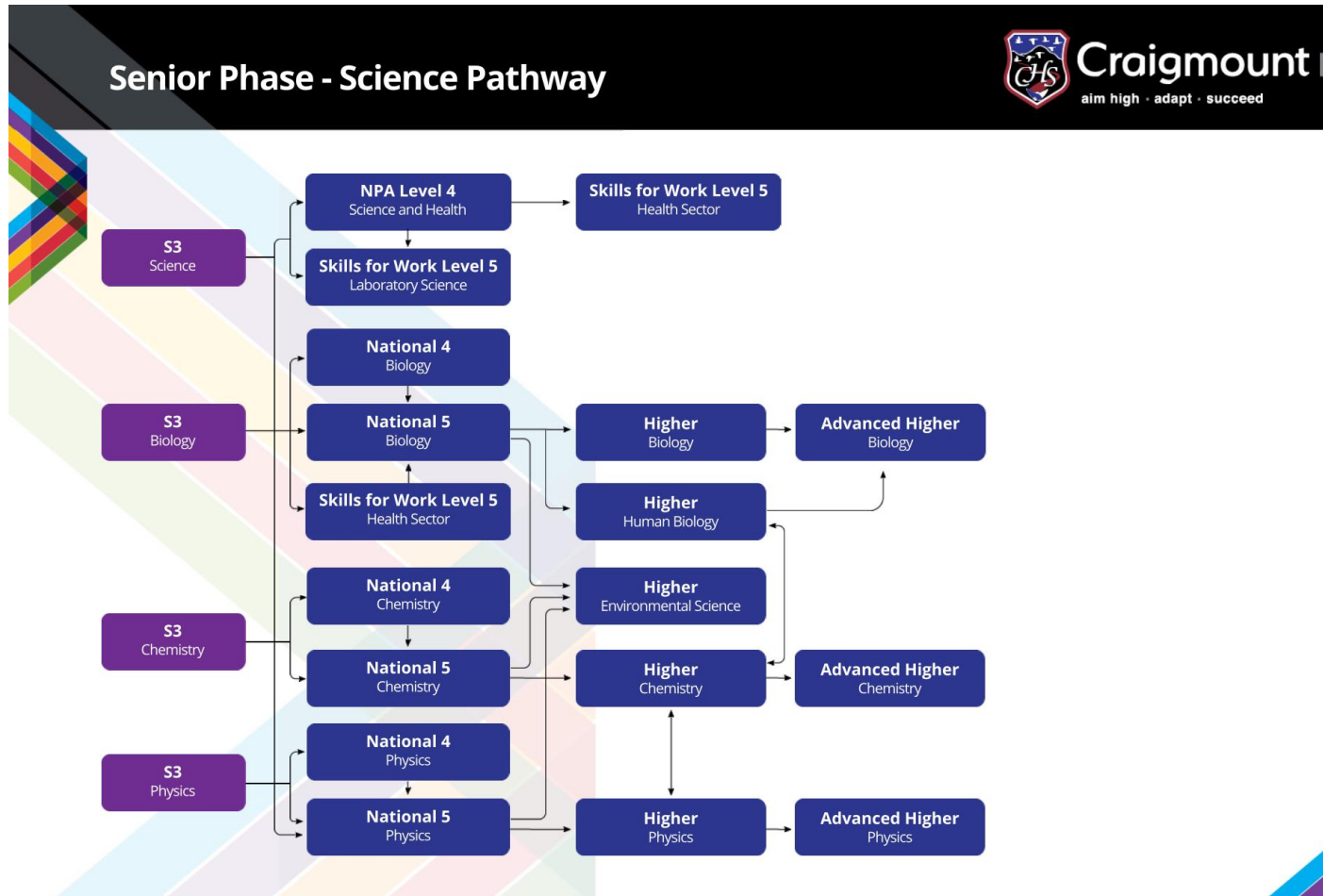


Senior Phase Open Evening

Thursday 25 September

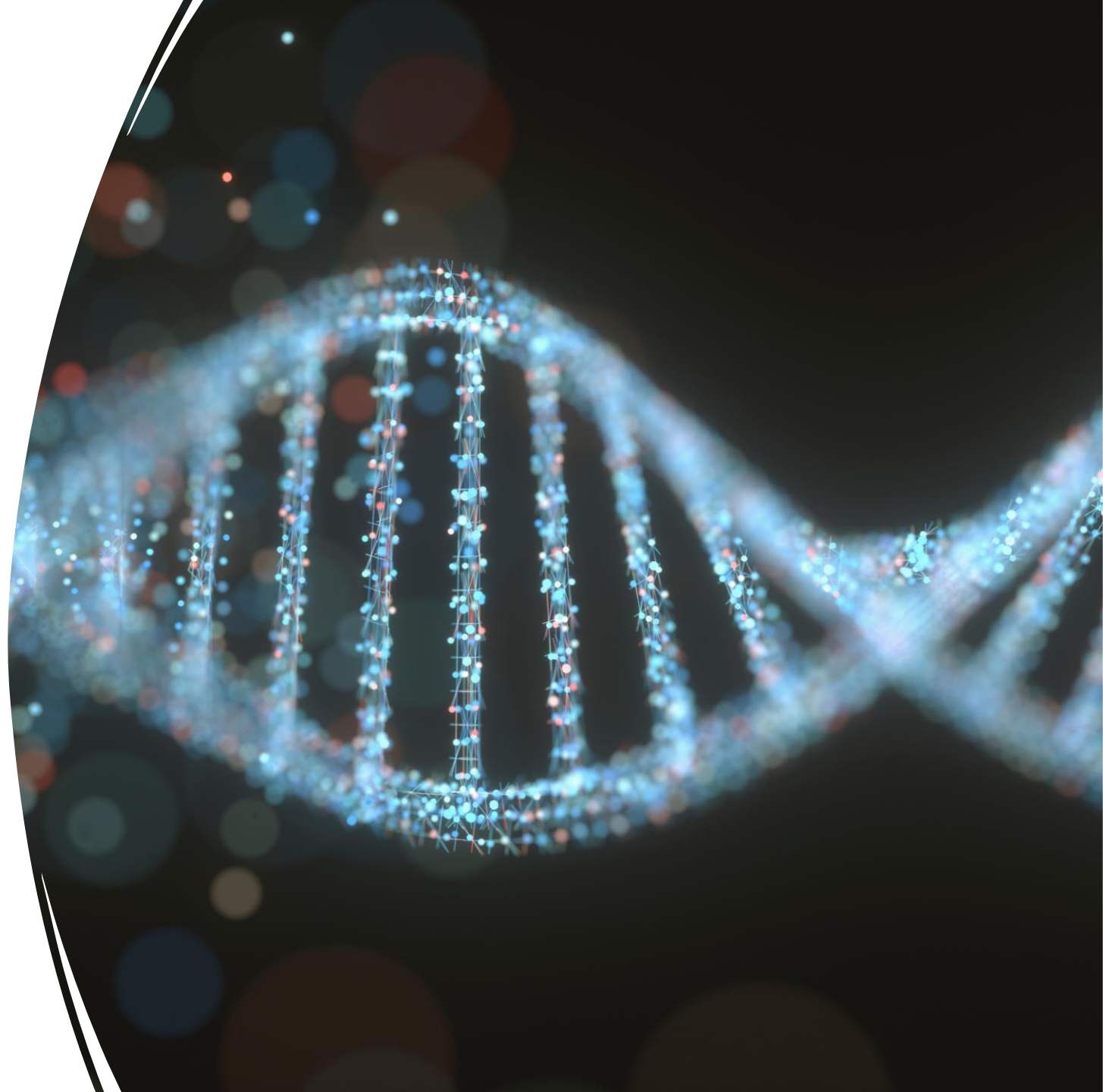
Your Options



- This document can be found on the Craigmount website under the Curriculum Pathways section:
- <https://craigmounthighschool.co.uk/curriculum-pathway/>
- Over the next few slides we'll take a more in depth look at the options available

Biology overview

- Biology is a scientific study of life and living cells exploring their structure , function and growth. As the study of living organisms, it plays a crucial role in our everyday existence and is an increasingly important subject in the modern world. Biology affects everyone and aims to find solutions to many of the world's problems. Advances in technologies have made this varied subject more exciting and relevant than ever.
- Some Careers involving biology:
- Biologist
- Medicine – doctor
- Biotechnologist
- Research scientist



National 5 Biology

- There are three units : Cell Biology, Multicellular Organisms, and Life on Earth. Along with this you will develop your problem-solving skills which involves scientific investigation, literacy and numeracy skills.
- This course is split into an exam which is 80% (there are two parts to the exam : multiple choice is 25 marks and extended response is 75 marks) and an assignment is worth 20% .
- The assignment involves carrying out an experiment and then writing a report on it.
- Cell biology unit involves – cell structure including ultrastructure and functions of organelles, role of DNA, protein synthesis, how enzymes functions and processes that take place in living cells such as genetic engineering, photosynthesis, respiration, and transportation across cell membrane, which consists of diffusion and osmosis.
- Second unit is Multicellular organisms - this unit will introduce you to the process of cell division (mitosis) and its importance. It will also teach you the central nervous system process and the structure and function of the brain. This unit also consist of a topic called reproduction which will help you understand what gametes are and the importance of the process, transportation in plants and animals, including the structure which is used to perform the transport, and finally how materials such as nutrients and oxygen can be absorbed into the bloodstream.
- Life on earth unit - this will introduce you to what an ecosystem is, the process of photosynthesis, abiotic and biotic factors which affect an ecosystem, food production and the factors which affect it m energy in ecosystem, process of evolution of species

Higher Biology

- There are 3 units: DNA and the Genome, Metabolism and Survival, and Sustainability and Interdependence. Along with this you will develop your problem-solving skills which involves scientific investigation, literacy and numeracy skills.
- The course is split into an exam which is 80 % (multiple choice is 25 marks and the extended response is 95 marks) and the assignment is 20 % (total marks available for assignment are 20 but then it is scaled up to 30 marks).
- The assignment is the same as National 5, it involves carrying out an experiment and then writing a report on it.
- DNA and genome unit involves structure of DNA, replication, how genes are expressed and control cellular differentiation, the organisation of genomes, the impact of mutations, the evolutionary significance of genomes, and modern applications like genomic sequencing.
- Metabolism and survival unit explores how living organisms manage the chemical reactions necessary for life (metabolism) along with how enzymes are used to regulate the processes inside living cells. Focusing on metabolic pathways, cellular respiration for ATP production, factors affecting metabolic rate, and strategies like regulation, dormancy, and migration for dealing with adverse conditions.
- Sustainability and interdependence unit investigates how humans rely on sustainable food production, focusing on plant productivity and animal welfare, and how all organisms are linked through food webs and symbiotic relationships. Topics include improving crops and livestock through breeding and crop protection, the concept of biodiversity, its threats from human activity.

Advanced Higher Biology

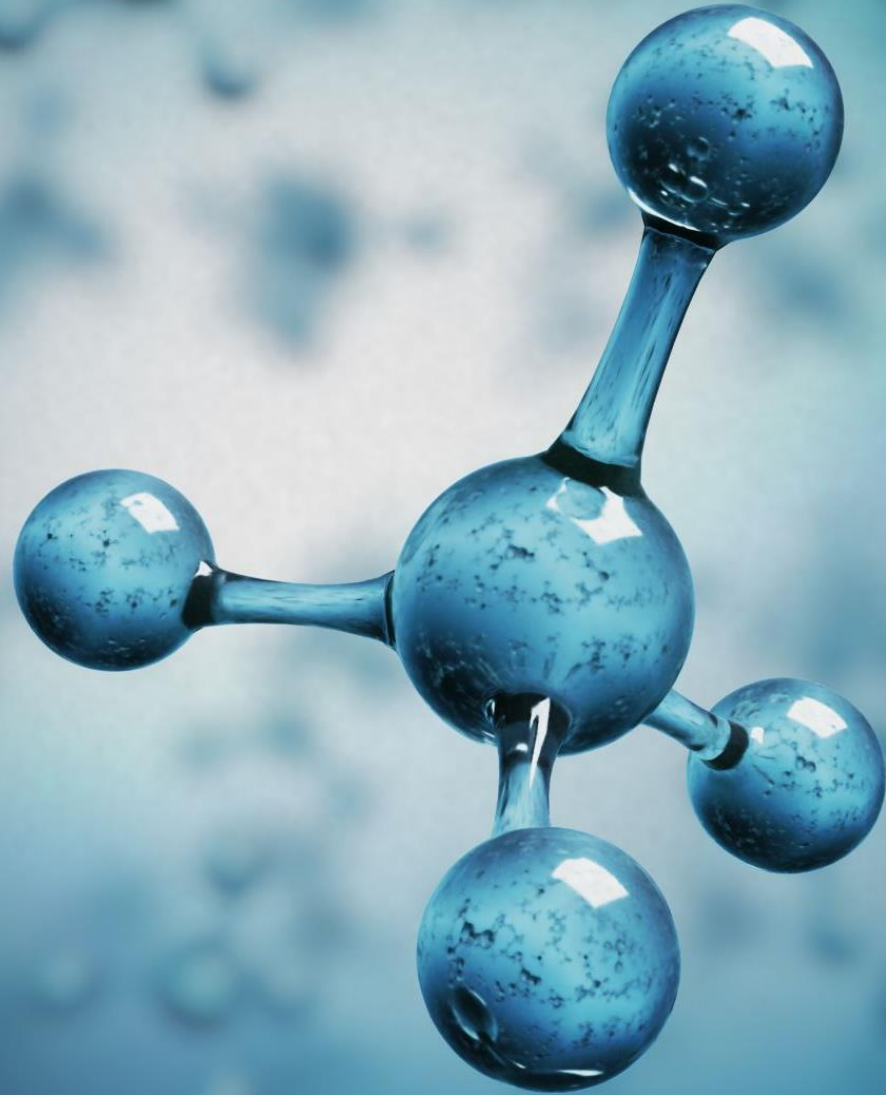
- This course is split into an exam which is 100 marks but scaled up to 120 marks and a project which is worth 30 marks but scaled to 40 marks.
- The project involves an in-depth, independent investigation into a specific biology topic, requiring students to apply knowledge of scientific inquiry to plan, conduct, and analyse an experiment and generate data through experiments, critically evaluate their findings, and present a detailed, evidence-based scientific report .
- There are 3 units: Cells and Proteins, Organisms and Evolution, and Investigative Biology. Along with this you will develop your problem-solving skills which involves scientific investigation, literacy and numeracy skills.
- Cells and protein unit explores the molecular basis of life by exploring protein structure and function, including their role in cell communication and cell division. It also covers advanced cell biology concepts, such as membrane proteins cytoskeleton dynamics, the cell cycle, along with crucial laboratory techniques like microscopy, cell culture, separation techniques and antibody techniques. The unit integrates these topics to explain how cells respond to stimuli, communicate within multicellular organisms.
- organisms and evolution involves studying how biological variation, sexual reproduction, evolution, sex, and parasitism drive the changes in organisms and populations over time. It also covers field techniques , sampling methods, organism classification and the impact of natural selection and genetic drift . The unit also explores sexual behaviour and the biological systems of parasitism.
- investigative biology unit involves a sustained, in-depth, independent biological investigation, from planning and designing a valid experiment, collecting and analysing data, and communicating the results in a comprehensive scientific report. It builds upon the scientific method. requiring learners to develop critical evaluation skills, ethical considerations, and effective communication of biological research through a personal project.

General tips for success in biology

- Study for understanding - biology has a lot of interconnected processes so instead of just memorising the terms focus on how different topics relate to each other.
- Explain the topic to others as it solidifies your knowledge and reveals gaps in understanding.
- Draw diagrams as biology is a visual subject. This active process is more effective than simply reading the process.
- Practice past paper questions, especially with different command words.

Chemistry overview

- Chemistry is a study of arrangement of atoms and molecules and the characteristics they give to materials. How matter changes during chemical reactions, including the energy involved. It also includes different types of chemical reactions like combustion. Exothermic or endothermic reactions.
- Some careers involving and/or related to chemistry include:
 - Analytical chemist
 - Biotechnologist
 - Research scientist
 - Medicinal chemist



National 5 Chemistry

- This course involves 3 units : Chemical Changes and Structure, Nature's Chemistry, and Chemistry in Society.
- This course is split into an exam of 100 marks, worth 80% of your final grade, and assignment which is 20 marks but scaled up to 25 marks, making it worth 20% of the final marks.
- The assignment involves carrying out an experiment on a relevant area of chemistry and then writing up a scientific report on it in class which is then sent to the SQA for marking.
- The Chemical Changes and Structure unit covers rates of reaction, atomic structure and bonding related to properties of materials, formulae and reacting quantities, and acids and bases.
- Nature's Chemistry looks at homologous series (including properties, naming, and general formulae), everyday consumer products, and energy from fuels (combustion).
- Chemistry in Society discusses nuclear chemistry, plastics and polymerisation, fertilisers and the Haber process, the properties and uses of metals, and chemical analysis.

Higher Chemistry

- Higher Chemistry is divided into four units: Chemical Changes and Structure, Nature's Chemistry, Chemistry in Society, and Researching Chemistry. The course assessment consists of two question papers (one multiple-choice and one extended answer, of 25 and 95 marks respectively) which together make up 80% of your final grade, as well as an assignment which is worth 20%.
- Similar to National 5, the assignment requires candidates to carry out an experiment and then complete a report write up under supervised conditions which is then sent to the SQA for marking.
- Chemical Changes and Structure looks at periodicity, structure and bonding, and oxidising and reducing agents.
- In Nature's Chemistry, you will cover systematic carbon chemistry, alcohols, carboxylic acids, esters, fats and oils, soaps, detergents and emulsions, proteins, oxidation of food, fragrances, and skin care.
- As part of Chemistry in Society, we cover getting the most from reactants, controlling the rate of a reaction, chemical energy, equilibria, and chemical analysis.
- The topics discussed in Researching Chemistry include common chemical apparatus, general practical techniques, and reporting experimental work.

Advanced Higher Chemistry

- The Advanced Higher Chemistry course has four main units: Inorganic Chemistry, Physical Chemistry, Organic Chemistry and Instrumental Analysis, and Researching Chemistry. The course assessment consists of a question paper which is scaled to represent 75% of your final grade, and a project worth 25%.
- The project involves an in-depth, independent investigation into a specific area of chemistry, requiring students to apply knowledge of scientific inquiry to research, plan and conduct experiments to generate suitable data for analysis. Students must then critically evaluate their findings, and present a detailed, evidence-based scientific report. Unlike at Higher, the project is conducted over an extended period and the write up of this report does not have to be completed in class.
- The topics covered by Inorganic Chemistry include electromagnetic radiation and atomic spectra, atomic orbitals, electronic configurations and the periodic table, and transition metals.
- As part of Physical Chemistry, you will cover chemical equilibrium, reaction feasibility and kinetics.
- In Organic Chemistry and Instrumental Analysis, we discuss molecular orbitals, synthesis, stereo chemistry, experimental determination of structure, and pharmaceutical chemistry.
- The Researching Chemistry unit looks at common chemical apparatus, skills involved in experimental work, stoichiometric calculations, gravimetric analysis, volumetric analysis, and practical skills and techniques.

General tips for success in chemistry

- Practice problem solving questions consistently and apply concepts to new situations
- Use diagrams, mind maps to organise your thoughts and visualise complex concepts .
- Focus on the concepts and understand why things happen not just how they happen to improve your retention.
- Ask as many questions as you can to get a better understanding of the concepts.

- Physics is the study of matter, energy and the interaction between them. This entails asking fundamental questions and trying to answer them by observing and experimenting. The answers to such questions can lead to advances in our understanding of the world around us and often result in technological improvements which enhance the lives of all.
- Some careers involving and/or related to physics include:
 - Academic researcher
 - Medical Physicist
 - Meteorologist
 - Patent attorney
 - Data Analyst

National 5 Physics

- The National 5 Physics course is divided into 6 units: Dynamics, Space, Waves, Radiation, Properties of Matter, and Electricity. The course assessment consists of an exam which is out of 135 marks and scaled to represent 80% of final marks, and an assignment marked out of 20, which is also scaled, to represent 20% of your final marks.
- The assignment requires you to carry out a practical investigation into an area of physics and then write up a report on your experiment.
- Dynamics covers topics such as vector and scalar quantities, Newton's Laws of Motion and projectile motion
- Space discusses space exploration (including its risks and benefits, and the application of Newton's Laws of Motion to rocket launches) as well as cosmology
- Waves looks at wave parameters and behaviours, the electromagnetic spectrum and refraction of light.
- Radiation covers nuclear fission and fusion, activity and half life, and absorbed and equivalent dose as part of the wider topic of nuclear radiation.
- Properties of matter teaches you about the specific heat capacity of materials, specific latent heat and the kinetic model and gas laws.
- Electricity covers electrical charge carriers, potential difference (voltage), Ohm's Law, practical electrical and electronic circuits, and electrical power

Higher Physics

- The Higher Physics course consists of three main units: Our Dynamic Universe, Particles and Waves, and Electricity. The course assessment consists of two question papers (one multiple-choice and one extended answer) and an assignment. The multiple-choice paper is out of 25 marks, which represents ~17% of the final marks, whilst the extended answer is scaled to represent 63% and the assignment, marked out of 20, is scaled up to represent 20% of your grade.
- Similar to at National 5, the assignment at Higher requires you to carry out a practical investigation and then write up your findings in a report that gets submitted to the SQA.
- The topics covered by Our Dynamic Universe include equations and graphs of motion, forces, energy and power, collisions, explosions and impulse, gravitation, special relativity, and the expanding Universe.
- Particles and waves discusses forces on charged particles, the Standard model, nuclear reactions, inverse square laws, wave-particle duality, interference, spectra and refraction of light.
- Electricity looks at monitoring and measuring alternating current, equations involving current, potential difference, power, and resistance, electrical sources and internal resistance, capacitors, and semiconductors and p-n junctions.

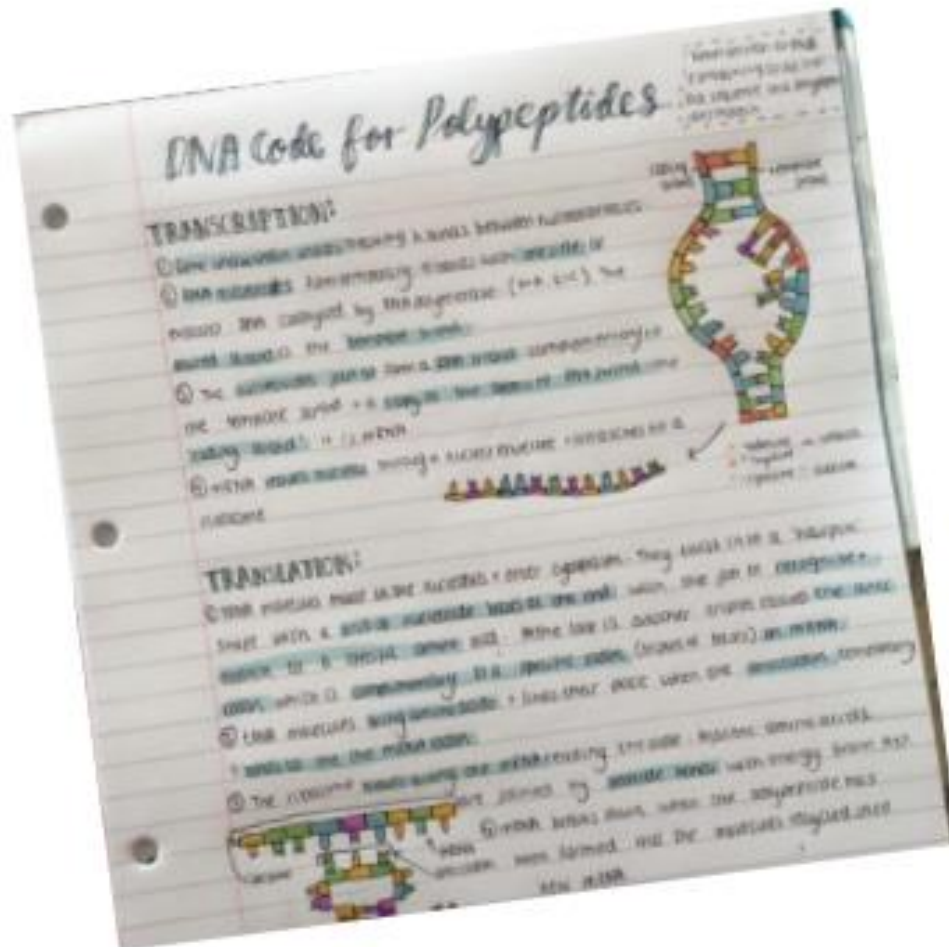
Advanced Higher Physics

- This course is divided into four units: Rotational Motion and Astrophysics, Quanta and Waves, Electromagnetism, and Units, Prefixes and Uncertainties. The course assessment for Advanced Higher Physics consists of a question paper which has 155 marks, scaled to 120 to represent 75% of your final marks, as well as a project that is worth 25% of your grade.
- The project involves an in-depth, independent investigation into a specific area of physics, requiring students to apply knowledge of scientific inquiry to research, plan and conduct experiments to generate suitable data for analysis. Students must then critically evaluate their findings, and present a detailed, evidence-based scientific report. Unlike at Higher, the project is conducted over an extended period and the write up of this report does not have to be completed in class.
- The topics covered by Rotational Motion and Astrophysics include kinematic relationships, angular motion, rotational dynamics, gravitation, general relativity, and stellar physics.
- As part of Quanta and Waves, you will look at an introduction to quantum theory, particles from space, simple harmonic motion, waves, interference, and polarisation.
- Electromagnetism covers electric and magnetic fields, circuits, and electromagnetic radiation.
- Lastly, units, prefixes and uncertainties covers units, prefixes and scientific notation, uncertainties, data analysis, and evaluation and significance of experimental uncertainties.

General tips for success in physics

- Write out the quantities and information that the question gives you – it might help you see which formula you need to use!
- Draw a diagram to help you visualise the situation and mark on the things you know (forces, directions etc.)
- Do a sense check for any numbers you calculate (so you aren't getting speeds faster than light for example)
- Learn why the system is behaving that way, not just how it is behaving to improve your retention and problem-solving skills.

Supporting your Senior Scientist



National 5 Assessment



Learners will sit one exam and complete one coursework assessment:

- Exam
- Coursework: assignment

Both assessments will be marked by SQA. We will grade the course from A to D.

Higher Assessment



Learners will sit one exam and complete one coursework assessment:

- Exam: this contains two question papers:
 - Question paper 1 (multiple choice)
 - Question paper 2
- Coursework: assignment

Both assessments will be marked by SQA. We will grade the course from A to D.



Advanced Higher Assessment

Learners will sit one exam and complete one coursework assessment:

- Exam
- Coursework: project

Both assessments will be marked by SQA. We will grade the course from A to D.

Assignment

You can use this table to check you have covered all sections in your report.

Section	Description	Marks
Title	The report has an informative title.	1
Aim	A description of the purpose of your investigation.	1
Underlying biology	A description of the biology relevant to your aim, which shows your understanding.	3
Data collection and handling	A brief description of your experimental/fieldwork procedure.	1
	Sufficient data from your experiment/fieldwork.	1
	Data from your experiment/fieldwork presented in a table with headings and units.	1
	Values correctly calculated from your experimental/fieldwork data.	1
	Comparative data/information from internet/literature source.	1
	A reference for the internet/literature source.	1
Graphical presentation	Appropriate type of graph used to present your experimental/fieldwork data.	1
	Suitable scales.	1
	Suitable labels and units on axes.	1
Analysis	All data plotted accurately.	1
	Experimental/fieldwork data compared to data/information from internet/literature source.	1
Conclusion	A conclusion relating to your aim, based on all the data/information in your report.	2
Evaluation	Identification of a factor affecting the validity, reliability or accuracy of your experiment/fieldwork and a related explanation.	1
Structure	A report that can be easily followed.	1
Total		20

Biology

N5 [National 5 Assignment Assessment Task \(sqa.org.uk\)](https://www.sqa.org.uk)

Higher [HigherCATBiology.pdf \(sqa.org.uk\)](https://www.sqa.org.uk)

Chemistry

N5 [National 5 Chemistry Assignment Assessment Task \(sqa.org.uk\)](https://www.sqa.org.uk)

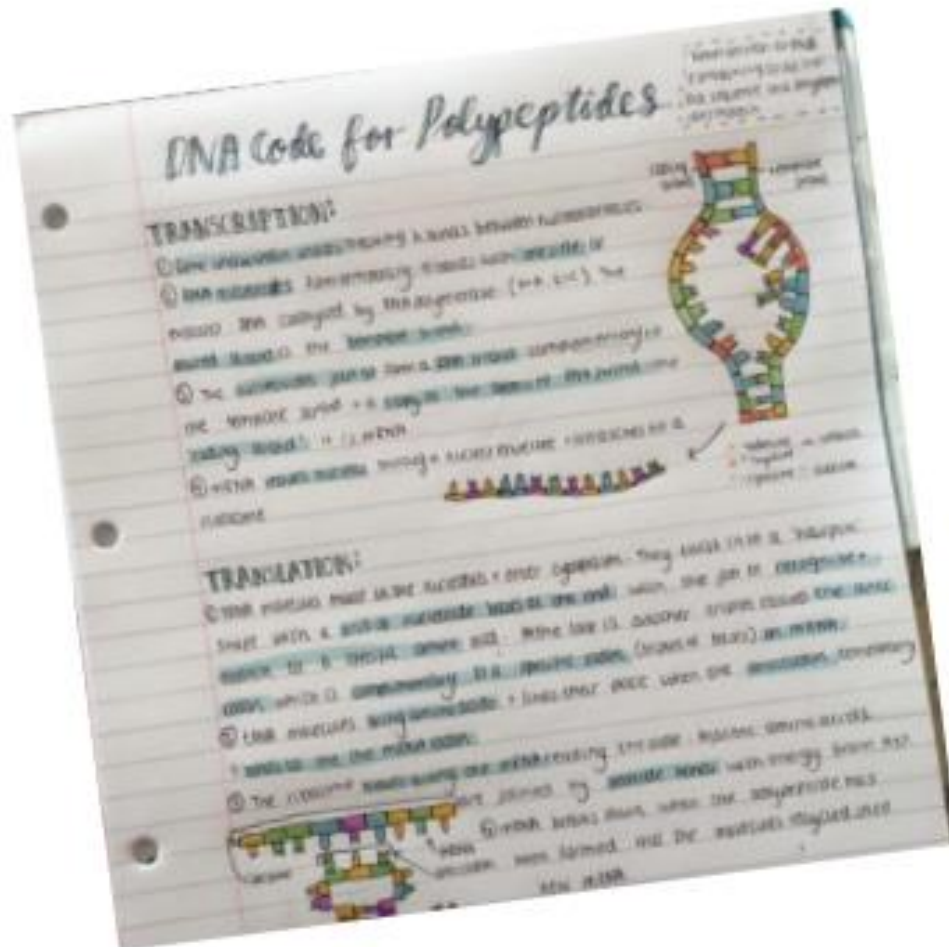
Higher [Higher Chemistry Assignment Assessment Task \(sqa.org.uk\)](https://www.sqa.org.uk)

Physics

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Supporting your Senior Scientist



National 5 Assessment



Learners will sit one exam and complete one coursework assessment:

- Exam
- Coursework: assignment

Both assessments will be marked by SQA. We will grade the course from A to D.

Higher Assessment



Learners will sit one exam and complete one coursework assessment:

- Exam: this contains two question papers:
 - Question paper 1 (multiple choice)
 - Question paper 2
- Coursework: assignment

Both assessments will be marked by SQA. We will grade the course from A to D.



Advanced Higher Assessment

Learners will sit one exam and complete one coursework assessment:

- Exam
- Coursework: project

Both assessments will be marked by SQA. We will grade the course from A to D.

Assignment

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	Data from your experiment/fieldwork presented in a table with headings and units.	1
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	A reference for the internet/literature source.	1
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	Suitable scales.	1
	Suitable labels and units on axes.	1
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Structure	A report that can be easily followed.	1
Total		20

Biology

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Higher [Higher Physics CAT \(sqa.org.uk\)](https://www.sqa.org.uk)

AH Projects

- Practical's completed in class or on fieldtrip
 - Regular feedback
 - Mentoring
 - Marking experience
-
- Biology [Advanced Higher Biology Project Assessment Task \(sqa.org.uk\)](https://www.sqa.org.uk/advanced-higher-biology-project-assessment-task)
 - Chemistry [AHCATChemistry.pdf \(sqa.org.uk\)](https://www.sqa.org.uk/advanced-higher-chemistry-project-assessment-task)
 - Physics [Advanced Higher Physics CAT \(sqa.org.uk\)](https://www.sqa.org.uk/advanced-higher-physics-project-assessment-task)



Advanced Higher
Coursework
Assessment Task



Advanced Higher Physics
Project
Assessment task



Master the Science

The first time we see information we 'know' it, but students must review, revise and consolidate to make sure that they 'master' knowledge. This makes identification of question matter easier in exams and saves time.

Chemistry

Q1. Insoluble salts are formed by reacting metal oxides with acids.

(a) Give one other type of substance that can react with an acid to form a soluble salt.
metal / carbonate / alkali

(b) Calcium nitrate contains the ions Ca^{2+} and NO_3^- .
Give the formula of calcium nitrate.
 $\text{Ca}(\text{NO}_3)_2$

(c) Describe a method to make pure, dry crystals of magnesium sulfate from a metal oxide and a dilute acid.

- Pour Sulphuric acid into beaker
- Heat up the sulphuric acid
- Add in MgO + stir
- keep adding MgO until will no longer dissolve
- filter the solution using funnel + filter paper
- pour solution into evaporating basin + heat up
- leave until crystallised
- Dry carefully with filter paper.

Q2. A student investigated the reactions of copper carbonate and copper oxide with dilute hydrochloric acid. In both reactions one of the products is copper chloride.

(a) Describe how a sample of copper chloride crystals could be made from copper carbonate and dilute hydrochloric acid.

- Dissolve copper carbonate into hydrochloric acid until no more will dissolve
- filter solution to remove excess CuCO_3
- heat solution until crystallised
- leave to cool down

(b) A student wanted to make 11.0 g of copper chloride. The equation for this reaction is:

$$\text{CuCO}_3 + 2\text{HCl} \rightarrow \text{CuCl}_2 + \text{H}_2\text{O} + \text{CO}_2$$

Relative atomic masses: A, H = 1, O = 16, Cl = 35.5, Cu = 63.5

Calculate the mass of copper carbonate the student should use to make 11.0 g of copper chloride.

$\text{Cu} = 63.5$ $\text{Cl}_2 = 35.5 \times 2 = 71$ $71 + 63.5 = 134.5$
 $11g = 0.08178 \times 134.5$
 10.1

Mass of copper carbonate = 10.1 g

(c) The percentage yield of copper chloride was 75.0%.

Calculate the mass of copper chloride the student actually produced.

$10.1 \times 0.75 = 7.575$
7.575

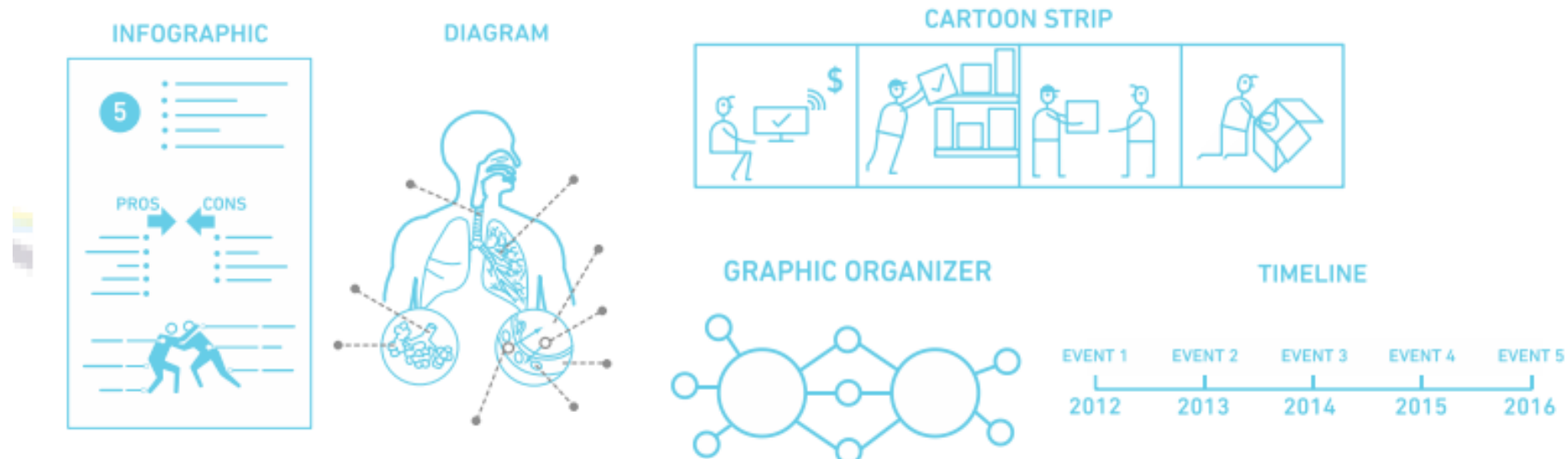
Actual mass of copper chloride produced = 7.575 g

Students must explain science using specific scientific vocabulary



How can students 'master' content?

Active note taking involves turning the material into a different format... Simply copying notes is passive and limited in impact.



Students must process information to ensure active learning.



How can students 'master' content?

Flashcards



Questions

Chemistry Revision Unit 1- Reaction Rate 1

List 4 factors which will increase the rate of a chemical reaction.

- INCREASING CONCENTRATION
- INCREASING TEMPERATURE
- DECREASING PARTICLE SIZE
- USING A CATALYST

How do you calculate average rate of reaction?

$$= \frac{\text{CHANGE IN QUANTITY}}{\text{CHANGE IN TIME}}$$

Calculate the average rate of reaction between 10 and 40 seconds, using the appropriate units.

$$\text{AVERAGE RATE} = \frac{15 - 5}{30} = \frac{10}{30} = 0.33 \text{ g/s}$$

In a reaction the volume increased from 20cm³ to 80cm³ in 200 seconds. What was the average rate of reaction in cm³/s?

$$= \frac{80 - 20}{200} = \frac{60}{200} = 0.3 \text{ cm}^3/\text{s}$$

Draw an label 2 pieces of apparatus which could be used to collect a gas in this reaction:

1. DELIVERY TUBE

2. GAS SYRINGE

The graph below shows the volume of hydrogen produced in the reaction of 1g of magnesium ribbon and 1 M hydrochloric acid.

1. Draw a green line on the graph to show using 1g of magnesium powder and 1 M hydrochloric acid.

2. Draw a blue line on the graph to show using 1g magnesium ribbon and 0.5M hydrochloric acid.

3. Draw a line to show when the reaction finished and state the time.

Reaction stopped: The average rate of reaction in the first 40 seconds is:

RED $\frac{60}{40} = 1.5 \text{ cm}^3/\text{s}$

GREEN $\frac{80}{40} = 2.0 \text{ cm}^3/\text{s}$

BLUE $\frac{30}{40} = 0.75 \text{ cm}^3/\text{s}$

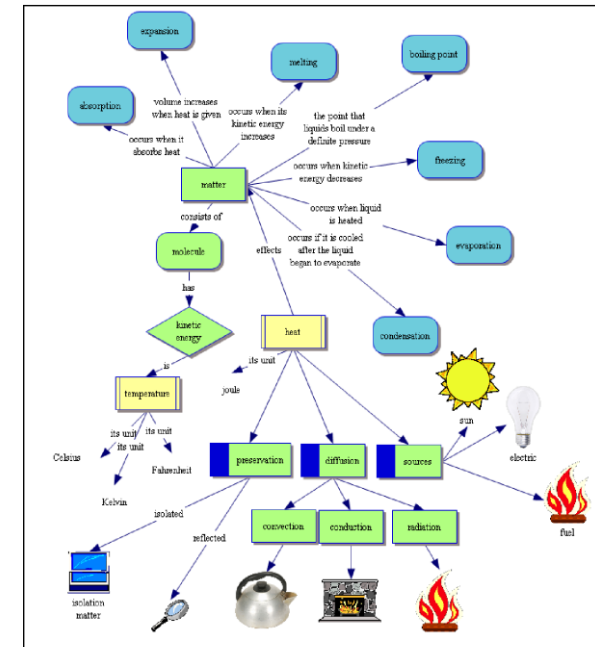
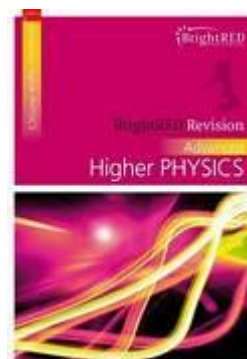
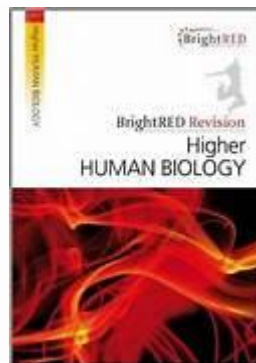
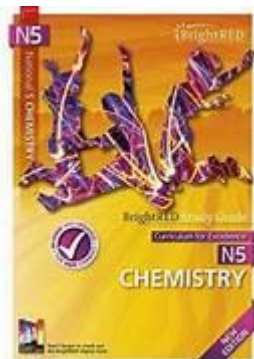


Figure 1. Concept map representing a heat and temperature unit

Concept Maps

Revision guides



How can students check they have mastered content?



Quick fact recall and self study questions, review learning outcomes, online quiz apps such as Quizlet, definition and glossary checks, YouTube Video Channels with questions.

N5 Physics		Dynamics Outcomes		2023-2024	
CONTENT		✓/✗	Traffic Light		
Vectors and scalars					
I can define scalar quantities and vector quantities. A scalar has magnitude/size and unit. A vector has magnitude/size and unit <u>and</u> direction.		⊕	⊕	⊕	
I can identify scalar quantities such as: speed, distance, mass, time and energy.		⊕	⊕	⊕	
I can identify vector quantities such as: force, velocity, displacement, acceleration, weight.		⊕	⊕	⊕	
I can calculate the resultant of two vector quantities in one dimension and at right angles.		⊕	⊕	⊕	
I can determine displacement and/or distance using scale diagram or calculation.		⊕	⊕	⊕	
I can determine velocity and/or speed using scale diagram or calculation.		⊕	⊕	⊕	
I can perform calculations/solve problems involving the relationship between speed, distance and time ($d = vt$, and $d = \overline{v}t$)		⊕	⊕	⊕	
I can perform calculations/solve problems involving the relationship between velocity, displacement and time ($s = vt$)		⊕	⊕	⊕	
I can determine average and instantaneous speed.		⊕	⊕	⊕	
I can describe experiments to measure average and instantaneous speed.		⊕	⊕	⊕	
Velocity-time graphs					
I can draw velocity-time and speed-time graphs for objects from recorded or experimental data.		⊕	⊕	⊕	
I can interpret velocity-time and speed-time graphs to describe the motion of an object.		⊕	⊕	⊕	
I can find displacement from a velocity-time graph, where $s = \text{area under the } v\text{-}t \text{ graph}$.		⊕	⊕	⊕	
I can find distance from a speed-time graph, where $d = \text{area under the } v\text{-}t \text{ graph}$.		⊕	⊕	⊕	
Acceleration					
I can define acceleration in terms of initial velocity, final velocity and time.		⊕	⊕	⊕	
I can use the relationship involving acceleration, change in speed and time ($a = \Delta v/t$).		⊕	⊕	⊕	

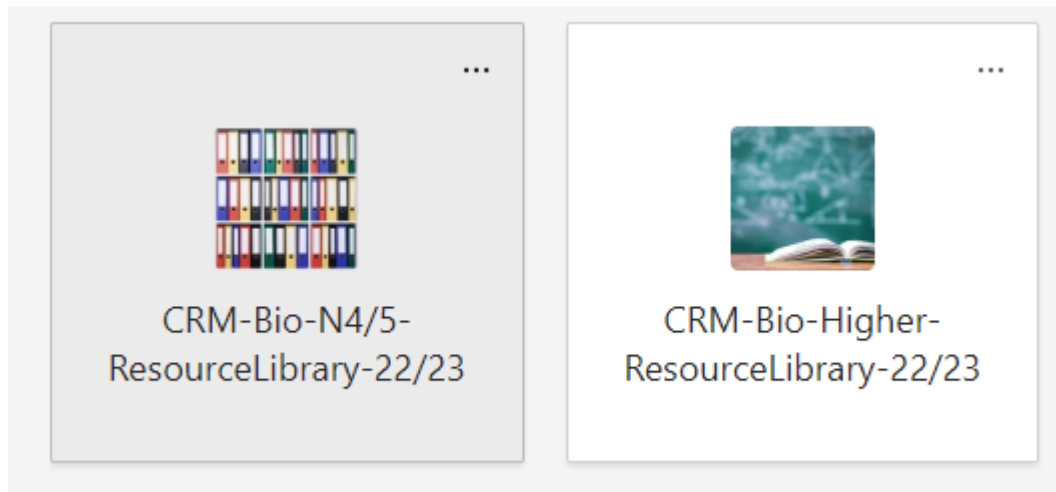
GENETICS GLOSSARY	
Scientific Terms and Definitions	
Cell	<ul style="list-style-type: none"> All living things are made of cells. Cells contain DNA, RNA and proteins. Cell DNA is typically located in the nucleus of the cell.
DNA (deoxyribonucleic acid)	<ul style="list-style-type: none"> The "word" made up of nucleotides. DNA gives living things their identity or characteristics.
Gene	<ul style="list-style-type: none"> The fundamental unit of heredity for living organisms. A segment of DNA that encodes for a protein or RNA production.
Nucleotide	<ul style="list-style-type: none"> The "letters" to make the "DNA words." To form DNA, the different nucleotides adenine, guanine, thymine, and cytosine are arranged in a specified sequence.
Protein	<ul style="list-style-type: none"> The "sentence" made from DNA. Proteins perform various tasks within a cell to keep the cell thriving and active.
RNA (ribonucleic acid)	<ul style="list-style-type: none"> Produced from DNA, RNA functions as an intermediate product as DNA is used to produce proteins.
www.foodinsight.org @foodinsight	



How can students check they have mastered Biology content?



Quick fact recall and self study questions, review learning outcomes, online quiz apps such as Quizlet, definition and glossary checks, YouTube Video Channels with questions.



Extended Response. These are 3-5 marks each and you should practise them! Try the ones [here](#).

Grading Test Question analysis sheets, Question reflection logs - these show you all the areas that you must focus on before the exam.

Quizlet
[BBC Bitesize](#)
[Scholar](#)
[Online textbook](#)
[Oronsay N5](#)

[SQA Past papers](#)
[N5 Videos on YouTube](#)
[Online Study Support](#)
[Online sessions \(recorded\)](#)

In your folder you have:
Learning outcomes, student booklet, glossary, overview, and key content sheets.
Make good use of them!

How should I prepare for N5 Biology Assessments?

Biology assessments contain 30% of skills questions!
Use the resources [here](#) to make your own problem-solving guide.
Apparatus and techniques booklet can be found [here](#).
Scientific literacy pack is [here](#).

[Summary notes, lesson presentations, exam questions, mind maps and other revision resources](#) all on our resource library on Teams**

Friends
Make an online study group with your friends- teach each other.
Make a group chat online and quiz each other!

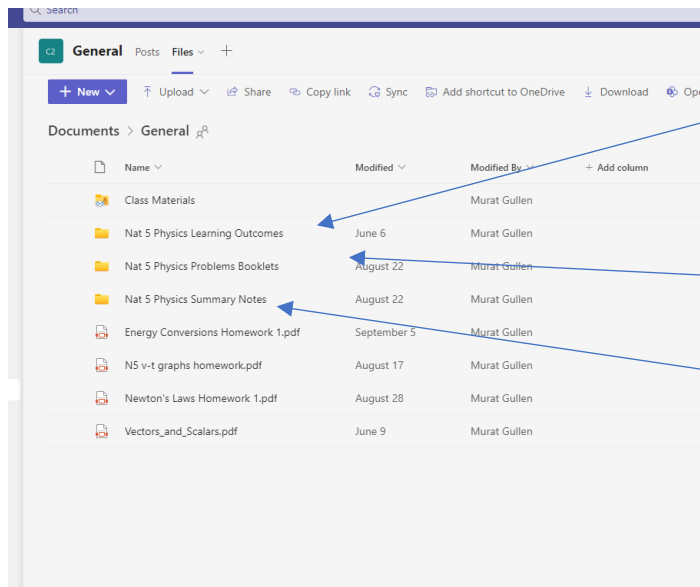
Private Channels- an amazing resource to support you!
Stuck on a question? Send us a screenshot!
Got a request for a 'how to' video? Send it to us!

*If you are having issues with I.T. at home, speak to your teacher. We will provide paper copies of resources for you.

How can students check they have mastered Physics content?



Quick fact recall and self study questions, review learning outcomes, online quiz apps such as Quizlet, definition and glossary checks, YouTube Video Channels with questions.

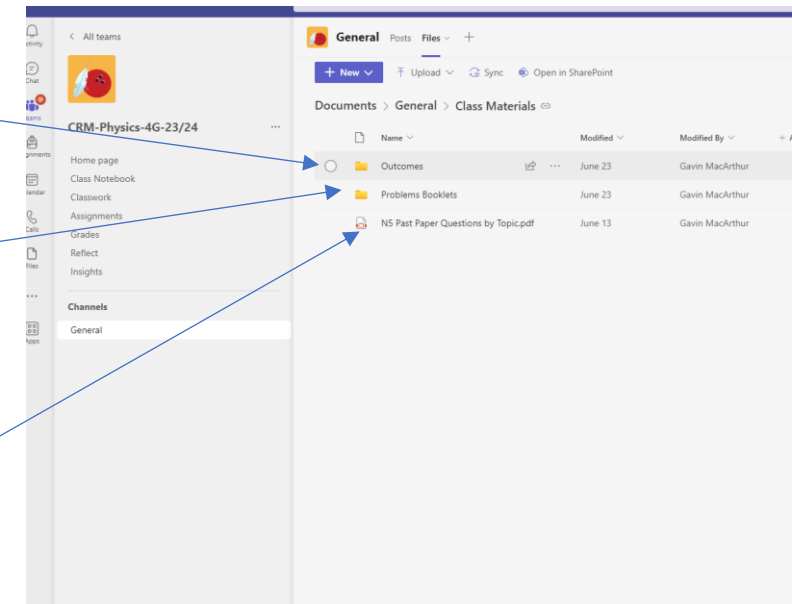


Outcomes

Problem Booklets

Summary Notes

Past Paper Questions



How can students check they have mastered Chemistry content?



Quick fact recall and self study questions, review learning outcomes, online quiz apps such as Quizlet, definition and glossary checks, YouTube Video Channels with questions.

Past Paper Questions pdf

National 5 Specification

In class materials

Revision and Self Study questions

Name	Modified	Modified By
Class Materials		Graham Harkins
Revision	September 13	Kenneth McKnight
Self Study	5 days ago	Kenneth McKnight
N5_Chemistry_PPQs.pdf	June 5	Kenneth McKnight
n5-chemistry-data-booklet (2).pdf	June 5	Kenneth McKnight
N5CourseSpecChemistry.pdf	September 18	Kenneth McKnight
symbol-card-sort.docx	June 5	Kenneth McKnight

Experiment 1: Magnesium and Hydrochloric acid

Magnesium reacts with hydrochloric acid to make magnesium chloride and hydrogen gas

Equation: $\text{Mg} + 2\text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$

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Magnesium reacts with hydrochloric acid to make magnesium chloride and hydrogen gas

Equation: $\text{Mg} + 2\text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$

- In two experiments, two equal masses of magnesium ribbon were allowed to react with two 50 cm³ portions of dilute hydrochloric acid.
- The gas produced was collected in a gas syringe (as shown opposite) so that its volume could be measured.
- In first experiment, the temperature of the acid was 20°C; in the second experiment the temperature was 50°C.

The results are shown in the table below.

Subtle differences in the specialisms and how we prepare

Biology

Knowledge
Key terminology
Application
Practical Assignments
Abstract contexts

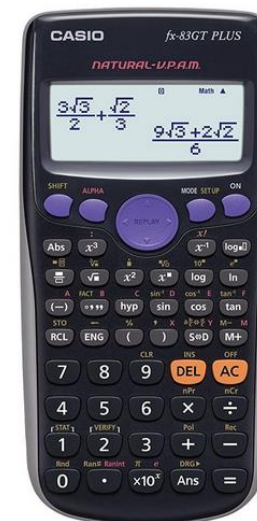
Chemistry

Knowledge
Key terminology
Application
Practical Assignments
Using the Data Booklet

Physics

Knowledge
Key terminology
Application
Practical Assignments
Using the Data Sheet

Calculator required for every science exam!



The most important step, applying knowledge to exam questions.



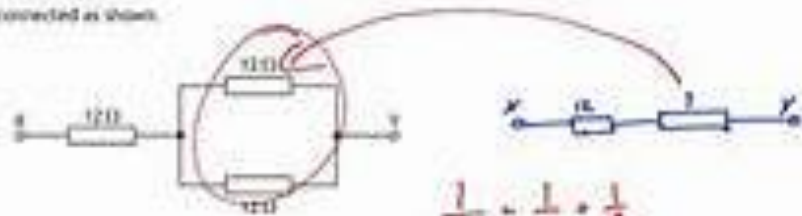
8. As the atomic number of the alkali metals increases

- ☒ A the first ionisation energy decreases
- ☐ B the atomic size decreases
- ☐ C the electronegativity increases
- ☐ D the melting point increases.

This refers to the change in properties as you move down a group. The atom size increases (more shells), so the electronegativity and the first ionisation decreases (electrons further from the nucleus/ shielding). The melting point also decreases because the strength of the metallic bond decreases. More information on these trends can be found by clicking [here](#).

Use your knowledge of the properties of the elements or, consult the data book.

14. Three resistors are connected as shown.

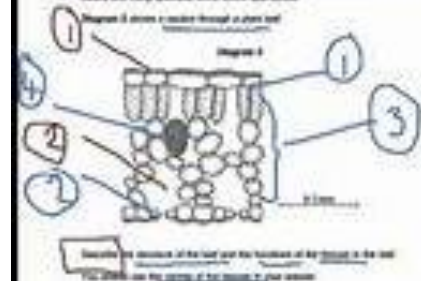


The resistance between X and Y is

- A 4Ω
- B 4Ω
- C 18Ω
- D 24Ω
- E 36Ω

$$\begin{aligned}\frac{1}{R_T} &= \frac{1}{R_1} + \frac{1}{R_2} \\ &= \frac{1}{12} + \frac{1}{12} \\ \frac{1}{R_T} &= \frac{2}{12}\end{aligned}$$

15. In this question you will be assessed on using your English, organising information clearly and using appropriate scientific apparatus.



Epidermis - clear - light passes through.
Guard cells - provide holes in the lower epidermis for gases to diffuse in/out.
Mesophyll - lots of chloroplasts for max photosynthesis.
Xylem - transports water and minerals from roots.
Phloem - transports sugars from leaves.

When approaching a question;

1. What is the **topic**?

2. What are the **command** words... describe, explain, compare, evaluate.

3. What is the question **specifically** looking for?

4. Has there been any **information** provided that you must use?

5. What key **scientific terms** will you make sure are in your answer?

Figure 2 shows an axolotl.

Figure 2



(d) Explain why an axolotl may die in water with a low concentration of oxygen. **4 Marks**

– Oxygen concentration gradient is low

– less oxygen diffuses into blood / cells / gills

– less aerobic respiration and more anaerobic occurs so less energy is released

– Less metabolism

– Lactic acid produced which is toxic



Useful Science Websites...

<https://scholar.hw.ac.uk/>



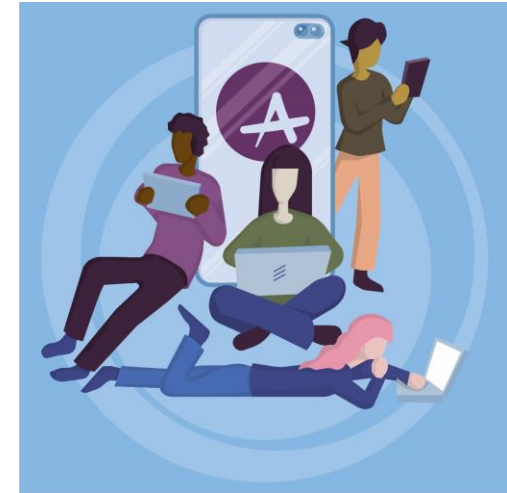
SCHOLAR



<https://www.bbc.co.uk/bitesize/levels/z6gw2hv>



<https://jabchem.org.uk/>



<https://letsachieve.co.uk/>

<https://www.sqa.org.uk/pastpapers/findpastpaper.htm>





Useful Physics Websites...

<https://www.bbc.co.uk/bitesize/subjects/z6fsgk7>

<https://mrmackenzie.co.uk/national-5/>

<https://mrsphysics.co.uk/n5/>

Useful Chemistry Websites...

<https://www.youtube.com/@MissAdamsChemistry/about>

<https://docbrown.info/>

<https://www.hsn.uk.net/resources/Hchem/notes/>

<http://www.rsc.org/Education/SchoolStudents/index.asp>

Useful Biology Websites...

N5

[Pitlochry High School - Biology Revision](#)

[National 5 Biology | \(glowscotland.org.uk\)](http://glowscotland.org.uk)

Higher

[CfE Higher Unit 1 – Higher Biology Unit 1 Revision \(glowscotland.org.uk\)](#)

[Larbert High School - Higher](#)

Both

[\(116\) Mr Mitchell – YouTube](#)

[National 5 Biology \(oronsay.org\)](http://oronsay.org)



The key points

- Revision needs to involve **active** strategies (not just reading!)
- You cannot do enough past questions – move away from making notes and out of your comfort zone to complete practice questions.

When approaching a question;

1. What is the topic?
2. What are the command words... describe, explain, compare, evaluate.
3. What is the question specifically looking for?
4. Has there been any information provided that you must use?
5. What key scientific terms will you make sure are in your answer?