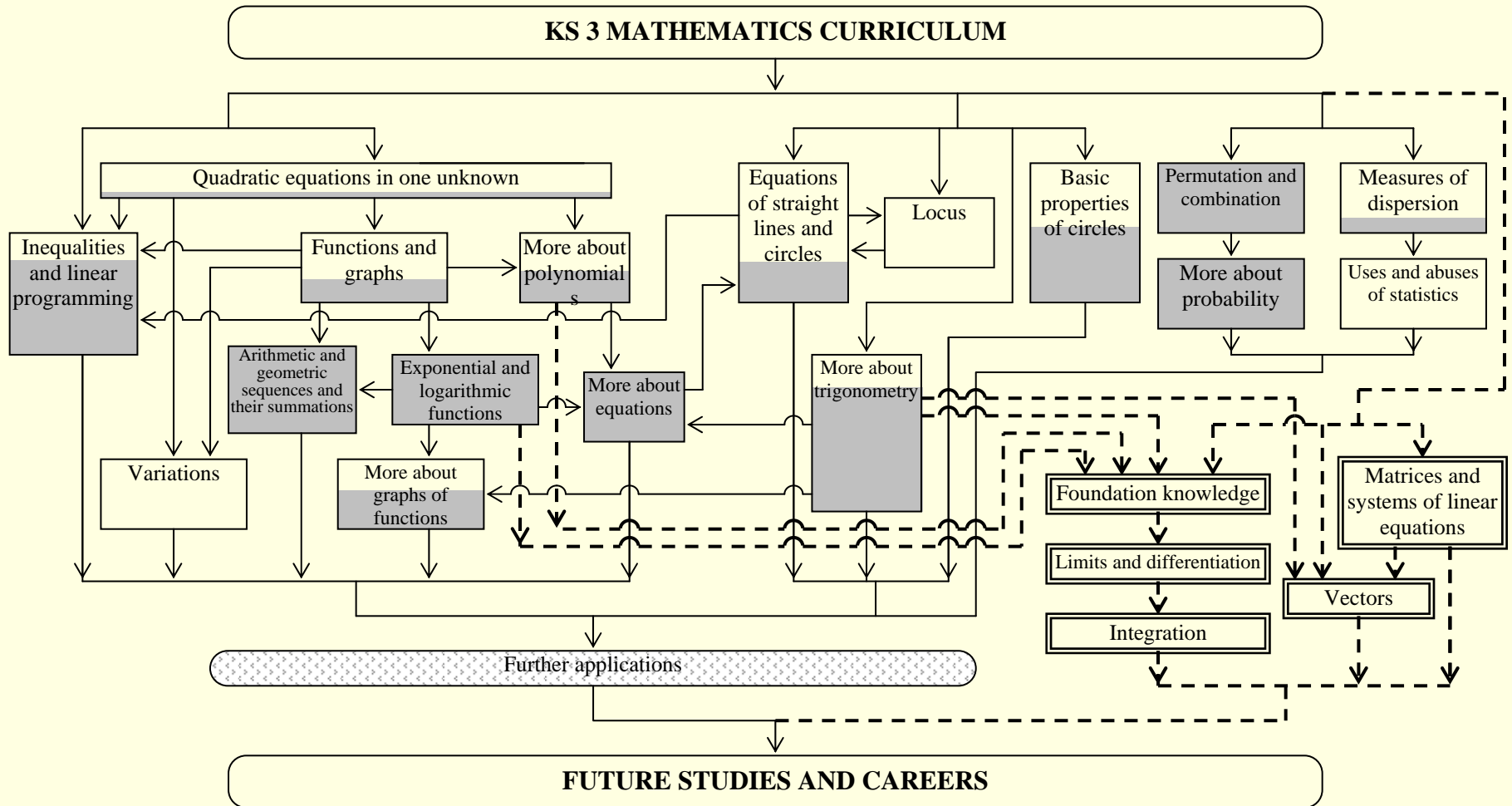
■ represents Non-foundation Topics.

Flowchart: Compulsory Part with Module 1



- Shaded box represents Non-foundation Topics.
- Double-bordered box represents learning units in Module 1.

Flowchart: Compulsory Part with Module 2



- represents Non-foundation Topics.
- ▭ (double border) represents learning units in Module 2.

Curriculum Management

- In managing the mathematics curriculum, curriculum leaders (the school head, panel head and Mathematics teachers) in schools are expected to:
 - formulate well-defined policies for their Mathematics panel, including learning and teaching strategies, assessment and the development of school-based mathematics curricula, and to establish effective practices for the implementation of the agreed policies
 - disseminate relevant information to Mathematics teachers and discuss matters relevant to both administration and Mathematics teaching
 - familiarise Mathematics teachers with the NSSMC and recent development in mathematics teaching

Curriculum Management

- promote and create the time for teachers' professional development
- encourage collaboration and maintain effective communication between teachers of Mathematics and other KLAs
- encourage the development of a learning culture and a learning community with other schools
- encourage assessment for learning and the use of evidence to adjust teaching methodologies and the curriculum

School heads

- Provide supports for trying out new initiatives in the learning, teaching and assessment of the NSSMC
- Create a supportive environment in the school, so that students have ample opportunities to think critically and creatively, to conceptualise, inquire and reason, and to use mathematics to formulate and solve problems in daily life
- Provide flexibility in the deployment of teachers and time-tabling

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- Provide students with flexibility in the study and choice of modules in the Extended Part and in the grouping of students
 - Help parents understand the school's vision, rationale and practices in implementing the NSSMC
 - Encourage networking with other schools to promote exchange of professional information and the sharing of good practices

Mathematics Panel Heads

- Set up well-defined goals for the learning, teaching and assessment of the NSSMC
- Ensure a smooth articulation between the school-based mathematics curricula at the junior and the senior secondary levels
- Formulate well-defined policies and establish effective practices for the implementation of the agreed policies

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- Hold regular panel meetings to discuss matters such as schemes of work, assessment policies, teaching problems which have arisen, and the selection of textbooks
 - Enhance the effectiveness of classroom teaching by organising experience-sharing, lesson observations or collaborative lesson preparations, etc.
 - Keep all documents related to the learning, teaching and assessment of the NSSMC

Mathematics teachers

- Develop in students generic skills, positive attitudes and in interest in mathematics learning
- Keep abreast of the latest curriculum development
- Take initiatives in trying out innovative learning and teaching strategies and assessment strategies
- Initiate the sharing of teaching ideas, knowledge and experience to foster peer support and improvement of mathematics L/T and assessment
- Participate in professional development courses, workshops, seminars, etc. to enhance their professionalism