**1. How much consultation with current practising full time Chemistry and/or Physics teachers (not SQA team leaders or senior staff) took place to create these specific subject resources? Please provide notes of feedback received and changes made as a result of this consultation.**

**Chemistry**

An initial meeting took place in Autumn 2021 to discuss the nature of support with four senior appointees who are full time current teachers of chemistry with at least 15 years’ experience. It was agreed the support should include guidance on exam technique and support for revision eg common pitfalls areas learners find challenging.

Draft documents were produced by the chemistry subject implementation manager (SIM), an experienced chemistry teacher. Feedback was sought from senior appointees for each level and as a result the documents were revised to include correctly drawn apparatus, the difference between ‘explain’ and ‘explain fully’ questions, the distinction between numeracy calculations and chemical calculations.

Some requested that examples of worked calculations were included. This wasn’t done as examples are available in SQA’s Understanding Standards materials and might make learners think that only these types of calculations would be in the exam.

**Physics**

Seven practicing physics teachers met initially to discuss the type and content of the support that could be produced. These are SQA senior appointees: Principal Assessors (PAs), Depute Principal Assessors (DPAs), and Senior Team Leaders (STLs). As practicing physics teachers, appointees are best placed to advise about support for assessment.

At this meeting, the content of the study guides was agreed.

Draft documents produced by the physics subject implementation manager (SIM), an experienced physics teacher, were shared with PAs and DPAs for feedback.

They recommended minor amends to wording throughout the documents and asked that examples were level specific.

Informal consultation on the type of support, but not the detail of the documents, took place at a range of physics related SQA meetings, where teachers were in attendance. An exact number of teachers is not available.

**2. Please inform me of how many people were consulted and their experience in teaching Chemistry and/or Physics. Please also include the number of people who were involved in the physical typing/planning of what would be presented in the study guide? for N5 and H Chemistry and Physics.**

**Chemistry**

In total, five practicing chemistry teachers were consulted about the documents. All have been teaching for at least 15 years.

Four people were involved in the detailed planning of what would be included.

Six people were involved in the typing/planning of the documents.

**Physics**

In total, eight practicing physics teachers were consulted about the documents. All have been teaching at least 20 years.

Three people were involved in the detailed planning of what would be included.

Three people were involved in the typing/planning of the documents.

**3. Please give me details on how the Chemistry and Physics study guide? resources were moderated with resources and guides for other subject areas such as Mathematics, English and Business Education.**

**Chemistry**

A common template was developed for all the scenario 2 guidance, this was tested out with a range of stakeholders before being adopted for all courses.

Each study guide was written to be specific to the course. As there are different modifications in place for each course, a common approach to the scenario 2 resource was not possible. The Head of Service for science, mathematics and core skills moderated the science documents, and they were professionally edited.

**Physics**

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Each study guide was written to be specific to the course. As there are different modifications in place for each course, a common approach to the scenario 2 resource was not possible. The Head of Service for science, mathematics and core skills moderated the science documents, and they were professionally edited.

**4. Please inform me of which areas of the study guide? were specifically generated for the purpose of scenario 2 and not simply copied from other SQA documents such as course specifications and markers briefings**

**Chemistry**

All text was written specifically for these study guides, as they were designed for learners. They were produced by bringing together information from course reports, general marking principles, past papers and Understanding Standards etc. The PA and DPA for each course provided practical information from their teaching and marking experience.

**Physics**

All text was written specifically for these documents, as they were designed for learners. Course reports and the physics general marking principles were used for reference, but these are written for teachers and lecturers. Where appropriate examples existed already, e.g. in the physics general marking principles, these were used in the documents. Other examples were written specifically for the documents. The commentaries accompanying the examples were written specifically for the documents.

**5. Please inform me of how candidates responded to the anonymised samples of the study guide? specifically for Chemistry and Physics before publication of the information on 7th/8th March. Please include any feedback comments on the content of the study guide and any suggestions that candidates felt may have improved the resource.**

**Chemistry**

Feedback from learners was sought through senior appointees who shared anonymised drafts with their learners. Most learners observed that the documents were useful despite containing information their teacher had already provided to them. The documents were not amended as a result of this feedback.

Feedback from learners included:

* ‘Yes, it is helpful because it tells you where to focus on and says what you need to look out for to make sure you don’t make any silly mistakes.’
* ‘It helps with some things but most is already covered by my teacher.’
* ‘Most of the stuff mentioned I already knew but it would be helpful just to have as a reminder.’
* ‘For me it clarified a couple of things and made it easier to understand how to set marks but most of it I already knew so it didn’t change too much.’
* ‘The information provided I was already aware of and was not new, this would be useful to someone who had maybe missed a few lessons in the course.’
* ‘I found this information useful, it lets me know what I need to revise for my exam as before it would have felt very overwhelming.’

Many learners found the fact that there was nothing new in the guides reassuring. They could be confident that their teachers were preparing them well for their forthcoming exams.

**Physics**

Candidates in some centres responded verbally to their teachers and the teachers collated the feedback. In one centre, the teacher produced their own proforma for collecting written comments, which they then collated for SQA.

Overall candidates responded positively to the study guides.

Comments included (where multiple learners gave the same feedback, the comment has been included once):

* very informative
* good to be shown simple mistakes
* got scenarios for everything - good
* make it clearer where marks are awarded ie have marks beside the working (we took this suggestion on board)
* information is very dense (we changed the layout to space things out and address this feedback)
* hits all points and gives good information
* collate 'top tips' in a 'top tips' section (we adopted this suggestion but called it ‘tips’)
* contents page would be a big help (not adopted – as not house style for study guides)
* some distinction between info and answers in points 14, 17 (we addressed this issue)
* top tips are useful
* key words in bold to be clearer (headings were emboldened to address this feedback)
* use bullet points rather than long sentences (we took this feedback on board)
* clarifies question types well
* put headings in bold to break up the page a bit (we adopted this suggestion)
* covers a great range
* helpful examples
* clarifies what questions are asking
* lots of writing in big paragraphs so looks boring (text broken up into sections and bullet points used – as suggested by some learner feedback)
* too long (as other learners were suggesting we make it longer by including more examples, we had to balance the two points of feedback, so the length was left as is)
* headings could be clearer so you know where to find stuff (feedback taken on board - headings were emboldened)
* information quite handy
* would be good to get info on 4 mark questions (covered by the section on intermediate rounding, which is the most common issue in 4 and 5 mark questions)
* boring and too long - feels like you are reading a book (see earlier comments about balancing the feedback to make it longer with those saying it was too long)
* include colour to break it up a bit (we avoid using colour, as centres may want to print the document)
* it's not revision but does tell you where to pick up marks (it wasn’t intended as revision notes – the aim was to be a study guide to the types of questions in physics exams)
* already know most of it
* Tells you how you get marks which helps if you’re unsure where you get marks
* It is good and clear and explains it well
* Very clear especially providing examples and extra top tips (top tips were renamed as tips)
* Good explanations and examples
* Could be more space between words (text too crammed) (feedback taken on board)
* Make titles bigger and/or bold (feedback taken on board)
* Include a diagram in the section about graph drawing questions (not taken on board, as others commented about the length of the document)
* All the information is there and useful
* The wording in some parts is confusing (wording was updated with input from editors, to make it clearer)
* The language is very clear
* Layout could be improved but language is very clear (layout was adjusted based on learner feedback)
* Make the top tips clear and stand out (we did this by following learner suggestions that the tips should be a separate section)
* Some advice I found helpful: surplus answers, must justify, graph drawing questions, superscripts and subscripts
* Maybe include a section on how to rearrange formulas (not adopted as most learners do the substitution stage before rearranging)
* Maybe you could make the layout a bit better with clear headings (feedback taken on board)
* Some added information would be nice (the learner didn’t specify what information, so we were unable to take this on board)
* Make examples stand out (along with the learner suggestion to put the marks/commentary next to each line of the examples, we acted upon this feedback)
* Add an example for open-ended questions (we didn’t do this as the open-ended questions in this year’s exams will be different ones to those in previous exams)
* Could have more variation in font (we use a standard house-style font)
* Maybe add pictures but not too many because people will get distracted and only look at the pictures
* Add more examples
* Include more graphs (we only ask candidates to plot scatter graphs in the exam papers, so this suggestion wasn’t adopted)
* Add examples of the correct layout/form of problems (we didn’t adopt this as the document is highlighting common mistakes)
* I can see this being useful for Nat 5 and Higher pupils but as an Advanced Higher pupil it is important we know all this knowledge already, so there is nothing that I am unfamiliar with in the booklet.
* For advanced higher pupils some more advanced equation examples would be useful (we took this on board and made the AH examples more level specific)
* I think it covers all the points well.
* The language was clear enough to explain each scenario in depth. The layout could use some work. (As stated previously, we took on board a lot of the learner suggestions about layout)
* I feel it includes everything needed.
* Good explanations and examples.
* Add some model answers for common “wordy” questions. (we didn’t adopt this approach, as it may have been seen as misleading if we included examples that didn’t get tested in the exams).
* They found it a useful read. Although they felt I had said all of the things in it at some point, they liked having all the tips in a single document.