Helping your child with Triple Science

Year 10 Parents Information Evening

The GCSE Science Courses

Your child is studying three separate GCSEs in:

Biology

Chemistry

Physics

These are taught by two or three different teachers who have specialist knowledge and experience in different subject areas:

Dr Parker (**Chemistry**/Physics)

Mr Eadie (**Biology**/Chemistry)

Mrs Gibbs (**Physics**/Chemistry/Biology)

Ms Goldie (**Biology**/Chemistry)

Mr. Warren (**Physics** / Biology)

GCSE Biology

Rest assured the content is largely the same as our current GCSE Biology. Any changes are either from the DfE or to make the topic flow better. It tells a coherent and logical story through biology, with exciting and relevant topics such as cloning.

Why teach Biology?

Great preparation for A-level

Studying the separate sciences means students will cover more content than GCSE Combined Sciences. Our new GCSE Biology will provide great preparation for AS and A-level, without overlapping content.

Practical at the heart of science

There are eight required practicals and all are familiar.

Our specification gives information on the requirements and guidance about how to integrate practicals into your day-to-day teaching.

We want to give you options on how to teach practicals so you can find the best way for your students. That's why we are providing a Practical handbook to give more guidance and ideas for the new practical requirements.

"I like that there is a wider scope of content. I like that it leads in better to A-level Biology. I like the layout of the spec..."

Summary of content

1. Cell biology
2. Organisation
3. Infection and response
4. Bioenergetics
5. Homeostasis and response
6. Inheritance, variation and evolution
7. Ecology

Download our specification
aqa.org.uk/gcse-biology

Did you know?

Content is presented in a format similar to our outgoing GCSE Biology and to our new A-level Biology which helps make it easier for teachers to use.

The content is based on key biological concepts and principles such as cell division, respiration and photosynthesis. Students should be able to use this knowledge in questions in either paper.

Exams

Two papers: each paper will assess knowledge and understanding from different topics. The questions will use clearer and simpler language, to assess students only on their scientific ability.

Duration: both papers are 1 hour 45 minutes.

Tier: Foundation and Higher.

Weighting: the papers are equally weighted. Each is worth 50% of the grade and has 100 marks available.

Question types: multiple choice, structured, closed short answer and open response.

Paper 1

What's assessed?
Topics 1–4: Cell biology; Organisation; Infection and response and Bioenergetics.

Paper 2

What's assessed?
Topics 5–7: Homeostasis and response; Inheritance, variation and evolution and Ecology.

Changes from DfE and Ofqual

- A single GCSE science will no longer be offered. This means no core, additional or further additional science GCSEs.
- All science GCSEs will have higher and foundation tier papers.
- The new subject content for the separate sciences – GCSE Biology, Chemistry and Physics – is similar to previous content.
- The A* to G grades will be replaced by 9 to 1 for Biology, Chemistry and Physics. See the new grades explained at aqa.org.uk/science-changes
- Content removed: drugs, diet and exercise.
- New content: monoclonal antibodies, plant disease, the brain, selective breeding, negative feedback and maintaining biodiversity.

GCSE Chemistry

You'll see a GCSE Chemistry specification with a better flow, not only for your teaching, but for students' learning. We have removed some topics, added a few new sections and brought together information into coherent teaching topics. As you'd expect, we're developing a range of resources to give you confidence with teaching the new content.

Why teach our Chemistry?

Great preparation for A-level

Studying the separate sciences means students will cover more content than GCSE Combined Science. Our new GCSE Chemistry will provide great preparation for AS and A-level, without overlapping content.

New content

Much of the content will be familiar to the current specification.

- Removed: limestone, plate tectonics and earth science, oils and emulsions.
- New: life cycle assessment and recycling, chemical cells and fuel cells and greenhouse gases.

Practical

There are eight required practicals and all are familiar.

Our specification gives clear information on the requirements and guidance about how to integrate practicals into your day-to-day teaching.

We want to give you options on how to teach practicals so you can find the best way for your students. That's why we are providing a Practical handbook to give guidance and ideas for the new practical requirements.

Summary of content

1. Atomic structure and the periodic table
2. Bonding, structure and the properties of matter
3. Quantitative chemistry
4. Chemical changes
5. Energy changes
6. The rate and extent of chemical change
7. Organic chemistry
8. Chemical analysis
9. Chemistry of the atmosphere
10. Using resources

"Much more logical arrangement of topics; even by paper content (sections 1–5 and 6–10)... All the required practicals are straightforward."

Download our specification
aqa.org.uk/gcse-chemistry

Exams

Two papers: each paper will assess knowledge and understanding from different topics. The questions will use clearer and simpler language, to assess students only on their scientific ability.

Duration: both papers are 1 hour 45 minutes.

Tiers: Foundation and Higher.

Weighting: the papers are equally weighted. Each is worth 50% of the grade and has 100 marks available.

Question types: multiple choice, structured, closed short answer and open response.

Paper 1

What's assessed?
Topics 1–5: Atomic structure and the periodic table; Bonding, structure, and the properties of matter; Quantitative chemistry; Chemical changes; and Energy changes.

Paper 2

What's assessed?
Topics 6–10: The rate and extent of chemical change; Organic chemistry; Chemical analysis, Chemistry of the atmosphere and Using resources.

Did you know?

Atomic structure and the periodic table, Bonding structure and the properties of matter and Quantitative chemistry are key concepts in our specification. These topics are important principles in chemistry and may be assessed in both of our papers.

The periodic table will be included as an insert in the question papers.

Changes from DfE and Ofqual

- A single GCSE science will no longer be offered. This means no core, additional or further additional science GCSEs.
- All science GCSEs will have higher and foundation tier papers.
- The new subject content for the separate sciences – GCSE Biology, Chemistry and Physics – is similar to previous content.
- The A* to G grades will be replaced by 9 to 1 for Biology, Chemistry and Physics.

GCSE Physics

This specification provides a coherent and logical journey through physics. We've retained topics that teachers have asked for, such as life of a star. As you'd expect, we're developing a range of resources to give you confidence with the new content.

Why teach our Physics?

Great preparation for A-level

Studying the separate sciences means students will cover more content than GCSE Combined Science. Our new GCSE Physics will provide great preparation for AS and A-level, without overlapping content.

Engaging practicals

There are eight required practicals and all are familiar.

Our specification gives clear information on the requirements and guidance on how to integrate practicals into your day-to-day teaching.

We want to give you options on how to teach practicals so you can find the best way to teach your students. That's why we are providing a Practical handbook to give more guidance and ideas for the new practical requirements.

New content

Much of the content from the current specifications has been maintained for the new GCSE Physics.

- Removed: conduction, convection, radiation, U-values, power stations, structure of the eye and centre of mass.
- New: gears, forces as vectors and atmospheric pressure.

Summary of content

1. Forces
2. Energy
3. Waves
4. Electricity
5. Magnetism and electromagnetism
6. Particle model of matter
7. Atomic structure
8. Space physics

Equations

Students should know how to apply two lists of physics equations: one is learnt by students and the second is provided as an insert in the question paper.

Download our specification online aqa.org.uk/gcse-physics

"Covers important areas of Physics, spec is broken down clearly."

Exams

Two papers: each paper will assess different topics.

Duration: both papers are 1 hour 45 minutes.

Tiers: Foundation and Higher.

Weighting: the papers are equally weighted. Each is worth 50% of the grade and has 100 marks available.

Question types: multiple choice, structured, closed short answer and open response.

Paper 1

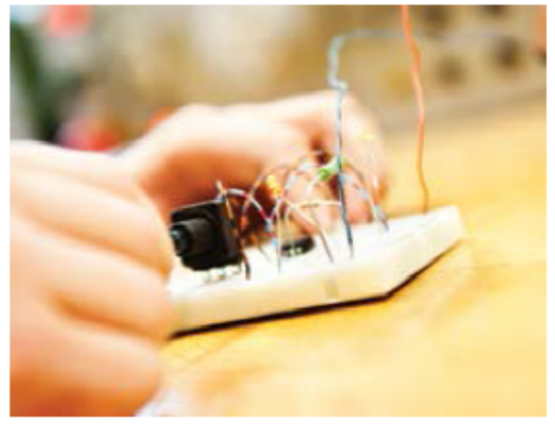
What's assessed?
Energy; Electricity; Particle model of matter and Atomic structure

Paper 2

What's assessed?
Forces; Waves; Magnetism and electromagnetism and Space physics

Changes from DfE and Ofqual

- A single GCSE science will no longer be offered. This means no core, additional or further additional science GCSEs.
- All science GCSEs will have higher and foundation tier papers.
- The new subject content for the separate sciences – GCSE Biology, Chemistry and Physics – is similar to previous content.
- The A* to G grades will be replaced by 9 to 1 for Biology, Chemistry and Physics.



Exams

So your child will sit 6 Science exams – 2 per subject - 1 hr 45 min each

There is NO COURSEWORK

During all three courses your child will experience practical work that includes the AQA required practicals which they will be tested on the in exams

Each subject can be sat at higher or foundation tier :

Higher tier has access to grades **9 (A**) to 4 (C)**

Foundation tier has access to grades **5 ("Good" pass) to 1**

Skills developed for the exams

Maths – Maths skill will account for 10% of the Biology, 20% of the Chemistry and 30% of the Physics exam questions

Practical Skills – There are 8 required practicals in each course and exam questions will be set on these practical skills (at least 15% of each subject)

Literacy – Answers will require extended writing. 4-6 marks in prose.

Extended writing

0 6 . 4 Poly(ethene) is a polymer made from ethene.

Poly(ethene) is used to make plastic bags.

Table 6 is from a life cycle assessment comparing paper bags and plastic bags.

Table 6

	Paper bag	Plastic bag
Raw material	Wood (renewable)	Oil or gas (non-renewable)
Energy used to make in MJ	1.7	1.5
Solid waste produced in g	50	14
Carbon dioxide produced in kg	0.23	0.53

Evaluate which type of bag is more environmentally friendly.

Use data from **Table 6** and your own knowledge to support your answer.

[6 marks]

06.4	**Level 3:** A detailed and coherent evaluation is provided that considers a range of relevant points, quotes relevant data from the table and comes to a conclusion consistent with the reasoning.	5–6
	Level 2: An attempt to describe relevant points which comes to a conclusion. The logic and use of data may be inconsistent at times but builds towards a coherent argument.	3–4
	Level 1: Discrete, relevant points made. The logic may be unclear and the conclusion, if present, may not be consistent with the reasoning.	1–2
	No relevant content.	0
	Indicative content conclusion as to which bag is more environmentally friendly Points that may be used in argument: • paper bags are made from a renewable resource (wood) • paper bags more sustainable • paper bags are biodegradable • plastic bags are made from a finite resource (oil or gas) • plastic bags not sustainable • paper bags require more energy to manufacture (1.7 MJ compared with 1.5 MJ) • paper bags produce more waste (50 g compared with 14 g) • paper bags create less CO_2 than plastic bags • so manufacture of plastic bags has more effect on global warming / climate change / environmental effects • plastic bags can be recycled • recycling reduces use of energy sources in manufacture • justified	

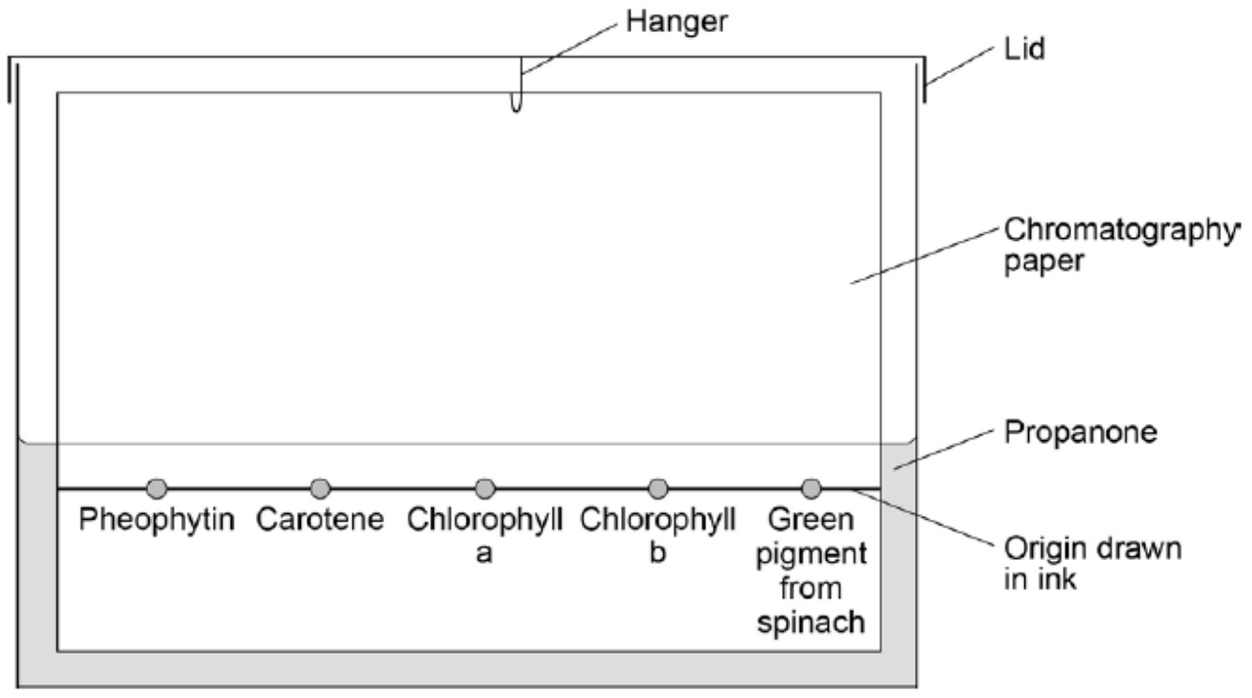
Practical Skills

0 9 A student used paper chromatography to identify the pigments in spinach leaves.

She used propanone as a solvent.

0 9 . 5 Another student set up the apparatus shown in **Figure 13**.

Figure 13



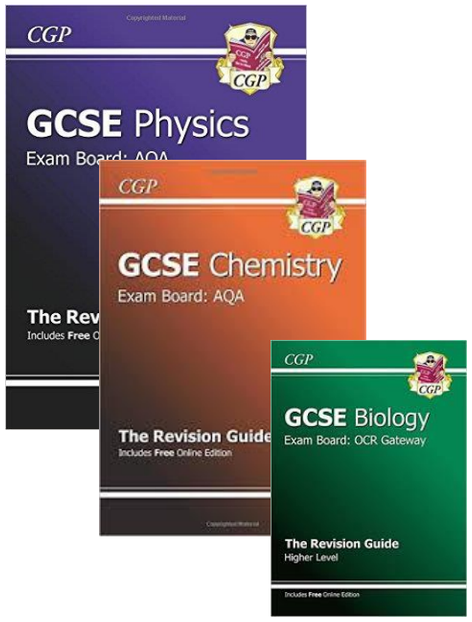
This student did not set up the apparatus correctly.

Identify the errors the student made.

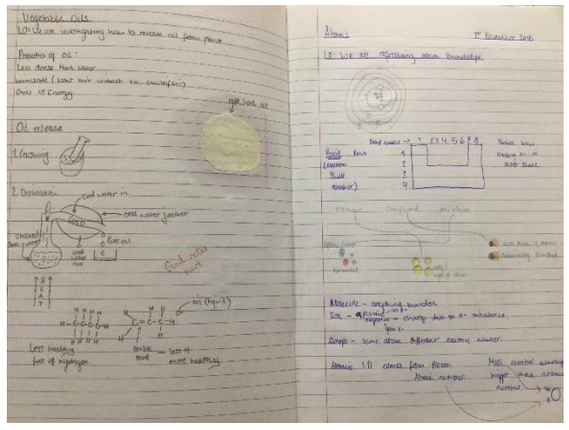
Explain how the errors she made would affect her results.

[4 marks]

Useful Resources



Bozeman Science



the Physics Classroom