Summary of the HKAME curriculum working group meetings on the new secondary maths CDC documents

Overall intended change in the teaching practice :
1. Introduction of new teaching ideas in the remarks cannot clearly reflect the overall intended change in the teaching practice.
2. The CDC is expected to take up a more aggressive role in promoting these teaching ideas through various means, like the supply of appendices and exemplary teaching materials which would highlight the learning objectives; indicating specific areas for which training courses could be conducted, not necessarily by the CDC.

The role of IT (Information Technology) in the curriculum :
1. The role of IT in the curriculum is also ambiguous.
2. Would it be merely a supplement to the usual teaching practice, i.e., assisting learning or arousing interest for less able students, this is not preferred because the use if IT should not be merely this,
3. or a primary factor for shaping the new curriculum?
4. If (3) is true, it may be necessary to design a temporary alternate curriculum which could fully reflect the incorporation of IT in the teaching of numbers, algebra, geometry and statistics, etc.

The algebra dimension:
1. Regarding the algebra dimension, apart from certain rearrangement, there is no significant change in the content.
2. The notions of polynomial and its terminology (2.2) need not be mentioned in S.1. Terminology of polynomials could be introduced in S.3 together with concepts of factorization and identity. However basic operations (2.3-2.4) of algebraic expressions are necessary. Objectives can be developing basic operations of algebraic expressions as an extension of students' arithmetic knowledge and acquiring proficiency for simple equation works. Tedious manipulations of complicated expressions should be avoided.
3. In section 2 (polynomials as functions), the I-P-O concept should be highlighted, rather than using 'number producing machine' as an exemplar model. In fact, this concept could be developed through different models or representations, such as number producing machines, formulae and substitution (9.1 and 9.2), evaluation of algebraic expressions, and real life examples.

4. It is not clear why 'formulae' (section 9) should be introduced after 'factorization'. Is factorization a prerequisite technique for 'change of subject' (9.3)?

The data handling dimension :
For the data handling dimension, there are several suggestions for the teaching of dispersion (section 3):
1. Without the concept of normal distribution, the introduction of standard deviation may not be necessary/meaningful. Inter-quartile range and box-plots could already lead to the concept of dispersion. Perhaps, standard deviation could be an optional topic for more able students who would conduct their own surveys in S.4
2. If standard deviation is to be included, the formula could be supplied in the exam, thus discouraging learning by rote.
3. The role of mean deviation should be further clarified. It may not be necessary even for the learning of standard deviation.
4. There is no need to specify application in 3.2 (introduction of standard deviation).
5. There are also comments on the inclusion of students' projects and surveys:
    5.1. There should be workshops for teachers to introduce evaluation standards on students' project work. Examples from inter-school statistic project competitions could provide valuable resources.
    5.2. Project can also be done and probably more welcome in secondary one and two. Through their own simple data collection process, lower form students could experience the nature of data set and experiment with different types of representations.
    5.3 On the other hand, upper form students could concentrate on the interpretation and evaluation of statistical results, which may not be necessarily based on their own collected data. S.4 project should be focused on this.

The number dimension :
1. Introduction of complex number is not necessary.
2. Attention should be paid to the term 'directed number'. Alternatives can be 'Numbers and number line' with subhead, 'negative numbers'. Moreover number line may not be a good (or only or complete?) model for introducing the operations involving negative numbers. It helps little in explaining multiplication.