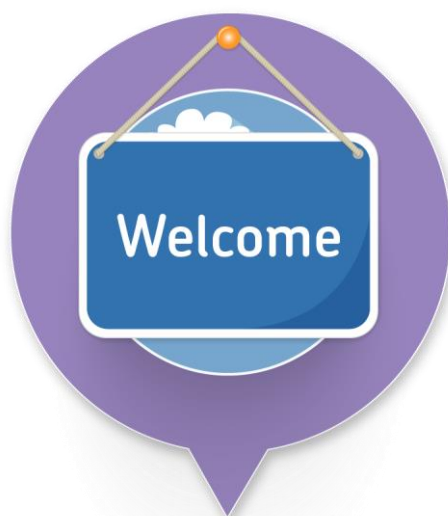


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## Science hub schools network

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Summer 2019



## This meeting will be recorded

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Exam boards have an Ofqual requirement to record event audio.

Recordings are kept for the lifetime of the specification and not shared as an accompaniment to session resources.

The recording will begin now.

## Summer series

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We won't be able to discuss individual issues with questions in this meeting.

Please refer any queries to the science team via Teacher Services: [gcsescience@aqa.org.uk](mailto:gcsescience@aqa.org.uk)

## Feedback from spring 2019 meetings

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You asked for more on:

- questions addressing required practicals
- maths in science – particularly longer answer questions
- assessing AO1, AO2, AO3
- dealing with common student mistakes
- tiering decisions guidance
- stretch at top end and supporting lower ability
- how to plan curriculum, improving recall, teaching required practicals, guiding and engaging students, making practicals 'less pedestrian'.

## Agenda

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- AO3
  - What is AO3?
  - Question types that assess AO3
  - Assessing AO3 at different levels of demand
- Using the legacy ISAs to support teaching and learning opportunities
- Updates
  - Making the best use of ERA
  - Results day
  - Resources

## What is AO3?

- AO3 covers the skill of looking critically at information given in tables, graphs, diagrams or written prose.
- It involves analysing and interpreting information and ideas to:
  - identify and explain patterns and trends
  - make judgements based on the data
  - draw conclusions based on the data
  - identify experimental errors, adapt and improve practical procedures.
- 20% of the marks are AO3.

## Regulatory requirements for AO3

AO3: Analyse information and ideas to:			20%
<ul style="list-style-type: none"> <li>interpret and evaluate</li> <li>make judgements and draw conclusions</li> <li>develop and improve experimental procedures.</li> </ul>			
Strands	Elements	Coverage	Interpretations and definitions
1 – Analyse information and ideas to interpret and evaluate.	1a – Analyse information and ideas to interpret.	<ul style="list-style-type: none"> <li>Full coverage in each set of assessments (but not in every assessment).</li> <li>A reasonable balance between the strands within this assessment objective, and between the elements within each strand.</li> </ul>	<ul style="list-style-type: none"> <li><b>Develop and improve</b> covers a range of approaches to assessment, including questions related to adapting, modifying and enhancing experimental procedures. Learners should not be expected to develop their own procedures.</li> <li><b>Experimental procedures</b> encompasses, but is broader than, the core practical activities. In the context of this assessment objective, questions/tasks should take an analytical form such as suggesting the limitations of a particular method.</li> <li>The emphasis here is on the outcome that Learners produce through the analysis of information – for instance, the interpreting, evaluating, judgement, conclusion or modification/improvement of procedures that stems from their reasoning and synthesis of skills. The abilities to interpret and evaluate in this context are both linked and complementary.</li> <li>Questions/tasks should address a range of sources here – for example, written, numerical, theoretical, practical, ethical, social, economic and environmental.</li> </ul>
	1b – Analyse information and ideas to evaluate.		
2 – Analyse information and ideas to make judgements and draw conclusions.	2a – Analyse information and ideas to make judgements.		
	2b – Analyse information and ideas to draw conclusions.		
3 – Analyse information and ideas to develop and improve experimental procedures.	3a – Analyse information and ideas to develop experimental procedures.		
	3b – Analyse information and ideas to improve experimental procedures.		

Of qual GCSE Subject Level Guidance for Single Science (Biology, Chemistry, Physics) July 2015  
<https://www.gov.uk/government/publications/gcse-9-to-1-subject-level-guidance-for-single-science>

## Assessing A03 in GCSE Science papers

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- Three broad categories of task:
  - interpret and evaluate
  - make judgements and draw conclusions
  - develop and improve experimental procedures.
- Wide range of command words
- Full range of marks
- Closed, short answer and extended response
- All levels of demand
- Coverage of Working scientifically and maths skills

## Working scientifically

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- Section 3 of all GCSE science specifications
- Four key areas:
  - WS 1: Development of scientific thinking
  - WS 2: Experimental skills and strategies
  - WS 3: Analysis and evaluation
  - WS 4: Scientific vocabulary, quantities, units, symbols and nomenclature

## Discussion points

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- Look at example 1.
- What is it asking the student to do?
- What aspect of AO3 do you think it assesses?
- What level of demand do you think it targets?
- How could you adapt the material to change the level of demand?

## Interpret and evaluate

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### **Tasks include**

- Identify/describe patterns and trends in information
- Compare patterns and trends
- Draw inferences from patterns and trends
- Use information given to support or disprove a conclusion, judgement or hypothesis
- Interpret information to give advantages and disadvantages
- Calculate uncertainties
- Identify anomalous results

## Make judgements and draw conclusions

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### Tasks include

- Use data/information to make a judgement (eg about which of two statements is correct)
- Use data/information to come to a conclusion about what the data is showing
- Use data/information to explain phenomena and relationships
- Consider the validity of data in presenting and justifying conclusions
- Make predictions based on data

## Develop and improve experimental procedures

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### Tasks include

- Adapt/develop a given method to test/prove a hypothesis, answer a query, produce a particular result
- Identify variables that need to be controlled
- Identify and explain sources of error in experiments
- Identify reasons for anomalous results
- Identify and explain risks in experimental procedures
- Change a method to improve it – eg to correct/eliminate errors, increase accuracy

## Activity: progression of demand in AO3

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### In your group consider:

- What are students being asked to do?
- How are the questions at the different demands similar/different?
- What has the examiner done to make the question work at the different levels of demand?
- What might you do to increase/decrease the level of demand of each example?
- How might you use these questions with your students to increase their understanding of the AO3 aspect being tested?

## Feedback from group activity

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- Interpret and evaluate (examples 2-4)
- Make judgements and draw conclusions (examples 5-7)
- Develop and improve experimental procedures (examples 8 and 9)
- Further examples in Booklet 1:

Aspect of AO3	Low demand	Standard demand	High demand
Interpret and evaluate	10–14	15–18	19
Make judgements/draw conclusions	20–21	22	23–25
Develop and improve experimental procedures	26–28	29–31	32–34

## Data resources to support teaching AO3 skills

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- Wealth of untapped resource on e-AQA – the legacy specification ISAs on Secure Key Materials.
- Currently still available: there are 22 for Biology and Chemistry, 23 for Physics.
- Section 2 ISA questions 1 and 2 are almost entirely AO3.
- Secondary data sheets for each ISA – unseen data.
- Some potentially link with Required Practicals, so could use in conjunction with practical work.
- Others will give unseen data in unfamiliar contexts for students to analyse and evaluate.

## Example: ISA Set B BU3.2b Solutions

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- Links to Biology RPA 3 (Osmosis)
- Question 1 in the ISA section 2 could be given as homework after the practical or as discussion points
  - 1(a)(i) patterns/trends in results that support a hypothesis
  - 1(a)(ii) identifying anomalous results
  - 1(b) using repeated readings to improve accuracy
  - 1(c) identifying variables and explaining ranges
  - 1(d) identifying errors and suggesting improvements

## Using the secondary data

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- Each ISA has a secondary data sheet.
- Familiar or unfamiliar contexts dependent on the topic in the ISA.
- Section 2 ISA Question 2 interrogates the secondary data.
- You could do more with the data if you wanted.
- Tie in with teaching of topic areas.

## Making the best use of ERA

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- Free service, available through [e-AQA](#)
- Review school, class and individual student performance
- Question level data
- Skills and topics analysis
- Group data
- Grades overview
- Download data for your own analysis
- Year on year data for comparison with 2018 results
- User guide and video tutorials

# Results day (1)

Exams administration / Results days

Become an AQA centre

Dates and timetables

Entries

Special requirements

Coursework, controlled assessment and non-exam assessment (NEA)

Exams

Results days

Before results day

Results slips

Missing results

Grade boundaries and the Uniform Mark Scale (UMS)

Results statistics

After results

## Results days

**What's available when on results days.**

If you're a student, see our [results day for students](#) page to find out what to expect on results day.

**Next results day**

Results day for the June 2019 exam series is:  
**15 August 2019**

**Results days in 2019**

Exam series	Qualification	Results day
June 2019	AS and A-level AQA Baccalaureate AQA Certificate (Level 3) Functional Skills FSMQ (Advanced level) and Level 3 Extended Project	15 August 2019
June 2019	GCSE AQA Certificate (Level 1 Level 2 and Level 1/2) ELC FCSE Level 1 Foundation and Level 2 Higher Projects AQA Level 1/2 Award and Technical Award	22 August 2019



# Results day (2)

## Restricted release day (Wednesday)

This is the day before students receive their results. From 12.01am, exams office staff and heads of centre **only** can see results on these systems:

- Electronic Data Interchange (EDI) and A2C (make sure you click 'Send/Receive' to force A2C to check for files)
- as 'e-documents' on e-AQA, our secure extranet.
  - what results look like on e-AQA results screens and ERA (280.9 KB)
  - what results look like in our e-AQA e-document – includes the GCSE English Language (8700) spoken language and A-level sciences practical skills endorsements (377.0 KB)
  - what Tech-level results look like on Gateway (302.2 KB)

Results are confidential during restricted release. You must not share them more widely. See JCQ's [Notice to centres on release of results](#).

Time on Wednesday	What's available	Who it's available to
12.01am	Results slips and component marks on e-AQA, EDI/A2C, and Gateway (Tech-levels and PSE only). Available for 28 days	Exams officers only
	Enhanced Results Analysis (ERA) on e-AQA	Exams officers only
	Grade boundaries on e-AQA (excluding Tech-levels)	Exams officers only
	You can download and print results from EDI	Exams officers only
8am	Mark schemes and examiner reports on e-AQA	Exams officers only



# Results day (3)

## Student results day (Thursday)

From 6am on this day, you can give students their results slips.

If you're a student, ask your school or college about exactly when and how you can collect your results. Don't call us – we can't give you your results or discuss them with you. If you have queries about university places, contact UCAS directly.

Time on Thursday	What's available
6am	Results slips can be given to students
	ERA access for any school staff with an e-AQA login
	Post-results services opens
8am	Grade boundaries on our main website
	UMS converter updated
9.30am	Results statistics (provisional)
	Any late marks and grade changes to results from the day before. These are added to e-AQA and emailed to exam officers

# Reviews of results

- Marking is completed expertly and with care, but occasionally errors occur.
- The review of results service provides a means to correct any errors.
- Reviews will address genuine errors in marking.
- In many responses, including more extended answers, there is a range of reasonable marks, not one single correct mark.
- Reviewers will not replace one reasonable mark with another reasonable mark.

## Update on resources

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- 'Inside Exams' podcasts  
[aqa.org.uk/inside-exams-podcasts](https://aqa.org.uk/inside-exams-podcasts)
- Teacher support materials on Secure Key Materials
- Exampro Highlights
- Teachit: 'Closing the Word Gap'  
[teachitenglish.co.uk/wordgap](https://teachitenglish.co.uk/wordgap)
- CPD events  
[aqa.org.uk/professional-development](https://aqa.org.uk/professional-development)
- Feedback on summer 2019: booking opens 1 July
- Collaborative group work in problem solving  
[aqa.org.uk/assessing-collaborative-group-work](https://aqa.org.uk/assessing-collaborative-group-work)

## How did we do?

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Please take a moment to complete a brief evaluation form for today's event. Your feedback is very important to us as it helps us improve and plan future training.

You should have been emailed the evaluation form. Please check your inbox (possibly your junk mail folder). If you haven't received it please give your trainer your name, centre name/number and email address so that we can look into it for you.

Thank you.

## Get in touch

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Science Team

01483 477 756

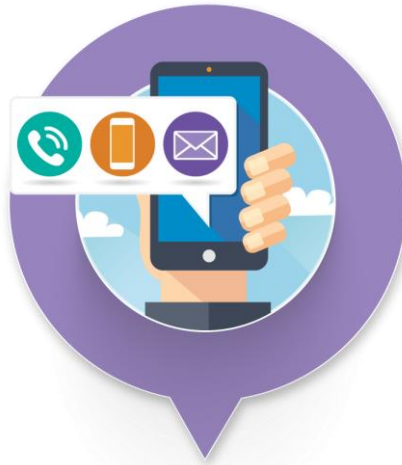
[gcsescience@aqa.org.uk](mailto:gcsescience@aqa.org.uk)

[alevelscience@aqa.org.uk](mailto:alevelscience@aqa.org.uk)

Events Team

0161 696 5994

[events@aqa.org.uk](mailto:events@aqa.org.uk)



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## Thank you

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