Y9 & Y10 INFORMATION EVENING

Science

Mr A Matthews (Director of Science)
Mr S Pinder (Head of Physics)

NDHS Science

Year 7

- Skills School
- B1 Cells
- B2 Reproduction
- B3 Systems in the human body
- B4 Healthy Lifestyles
- C1 Particles
- C2 Elements, compounds and mixtures
- C3 Acid Reactions
- P1 Energy
- P2 Waves - Sound
- P3 Space

Year 7

- 3 lessons per week
- 1 teacher
- Topics include Knowledge Checks and GRIT work

Year 8

- 3 lessons per week
- 3 specialist teahcers
- Topics include Knowledge Checks and GRIT work

Year 8

- B5 Staying alive
- B6 Variation
- B7 Photosynthesis
- B8 Relationships in an ecosystem
- C4 The Periodic Table
- C5 Chemical Reactions
- C6 Earth and Impact
- P4 Forces
- P5 Motion and Pressure
- P6 Waves - Light
- P7 Electricity and Magnetism

GROUPINGS AND PATHWAYS

For current Y9 and 10s

Students chose their option of combined science (double) or triple science in Y8.

The students are put into sets based on their option choice and their KS3 data in science.

This allows students to be taught at appropriate pace and those who need more support to be taught in smaller classes.

It is **not possible** to change between combined and triple since the lessons are different from the start of Y9.

Students have 4 hours of science per week for combined or,
6 hours per week for triple science.

NDHS Science

Year 9	Year 10 Combined	Year 11 Combined
B9 Cell Biology	B12 Bioenergetics	B14 Inheritance, variation and evolution (cont.)
B10 Organisation	B13 Homeostasis	B15 Ecology
B11 Infection and Response	B14 Inheritance, variation and evolution	C15 Rates of Reaction (cont.)
C7 Atomic Structure	C11 Electrolysis	C16 Organic Chemistry
C8 The Periodic Table	C12 Energy Changes	C17 Earth's Atmosphere
C9 Structure and Bonding	C13 Quantitative Chemistry	C18 Using Earths Resources
C10 Chemical Changes (continues in Y10)	C14 Chemical Analysis	P15 Waves
P8 Energy Changes	C15 Rates of Reaction	
P9 Particle Model of Matter	P12 Forces and Motion	
P10 Atoms and Radioactivity	P13 Electricity	
P11 Space physics	P14 Magnets and Electromagnetism	

Biology Triple	Chemistry Triple	Physics Triple
B9 Cell Biology	C7 Atomic Structure	P8 Energy Changes
B10 Organisation	C8 The Periodic Table	P9 Particle Model of Matter
B11 Infection and Response	C9 Structure and Bonding	P10 Atoms and Radioactivity
B12 Bioenergetics	C10 Chemical Changes	P11 Space physics
B13 Homeostasis	C11 Electrolysis	P12 Forces and Motion
B14 Inheritance, variation and evolution	C12 Energy Changes	P13 Electricity
B15 Ecology	C13 Quantitative Chemistry	P14 Magnets and Electromagnetism
	C14 Chemical Analysis	P15 Waves
	C15 Rates of Reaction	
	C16 Organic Chemistry	
	C17 Earth's Atmosphere	
	C18 Using Earths Resources	

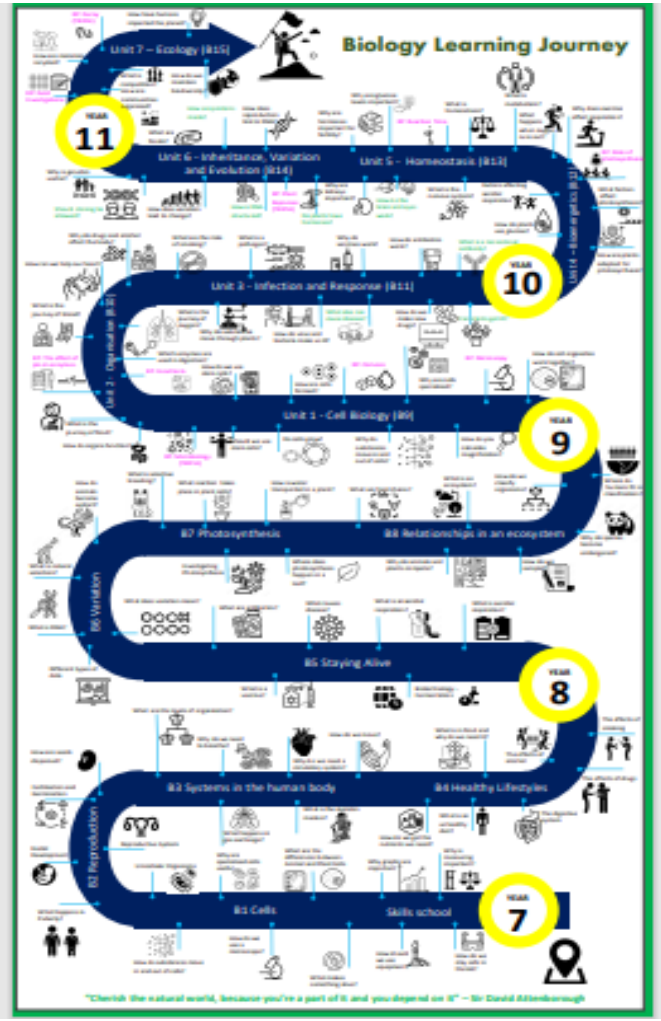
Combined

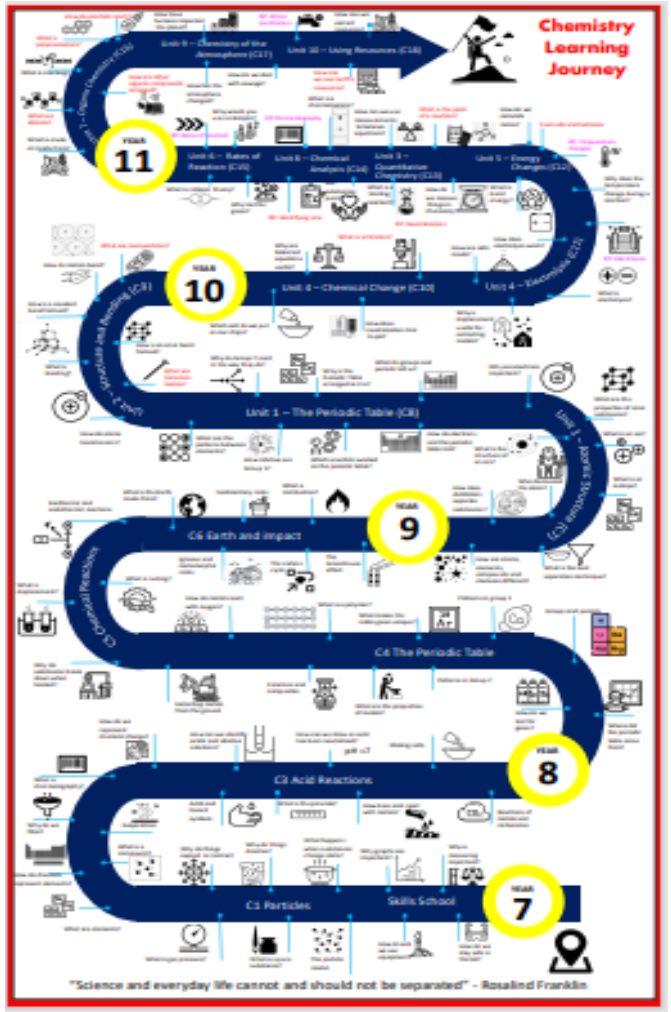
- 4 lessons per week
- Topics include Knowledge Checks and GRIT work

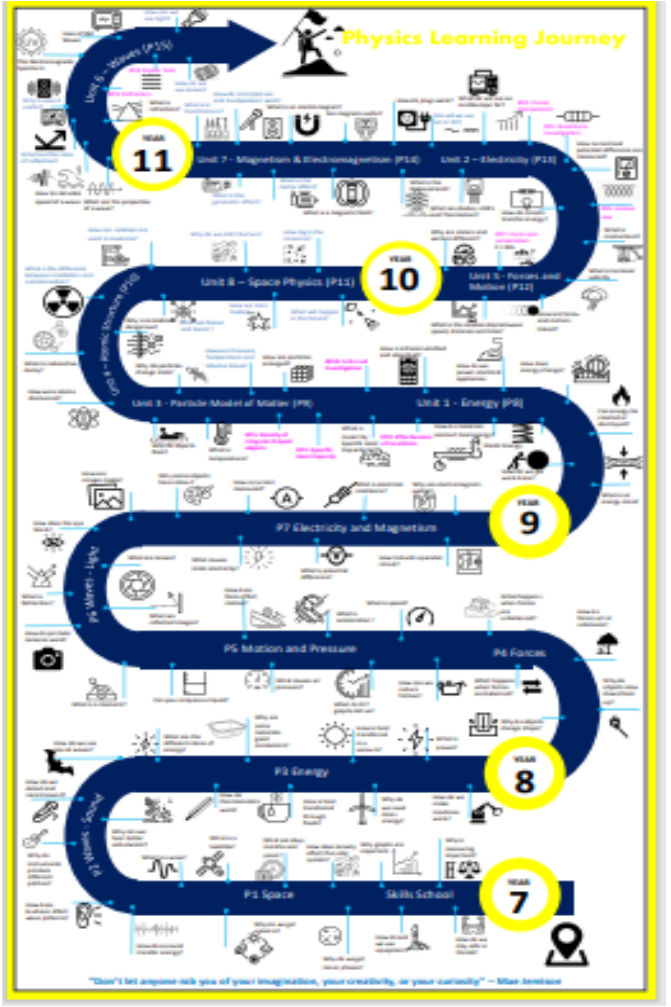
Triple

- 6 lessons per week
- Topics include Knowledge Checks and GRIT work

This is part of the bigger picture







COURSE

We cover the content from the AQA exam board. The details of the specification can be found on their website.

http://www.aqa.org.uk/subjects/science/gcse

Course codes are as below:

Triple – Biology (8461), Chemistry (8462), Physics (8463)

Double – Combined Trilogy (8464)

ASSESSMENT & LEVELLING

Students will ordinarily complete a knowledge check at the end of each topic.
Students will be given their raw score, along with feedback on how to improve the sub-topics they found more challenging.

Different topics and questions may be easier or harder, so we cannot use a score on one test to give a prediction of a grade at the end of Y11.

There will be 2 more formal assessment windows for each year group.

Year 9 – w/b **26th January 2026** and w/b **01st June 2026**
Year 10 – w/b **09th Feb 2026** (whole school) and w/b **22nd June 2026**

Students will also do various assessments in class and as homework to show them and their teacher any gaps in their understanding.

KNOWLEDGE CHECKS

Notre Dame High School — Combined Trilogy Higher

Knowledge Check

B11: Infection and Response

Name:
Teacher:
Class:

Question	Marks
1	/ 5
2	/ 6
3	/ 5
4	/ 7
5	/ 8
6	/ 3
7	/ 6
TOTAL	/ 40

WWW	Q1 – I understand what drugs need to be tested for Q2 – I understand the process and stages of drug testing Q3 – I can use data to identify trends in infection Q4 – I can explain how antibiotics are used and the process of vaccination Q5 – I know how white blood cells are used to stop infection Q6 – I can link pathogens to their diseases Q7 – I know that plants can suffer from infectious diseases as well as animals
EBI	Q1 – I am unsure why drugs need to be tested Q2 – I do not understand the process and stages of drug testing Q3 – I have struggled to use data to identify trends in infection Q4 – I do not know the role of antibiotics and/or the process of vaccination Q5 – I am not clear on how white blood cells are used to stop infection Q6 – I cannot link pathogens to their diseases Q7 – I did not know that plants can suffer from infectious diseases as well as animals

Notre Dame High School — Paper 1 Higher Tier (Triple)

P10: Atomic Physics

Name:
Teacher:
Class:

Question	Marks
1	/ 6
2	/ 10
3	/ 8
4	/ 10
5	/6
TOTAL	/ 40

WWW	Q1 – I can describe the structure of the Atom Q2 – I can describe key information about nuclear energy release Q3 – I can evaluate the dangers of radiation exposure Q4 – I can discuss the uses of Radiation in society Q5 – I can explain how the Rutherford Scattering Experiment led to the discovery of the atomic model
EBI	Q1 – I need to revise the structure of the Atom Q2 – I need to revise key facts about nuclear fusion and fission Q3 – I need to revise key facts about radiation and half-life Q4 – I need to revise how we use radiation in society Q5 – I need to practice long written questions asking about the discovery of the Nucleus

Please note that there are no equations required for this assessme

EXAMS

All students sit **6 science exams** at the end of Y11.
Two each for biology, chemistry and physics. Students are told which topics could be asked on each paper.

Combined science students sit **70 mark exams** lasting 1 hour 15 minutes

Triple science students sit **100 mark exams** lasting 1 hour 45 minutes.

EXAMS

Tiers of entry for mock exams in year 10 and year 11 will be decided by teachers based on prior performance in their subject. Student scores in these assessments will influence the final tier of entry for their GCSE exams.

These *can* be changed up to the day of the exam but are often decided way before then.

The next couple of slides have been taken from the AQA website as an example of how the exams will be structured

ASSESSMENT – BIOLOGY- COMBINED

Biology Paper 1
What's assessed Biology topics 1–4: Cell Biology; Organisation; Infection and response; and Bioenergetics.
How it's assessed • Written exam: 1 hour 15 minutes • Foundation and Higher Tier • 70 marks • 16.7 % of GCSE
Questions Multiple choice, structured, closed short answer, and open response.

+

Biology Paper 2
What's assessed Biology topics 5–7: Homeostasis and response; Inheritance, variation and evolution; and Ecology.
How it's assessed • Written exam: 1 hour 15 minutes • Foundation and Higher Tier • 70 marks • 16.7 % of GCSE
Questions Multiple choice, structured, closed short answer, and open response.

ASSESSMENT – TRIPLE BIOLOGY

Paper 1	+	Paper 2
What's assessed Topics 1–4: Cell biology; Organisation; Infection and response; and Bioenergetics.		**What's assessed** Topics 5–7: Homeostasis and response; Inheritance, variation and evolution; and Ecology.
How it's assessed • Written exam: 1 hour 45 minutes • Foundation and Higher Tier • 100 marks • 50 % of GCSE		**How it's assessed** • Written exam: 1 hour 45 minutes • Foundation and Higher Tier • 100 marks • 50 % of GCSE
Questions Multiple choice, structured, closed short answer and open response.		**Questions** Multiple choice, structured, closed short answer and open response.

HOW DO TIERS WORK? – COMBINED SCIENCE

Higher tier grades	Foundation tier grades
9-9, 9-8	Not available
8-8, 8-7	
7-7, 7-6	
6-6, 6-5	
5-5, 5-4	5-5, 5-4
4-4	4-4, 4-3
U – some years students have been awarded a 4-3	3-3, 3-2
	2-2, 2-1
	1-1
	U

Exam structure	
Higher demand questions (60% of higher paper)	
Standard demand Questions (40% of paper)	
	Lower demand questions (60% of foundation paper)

HOW DO TIERS WORK? – TRIPLE SCIENCE

Higher tier grades	Foundation tier grades
9	Not available
8	
7	
6	
5	5
4	4
U – some years the exam board has also awarded a grade 3	3
	2
	1
	U

Exam structure	
Level 3 (hardest) questions (60% of higher paper)	
Level 2 Questions (40% of both foundation and higher papers – same Qs both papers)	
	Level 1 (easiest) questions (60% of foundation paper)

HOW TO SUPPORT YOUR CHILD

- Ask them what they have studied and allow them to explain what they are currently covering.

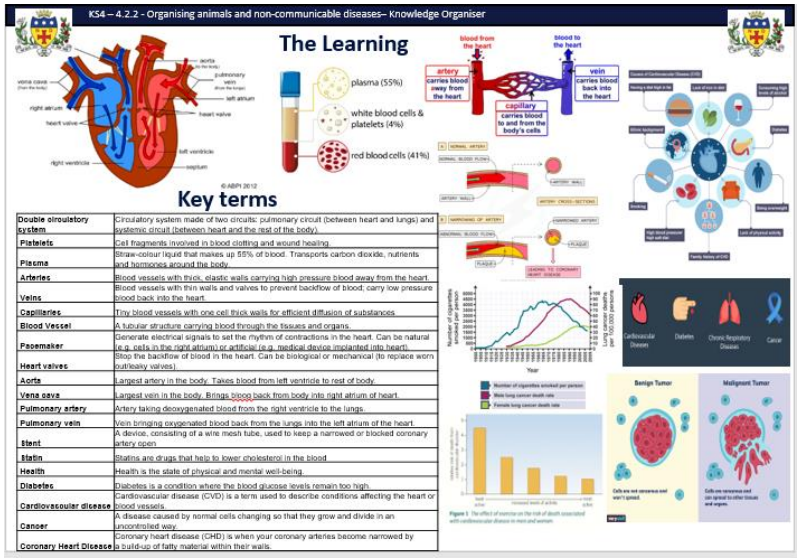
- Encourage them to read and use their book when they complete their homework. Also books should be used to revise for the knowledge checks, particularly using their knowledge organisers (see next slide).

- There is an overview of topics which should be at the front of their book

HOW TO SUPPORT YOUR CHILD

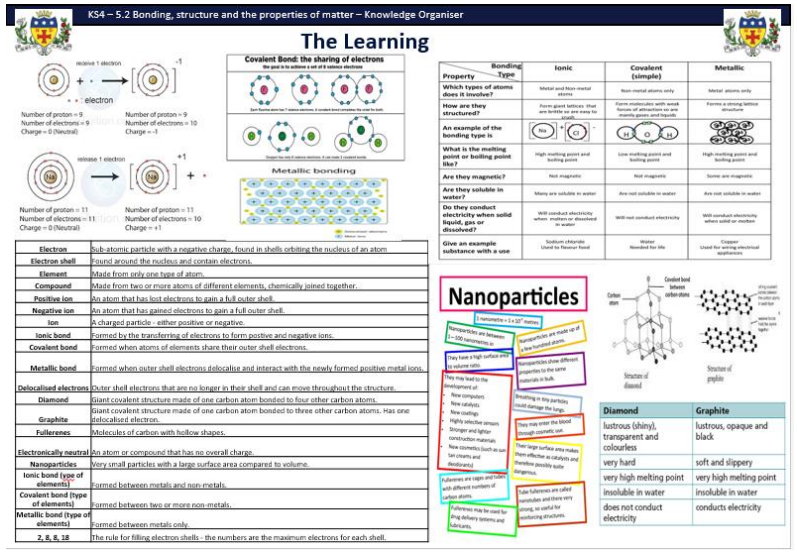
Examples of Knowledge Organisers – these will be at the start of each sub-topic

Biology



Double circulatory system	Circulatory system made of two circuits: pulmonary circuit (between heart and lungs) and systemic circuit (between heart and the rest of the body).
Platelets	Cell fragments involved in blood clotting and wound healing.
Plasma	Straw-colour liquid that makes up 55% of blood. Transports carbon dioxide, nutrients and hormones around the body.
Arteries	Blood vessels with thick, elastic walls carrying high pressure blood away from the heart.
Veins	Blood vessels with thin walls and valves to prevent backflow of blood; carry low pressure blood back into the heart.
Capillaries	Tiny blood vessels with one cell thick walls for efficient diffusion of substances.
Blood Vessel	A tubular structure carrying blood through the tissues and organs.
Pacemaker	Generate electrical signals to set the rhythm of contractions in the heart. Can be natural (e.g. cells in the right atrium) or artificial (e.g. medical device implanted into heart).
Heart valves	Stop the backflow of blood in the heart. Can be biological or mechanical (to replace worn out/leaky valves).
Aorta	Largest artery in the body. Takes blood from left ventricle to rest of body.
Vena cava	Largest vein in the body. Brings blood back from body into right atrium of heart.
Pulmonary artery	Artery taking deoxygenated blood from the right ventricle to the lungs.
Pulmonary vein	Vein bringing oxygenated blood back from the lungs into the left atrium of the heart.
Stent	A device, consisting of a wire mesh tube, used to keep a narrowed or blocked coronary artery open.
Statin	Statins are drugs that help to lower cholesterol in the blood.
Health	Health is the state of physical and mental well-being.
Diabetes	Diabetes is a condition where the blood glucose levels remain too high.
Cardiovascular disease	Cardiovascular disease (CVD) is a term used to describe conditions affecting the heart or blood vessels.
Cancer	A disease caused by normal cells changing so that they grow and divide in an uncontrolled way.
Coronary Heart Disease	Coronary heart disease (CHD) is when your coronary arteries become narrowed by a build-up of fatty material within their walls.

Chemistry

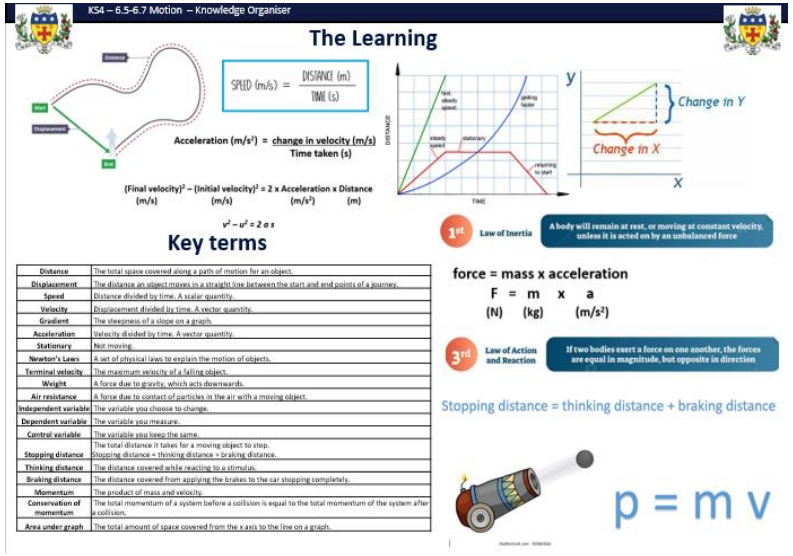


Electron	Sub-atomic particle with a negative charge, found in shells orbiting the nucleus of an atom
Electron shell	Found around the nucleus and contain electrons.
Element	Made from only one type of atom.
Compound	Made from two or more atoms of different elements, chemically joined together.
Positive ion	An atom that has lost electrons to gain a full outer shell.
Negative ion	An atom that has gained electrons to gain a full outer shell.
Ion	A charged particle - either positive or negative.
Ionic bond	Formed by the transferring of electrons to form positive and negative ions.
Covalent bond	Formed when atoms of elements share their outer shell electrons.
Metallic bond	Formed when outer shell electrons delocalise and interact with the newly formed positive metal ions.
Delocalised electrons	Outer shell electrons that are no longer in their shell and can move throughout the structure.
Diamond	Giant covalent structure made of one carbon atom bonded to four other carbon atoms.
Graphite	Giant covalent structure made of one carbon atom bonded to three other carbon atoms. Has one delocalised electron.
Fullerenes	Molecules of carbon with hollow shapes.
Electronically neutral	An atom or compound that has no overall charge.
Nanoparticles	Very small particles with a large surface area compared to volume.
Ionic bond (type of elements)	Formed between metals and non-metals.
Covalent bond (type of elements)	Formed between two or more non-metals.
Metallic bond (type of elements)	Formed between metals only.
2, 8, 8, 18	The rule for filling electron shells - the numbers are the maximum electrons for each shell.

Property	Ionic	Covalent (simple)	Metallic
Which types of atoms does it involve?	Metal and Non-metal atoms	Non-metal atoms only	Metal atoms only
How are they structured?	Form giant lattices that are brittle so are easy to break.	Form molecules with weak forces of attraction so are mainly gases and liquids	Forms a strong lattice structure
An example of the bonding type is	NaCl	H_2O	
What is the melting point or boiling point like?	High melting point and boiling point	Low melting point and boiling point	High melting point and boiling point
Are they magnetic?	Not magnetic	Not magnetic	Some are magnetic
Are they soluble in water?	Many are soluble in water	Are not soluble in water	Are not soluble in water
Do they conduct electricity when solid liquid, gas or dissolved?	Will conduct electricity when molten or dissolved in water	Will not conduct electricity	Will conduct electricity when solid or molten
Give an example substance with a use	Sodium chloride Used to flavour food	Water Needed for life	Copper Used for wiring electrical appliances

Diamond	Graphite
lustrous (shiny), transparent and colourless	lustrous, opaque and black
very hard	soft and slippery
very high melting point	very high melting point
insoluble in water	insoluble in water
does not conduct electricity	conducts electricity

Physics



Distance	The total space covered along a path of motion for an object.
Displacement	The distance an object moves in a straight line between the start and end points of a journey.
Speed	Distance divided by time. A scalar quantity.
Velocity	Displacement divided by time. A vector quantity.
Gradient	The steepness of a slope on a graph.
Acceleration	Velocity divided by time. A vector quantity.
Stationary	Not moving.
Newton's Laws	A set of physical laws to explain the motion of objects.
Terminal velocity	The maximum velocity of a falling object.
Weight	A force due to gravity, which acts downwards.
Air resistance	A force due to contact of particles in the air with a moving object.
Independent variable	The variable you choose to change.
Dependent variable	The variable you measure.
Control variable	The variable you keep the same.
Stopping distance	The total distance it takes for a moving object to stop. Stopping distance = thinking distance + braking distance.
Thinking distance	The distance covered while reacting to a stimulus.
Braking distance	The distance covered from applying the brakes to the car stopping completely.
Momentum	The product of mass and velocity.
Conservation of momentum	The total momentum of a system before a collision is equal to the total momentum of the system after a collision.
Area under graph	The total amount of space covered from the x axis to the line on a graph.

HOW TO SUPPORT YOUR CHILD

Understanding how learning works. There is lots more information here: The Learning Scientists

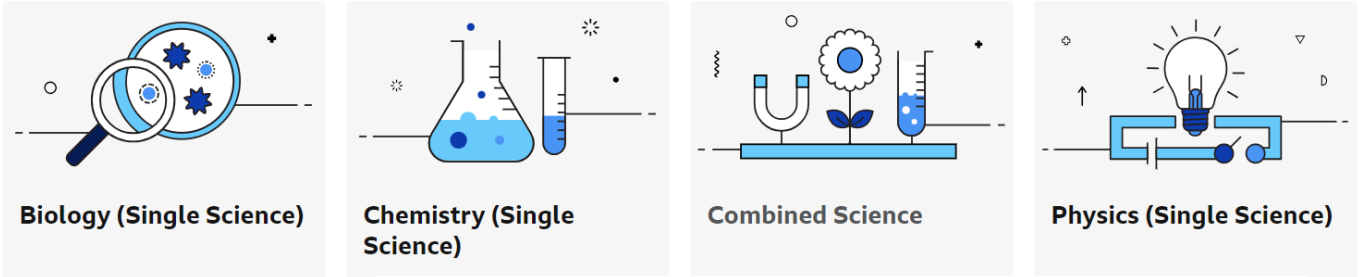
Key ideas – a quiet focused environment is best for remembering what they are working on, so phones away unless needed for the task.

Retrieval – trying to remember things helps build that memory, so trying to answer questions or using flash cards to test themselves is much more effective than re-reading their book with the TV on in the background.

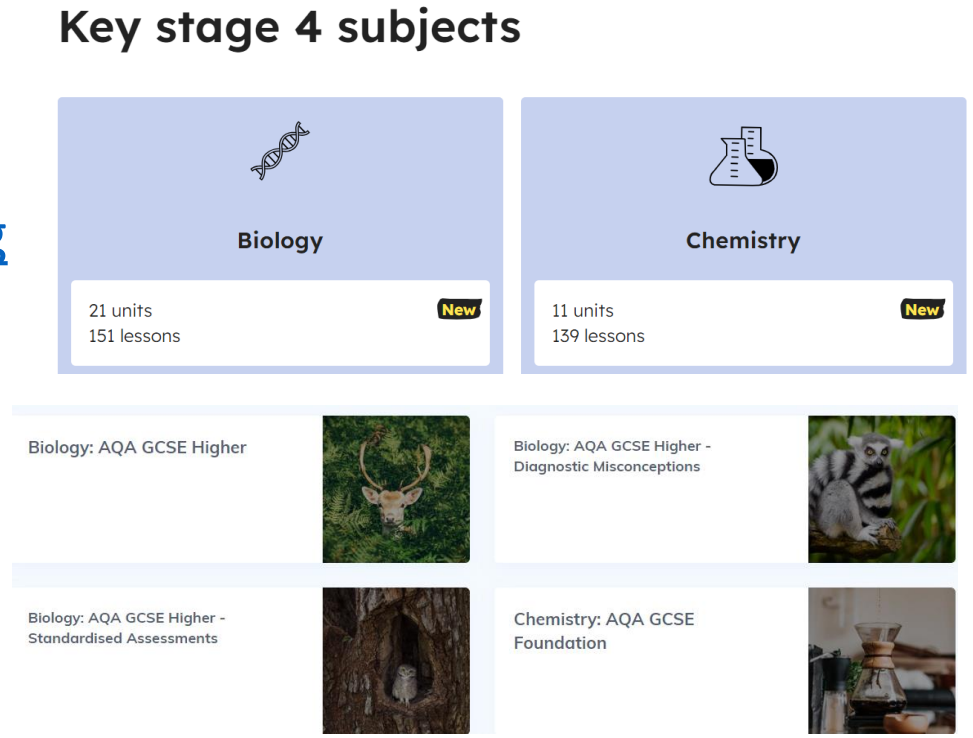
HOW TO SUPPORT YOUR CHILD (USEFUL WEBSITES)

Here are the best places to go for online support

[GCSE Science - BBC Bitesize]



[Free KS4 Teaching Resources for Lesson Planning | Oak National Academy (thenational.academy)]



[Seneca - Learn 2x Faster (senecalearning.com)]

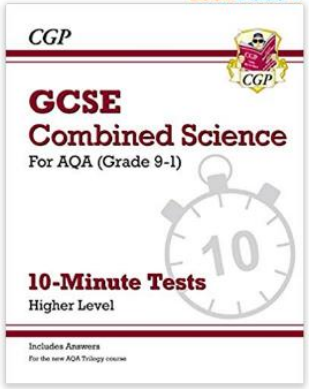
HOW TO SUPPORT YOUR CHILD - OFFLINE

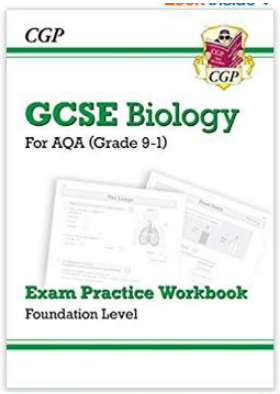
Many revision guides, workbooks and **flashcards** are available. Workbooks and 10 minute tests allow students to practice what they know, which helps their long term memory. Ensure any resources are for the 9-1 specification and are for either separate sciences AQA or combined science Trilogy.

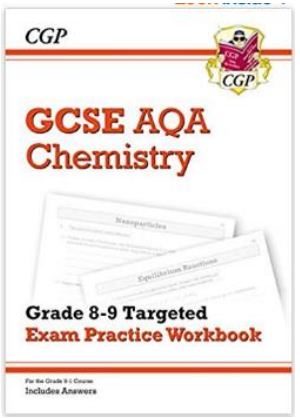
Ask your child's teacher if you need guidance on higher or foundation tier.

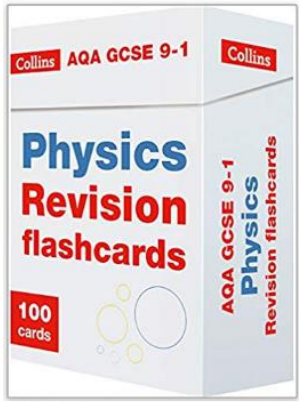
CGP are good value for money.

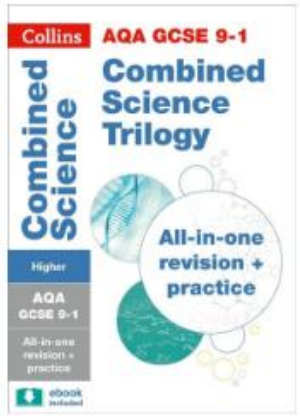
Other publishers include Oxford University press (our textbooks) and Collins.











HOMEWORK

- Combined - Up to **30** minutes per week (in line with homework policy)
- Triple – Up to **60** minutes per week (in line with homework policy)

- All homework **set on Exampro Online** and students will be reminded through Show My Homework (Satchel:one)
- Students are expected to log in daily to check homework's set
- Show My Homework includes a calendar, with hand in dates for all homework set – Students and parents can track tasks
- Available online and as an app

HOW TO SUPPORT YOUR CHILD WITH EXAMPRO ONLINE

This year we are using Exampro Online to set homework's at KS4

This can be found here:
https://osa.exampro.co.uk

Each student has their own login and Single Sign In (SSI) can be set up

Exampro online – Logging on and SSI

Logging in and resetting your password

To log in, you will need your credentials. which have three parts:

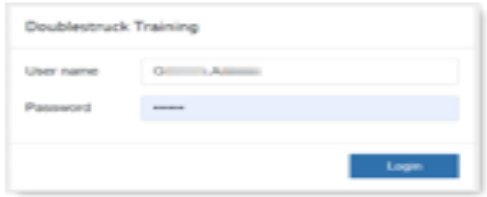
- Centre ID (a series of numbers and letters)
- Name (usually yourfirstname.yoursecondname)
- Password (a set of randomly selected letters)

Your teacher will share your credentials with you. **It is important that you do not share them with anyone else.**

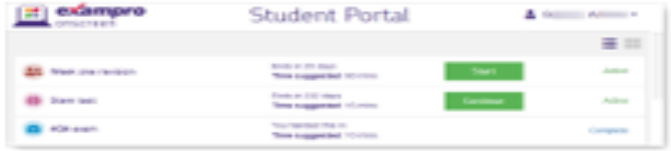
To find the student portal, go to https://osa.exampro.co.uk.

Enter the Centre ID first then click **Next**.

Enter your **User name** and **Password** then click **Login**.



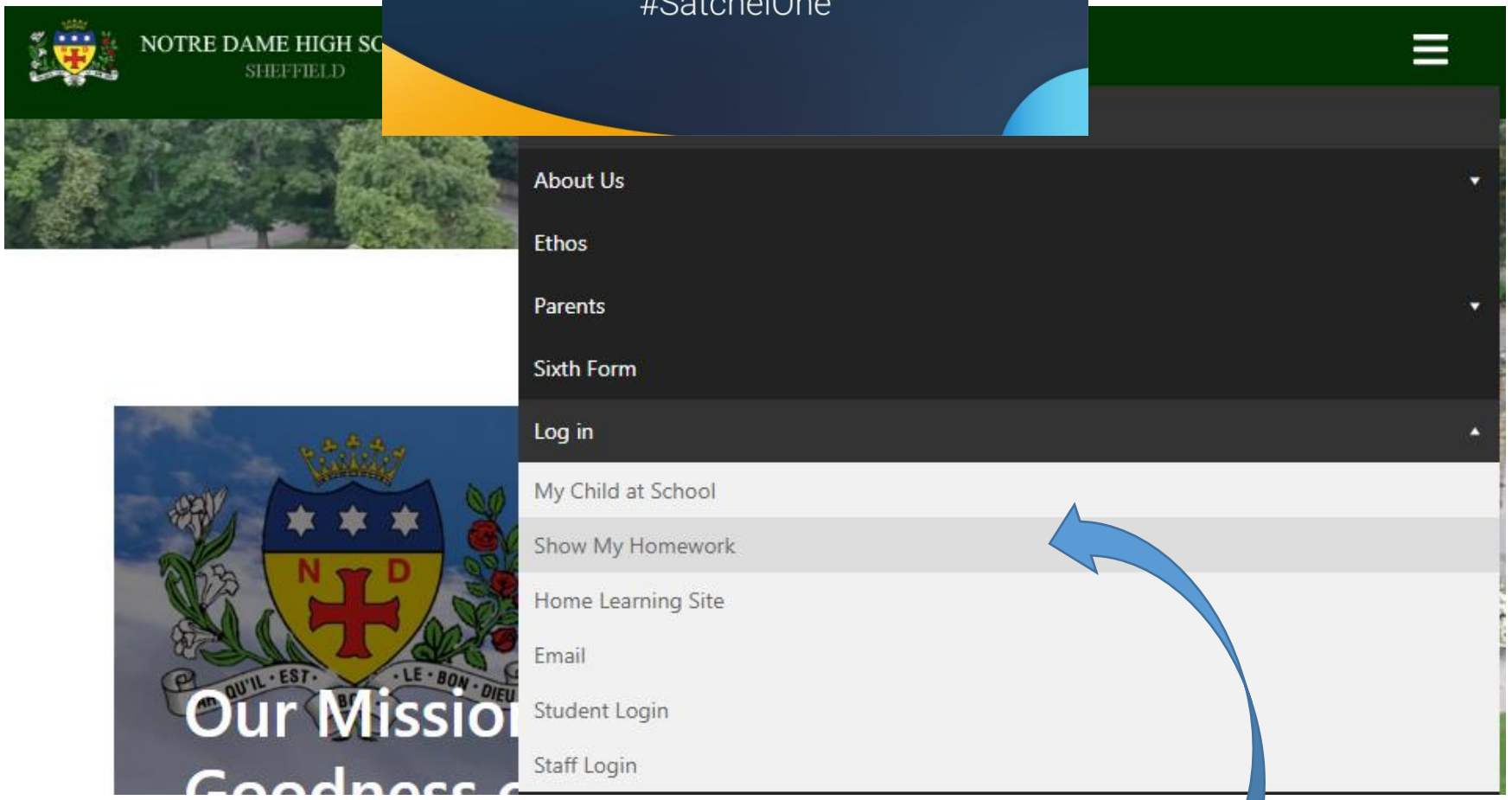
Your assignment list will look something like this



If you lose or forget your credentials, ask your teacher to reset your password.

satchel:one

#SatchelOne

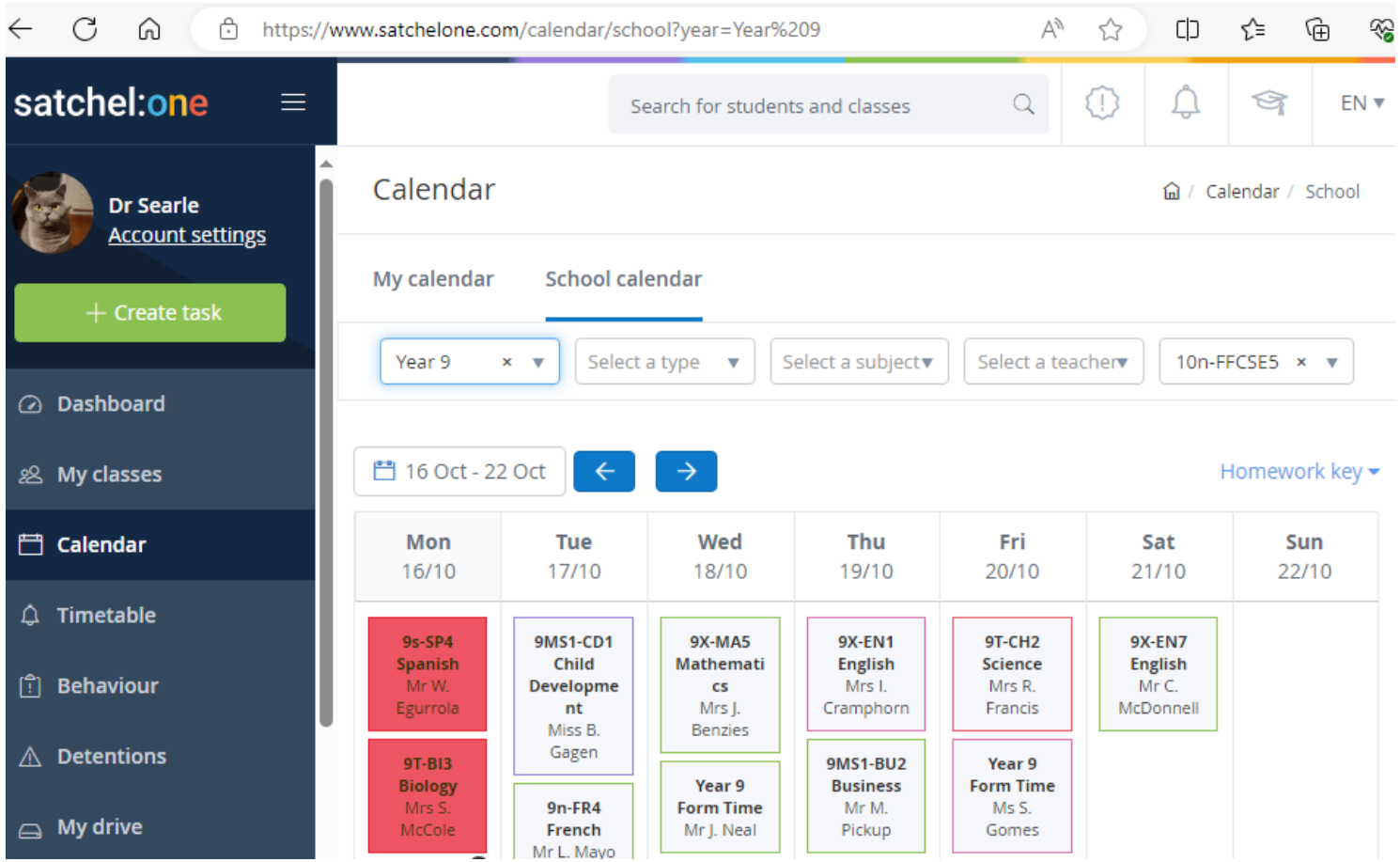


Show my homework as other subjects

Show My Homework *is* Satchel:one

Homework

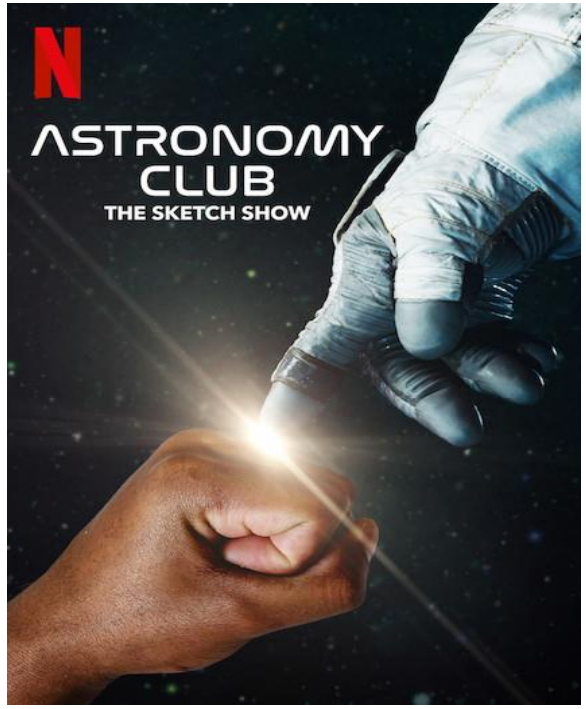
Satchel:one: Calendar screenshot – can filter to your child's classes or they can log in



Extracurricular Activities

Of course it's not all just work, work, work

stem club



Wednesday lunchtime

Thursday lunchtime

Contact

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Any Questions?