GCSE Science Year 10

Faculty Team Leader: Mrs Spacey

Deputy Faculty Team Leader: Miss Smith

To **aspire**, **endeavour** and **thrive** together.

GCSE Science Year 11

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2024 Top GCSE results

9 to 4		
National trilogy		57%
	2023	53%
	2024	60%
National Chemistry		91%
	2023	100%
	2024	100%

9 to 4		
National Biology		89%
	2023	93%
	2024	100%
National Physics		90%
	2023	98%
	2024	100%

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Separate Science		Double Science	
	Biology: 4 lessons a fortnight. 1 GCSE.		Combined science trilogy
	Chemistry: 4 lessons a fortnight. 1 GCSE.		3 lessons a fortnight for each subject.
	Physics: 4 lessons a fortnight. 1 GCSE.		2 GCSE's

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Science: Separates

The students will sit **6 exams**

1 hour and 45 minutes each

- 2 biology
- 2 chemistry
- 2 physics

The students will be awarded 1 GCSE for each science, graded 1 to 9.
For example:

- They could achieve a grade **5** in Biology
- They could achieve a grade **7** in Chemistry
- They could achieve a grade **9** in Physics

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Science: Trilogy/ Combined

The students will sit **6 exams**

1 hour and 15 minutes each

- 2 biology
- 2 chemistry
- 2 physics

The students will be awarded 2 GCSE

- If they achieve a high grade 5 = **5 - 6**
- If they achieve a medium grade 5 = **5 - 5**
- If they achieve a low grade 5 = **5 - 4**

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Trilogy student checklist 21 Practicals

10.2.1	Microscope
10.2.2	Osmosis
10.2.3	Enzymes
10.2.4	Food tests
10.2.5	Photosynthesis
10.2.6	Reaction time
10.2.7	Field Investigation
10.2.8	Making Salts
10.2.9	Electrolysis
10.2.10	Temperature change
10.2.11	Rate of reaction.
10.2.12	Chromatography
10.2.13	Water purification.
10.2.14	Specific heat capacity
10.2.15	Resistance.
10.2.16	I–V characteristics
10.2.17	Density
10.2.18	Force and extension
10.2.19	Acceleration.
10.2.20	Waves
10.2.21	Radiation and absorption

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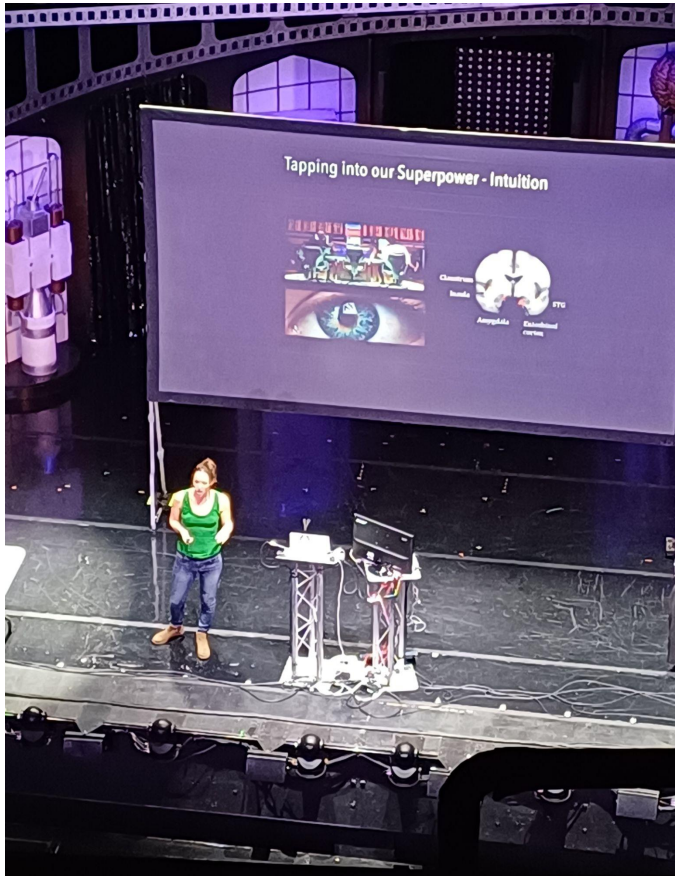
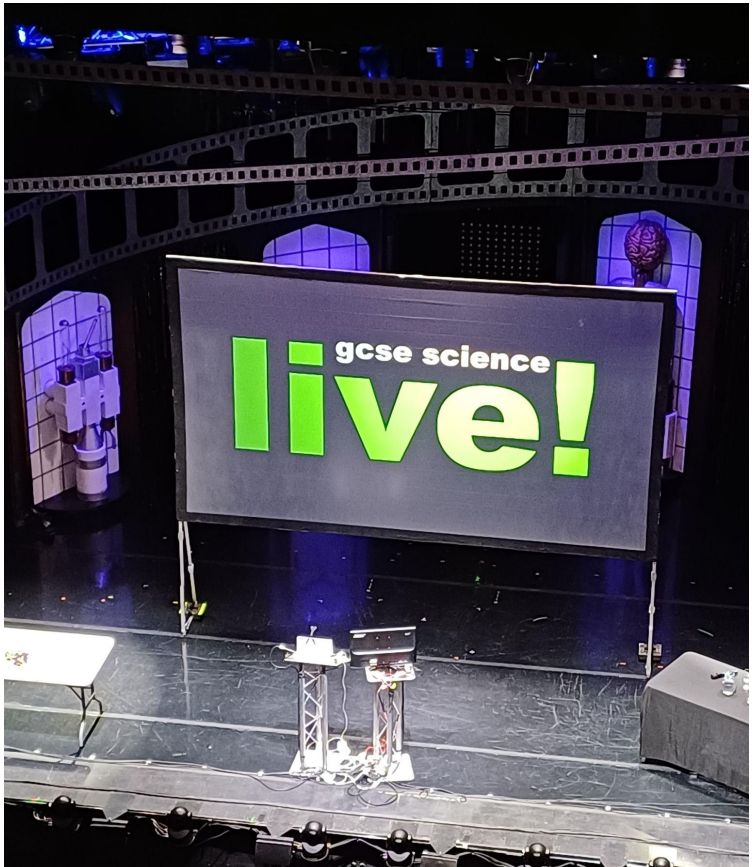
Excellence in Science





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Science: Homework

- Retrieval based - flash cards, mindmaps, brain dumps.
- Once every two weeks per subject (Biology, Chemistry and Physics).

This will be set on Brom Com.

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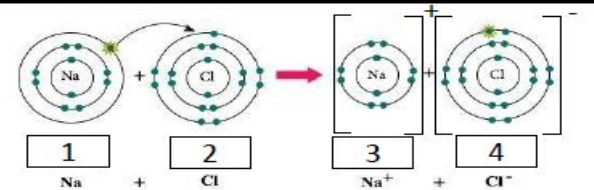
Knowledge Organisers

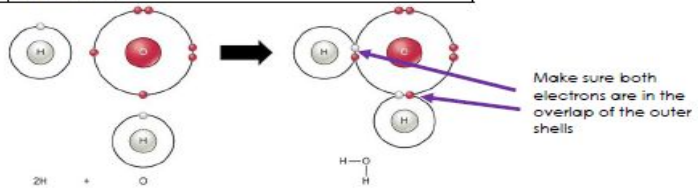
Chemistry Topic 2: Bonding, Structure, and the properties of matter

1. Keywords	
Ionic bond	When a metal donates electrons to a non-metal forming opposite charged ions that are attracted to each other
Covalent bond	A shared pair of electrons between two non-metals
Metallic bond	Positive metal ions in a 'sea' of delocalised electrons
Ions	Charged atoms which have either gained or lost electrons
Electrons	Negative particles found in the shells of atoms
Group 0	The unreactive 'noble gases' all elements aim to get to group 0 electron configuration when they react
Dot and cross diagrams	The simplest way we show the bonding in atoms
Polymer	A long chain molecule made up of repeating monomers
Monomer	The small molecules that join together to make polymers
Delocalised	Electrons which are free to move anywhere
Alloy	A mixture of a metal and another element to change its properties

2. The process of ionic bonding



No	Name	Electron movement	Charge	Electron configuration	Does it have a full outer shell?
1	Sodium atom	0	0	2,8,1	No
2	Chlorine atom	0	0	2,8,7	No
3	Sodium ion	Lost 1	+1	2,8	Yes
4	Chloride ion	Gained 1	-1	2,8,8	Yes



Make sure both electrons are in the overlap of the outer shells

3. The process of covalent bonding

1	Non metals share their outer unpaired electrons
2	Now all outer shell spaces appear full
3	There is no change in charge. They remain uncharged

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Key questions

C2a Key Questions

1	What is the relative charge on a group 1 ion?	+1
2	Why does sodium metal conduct electricity when solid?	Delocalised electrons carry charge
3	What types of elements are reacting when magnesium reacts with chlorine?	Metal and non-metal
4	What holds the ions together in sodium chloride?	Electrostatic attractions
5	Solid sodium chloride does not conduct electricity. Give 2 ways in which sodium chloride can be made to conduct electricity	Heat until molten (a liquid), dissolve in water
6	What type of bonds are there between the atoms of oxygen in an oxygen molecule?	Covalent
7	What type of forces exist between molecules of oxygen?	Intermolecular
8	Write the formulae of the ions in sodium chloride (NaCl)	Na+, Cl-
9	What type of bonding is present in calcium oxide (CaO)?	Ionic
10	What is the definition of the word 'molecule'	A covalently bonded particle
11	How are covalent bonds represented in a diagram of a molecule?	A straight line
12	How many electrons are in one covalent bond?	2
13	Why does solid sodium chloride not conduct electricity?	The ions are fixed
14	Why does molten sodium chloride conduct electricity?	The ions are mobile
15	What type of substance is carbon?	Element

Retrieval quizzes

B1a Cell Structure GCSE Retrieval quiz

Name:

Multiple choice section:

1. How many micrometers are there in 1 millimeter?

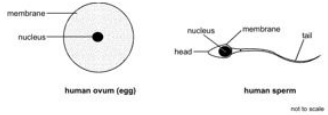
a) 10

b) 100

c) 1000

d) 10,000

2. The diagrams below show a human ovum (egg) and a human sperm.



(a) What are eggs and sperm?
Tick the correct box.

animals ☐ cells ☐ organs ☐ 1 mark

Q1.

A life cycle assessment (LCA) is done to assess the environmental impact of a product.

(a) An LCA has four stages.

Draw **one** line from each LCA stage to the description of what happens to the product at that stage.

LCA stage	Description
Stage 1	Disposal at end of useful life
Stage 2	Extracting and processing raw materials
Stage 3	Manufacturing and packaging
Stage 4	Use and operation during lifetime

(3)

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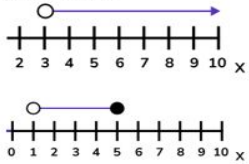
Science knowledge organiser homework Yr 10

30/09/24	A Christmas Carol KO - Revise box four this week. **Page 9**	Block C = Art, Business, Catering, Computer Science, DT, Drama, Geography, History, Psychology **See your google classroom for homework details**	Representing solutions of equations and inequalities KO – Learn the key words and definitions. **Page 11**	Block B = Art, Business, Catering, Dance, French, Geography, History, iMedia, Music, Sport, Textiles **See your google classroom for homework details**	B2a Organisation and the Digestive System Key Questions - Learn the questions and answers. **Page 16**
07/10/24	A Christmas Carol KO - Revise box five this week. **Page 9**	Block A = DT, French, Geography, H&S, History, Sociology, Sport. See your google classroom for homework details	Use the Representing solutions of equations and inequalities KO on **Page 11** to answer this question – Solutions on a number line. Show your working out. Key questions: What are the inequalities shown here?  Represent $2 \leq x \leq 7$ on a number line.	Block B = Art, Business, Catering, Dance, French, Geography, History, iMedia, Music, Sport, Textiles **See your google classroom for homework details**	C2a Structure and Bonding Key Questions - Learn the questions and answers. **Page 17**

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Intervention & Masterclasses

Biology revision: Mondays after school

Chemistry revision: Tuesdays after school

Physics revision: Fridays after school

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Key dates - Yr 11

Mocks: Week commencing 11th November

Paper 1 content:
All information has been shared on your child's Bromcom.

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Revision guides

Combined revision guide: £6.50

Single science: £3.50

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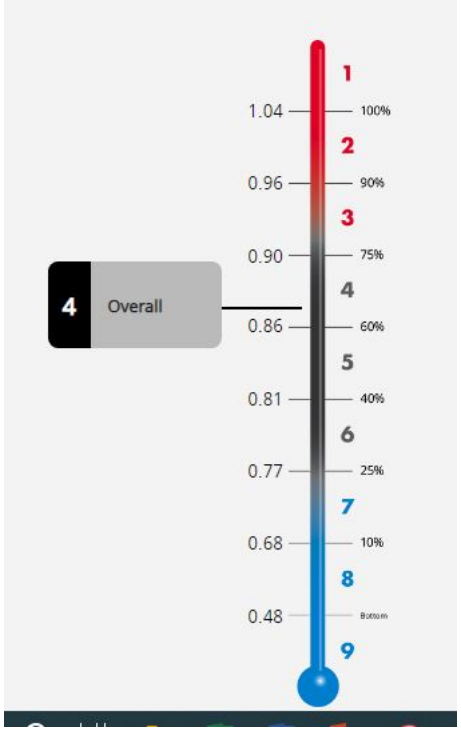
Sixth Form Pathway

All three sciences are offered at A level:

- Biology
- Chemistry
- Physics



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Biology Field Course




Students do field work at Chunal Moor and Glossop Old Stream.