

	Question	Answer
Curriculum Framework 課程架構		
1.	How can you ensure that all elective topics in the NSS Physics are of comparable cognitive demand?	Elective topics are offered to meet the diverse interests of students, so the focus of the different elective topics differs a bit. However, the CDC-HKEAA Committee on Physics (SS) (the Committee) had exercised careful and expert judgments to ensure comparability after collecting feedbacks/comments in the three consultation stages. The curriculum has been benchmarked by overseas professional bodies that it is comparable to the Physics curricula internationally.
	如何保證物理科的各選修課題均要求相若的認知能力？	提供選修課題是為了迎合學生的不同興趣，故各選修課題重點上會有些差異。按三輪諮詢得到的回應及評語，課程發展議會-香港考試及評核局物理課程委員會(高中)[後簡稱為委員會]已小心研究及運用專業判斷，確保各選修課題的要求相若。本課程亦已經國際專業團體審定，與各地的物理課程相若。
2.	Have teachers' concerns on how to teach the elective topics up to appropriate requirement been considered?	Elective topics may be rather new to teachers so it is normal for them to have concerns on the details of the topics. The Committee has revisited and revised the specification of learning elements to provide teachers a clear understanding about what student should learn. Resource materials and appropriate professional development programmes are being provided to support the teaching of the elective topics. Latest information are available at the following URL addresses: http://www.edb.gov.hk/index.aspx?nodeID=3379&langno=1
	是否有考慮教師擔憂在施教全新的選修課題時未能符合要求？	普遍來說，教師會對新的選修部分有較多關注。委員會已小心處理每一課題的各項細節，修訂學習元素的各項說明，務求教師完全了解學生的學習。教育局正提供一系列的資源和合適的專業發展課程支援教師施教選修的課題。如欲了解最新的資料，請瀏覽以下網址： http://www.edb.gov.hk/index.aspx?nodeID=3379&langno=2

3.	Is the diversity of learners' differences addressed in the curriculum?	<p>The learner diversity is always one of the concerns of the Committee in developing the NSS Physics Curriculum. The Committee has discussed the comments from teachers carefully. It is believed that the proposed curriculum is appropriate and consistent with international Physics content for senior secondary levels.</p> <p>It is unrealistic to expect every student to achieve the same level of attainment. In this connection, the Committee proposed the arrangement of core and extension components in the compulsory part for different ability groups. For some students, it will be more beneficial, less stressful and more effective to just concentrate on the core component, so that more time is available for them to master the basic concepts and principles; for others, the challenges provided by the extension component may provide a higher degree of achievement.</p> <p>The Education Bureau has been organising seminars / workshops on catering for learner diversity. Physics teachers would be equipped with knowledge and skills to suit for students with different abilities and needs when implementing the Physics curriculum.</p>
	本課程有沒有關注學生的學習差異？	<p>委員會在發展課程的過程中，已知曉學生的學習差異經常是一個重要的議題。委員會已仔細討論教師的意見，作出合適的修訂。現時建議的課程內容相信已是恰當的，並能確保與世界各地的高中課程一致和配合。</p> <p>要求所有學生達到同一水平是不切實際的，故此委員會建議在必修部分內開設核心和延展兩部分，以照顧不同能力的學生。對於某些學生，專注核心部分課程，利用較多的時間和精力以掌握基本的觀念及原理，可以減少壓力、提高效率，整體而言較為有利。對於另一些學生，延展部分的挑戰，可提供更高的成就感。</p> <p>此外，教育局會舉辦有關照顧學習差異的研討會 / 工作坊，讓物理科教師掌握有關的知識和技巧，在推行本科課程時更能配合學生不同的能力和需要。</p>

4.	Due to limited resources, it is difficult for schools to offer all elective topics of each subject to students. Will there be extra resources available?	It is not necessary for a school to offer all elective topics. Schools should consider students' interest, teachers' expertise and school's resources in deciding which elective topics to be offered. Teachers are welcome to attend the Professional Development Programmes to have a deep understanding of the elective topics so they may know which topics should be offered to their students.
	由於資源有限，學校難以開設每科的所有選修課題，政府會否提供額外的資源？	學校不須開設每科的所有選修課題。校方在決定開設哪些選修課題時，應考慮學生興趣、教師專長及學校資源。教師可參與專業培訓課程，深入了解各選修課題，為學生選擇合適的課題。
5.	Can students take NSS Integrated Science together with Physics?	<p>NSS Integrated Science is designed for those students taking only 1 elective subject from the Science Education KLA. Since it adopts an interdisciplinary modular approach, it is not suitable to be taken together with Physics due to substantial overlapping of content.</p> <p>In order to cater for the concern of providing a broader base of science education, an alternative mode of NSS Science (Combined Science) is further developed. Combined Science is made up of three parts taken from Biology, Chemistry and Physics. Students who wish to take 2 elective subjects from the Science Education KLA can take any one of the specialized subjects (Biology/Chemistry/Physics) and two out of the three parts (except the part related to the specialized subject) of Combined Science.</p>

	學生可否修讀新高中綜合科學科並同時選修物理科？	<p>新高中綜合科學科是專為於科學教育學習領域中只選修一科的學生而設。由於它採用跨科目單元模式，與物理科部分內容重疊，故不宜一同選修。</p> <p>為了提供較廣闊的科學教育，我們已發展另一科學科（組合科學）。組合科學由生物、化學及物理三部分組成。學生如欲在科學教育學習領域中選修兩科，可選其中一科專門科目(生物/化學/物理)及組合科學的其中兩部分(除了專門科目的有關部分)。</p>
6.	Will the standard of the NSS Physics Curriculum be lowered in this reform exercise?	The curriculum is designed for a 3-year senior secondary course in Physics. According to the results in the benchmarking exercises, the NSS Physics Curriculum is comparable with the Physics curricula in the world in terms of its scope, quantity, rigour and depth. The proposed content is both appropriate and consistent with internationally accepted Physics content for senior secondary levels.
	本課程的水平會否因此改革而下降？	本課程是為三年高中物理課程設計的。按國際水平比較的報告，本課程的範疇、份量、嚴謹度，以及深度，均可與世界各地的高中物理課程相比。同時，報告指出本課程建議的內容恰當，並與各地的高中物理課程一致。
Learning and Teaching 學與教		
7.	Should schools implement the NSS Physics Curriculum to their S3 students instead of the Science (S1-3) Curriculum?	There is no need to implement the NSS Physics Curriculum early in junior secondary science curriculum. The NSS Physics Curriculum is developed upon the knowledge, skills, values and attitudes, and learning experiences acquired by students in Science (S1-3) curriculum. Schools should ensure bridging of the Physics curriculum at junior and senior secondary levels by completing the core parts of the Science (S1-3) curriculum.
	學校應否在中三級引入新高中物理課程？	學校無須過早在初中階段引入新高中物理課程。新高中物理課程的設計是基於科學課程（中一至中三）內學生獲得的知識技能、價值觀和態度，以及不同的學習經歷，學校宜透過完成科學課程（中一至中三）內核心部分以助學生銜接高中階段物理課程的學習。

8.	<p>How to cater for student diversity in senior secondary level, especially in practical activities with a big class size of those academically lower achievers in some schools?</p>	<p>In the NSS Physics Curriculum, the content of the compulsory part consists of two components, core and extension. The core is the basic component for all students whereas the extension component is generally more cognitively demanding. For some students, it will be more beneficial, less stressful and more effective to just concentrate on the core component, so that more time is available for them to master the basic concepts and principles. A good school-based Physics curriculum should have an in-built flexibility to cater for the abilities of students, so that a balance between the quantity and quality of learning may be achieved.</p> <p>In designing a whole school curriculum, students' abilities and aspirations should be duly considered. Other than the four core subjects, schools may encourage the students to take 2 elective subjects only and provide students with a broaden curriculum, which consists of different Key Learning Areas.</p> <p>Schools may also consider strengthening the science related skills and abilities training in junior secondary science curriculum, such as scientific investigation, practical work, problem-solving and information handling skills. A concrete base of science knowledge would be very helpful for students to further their study in Physics.</p>
	<p>如何在高中階段處理學習差異的問題，特別是那些班內有大批成績稍遜學生的學校？</p>	<p>新高中物理課程的必修部分分為核心及延展兩方面的課題。核心課題為所有學生的學習基礎，而延展課題則一般有更高的認知要求。對於某些學生，專注核心部分課程，利用較多的時間和精力以掌握基本的觀念及原理，可以減少壓力、提高效率，整體而言較為有利。一個良好的、以學校為本的物理課程，應能兼顧學生不同的興趣與能力，在學習的質和量之間取得平衡。</p> <p>此外，在設計一個整校性的課程時，應考慮學生的能力和性向。除了四個核心科目外，學校可鼓勵學生只選修兩個選修科目，亦應提供一個涵蓋不同學習領域的課程，供學生選擇。</p> <p>學校可考慮在初中階段強化學生學習與科學相關的技能，例如科學探究、實驗活動、解難和資訊處理的技巧。一個堅實的科學基礎對學生繼續修讀本科甚有幫助。</p>

Assessment	評估
9.	<p>Will School-based Assessment (SBA) create heavy workload on students and teachers?</p> <p>The Committee has discussed the comments from teachers and will strike a balance between the various proposed assessment tasks and teachers' workload.</p> <p>SBA is not an “add-on” work. The design of tasks for SBA should be integrated closely with the curriculum contents and form a part of the normal learning and teaching process. Teachers are also supported by other colleagues, for example, laboratory technicians, teacher assistants and/or teachers of other subjects, in conducting SBA according to situations of individual schools</p> <p>Exemplars and project ideas in conducting investigative study will be provided to teachers in stages. An SBA handbook with clear guidelines have been compiled for reference so that teachers could manage the SBA easily.</p>
校本評核會否增加教師和學生的負擔？	<p>委員會已討論教師的意見，平衡各項建議的評核課業和教師的工作量。</p> <p>校本評核並不是外加的工作。在設計校本評核的活動時，應與課程內容結合，並在正常的學與教循環中達成。教師可在其他同事，如實驗室技術員、教學助理，以及/或校內其他科目教師的支援下，因應不同學校的情況，推行校本評核。</p> <p>委員會會分階段提供評核的示例和進行探究的研習構思。香港考試及評核局已為教師編製校本評核手冊，提供清晰的指引，讓教師參考，以便掌握校本評核的工作。</p>

10.	Do you think that the large class size hinders the smooth implementation of School-based Assessment (SBA) in NSS Physics Curriculum, in particular the practical tasks?	<p>Practical task is an integral part of the learning and teaching of Physics. SBA over an extended period of time provides more reliable assessment for each student. It can serve to motivate students by requiring them to engage in meaningful activities. Information obtained from the performance of students can also reinforce good teaching practice and curriculum intentions.</p> <p>To get students better prepared for the SBA, schools are recommended to introduce practical assessment in S1-3. Alternative assessment tasks like creative writing, model making and oral presentation, etc. in S1-3 would help students get ready for the SBA.</p> <p>Furthermore, to allow time for teachers to familiarise themselves with the administration of SBA and to alleviate the workload of teachers in the first two years of implementation of the new curriculum (i.e. the 2012 and 2013 years of examination), only practical-related component would be included as part of the open examination. Details of the arrangement could be found on the Physics Curriculum and Assessment Guide (Secondary 4-6) (pp.132-133; HKSAR, 2007). Moreover, professional development programmes and resources on implementing SBA in schools are constantly arranged to help smooth and proper implementation.</p>
	有否考慮一班內學生人數過多，會妨礙新高中物理課程校本評核的推行，特別是實驗活動的安排？	<p>實驗活動是學習物理的一個不可或缺的部分。根據各學生較長時段內的表現進行校本評核，能令他們獲得較高信度的評核要求。學生參與有意義的活動，有助激發他們學習；從學生表現所獲取的資料亦可強化良好的教學實踐經驗和課程的宗旨。</p> <p>為讓學生可作更好的準備，以致從校本評核中獲益，學校可在初中階段引入實驗評估，以及評估多樣化的學習活動，例如創意寫作、模型製作及口頭報告。</p> <p>為讓教師有充分時間熟習校本評核的運作，以及減輕教師於首兩年(即 2012 及 2013 兩個考試年份)推行新課程的工作量，校本評核只包括實驗有關部分。詳情可參閱物理課程及評估指引(中四至中六)(頁 113, 香港特別行政區政府 2007)。教育局會繼續提供專業發展課程及有關資源，以助學校適切且順利地推行校本評核。</p>

11.	Are there any more details on the weighing and distribution of tasks for practical related and non-practical related parts?	<p>The NSS Physics C&A Guide (S4-6) has provided information to facilitate discussion and exchange of views. Detailed information can be found in the Standards-reference Reporting Information Package for Physics published by the HKEAA in 2009 and the following URL address:</p> <p>http://www.hkeaa.edu.hk/DocLibrary/SBA/HKDSE/SBAhandbook-2012-PHY-E-300609.pdf</p> <p>Professional development programmes are being organized to disseminate good practices on conducting Investigative Studies and non-practical tasks.</p>
	還有更多關於實驗有關和非實驗有關的考核項目的比重和分配細節嗎？	<p>新高中物理課程及評估指引（中四至中六）已提供有關的資料，方便討論和交換觀點。有關這些資料的詳情，可參閱香港考試及評核局於 2009 年為物理課程編製的水平參照成績匯報資料套及以下網址：</p> <p>http://www.hkeaa.edu.hk/DocLibrary/SBA/HKDSE/SBAhandbook-2012-PHY-C-300609.pdf</p> <p>我們正舉辦一些專業培訓課程，分享教師怎樣進行探究研習及非實驗有關作業的成功經驗。</p>
Support measures 支援措施		
12.	What have been done to equip teachers to teach topics in NSS Physics that are beyond their subject expertise?	<p>Series of professional development programmes for teachers are provided constantly by the Science Education Section to facilitate the implementation of the NSS Physics Curriculum. Courses involving (1) Understanding and Interpreting the Curriculum, (2) Learning and Teaching Strategies, (3) Enriching Knowledge for the Physics Curriculum and (4) Assessing Student Learning have been organised.</p>
	如何裝備教師教授超越他們專科領域的新高中物理課題？	<p>科學教育組不斷為教師提供一系列的專業發展課程以配合新高中物理課程的實施。已舉辦課程包括：(一)課程詮釋、(二)學與教的策略、(三)物理科知識增益，以及(四)學習評估。</p>

13.	<p>Will EDB develop relevant learning and teaching resources for elective topics in the NSS Physics curriculum?</p>	<p>Learning and teaching resources for NSS Physics Curriculum have been developed by EDB. Relevant materials were disseminated during the professional development programmes. Teachers can have more information from the following URL addresses: http://www.edb.gov.hk/index.aspx?nodeID=8692&langno=1 and http://cd1.edb.hkedcity.net/cd/science/NSS/ResourceList/Combined_Sci_Phy.pdf</p> <p>In collaboration with the Hong Kong Education City, an online platform, “Physics Teachers Professional Development and Resources Sharing Platform”, has been established to provide teachers with curriculum resources and information. http://edblog.hkedcity.net/cdiphysics</p>
	<p>教育局是否會因應新高中科學課程的選修課題發展有關的學與教資源？</p>	<p>教育局已不斷發展有關新高中物理課程的學與教資源。相關的材料曾在專業課程期間發放。教師可從以下網址獲得更多訊息： http://www.edb.gov.hk/index.aspx?nodeID=3379&langno=2 及 http://cd1.edb.hkedcity.net/cd/science/NSS/ResourceList/Combined_Sci_Phy.pdf</p> <p>本局亦與香港教育城共同建立一個網上平台「物理科教師專業發展及資源共享平台」，藉此為教師提供課程資源及相關的課程資訊。 http://edblog.hkedcity.net/cdiphysics</p>
14.	<p>Will there be sufficient equipment and resources for implementing the new curriculum?</p>	<p>The reference lists of Furniture and Equipment for the subjects of NSS Physics and Combined Science (Physics part) have been uploaded to the webpage for teachers’ reference. http://www.edb.gov.hk/index.aspx?nodeID=5535&langno=1</p> <p>Schools are advised to deploy grants (e.g. CFEG/OEBG)* flexibly to purchase and update the necessary equipment.</p> <p>Resource materials that facilitate learning and teaching are being developed to support the adoption of suggested pedagogies. Professional development programmes are being organised for Physics teachers according to the survey collected from school returns.</p>

	<p>是否有足夠的設備和資源協助新課程的實施？</p>	<p>新高中物理科及組合科學科(物理部分)的家具及設備一覽表已上載教育局網頁供教師參考。 http://www.edb.gov.hk/index.aspx?nodeID=5535&langno=1</p> <p>學校宜靈活運用各項津貼(如綜合家具及設備津貼、營辦開支整筆津貼)，購置所需的儀器和設備。</p> <p>教育局也會編製學習材料，支援有關教學策略，提升學與教的效能。根據學校提供的資料，教育局正積極地為教師提供專業發展課程。</p>
15.	<p>Are there sufficient space and equipments for practical work? How can practical work be done effectively in a class of 40 students?</p>	<p>Most of the NSS experiments can be run as that of previous way. If the class size is large, experiment rotation may help to release the limitation of equipment and space.</p> <p>Schools are encouraged to employ flexible grouping in their timetables. If there are more groups than classes for a particular time slot, the number of students per group will go below 40.</p> <p>For the arrangement of the enhancement of teacher knowledge and laboratory technicians, please refer to Questions 13, 14 and 16.</p>
	<p>是否有足夠儀器及空間進行實驗活動，特別是校舍面積較小的學校。如每班人數多達 40 名，如何能夠有效地進行實驗活動？</p>	<p>大部分新高中的實驗可依循以往形式進行。如每班人數較多，可考慮以循環小組進行實驗，減低對儀器及場地的需求。</p> <p>學校可以彈性編班及安排上課時間表。如於同一節中上課組別較班級數目為多，每組別之學生人數便可減至四十人以下。</p> <p>關於教師裝備及實驗室技術員安排方面，請參閱第 13、14 及 16 題。</p>

* CFEG – Composite Furniture and Equipment Grant
OEBG – Operating Expenses Block Grant