GCSE
SCIENCE

Virtual communities

Support booklet

Published: Spring 2021

Contents

AQA results, summer 2020

Summary of GCSE science results

GCSE	Total entries	Grade 1	Grade 4	Grade 7	Grade 9
Combined Science: Trilogy*	322 206 (304 833)	99.6 (98.1)	64.9 (56.0)	10.8 (7.6)	1.4 (0.9)
Combined Science: Synergy*	7076 (6241)	99.2 (96.6)	50.0 (41.4)	5.4 (3.7)	0.4 (0.3)
Biology	132 819 (131 618)	99.9 (99.4)	94.7 (90.1)	53.0 (42.8)	16.8 (12.5)
Chemistry	127 311 (126 607)	100 (99.5)	95.8 (90.3)	53.1 (44.5)	16.8 (13.2)
Physics	126 679 (125 869)	100 (99.5)	96.1 (91.1)	53.1 (44.2)	16.4 (12.6)

Numbers in brackets are for summer 2019.
*Grades reported for the Combined Science specifications are the double grades (1-1; 4-4; 7-7; 9-9). Outcomes at all grades were significantly higher than in 2019, particularly at grades 6 and 7 (separates) and 4-4 (combined sciences).

Summary of AS and A-level science results

	Total entries	Grade E	Grade C	Grade A
AS Biology	3093 (4772)	95.7 (81.2)	68.0 (48.3)	24.8 (16.8)
A-level Biology	31 539 (33 381)	99.7 (95.6)	83.5 (65.7)	36.8 (23.4)
AS Chemistry	1970 (3399)	97.4 (82.1)	74.4 (52.4)	31.0 (19.7)
A-level Chemistry	23 223 (24 705)	99.6 (95.7)	85.6 (71.2)	41.5 (28.2)
AS Physics	2384 (3239)	96.5 (81.8)	70.8 (53.8)	30.8 (22.8)
A-level Physics	19 946 (20 385)	99.6 (95.5)	84.0 (70.5)	41.4 (27.9)
AS Environmental Science	242 (332)	95.5 (80.7)	65.7 (44.0)	15.3 (9.6)
A-level Environmental Science	881 (876)	99.1 (93.9)	72.5 (54.0)	18.4 (8.8)

Numbers in brackets are for summer 2019. Outcomes at all grades were significantly higher than in 2019.

Autumn 2020 exceptional series

You can find more detail on the grade boundaries and results statistics for the exceptional series on our website.

Summary of GCSE science results

GCSE	Total entries	Grade 1	Grade 4	Grade 7	Grade 9
Combined Science: Trilogy*	1229	95.9	55.3	9.3	1.1
Combined Science: Synergy*	32	100	50.0	0.0	0.0
Biology	871	97.8	86.8	39.3	7.5
Chemistry	751	97.8	86.8	39.3	7.5
Physics	521	97.9	91.6	43.2	7.3

*Grades reported for the Combined Science specifications are the double grades (1-1; 4-4; 7-7; 9-9).

Summary of AS and A-level science results

	Total entries	Grade E	Grade C	Grade A
AS Biology	82	86.6	53.7	18.3
A-level Biology	1224	96.1	68.8	32.6
AS Chemistry	77	83.1	41.6	6.5
A-level Chemistry	1258	95.4	73.6	29.3
AS Physics	69	88.4	36.2	5.8
A-level Physics	748	95.6	54.5	14.0
AS Environmental Science	0	0	0	0
A-level Environmental Science	16	43.8	84.9	12.5

Support with the learning gap

Below are links to the resources mentioned in the presentation.

The National Foundation for Educational Research (NFER) report on schools' responses to Covid-19

The EEF Guide to supporting school planning: a tiered approach to 2020-21

STEM Learning

STEM Learning map and list of all SLPs

Key command words

See the basic definition for each command word on the Command words page on the AQA website. The mark scheme makes the specific requirements for each individual question clear.

There is a continuum of requirements through these four commands, which you can see in the descriptions below.

Describe

AQA definition for GCSE Science

Students may be asked to recall some facts, events or processes in an accurate way.

What we are looking for in assessments

Examples of what students could be asked to do include:

- give an account of a practical procedure, such as an experiment they have done (eg how to use a microscope; how to set up a circuit; the test for oxygen)
- describe what they might expect to observe with a given procedure (eg what they would expect to see at the positive electrode when a particular solution is electrolysed)
- describe what something looked like or what happened in a practical (eg gas given off; resistance decreased)
- describe a trend in data on a table or graph
- describe a relationship shown by the data in a table or a graph
- use their knowledge to describe facts or features from the subject content (eg how plant and animal cells differ; how the body defends itself against pathogens; the bonding in graphite; how particle motion changes with temperature).

Questions cover all levels of demand, all assessment objectives and may be worth any number of marks (from 1 to 6).

Example 'describe' questions

June 2018 GCSE Biology 1H question 3.6

0 3 . 6 Describe how you would test a sample of food to show it contains protein.

Give the reason for any safety precautions you would take.

[4 marks]

June 2018 GCSE Biology 2F question 3.5

0 3 . 5 Describe the process of natural selection.

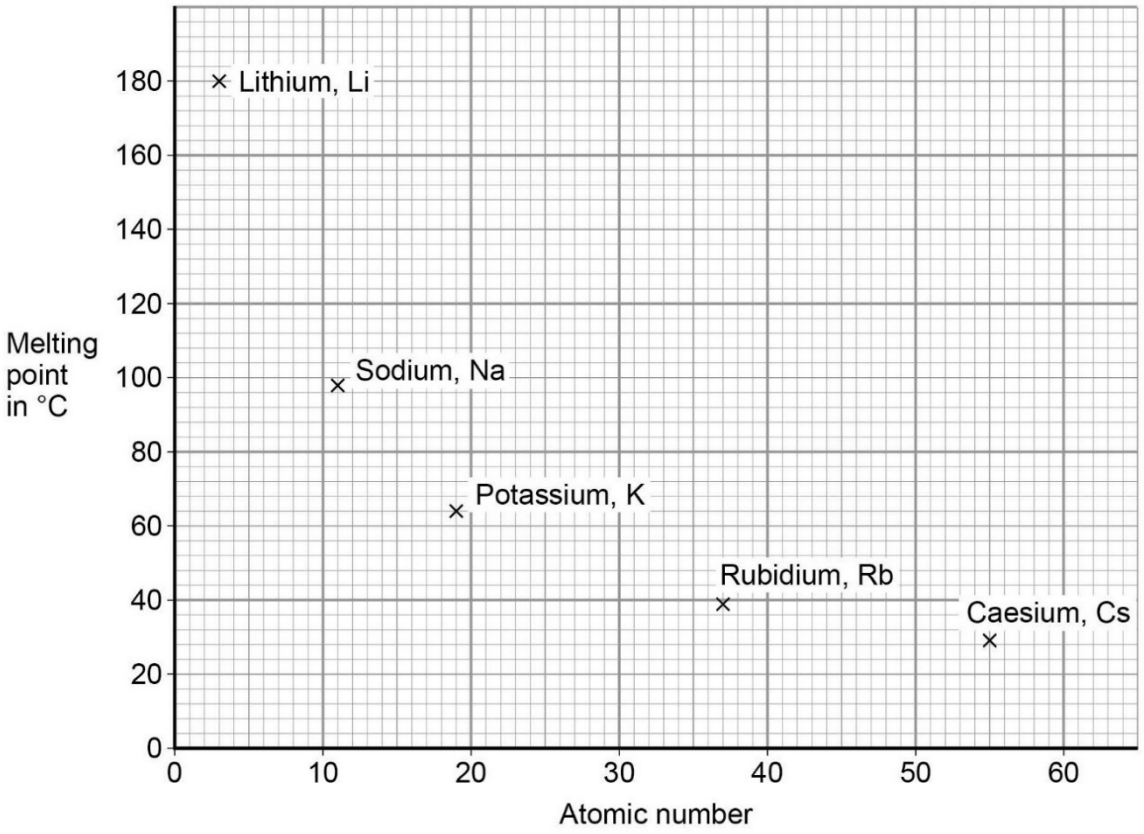
[3 marks]

June 2018 GCSE Synergy 3F question 2.1

0 2 This question is about Group 1 metals.

Figure 1 shows the melting points of Group 1 metals plotted against their atomic number.

Figure 1



0 2 . 1 Describe the trend shown by the melting points of Group 1 metals as the atomic number increases.

[1 mark]

June 2018 GCSE Physics 1F question 4.1

0 4 A student wanted to determine the density of a small piece of rock.

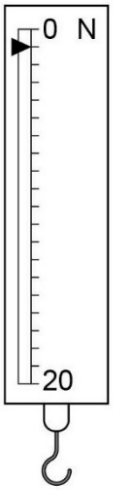
0 4 . 1 Describe how the student could measure the volume of the piece of rock.

[4 marks]

June 2018 GCSE Trilogy Physics 2H question 4.2

0 4 . 2 The newtonmeter in **Figure 7** will give an error when used to make a measurement.

Figure 7



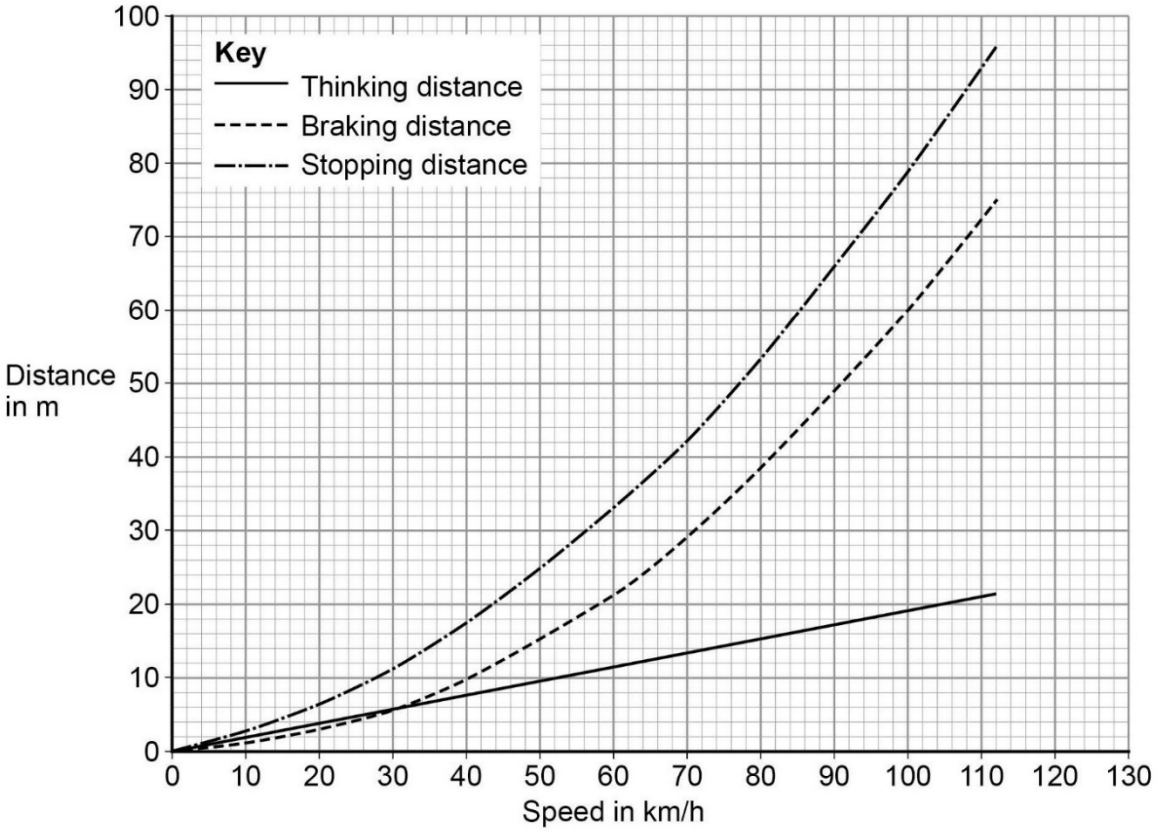
Name the type of error.

Describe how this error can be corrected.

[2 marks]

0 6 . 4 **Figure 9** shows how the thinking distance, braking distance and stopping distance for a car vary with the speed of the car.

Figure 9



Describe the relationships shown in **Figure 9**

You should include factors that would affect the gradient of the lines.

[6 marks]

Explain

AQA definition for GCSE science

Students should make something clear, or state the reasons for something happening.

What we are looking for in assessments

More depth than ‘describe’ is required here; the answer should not just be a simple list of reasons or points. This means that points in the answer **must be linked** coherently and logically.

Suitable linking words in the answer could be ‘so’, ‘therefore’, ‘because’, ‘due to’, ‘since’, ‘this means’ or ‘meaning that’.

Examples of what students could be asked to do include:

- look at sets of experimental data and explain why they are different
- look at the trend shown in a table of data or in a graph and explain why this trend is seen
- look at the results from an experiment and explain why they are not what were expected
- look at information given and explain why something has/hasn’t happened
- use their knowledge and understanding of the subject content to give logically linked reasons for what they are seeing in a diagram or in a piece of information.

Questions cover all levels of demand and all assessment objectives.

‘Explain’ questions are always worth more than 1 mark, which should give students a clue that something more than a simple statement is required. There is likely to be a mark for stating something and mark(s) for the reasons for this.

Student responses and mark schemes (Exercise 2 in the presentation)

Student response 1 – June 2018 GCSE Biology 1H question 1.4

0 1 . 4 A person with AIDS may take longer than a healthy person to recover from a *Salmonella* infection.

Explain why.

[2 marks]

AIDS weakens the immune system, so the white blood cells are not as effective at destroying bacteria. therefore it takes longer to reproduce to create enough antibodies to kill all the bacteri

Mark scheme

01.4	immune system is damaged / weakened **or** immune system doesn't function properly	allow immunocompromised allow lack of / no white blood cells	1	AO2 4.3.1.2
	white blood cells cannot kill bacteria / *Salmonella* (as effectively)	allow no / fewer antibodies so bacteria not killed **or** less phagocytosis so bacteria not killed **or** no / fewer antitoxins to counter toxins	1	

Student response 2 – June 2018 GCSE Chemistry 1F question 2.4

Table 1

	Potassium chloride (colourless)	Potassium bromide (colourless)	Potassium iodide (colourless)
Chlorine (colourless)		Solution turns orange	Solution turns brown
Bromine (orange)	No change		Solution turns brown
Iodine (brown)	No change	No change	

0 2 . 4 Explain how the reactivity of the halogens changes going down Group 7.

Use the results in **Table 1**.

[3 marks]

The reactivity of the halogens goes down, as the further down the group you go, there is no change in colour meaning a reaction has not happened as they are less reactive.

Mark scheme

02.4	the reactivity decreases (going down Group 7)	allow the reactivity decreases from chlorine to iodine	1	AO1 4.1.2.6
	(because) chlorine displaces bromine and iodine	allow (because) chlorine has two reactions allow (because) neither bromine nor iodine can displace chlorine	1	AO3 4.1.2.6
	(and) bromine displaces iodine **or** iodine does not react	allow (and) bromine has one reaction **or** iodine has no reactions allow (and) iodine cannot displace bromine	1	AO3 4.1.2.6

Student response 3 – June 2018 GCSE Physics 1H question 6.5

Explain the ideal properties of a radioactive source for use in medical diagnosis.

[4 marks]

- A short half life so that it decays into a safe / stable material quicker.
- Weakly ionising so it doesn't cause too much harm to the delicate internal organs.
- Soluble so that it can diffuse into the relevant organs.
- Able to be filtered out of the body as a waste product to reduce contamination.

Mark scheme

06.5	**Level 2:** Relevant points (reasons / causes) are identified, given in detail and logically linked to form a clear account.	3–4	AO2 4.4.3.3
	Level 1: Relevant points (reasons / causes) are identified, and there are attempts at logically linking. The resulting account is not fully clear.	1–2	AO1 4.4.3.3
	No relevant content	0	
	Indicative content • short half-life or half-life of a few hours • (short half-life means) less damage to cells / tissues / organs / body • low ionising power • (low ionising power means) less damage to cells / tissues / organs / body • highly penetrating • (highly penetrating means) it can be detected outside the body • emits gamma radiation		

Compare

AQA definition for GCSE science

This requires the student to describe the similarities and/or differences between things, not just write about one.

What we are looking for in assessments

If students are asked to ‘compare X with Y’ they need to write down something about X and something about Y, using comparative words such as ‘better’, ‘more than’, ‘less than’, ‘quicker’, ‘more expensive,’ or ‘on the other hand’.

Answers need to be clearly comparative. Often what we see is a description of or a list of statements about X, followed by a description of or a list of statements about Y, without any comparative language in the answer. Such lack of clarity puts the onus on an examiner to decide whether the student is making a comparison or not. It also runs the risk of a student who clearly knows quite a lot about the subject not gaining marks because they have not made a comparison.

‘Compare’ questions are likely to be mostly AO2 and AO3, although there will often be some element of AO1. Questions that ask students to write a comparison are likely to be higher tariff (4–6 marks), although some questions may require a simple comparison and be worth 2 or 3 marks.

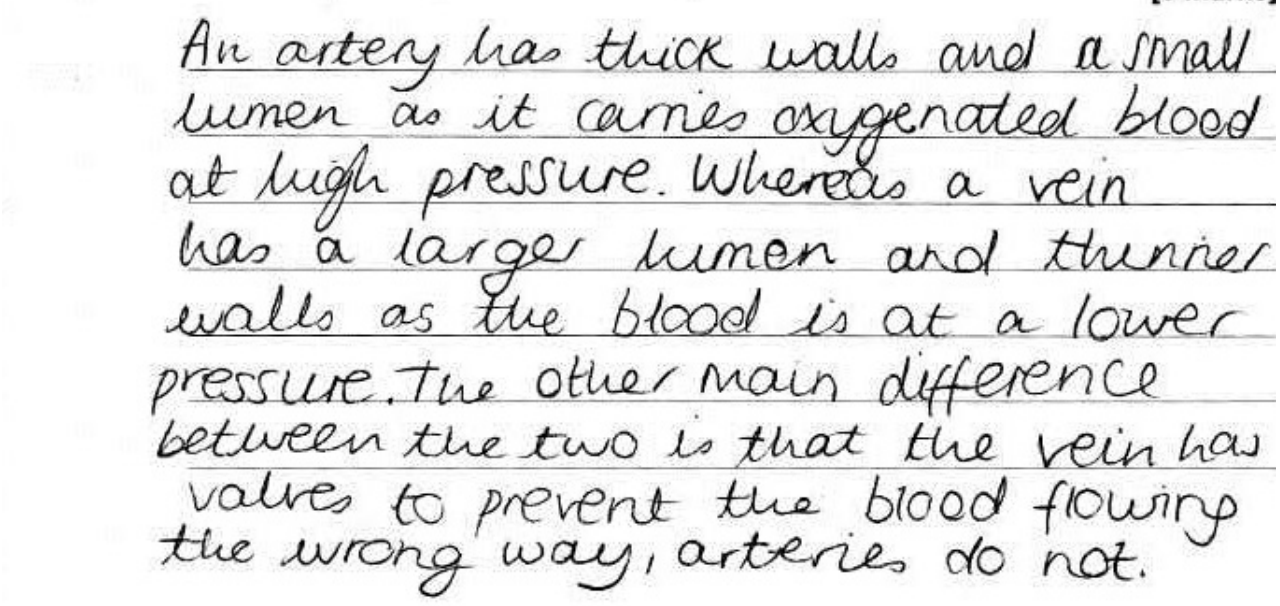
Exam questions often ask students to compare aspects of knowledge that may have been taught separately (eg bonding in different types of molecule; different adaptations to the environment).

Student responses and mark schemes (Exercise 3 in the presentation)

Student response 4 – June 2018 GCSE Biology 1H question 3.5

0 3 . 5 Compare the structure of an artery with the structure of a vein.

[3 marks]


An artery has thick walls and a small lumen as it carries oxygenated blood at high pressure. Whereas a vein has a larger lumen and thinner walls as the blood is at a lower pressure. The other main difference between the two is that the vein has valves to prevent the blood flowing the wrong way, arteries do not.

Mark scheme

03.5	any **three** from: • arteries have a thicker layer of muscle (tissue) **or** veins have a thinner layer of muscle (tissue) • arteries have a thicker layer of elastic tissue **or** veins have a thinner layer of elastic tissue • arteries have a narrower lumen **or** veins have a wider lumen • arteries do not have valves **and** veins have valves	if neither marking points 1 or 2 awarded, allow arteries have a thick wall **and** veins have a thin wall **or** arteries have a thicker wall **or** veins have a thinner wall for **1** mark do **not** accept 'cell wall' allow descriptions of 'lumen' allow **only** veins have valves	3	AO1 4.2.2.2

Student response 5 – June 2018 GCSE Chemistry 2F question 6.4

0 6 . 4 **Table 4** gives some information about disposable cups.

Table 4

	Coated paper cups	Poly(styrene) cups
Source of raw materials	Wood	Crude oil
Energy to make 1 cup in arbitrary units	550	200
Biodegradable	Yes	No
Recyclable	No	Yes

Compare the advantages and disadvantages of using coated paper and poly(styrene) to make disposable cups.

Use **Table 4** and your knowledge and understanding of life cycle assessments (LCAs).

[4 marks]

Coated	Poly(styrene)
+ It is made out of wood, which is renewable, so doesn't run out	+ It is made out of crude oil, which is non-renewable, so does eventually run out
- It takes 350 more energy units to make, so would cost more to produce	+ Takes 350 less energy units to make, so would cost less to produce
+ It's biodegradable meaning, it won't be churned on a landfill and won't harm the earth	- It's not biodegradable, so it will pollute the earth and stay on the landfill

Mark scheme

06.4	**Level 2:** Scientifically relevant features are identified; the way(s) in which they are similar / different is made clear and (where appropriate) the magnitude of the similarity / difference is noted.	3–4	AO3
	Level 1: Relevant features are identified and differences noted.	1–2	AO2
	No relevant content	0	
	Indicative content for coated paper cups – accept converse for poly(styrene) **advantages** • produced from a renewable resource • biodegradable so breaks down **disadvantages** • higher energy costs • greater use of fossil fuels and consequent pollution • not recyclable so uses landfill		4.10.1.1 4.10.2.1

Evaluate

AQA definition for GCSE science

Students should use the information supplied, as well as their knowledge and understanding, to consider evidence for and against when making a judgement.

What we are looking for in assessments

An evaluation goes further than ‘compare’. For example, students may be given a passage to read and told to ‘evaluate the benefits of using system X and system Y’. This means they will need to write down some of the points for and against both systems to develop an argument. They should then provide a judgement or conclusion based on the evidence they have given.

Students should compare both sides of the argument, using linking words such as ‘however’, ‘whereas’, ‘but’ and ‘on the other hand’.

No credit is given for simply stating information given in the question, in either the comparisons or in the conclusion: students need to do something with this information.

These questions are almost always going to be AO3, with some AO2, but are unlikely to involve much AO1. They are always going to be higher tariff questions (4 marks or more).

What is often lacking in student responses is a judgement of any kind, which means what we’re getting is really a comparison not an evaluation.

Student responses and mark schemes (Exercise 4 in the presentation)

Student response 6 – June 2018 GCSE Combined Science: Synergy 4H question 2.6

Table 1 shows data from a life cycle assessment (LCA) for the two types of carrier bag.

Table 1

	Disposable bag	Bag for life
Type of polymer	HD poly(ethene)	LD poly(ethene)
Raw material from which polymer is made	Crude oil	Crude oil
Mass of waste material per bag from production in grams	0.42	0.17
Mass of carbon dioxide emitted per bag during production and transport in grams	1.6	6.9
Mean number of times used	1	6
Possible disposal methods	Landfill Incineration Recycling	Landfill Incineration Recycling

Evaluate the use of each type of carrier bag.

Use data from **Table 1** and your own knowledge.

[6 marks]

The bag for life is the more popular bag but emitts alot of carbon dioxide when being made. Where as the less popular disposable bag ~~is~~ emits less carbon dioxide but has a high waste percentage compared to the bag for life. Also the bag for life is more ~~expensi~~ expensive compared to the desposable bag but lasts alot longer. Disposable bags dont last as long and aren't as strong but they are alot cheaper than a bag for life.

Student response 7 – June 2018 GCSE Combined Science: Synergy 4H question 2.6

Evaluate the use of each type of carrier bag.

Use data from **Table 1** and your own knowledge.

[6 marks]

Disposable bag ~~pass~~ this produces alot of waste material per bag at 0.42g as the bag for life only produces 0.17g per bag from production. So this is 0.25g less then the mean number of times its used is 6. in comparison the disposable bag is used once. So in terms 6x0.42 = 2.52 6 usese of disposable = 2.52g of waste material 6 uses of Bag for life = 0.17g of waste material 6 uses of disposable = 96g of carbon dioxide 6 uses of Bag for life = 6.9g of carbon dioxide

So in sumary a Bag for life is alot kinder to the enviroment than a disposable bag. There is still the problem with both going to landfill or recycel but a bag for life has a higher probabal of being recyled due to supermarkets replacing your bag for a new one

02.6	**Level 3:** A judgement, strongly linked and logically supported by a sufficient range of correct reasons, is given.	5–6	AO3 4.4.1.4 4.8.1.2 4.8.2.8 4.8.2.9
	Level 2: Some logically linked reasons are given. There may also be a simple judgement.	3–4	
	Level 1: Relevant points are made. They are not logically linked.	1–2	
	No relevant content	0	
	Indicative content **similarities** • both made from crude oil • crude oil is a finite resource • production and transport of both cause emissions of carbon dioxide • carbon dioxide contributes to global warming • both can be disposed of in the same ways **disadvantages of disposable bags** • each disposable bag generates more waste (than one bag for life) • each disposable bag generates approximately 2.5 times more waste **or** 0.25 g more waste (than one bag for life) • if 6 disposable bags used they generate approximately 15 times more waste **or** 2.35 g more waste (than one bag for life) • if 6 disposable bags used it causes more CO_2 to be emitted (than one bag for life) • if 6 disposable bags used 2.7 g more CO_2 emitted **or** approximately 1.4 times more (than one bag for life) **advantages of disposable bags** • a disposable bag causes less CO_2 to be emitted (than one bag for life) • a disposable bag emits 5.3 g less CO_2 (than one bag for life) • if disposable bags used more than once less CO_2 emitted (than one bag for life) • if bag for life is used fewer than 5 times, it results in more CO_2 being emitted (than one disposable bag) • disposable bags extend less as made from HD poly(ethene)		

Supporting student understanding of the command words

Some examples of things you could do with students to help their understanding

- Ask students to write a description of something, then to write about the same thing as an explanation to demonstrate the differences. For example: describe the trend shown in a graph, then using the same graph extend this to an explanation for the trend; describe what they would observe in a particular practical (eg gas being given off) then explain why that observation is happening.

- When looking at students' work, underline the connectives in an 'explain' answer, or the words they have used to make a comparison, or when they have given a judgement or conclusion in an 'evaluate' question.

- When you are teaching different aspects of the specification, look at areas where we might ask for comparisons (eg when teaching ionic and covalent bonding), and encourage students to model different ways of giving a comparison – for example as prose or in a table.

- Share examples from past Hub school network meetings and get students to critique why one response scored well, and one less well (eg in the Spring 2019 Hub materials, there are examples student responses to extended response questions covering 'compare', 'explain' and 'evaluate' questions).

Hub school network meeting resources on the AQA website

The following table lists the pdf resources available for the GCSE science hub school network meetings, from summer 2016 to autumn 2020. It also includes a brief description of what each document is about.

The most recent resources can be downloaded from the main science hub school network page on the AQA website, and all other materials can be found on the archive page.

Meeting session	Title of document	What it's about
Autumn 2020 (virtual communities meetings)	Presentation slides	Focal points for group discussions
	Supporting materials	Reminder of situation for 2020/2021 as known at the time. Points to consider in breakout groups for discussions on practical work and importance of mock exams; details of Apparatus and Techniques criteria covered in the Required Practical Activities for each GCSE science.
Spring 2020	Presentation slides	Reflections on mocks and brief reminder on how to use MERiT. How we assess maths skills in GCSE sciences at different levels of demand, using examples of student work; discussion activity on ways of including opportunities for development of particular maths skills in schemes of work (using AQA schemes as examples); update on resources and draft plans for summer 2020 meetings.
	Booklet 1	Guidance on assessment of particular maths skills. Student examples and commentaries for discussion in the meeting and in school; update on where to find resources.
	Booklet 2	Extracts from AQA schemes of work for use in the exercise in the meeting.
	Booklet 3	Extracts from AQA specifications for use in the exercise in the meeting.
	Booklet 4	Guide to hub resources on the website (now superseded by this table).

	Maths skills in science: Precision and decimal places	Link to Teachit resource referred to in meeting.
	Maths skills in science: Significant figures	Link to Teachit resource referred to in meeting.
	Mock analysis: Trilogy paper	Examples of how analysis of the Trilogy Paper 1 could be undertaken (repeated from the autumn 2019 meeting, by request).
Autumn 2019	Presentation slides	Provisional national GCSE and GCE results from summer 2019; GCSE entry patterns 2019; insight and examples of areas of weakness across all subjects; assessing equations at different demand levels; using key questions for mock analysis to drive focused intervention.
	Resource booklet	AQA results statistics 2019 – GCE and GCSE; example student responses in key areas of challenge in 2019 exams; assessing equations at different levels of demand – example responses and commentaries.
	Physics equations flashcards	An example of one of the free resources available from Teachit.
	Research update: 7402 A-level Biology essay	Background information on a number of areas related to the 7402 essay that haven't previously been looked at in detail; highlights to information already produced for this particular aspect of the assessment.
	A-level sciences endorsement Cycle 3 timeline	Printout of the timeline available on the website.
	Exampro MERiT timeline	Timeline of when data input and analysis for MERiT is available for the 2019/20 mocks.
	UAS flyer	Information on the AQA Unit Award Scheme.
	Mock analysis Paper 1 sheets	Examples of how analysis of the Trilogy Paper 1 could be undertaken.
Summer 2019	Presentation slides	Feedback from spring meeting; how we assess AO3 at different levels of demand; using Legacy ISA materials as extra resource; making the best use of ERA; results day.
	Booklet 1	Examples from 2018 papers of questions that assess AO3; guide through ERA features; update on resources.

	Booklet 2	List of legacy ISAs, how they relate to the required practical, examples of data sheets and ideas on how could be incorporated into teaching.
	Booklet 3	Commentaries on the aspects of AO3 that each example assesses.
Spring 2019	Presentation slides	Feedback on autumn 2018 meeting; reflections on mocks; marking extended response questions.
	Booklet 1: Student examples and accompanying documents	Example levels of response mark schemes; example student responses from summer 2018 exams; update on resources.
	Booklet 2: Mark schemes	Mark schemes for the example responses.
	Booklet 3: Commentaries and marks awarded	Commentary on each example, explaining the marks awarded.
Autumn 2018	Presentation slides: Reflection on the GCSE science summer 2018 exams	Provisional national GCSE and GCE results from summer 2018; reflections on the first GCSE series; examples of types of questions that students found challenging.
	Accompanying materials: complex calculations, language in responses and assessing content at different levels of demand	AQA results statistics; analysis of common items in Foundation and Higher tier GCSE Trilogy papers; example student responses, with marks and commentaries, for complex calculations and language in responses; example biology questions set at different levels of demand using same source materials.
Summer 2018	Presentation slides: Preparing for results day; using ERA	Reflection on teaching the new specifications: what has gone well, what teachers might improve for the next cohort; guide to ERA analysis; what's available on the website on results day.
	Accompanying materials: Reflecting on the new specifications, customer portal guide	Extracts from co-teaching documents to support curriculum review; working scientifically criteria; make up of papers in terms of percentage of marks for level of demand, assessment objectives, practicals, maths, extended response questions; updated resources; secondary data from MERiT.

Spring 2018	Presentation slides: Exampro MERiT; revision resources; extended response questions	Feedback on the mock exams using Exampro's MERiT analysis tool; planning interventions using practicals as the heart of revision sessions; introduction to extended response questions.
	Accompanying materials: Paper 1 performance data, extended response questions and sample responses	Performance data from MERiT on Paper 1 mocks; suggested approach to planning revision lessons; extended response generic levels descriptors; marking example responses using SAMs 2 questions.
Autumn 2017	Presentation slides: Entry decisions; how awarding works	Points to consider when making tier of entry decisions; discussion workshops on practical and balancing teaching and learning of the different assessment objectives; outline of how grade boundaries are awarded; updates on resources.
	Accompanying materials: practical assessment, AO2 and sample responses	Examples of practical questions from updated practical handbooks; subject-specific vocabulary; example responses from summer 2017 exams that reflect some of the demands of the new papers, with mark schemes and commentaries; example AO2 questions in the first set of specimen assessment materials; Ofqual requirements for AO2 and AO3; A-level endorsement timeline.
Summer 2017	Presentation slides	Feedback and recommendations from analysis of the End of Year 10 tests; how to make effective use of second set of assessment materials; discussion workshops on teaching maths in science, required practicals, Combined Science; stretching the most able.
	Discussion group 1: Maths assessments	Mathematical requirements – sample questions from first set of specimen assessments that assess maths skills.
	Discussion group 2: Teaching and learning the required practicals	Apparatus and techniques criteria; ideas for aims and learning outcomes in required practicals.
	Discussion group 3: Meeting the challenge of GCSE Combined Science	Supporting the Foundation (grade 1–3) learner; ideas for short- and medium-term plans and approaches to teaching.
	Discussion group 4: Stretch and challenge	Repeat of materials from the spring 2017 meeting.

Spring 2017	Presentation slides: A-level practicals and mock exam papers; focus on GCSE Combined Science	Update on resources; where to find previous hub materials; introduction for End of Year 10 tests; update on grade boundaries; discussion workshops.
	Discussion: Stretch and challenge (sample high demand questions)	Example high demand questions from the first set of sample assessment materials.
	Discussion: Managing formative assessment (structure of the new papers)	Structure of the new papers in terms of balance of marks for different levels of demand, assessment objectives, maths skills, practical skills, extended response questions, how equations will be assessed at different levels of demand.
	Information sheet: A-level Environmental Science	Basic information on assessment of the new A-level.
	Discussion: Practical work and learning outcomes	Focus on learning outcomes; ideas for aims and learning outcomes in required practicals.
Autumn 2016	Presentation slides	Feedback on summer 2016 exams; introduction to the new GCSEs – grade descriptors, grade boundaries, changes to the assessment model; updates on GCSE and A-level resources.
	Presentation slides: Exampro for Science	Introduction to Exampro for the new science specifications.
	GCSE science grade descriptors (Ofqual)	Grade descriptors to be used for the new GCSE science specifications.
Summer 2016	Presentation slides: A-level resources and monitoring visits, planning and teaching the new GCSEs	Summary of previous Hub meetings; update on the GCSE accreditation, including changes to the draft content; update on A-level resources; monitoring visits for A-level practicals; activities on level of demand, identifying assessment objectives, working scientifically and maths skills in the new GCSEs.
	Booklet 1: Working scientifically; Physics equations and maths skills	DfE criteria for working scientifically, physics equations and maths skills.
	Booklet 2: Sample questions	Sample questions from GCSE papers sent for accreditation.

Notes

Contact us

Our friendly team will be happy to support you between 8am and 4pm, Monday to Friday.

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