

Consultation on revised assessment arrangements for GCSE computer science

How to respond to this consultation

The closing date for responses is **noon on 22 December 2017**.

Please respond to this consultation in one of three ways:

- [complete the online response](#) (click 'Respond online') on our consultation homepage
- complete this response form and either:
 - email your response to consultations@ofqual.gov.uk – please include *GCSE Computer Science Consultation 2017* in the subject line of the email and make clear who you are and in what capacity you are responding
 - post your response to: *GCSE Computer Science Consultation 2017*, Ofqual, Spring Place, Herald Avenue, Coventry, CV5 6UB, making clear who you are and in what capacity you are responding
- **We can only consider your response if you fill in the 'About you' section at the end of the document.**

How we will use your response

1. Your response will be used to help us shape our policies and regulatory activity.
2. After the consultation ends, we will publish a summary of responses received.
3. We will not include your personal details in any published list of respondents, although we may quote from your response anonymously.

If you are responding on behalf of an organisation and you are happy for Ofqual to attribute your response in our publications to your organisation, please provide the name of your organisation below.

Organisation name:

Sharing your response

We may share your anonymised response with the Department for Education.

The information you provide in response to our consultations, including personal information, may need to be disclosed in accordance with the Freedom of Information Act 2000 and the Data Protection Act 1998.

Confidentiality and contacting you

To maintain your confidentiality, you are not required to provide your name or any information that will identify you. However, Ofqual may sometimes follow-up responses received. If you are happy to be contacted with regard to your response please complete the details below.

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Consultation questions

The short-term options

Q1: Do you **DISAGREE** with our view that there are shortcomings with the non-exam assessment for GCSE computer science?

I disagree with Ofqual's view

I agree with Ofqual's view

If you **disagree**, please give reasons for your answer

AQA recognises the challenge of managing NEA for GCSE Computer Science in a way that protects the broadest interests of the subject, including public confidence and assessment validity. AQA has worked in conjunction with the other three Awarding Organisations (AOs) and Ofqual to develop a range of processes to secure the integrity, validity and reliability of the NEA, however, despite these efforts, we recognise that shortcomings remain due to the nature of the subject and skills being targeted.

While we recognise the shortcomings, and the possible benefits that arise from longer term modification of the approach, we do have concerns about the timing of the proposed changes as detailed in our responses to the questions that follow.

We recognise that some of the evidence presented in the consultation demonstrates a risk of malpractice in some instances, but do not believe the validity or reliability of the assessment is sufficiently compromised to warrant the proposed course of action within the current academic year. The availability of (part) solutions on-line represents a clear risk to confidence and may be seen to undermine the qualification outcome, but we believe that the measures currently in place, as agreed with Ofqual and the other AOs during the development and accreditation process, will help identification and handling of malpractice issues should it occur this summer. We believe time should be given to see the effectiveness, or otherwise, of these procedures before taking action.

The decision over how to respond to the challenges faced in the NEA for GCSE Computer Science is a finely balanced one and requires a measured response. We believe care should be taken when defining any revised approach to ensure maximal fairness for all. Introducing the proposed changes during the final months of the teaching year risks introducing greater unfairness between those who have already completed their NEA and those students yet to begin, compared with the

risks of malpractice that currently exist.

In addition to the active measures in place, it is worth noting that, while the NEA contributes 20% to the overall assessment, only around 4% of the marks available are for the programmed solution itself. The remaining marks come from evidence of planning, testing, evaluation and write up of the task. The low intended weight of the programmed solution provides a level of mitigation against any adverse effect of malpractice. We believe that this low weighting, in combination with the protective measures already in place, means that a meaningful award of GCSE Computer Science in summer 2018 will remain possible on the basis of existing arrangements. At that time, on evaluation of the evidence, the finely balanced decision over how to act can be properly evaluated while avoiding the risks that exist of making immediate changes.

Q2: If you **agree** that there are shortcomings, to what extent do you agree or disagree that changes should be made to address these shortcomings for students who will be taking their exams in summer 2018 and 2019?

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Please give reasons for your answer

As indicated in our response to question 1, we feel the risks that would be introduced by making changes to the NEA arrangements at the current time will carry a greater risk of an adverse effect on the validity of outcomes than continuing with the current arrangements. The rank order of candidates is likely to be disrupted to a greater degree by intervening in this way compared with the disruption caused by potential malpractice in the programming element, given its relatively low intended weighting. With the proposed changes, this disruption to the rank order is likely to be brought about by differences in teaching and learning arising from changes introduced part way through the course.

While we believe many teachers will continue to spend the required 20 hours on the NEA task and would provide a valid signed statement reflecting this, the depth of engagement with the activity from students is likely to be heavily negatively impacted, and the confidence provided by the controls in the proposed solution do not, in our view, provide appropriate mitigation of the risk of disengagement from teachers and/or students. Were changes to be introduced in line with a new cohort of students, this effect of relative advantage/disadvantage would be removed.

We also believe the Ofqual preferred solution risks compromising the curriculum intentions, as it does not incentivise the depth of engagement from teachers or students with the NEA and its intended learning benefits. We feel that a more measured approach, once the findings from delivery in 2018 are known, would provide opportunities to introduce a solution that would both incentivise and reward delivery of the curriculum aims without undermining the validity of the qualification in the immediate term.

Q3: To what extent do you agree or disagree with our proposed short-term approach (option 2) to addressing the issues in GCSE computer science, i.e. to require that all students complete the non-exam assessment task but that it is not formally marked¹ and it does not contribute to their grade?

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

If you support one of the other options, please say so here and explain why.

We believe that, educationally, option 2 would be the least valid approach for the reasons outlined above and a greater focus on the examined elements would be inevitable as a result of these proposals. A valid assessment would cover several aspects of programming, such as programming efficiency and logic, for example, and we believe students should be rewarded based on the degree to which they are able to demonstrate these abilities. While we recognise the significant challenges in managing NEA that are the focus of this consultation, we believe greater damage is done from both an educational and assessment perspective of following this option. Implementing this solution would effectively mean that the AO3 element of the assessment would be hugely underrepresented in the assessment of the student's work for 2018 and 2019. This would compromise the validity of the assessment overall whilst also introducing challenges to inter-board comparability.

Regarding the nature of the NEA tasks, we seek further clarification regarding

¹ Formal marking of students' work involves the application of the published mark scheme available in each exam board's current specification. Teachers may choose to continue to use these mark schemes, but may also wish to employ a different approach to assessing students' work to support the feedback they give.

Ofqual's intentions in Option 2 (on page 14 of the consultation) for 'less restrictive assessment conditions', particularly in relation to 'some students in 2018' having the opportunity for a more authentic programming experience. If the intention here is to allow Awarding Organisations to change the restrictions on the conduct of the task 'allowing for a more authentic approach to programming' (as indicated on page 3) then we have serious concerns regarding such changes being made ahead of 2018 assessments. We feel strongly that changing how the NEA tasks are completed mid-year will further exacerbate any disparity (and relative advantage/disadvantage) between students who have already completed the tasks and those who have not. While we recognise that less restrictive rules would likely lead to a more authentic learning experience this does not justify the relative disadvantage on those completing the under existing conditions. Not only would those completing the NEA tasks early have done so under more restrictive conditions, but this would intentionally change the learning experience for a sub-group of the cohort. It is our view that a review how the NEA tasks are completed should therefore be considered separately to the issue of the NEA no longer contributing to candidates' grades so as not to compound the issue, and changes introduced at the start of an academic year.

AQA believes that continued delivery of option 1A, supported by a significant campaign led by Ofqual and supported by the AOs, to explain the existing safeguards and the sanctions would provide appropriate mitigation of the wide ranging risks that now exist in the delivery of GCSE Computer Science. Once delivered, the measures already in place can then be evaluated and a judgement made regarding their effectiveness. We believe that the NEA measures aspects of students' understanding/skills that are highly important to the subject. Its removal would distort what is valued in the subject and such a step should only be taken once all other solutions have been proven to be ineffective. Removing NEA and basing the final assessment grade on the written exams would place students into a rank order so that grades could be awarded, however this would not be based on an assessment of all skills valuable to the subject.

Q4: Are there any other short-term options we should consider?

Yes
 No

If yes, what are they?

Q5: Do you have any other comments on our proposed short-term approach?

Yes

No

If yes, please provide more detail below

The longer-term solution

Q6: Are there particular options we should consider for the longer-term approach to assessing students' programming skills?

Yes

No

If yes, please provide more detail below

We would support a thorough and well thought-out approach to introducing further improvements to the NEA in the future. In our view, this should be based on evidence from the first examination series and delivered in a measured but timely manner which allows all of the risks to be considered and effective mitigating actions to be implemented ahead of further exam series.

We believe that the extended programming opportunities, that the NEA provides, is the best way of assessing the computational thinking, problem solving and programming skills that are fundamental to the subject. While recognising the wider challenges of delivering valid assessments through NEA, on balance, we believe the validity of the qualification is compromised to a greater extent by its contribution to candidates' grades being removed than by actively managing the challenges it presents.

Potential approaches for consideration are outlined below:

- A. During the development of the Subject Content many stakeholders felt that the opportunity for students to work on an extended programming task was a vital part of the assessment regime for this subject. Removing the NEA's contribution to the final grade risks its role within the overall assessment regime. If NEA is to be replaced or removed the alternative needs to be meaningful in terms of the final outcome, deliverable by centres and also enjoyable for students to continue to take the course. Computer science cannot be delivered properly via a didactic approach to teaching; however

with the removal of the NEA this could become the reality. There would need to be a suitable, meaningful and robust assessment of students programming abilities. The assessing element of programming in a written exam becomes a time bound exercise and not one of innate ability.

Currently at A-level, AQA operates an on-screen programming exam; students write program code in an exam and copy this into an Electronic Answer Document. This works successfully at A-level and does not suffer from any issues of malpractice; however, this is an addition to NEA not a replacement for it. The AQA A-level model (pre-release material which can be openly discussed as the assessment remains secure until the day of the assessment) allows for a realistic experience, and for higher-level programming/problem solving skills to be assessed in a relatively short time frame (ie exam length) which would be difficult if students had to program from scratch. However, this is not without issue, at GCSE AQA's own market research indicated that it would be too difficult to implement with students needing access to computers simultaneously and many schools not having either the resource to deliver to large cohorts or the on-site technical support should an issue occur during the assessment. If the logistics can be dealt with then this provides the best combination of assessing the skills and maintaining the integrity of the assessment.

- B. Extended programming exam (half day). Consider a cut down version of NEA in which the focus is more on coding and less on doing formal analysis, design and testing with students given a half day unseen programming assessment. If this were done, meaningful tasks could be designed that could be completed. This would be completed by all schools on the same day, much like an exam, however consideration of the logistical and resource implications would need to be factored in so as not to force schools to remove the subject from their curriculum.

Whatever the assessment method taken forward longer term, we believe that assessing practical programming skills has to make up a significant proportion of the overall assessment to ensure that achieving the curriculum aims is supported.

Equality impact

Q7: We have identified some ways in which our proposals could impact on persons who share a protected characteristic.² Are there any potential impacts (positive or negative) we have not identified?

Does the opportunity for students to program away from the formal assessment process given the access to this course?

No

Q8: Are there any additional steps we could take to mitigate any negative impact resulting from these proposals on persons who share a protected characteristic?

No

Q9: Do you have any other comments on the impacts of the proposals on persons who share a protected characteristic?

No

Regulatory impact

Q10: We think our proposals will result in a net reduction in burden on schools, colleges and exam boards. To what extent do you agree or disagree with this assessment?

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

Please give reasons for your answer

Dependent on the detail of the approach, we believe that a move such as that

² 'Protected characteristic' is defined in the Equality Act 2010. Here, it means disability, racial group, age, religion or belief, pregnancy or maternity, sex, sexual orientation and gender reassignment.

proposed would, in the longer term reduce the burden on schools, colleges and exam boards; however, there would be a significant short term increase in burden for exam boards. From an exam board's perspective, this would arise from the system and process changes required in short order to implement the solution, introducing significant operational risks, in addition to additional communication and support for teachers through the changes.

The change in approach at this stage would have a significant disruptive impact on all teachers and learners introducing a short term increase in burden, regardless of the stage which they had reached in the current NEA process.

In short, each of the options (2, 3A and 3B) has one or more of the following drawbacks:

- it would require significant systems development in short order with high risk
- it would require the development of new assessment criteria and training of teachers to apply them
- it would cause significant disruption for centres, a lack of clarity for users of the qualification, and could potentially undermine credibility of the qualification more widely.

Q11: Are there any additional steps we could take to reduce the regulatory impact of our proposals?

No

Q12: Are there any costs or benefits associated with our proposals which we have not identified?

No

About you

To evaluate responses properly, we need to know in what capacity you are responding to the consultation. We will only consider your response if you complete the following section. Questions marked with a * are required.

Organisation (if applicable): *

AQA

Is this a personal response or an official response on behalf of your organisation? *

Personal response (please answer the question 'If you ticked 'Personal response'')

Official response (please answer the question 'If you ticked 'Official response'')

If you ticked 'Personal response', which of the following are you? *

Student

Parent or carer

Teacher (but responding in a personal capacity)

Other, including general public (please state below)

If you ticked 'Official response', which of the following are you? *

Awarding organisation

Local authority

School or college (please answer the question 'School or college type' below)

Academy chain

Private training provider

University or other higher education institution

Employer

Other representative or interest group (please answer the question 'Type of representative group or interest group' below)

School or college type

Comprehensive or non-selective academy

State selective or selective academy

Independent

Special school

Further education college

Sixth form college

Other (please state below)

Type of representative group or interest group

Group of awarding organisations

Union

Employer or business representative group

Subject association or learned society

Equality organisation or group

School, college or teacher representative group

Other (please state below)

Nation*

England

Wales

Northern Ireland

Scotland

Other EU country: _____

Non-EU country: _____

How did you find out about this consultation?

Ofqual's newsletter

Ofqual's social media channels

Other social media channels

Ofqual's website

Internet search

Other: _____