Questions and Answers

The mathematics program team of the Ministère de l'Éducation, de l'Enseignement supérieur et de la Recherche introduced the updated Cultural, Social and Technical (CST) Option in the Secondary IV Mathematics program by means of information sessions held in the spring of 2015. During these sessions, there were a number of questions raised. The program team has compiled these questions and the answers, for your information.

This document also provides some clarifications concerning the update but does not do so in detail. To obtain all the basic information on this update, please refer to documents such as the PowerPoint presentation that was shown during the information session and the document entitled *Examples of problems*.

GENERAL Questions

1. **Will the Progression of Learning and the Cycle Two Mathematics Program on the Ministère's Web site be updated?**

   Yes, the updates documents will be published at the end of May, 2015.

2. **Will the updated CST Option come into effect for the 2015-2016 school year?**

   Yes, the updated version will come into effect for Secondary IV in the fall of 2015. The updated version for Secondary V is expected to come into effect at the start of the 2016-2017 school year.

3. **Will the number of credits for the Secondary V CST Option increase to 6 (150 hours)?**

   The Secondary V CST Option will be updated, and this update will come into effect in the fall of 2016. The announcements will be made at that time. Until then, there is no point in speculating.

4. **Could content other than the one moved from CST 4 to CST 5 be added to the updated CST option for sec 5?**

   It is possible, but the official announcements will be made in the coming months after the decisions have been taken.

5. **Has the number of hours of instruction been changed for the CST option in Secondary IV?**

   The prescribed number of hours for the Secondary IV CST Option remains at 100/year, for a total of 4 credits.

6. **Does a student have to pass the Secondary IV or the Secondary V CST Option to earn a Secondary School Diploma (SSD)?**

   The requirements for obtaining a Secondary School Diploma remain the same: passing a Secondary IV Mathematics course.

7. **Why was it decided to strike a new balance between the content covered in the two years of the option rather than increase the number of credits in Secondary IV?**

This was due to the constraints of the Basic school regulation.

8. **Will the uniform examination for the CST Option be moved from Secondary IV to Secondary V?**

   No, the uniform examination will continue to be administered in Secondary IV.

9. **If the uniform examination continues to be administered in Secondary IV, could the Secondary V CST course become optional?**

   At present, only the Secondary IV course is required in order to obtain an SSD and the update will not change this. However, students in Secondary V must take a mathematics course.

10. **Will the Secondary V CST course become compulsory for admission to college?**

    No, the Secondary V course will not become compulsory. However, work has been undertaken to explore the possibility of giving students who have passed the Secondary V CST course access to a greater number of technical programs.

11. **Has a budget been established to adapt the instructional materials?**

    There is no budget for Secondary IV. Teachers can easily adapt their materials by removing certain sections. They should also refer to the document entitled *Examples of problems*, prepared by the mathematics program team, for additional explanations. Information regarding Secondary V will be available later.

12. **Will publishers offer any instructional materials?**

    Certain publishers are actually planning to offer new materials adapted to the update. For more information, please check directly with them.

13. **Regarding the evaluation of Competency 1, will a new examination incorporating the changes be sent to teachers?**

    As the examinations for Competency 1 are not uniform examinations, there is nothing to indicate that new sample examinations will be sent to teachers.

14. **Why was it relevant to analyze the impact of the updated CST Option on the prerequisites for physics and chemistry?**

    Given that students enrolled in the CST Option can register for these two optional courses in Secondary V, it was important to ensure that the proposed changes did not have a negative impact on the academic progress and success of students.

15. **What are the only two college-level technical programs to which Secondary V CST students have access?**

    - Technique d'aménagement cynégétique et halieutique (Hunting and Fishing Resource Development), available in French only
    - Technique d'aménagement et d'urbanisme (Urban and Regional Planning), available in French only

16. **What impact will the update have on students who have failed the Secondary IV Science Option or Technical and Scientific (TS) Option and who will write the CST examination?**

    The same procedures, specific to each educational institution, can always be used. This having been said, preparing for the CST examination will be easier for students in the Science Option because they will no longer have to learn the concepts related to *probability*.

17. **Could adding content to the Secondary V CST Option result in students no longer registering for the Science Option or the Technical and Scientific Option in Secondary V?**

    This should not be a problem, because the CST Option remains the basic option and it does not provide the prerequisites for admission to all the college pre-university programs, including Science or Arts and Sciences.

18. **Does the update of the CST Option mean that there will also be updates of the Technical and Scientific Option and the Science Option?**

    No, for the time being, there are no updates planned for the other options.

19. **Why is the January 2016 examination not based on the update?**

    The January 2016 examination is not based on the update, because it may be used as a retake of the June 2015 examination. The June 2015 examination is based on the current program, meaning that it does not take the updated CST Option into consideration.

Questions related to the FIRST CHANGE:
All the content related to *probability* has been **moved** from Secondary IV to Secondary V.

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20. **Will *probability* continue to be included in the TS Option in Secondary IV?**

    Yes, the update only involves the CST Option.

21. **Are any changes planned with regard to *probability* in the Cycle One and Secondary III programs?**

    There are no changes planned for the Cycle One and Secondary III programs.

Questions related to the SECOND CHANGE:
In *arithmetic and algebra*, the content related to **first-degree inequalities in two variables** has been **moved** from Secondary IV to Secondary V.

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22. **As there is only one variable involved, should a half-plane whose boundary line is vertical or horizontal be covered?**

    First-degree inequalities in one variable are covered in the Secondary III program.

23. **Should we stop teaching students how to use an inequality to represent a situation?**

    Using an inequality to represent a situation is covered in the Secondary III program.

Questions related to the THIRD CHANGE:

In *analytic geometry*, all the content related to the **general linear equation** has been **removed** from the compulsory component of the CST option. The general form of a linear equation is now optional.

24. **Can students be provided with the general form of a linear equation for questions on the relative positions of lines?**

    Yes, the general form may be used. The student must then modify the equation of the line to put it into functional (or standard) form and thus be able to compare the lines.

25. **During evaluations, can the equations in a system of equations be presented in general form?**

    Yes, systems of equations may be presented in any form. The students should be able to carry out the algebraic manipulations required to convert the equations into the form of their choice

26. **In the uniform examination, will only the functional form be presented in the choice of answers?**

    If the student's task is to find the equation of a line, the functional form will be used in the choice of answers. If, on the other hand, the student's task is to algebraically manipulate linear equations in order to find, for example, a point of intersection, then the equations can be presented in general form.

27. **Does this mean that solving systems of equations using the three methods will no longer be required?**

    No, the three methods for solving systems of equations (comparison, substitution or elimination) remain in the CST program.

28. **Are students still going to have to determine the equation of a line using different types of representation (situation, table of values or graph)?**

    Yes, CST students will still be required to find the rule, but they will no longer have to determine the equation in general form.

Questions related to the FOURTH CHANGE:

In *arithmetic and algebra*, the approach to teaching the **properties of functions** has been **modified**; they must now be taught in relation to a context.

29. **Should the vocabulary related to the properties of functions be taught and is it evaluated?**

    Yes, the vocabulary is still important but to be evaluated in an examination, it must be related to a context.

30. **Does contextualizing mean that students will no longer deal with the concept of infinity?**

    The concept of infinity stays in the program and may be referred to, even in a contextualized

situation.

31. As it has been said that it would be preferable for functions to be related to a context, does this mean that only the first quadrant of the graph should be involved?

All the quadrants of the graph must still be used. It is true that contextualized situations often involve the first quadrant, but it is possible to find contexts that are not limited to this quadrant.

32. Should we include the word "strictly" in the analysis of functions?

The word "strictly" can always be used, provided it refers to a context.

33. How will asking students, "What is the domain of function and what does it mean in concrete terms?" rather than "What is the domain of function?" save time in Secondary IV?

In Secondary III, students are informally introduced to the study of properties and always in relation to a context. The proposed change is in line with this approach.

34. Must students use a graph to find the properties of a function or can they do so without using a graph?

Properties can be determined with or without a graph.

35. Will the time devoted to teaching the properties of functions be reduced in Secondary III?

No, since only the Secondary IV CST Option has been updated. Thus the time devoted to teaching the properties of functions remains the same in Secondary III.

36. Is it still relevant to introduce properties in Secondary III? Would it not be better to move all of it to Secondary IV?

It is still relevant to introduce properties in Secondary III so students can begin studying them in relation to a straight line or an inverse function.

37. Can the term "*x*-intercept" be used instead of "zero" of a function?

Either expression can be used.

38. Are there plans to provide a bank of contexts to be used to teach the properties of functions?

For now, nothing indicates that such a bank will soon be provided. The document entitled *Examples of problems* gives some examples that clearly explain what is expected.

39. During examinations, should answers be given in words or mathematical language (e.g. interval)?

The answer may be given in words or in the form of intervals, unless the question asks for the answer to be given in a specific form.