GCSE Sciences - Overview

GCSE Combined Science

Biology

Biology Paper 1

1hr 15min exam

70 marks (16.7% of GCSE)

Biology Paper 2

1hr 15min exam

70 marks (16.7% of GCSE)

Chemistry

Chemistry Paper 1

1hr 15min exam

70 marks (16.7% of GCSE)

Chemistry Paper 2

1hr 15min exam

70 marks (16.7% of GCSE)

Physics

Physics Paper 1

1hr 15min exam

70 marks (16.7% of GCSE)

Physics Paper 2

1hr 15min exam

70 marks (16.7% of GCSE)

GCSE Sciences - Overview

GCSE Separate Sciences

Biology

Biology Paper 1

1hr 45min exam

100 marks (50% of GCSE)

Biology Paper 2

1hr 45min exam

100 marks (50% of GCSE)

Chemistry

Chemistry Paper 1

1hr 45min exam

100 marks (50% of GCSE)

Chemistry Paper 2

1hr 45min exam

100 marks (50% of GCSE)

Physics

Physics Paper 1

1hr 45min exam

100 marks (50% of GCSE)

Physics Paper 2

1hr 45min exam

100 marks (50% of GCSE)

GCSE Sciences - Overview

Biology

Biology Paper 1:

Cell Biology

Organisation

Infection and Response

Bioenergetics

Biology Paper 2:

Homeostasis

Genes and Inheritance

Ecology

Chemistry

Chemistry Paper 1:

Atomic Structure

Bonding and Properties

Quantitative Chemistry

Chemical Changes

Energy Changes

Chemistry Paper 2:

Rates of Reaction

Organic Chemistry

Chemical Analysis

The Atmosphere

Using Earth's Resources

Physics

Physics Paper 1:

Energy

Electricity

Particle Model of Matter

Atomic Structure

Physics Paper 2:

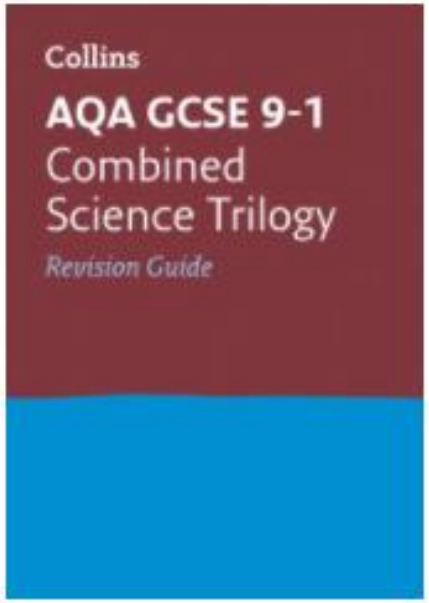
Forces

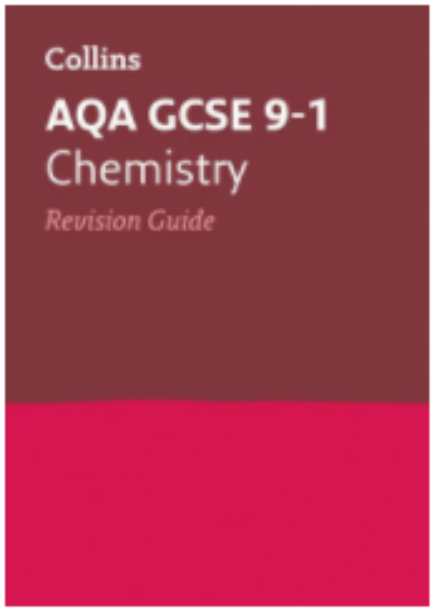
Waves

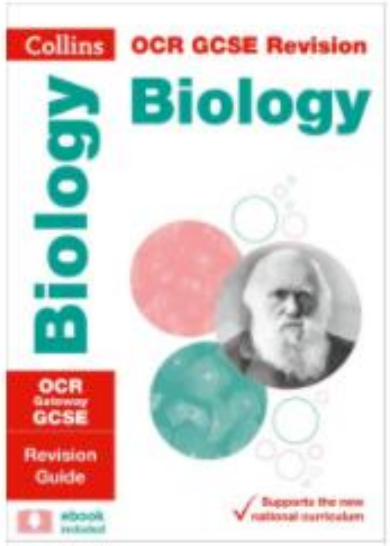
Electromagnetism

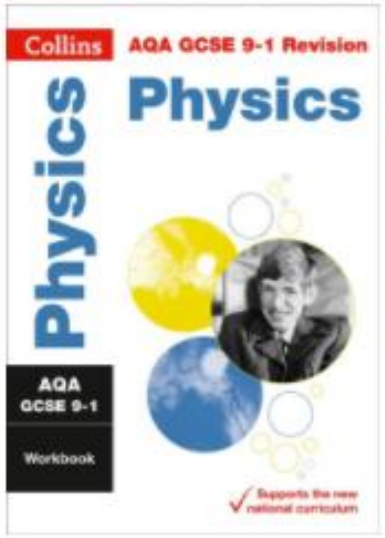
Space (Triple Only)

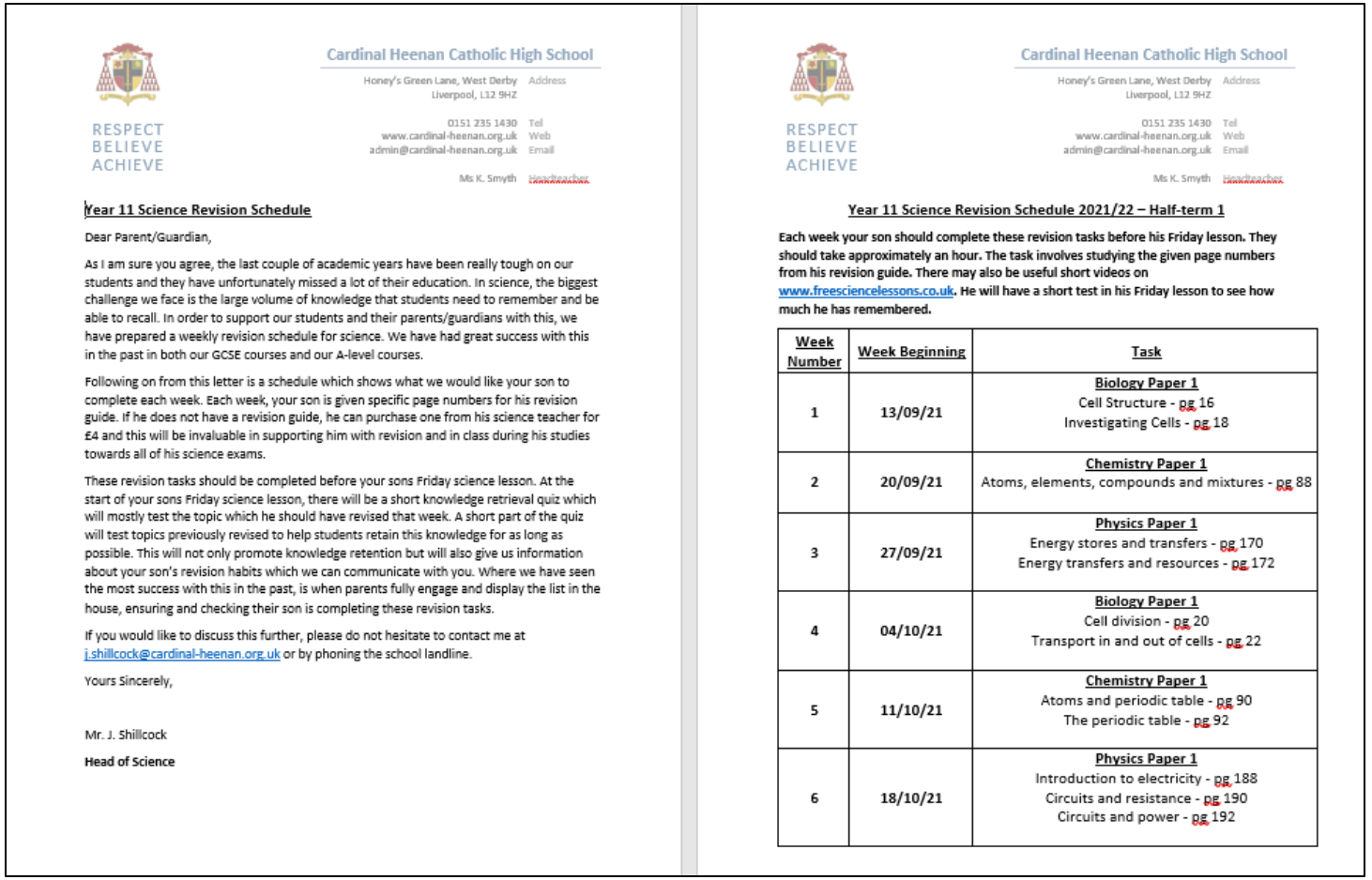
Revision Schedule











Cardinal Heenan Catholic High School

Honey's Green Lane, West Derby Liverpool, L12 9HZ — Address

0151 235 1430 — Tel
www.cardinal-heenan.org.uk — Web
admin@cardinal-heenan.org.uk — Email

Ms K. Smyth — Headteacher

RESPECT
BELIEVE
ACHIEVE

Year 11 Science Revision Schedule

Dear Parent/Guardian,

As I am sure you agree, the last couple of academic years have been really tough on our students and they have unfortunately missed a lot of their education. In science, the biggest challenge we face is the large volume of knowledge that students need to remember and be able to recall. In order to support our students and their parents/guardians with this, we have prepared a weekly revision schedule for science. We have had great success with this in the past in both our GCSE courses and our A-level courses.

Following on from this letter is a schedule which shows what we would like your son to complete each week. Each week, your son is given specific page numbers for his revision guide. If he does not have a revision guide, he can purchase one from his science teacher for £4 and this will be invaluable in supporting him with revision and in class during his studies towards all of his science exams.

These revision tasks should be completed before your sons Friday science lesson. At the start of your sons Friday science lesson, there will be a short knowledge retrieval quiz which will mostly test the topic which he should have revised that week. A short part of the quiz will test topics previously revised to help students retain this knowledge for as long as possible. This will not only promote knowledge retention but will also give us information about your son's revision habits which we can communicate with you. Where we have seen the most success with this in the past, is when parents fully engage and display the list in the house, ensuring and checking their son is completing these revision tasks.

If you would like to discuss this further, please do not hesitate to contact me at j.shillcock@cardinal-heenan.org.uk or by phoning the school landline.

Yours Sincerely,

Mr. J. Shillcock

Head of Science

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Year 11 Science Revision Schedule 2021/22 – Half-term 1

Each week your son should complete these revision tasks before his Friday lesson. They should take approximately an hour. The task involves studying the given page numbers from his revision guide. There may also be useful short videos on www.freesciencelessons.co.uk. He will have a short test in his Friday lesson to see how much he has remembered.

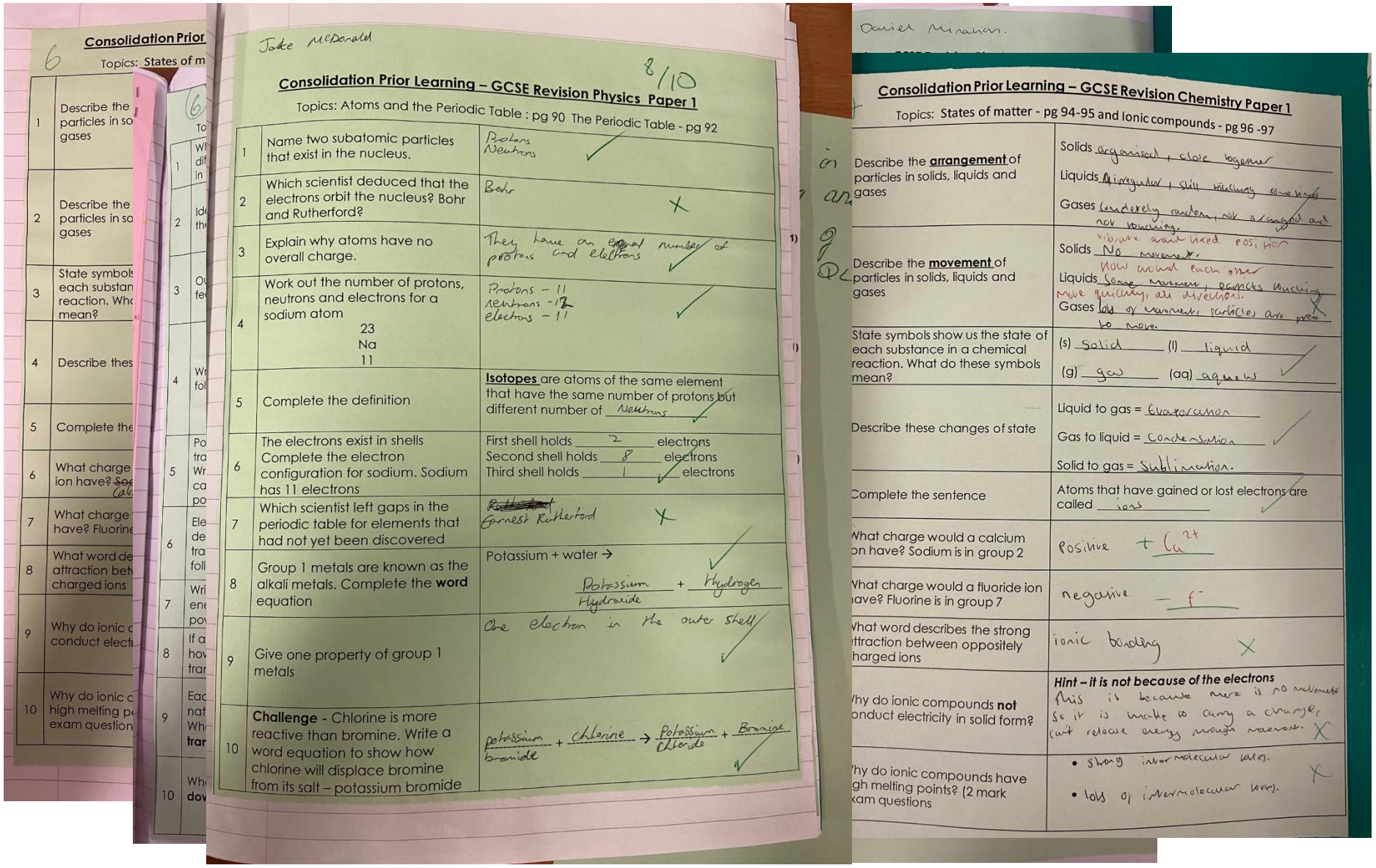
Week Number	Week Beginning	Task
1	13/09/21	**Biology Paper 1** Cell Structure - pg 16 Investigating Cells - pg 18
2	20/09/21	**Chemistry Paper 1** Atoms, elements, compounds and mixtures - pg 88
3	27/09/21	**Physics Paper 1** Energy stores and transfers - pg 170 Energy transfers and resources - pg 172
4	04/10/21	**Biology Paper 1** Cell division - pg 20 Transport in and out of cells - pg 22
5	11/10/21	**Chemistry Paper 1** Atoms and periodic table - pg 90 The periodic table - pg 92
6	18/10/21	**Physics Paper 1** Introduction to electricity - pg 188 Circuits and resistance - pg 190 Circuits and power - pg 192

Revision Schedule

Week Number	Week Beginning	Task
1	13/09/21	**Biology Paper 1** Cell Structure - pg 16 Investigating Cells - pg 18
2	20/09/21	**Chemistry Paper 1** Atoms, elements, compounds and mixtures - pg 88
3	27/09/21	**Physics Paper 1** Energy stores and transfers - pg 170 Energy transfers and resources - pg 172
4	04/10/21	**Biology Paper 1** Cell division - pg 20 Transport in and out of cells - pg 22
5	11/10/21	**Chemistry Paper 1** Atoms and periodic table - pg 90 The periodic table - pg 92
6	18/10/21	**Physics Paper 1** Introduction to electricity - pg 188 Circuits and resistance - pg 190 Circuits and power - pg 192

Week Number	Week Beginning	Task
1	13/09/21	**Biology Paper 1** Cell Structure - pg 8 Investigating Cells - pg 10
2	20/09/21	**Chemistry Paper 1** Atoms, elements, compounds and mixtures - pg 8
3	27/09/21	**Physics Paper 1** Energy stores and transfers - pg 26 Energy transfers and resources - pg 28
4	04/10/21	**Biology Paper 1** Cell division - pg 12 Transport in and out of cells - pg 14
5	11/10/21	**Chemistry Paper 1** Atoms and periodic table - pg 12 The transition metals - pg 13
6	18/10/21	**Physics Paper 1** Introduction to electricity - pg 54 Circuits and resistance - pg 56 Circuits and power - pg 58 Electrical charges and fields – pg 64

Revision Schedule



Consolidation Prior

Topics: States of m

1	Describe the particles in so gases
2	Describe the particles in so gases
3	State symbols each substan reaction. Wha mean?
4	Describe thes
5	Complete the
6	What charge ion have?
7	What charge have? Fluorine
8	What word de attraction bet charged ions
9	Why do ionic c conduct electr
10	Why do ionic c high melting p exam question

Jake McDonald

8/10

Consolidation Prior Learning – GCSE Revision Physics Paper 1

Topics: Atoms and the Periodic Table : pg 90 The Periodic Table - pg 92

1	Name two subatomic particles that exist in the nucleus.	Protons Neutrons ✓
2	Which scientist deduced that the electrons orbit the nucleus? Bohr and Rutherford?	Bohr X
3	Explain why atoms have no overall charge.	They have an equal number of protons and electrons ✓
4	Work out the number of protons, neutrons and electrons for a sodium atom 23 Na 11	Protons – 11 Neutrons – 12 Electrons – 11 ✓
5	Complete the definition	**Isotopes** are atoms of the same element that have the same number of protons but different number of Neutrons ✓
6	The electrons exist in shells Complete the electron configuration for sodium. Sodium has 11 electrons	First shell holds 2 electrons Second shell holds 8 electrons Third shell holds 1 electrons ✓
7	Which scientist left gaps in the periodic table for elements that had not yet been discovered	~~Rutherford~~ Earnest Rutherford X
8	Group 1 metals are known as the alkali metals. Complete the **word** equation	Potassium + water → Potassium Hydroxide + Hydrogen ✓
9	Give one property of group 1 metals	One electron in the outer shell ✓
10	**Challenge** - Chlorine is more reactive than bromine. Write a word equation to show how chlorine will displace bromine from its salt – potassium bromide	potassium bromide + Chlorine → Potassium Chloride + Bromine ✓

Daniel Minahan.

Consolidation Prior Learning – GCSE Revision Chemistry Paper 1

Topics: States of matter - pg 94-95 and Ionic compounds - pg 96 -97

Describe the **arrangement** of particles in solids, liquids and gases	Solids organised + close together Liquids irregular + still touching somewhat Gases randomly moving, not arranged and not touching.
Describe the **movement** of particles in solids, liquids and gases	Solids vibrate about fixed position. No movement. Liquids Some movement, particles touching move quickly all directions. Gases lots of movement, particles are free to move.
State symbols show us the state of each substance in a chemical reaction. What do these symbols mean?	(s) Solid (l) liquid (g) gas (aq) aqueous ✓
Describe these changes of state	Liquid to gas = Evaporation Gas to liquid = Condensation ✓ Solid to gas = Sublimation.
Complete the sentence	Atoms that have gained or lost electrons are called ions ✓
What charge would a calcium ion have? Sodium is in group 2	Positive $+Ca^{2+}$
What charge would a fluoride ion have? Fluorine is in group 7	negative $-F^-$
What word describes the strong attraction between oppositely charged ions	ionic bonding X
Why do ionic compounds **not** conduct electricity in solid form?	***Hint – it is not because of the electrons*** This is because there is no movement So it is unable to carry a charge, can't release energy through movement. X
Why do ionic compounds have high melting points? (2 mark exam questions	• Strong intermolecular forces. • lots of intermolecular forces. X

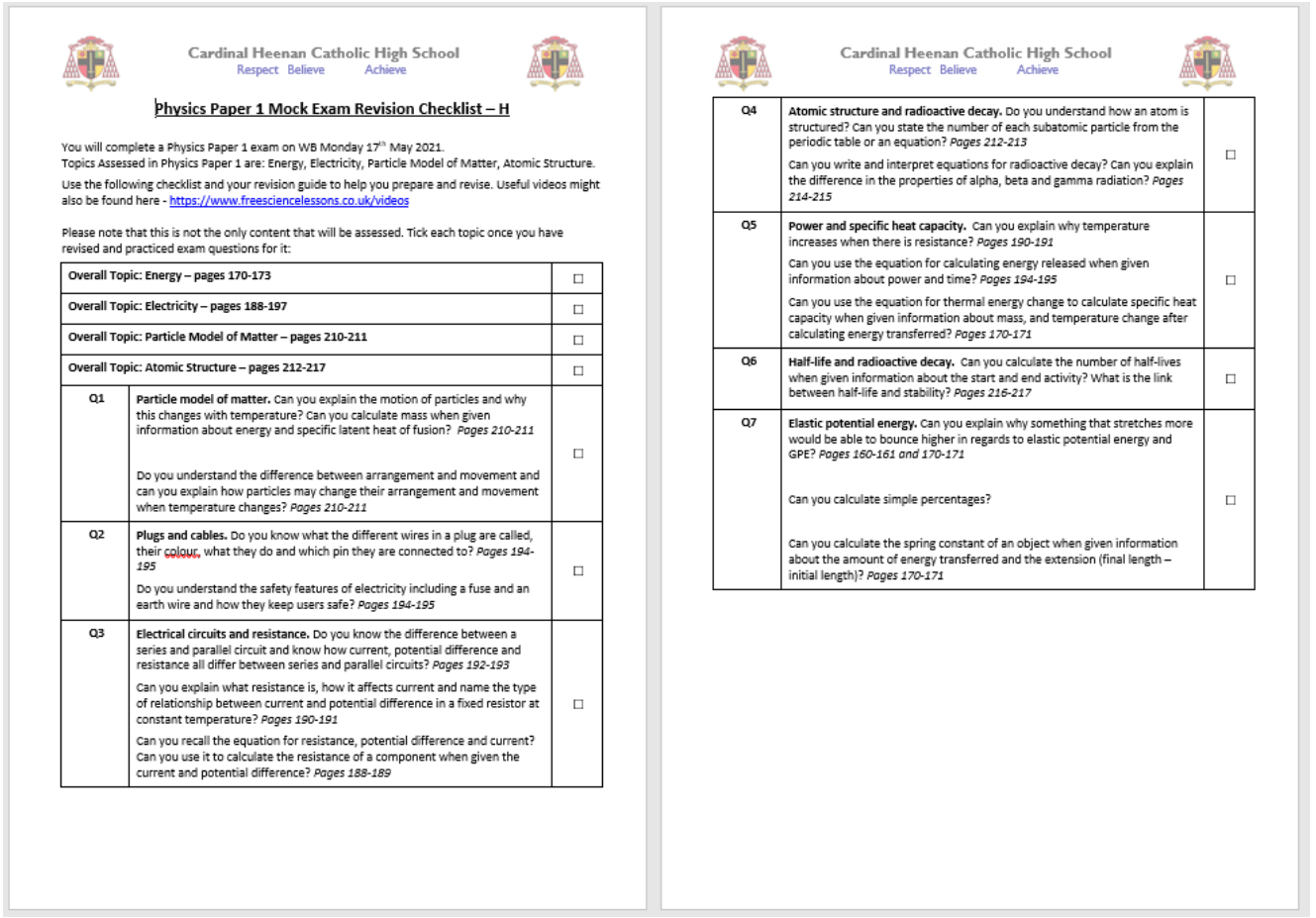
Mock Exams

Combined Science:

- Physics Paper 1 Full Paper

Separate Science:

- Chemistry Paper 1 Full Paper
- Physics Paper 1 Full Paper



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Physics Paper 1 Mock Exam Revision Checklist – H

You will complete a Physics Paper 1 exam on WB Monday 17th May 2021.
Topics Assessed in Physics Paper 1 are: Energy, Electricity, Particle Model of Matter, Atomic Structure.

Use the following checklist and your revision guide to help you prepare and revise. Useful videos might also be found here - https://www.freesciencelessons.co.uk/videos

Please note that this is not the only content that will be assessed. Tick each topic once you have revised and practiced exam questions for it:

Overall Topic: Energy – pages 170-173		☐
Overall Topic: Electricity – pages 188-197		☐
Overall Topic: Particle Model of Matter – pages 210-211		☐
Overall Topic: Atomic Structure – pages 212-217		☐
Q1	**Particle model of matter.** Can you explain the motion of particles and why this changes with temperature? Can you calculate mass when given information about energy and specific latent heat of fusion? *Pages 210-211* Do you understand the difference between arrangement and movement and can you explain how particles may change their arrangement and movement when temperature changes? *Pages 210-211*	☐
Q2	**Plugs and cables.** Do you know what the different wires in a plug are called, their colour, what they do and which pin they are connected to? *Pages 194-195* Do you understand the safety features of electricity including a fuse and an earth wire and how they keep users safe? *Pages 194-195*	☐
Q3	**Electrical circuits and resistance.** Do you know the difference between a series and parallel circuit and know how current, potential difference and resistance all differ between series and parallel circuits? *Pages 192-193* Can you explain what resistance is, how it affects current and name the type of relationship between current and potential difference in a fixed resistor at constant temperature? *Pages 190-191* Can you recall the equation for resistance, potential difference and current? Can you use it to calculate the resistance of a component when given the current and potential difference? *Pages 188-189*	☐

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Q4	**Atomic structure and radioactive decay.** Do you understand how an atom is structured? Can you state the number of each subatomic particle from the periodic table or an equation? *Pages 212-213* Can you write and interpret equations for radioactive decay? Can you explain the difference in the properties of alpha, beta and gamma radiation? *Pages 214-215*	☐
Q5	**Power and specific heat capacity.** Can you explain why temperature increases when there is resistance? *Pages 190-191* Can you use the equation for calculating energy released when given information about power and time? *Pages 194-195* Can you use the equation for thermal energy change to calculate specific heat capacity when given information about mass, and temperature change after calculating energy transferred? *Pages 170-171*	☐
Q6	**Half-life and radioactive decay.** Can you calculate the number of half-lives when given information about the start and end activity? What is the link between half-life and stability? *Pages 216-217*	☐
Q7	**Elastic potential energy.** Can you explain why something that stretches more would be able to bounce higher in regards to elastic potential energy and GPE? *Pages 160-161 and 170-171* Can you calculate simple percentages? Can you calculate the spring constant of an object when given information about the amount of energy transferred and the extension (final length – initial length)? *Pages 170-171*	☐

Any Questions

If you have any questions, please don't hesitate to get in touch:

Mr. Shillcock – j.shillcock@cardinal-heenan.org.uk

Head of Science