

### Welcome to Science!

It is our ambition in The Hastings Academy Science Department to develop students into passionate and committed scientists, able to fully engage with the ever-evolving scientific world around them. As the students journey through their GCSE science courses, they will be able to develop the key knowledge and skills to enable them to thrive. They will learn Biology chemistry and physics, as well as how to work scientifically. They will also have opportunities to participate in extracurricular science activities to widen their scientific capital. By the end of the course, they will be equipped with all of the scientific ideas and skills to succeed, no matter what they choose to do next.

### Course Breakdown

#### **Combined Science (most students take this)**

Students take 6 1 hours and ten minute exam. There are two papers in each of biology, chemistry and Physics. Each paper is out of sixty marks. This means students will get a total score out of 360 marks. This score will be used to decide their grade.

Grades are award from 1-1, 2-1, 2-2 up to 8-8, 8-9, 9-9. This is because the combined science GCSE is equivalent to two full GCSEs. A 4-4 is considered a passing grade in science, but a 4-3 is not.

The content on each paper is as follows:

#### Biology paper 1:

Topic 1: Key Concepts in Biology\*

Topic 2: Cells and Control

Topic 3: Genetics

Topic 4: Natural Selection and Genetic Modification

Topic 5: Health, Disease and the Development of Medicine

#### Biology paper 2:

Topic 1: Key concepts in biology\*

Topic 6: Plant Structures and their Functions

Topic 7: Animal Coordination, Control and Homeostasis

Topic 8: Gas Exchange and Transport in Animals

Topic 9: Ecosystems and Material Cycles

#### Chemistry paper 1

Topic 1: States of Matters

Topic 2: Methods of Separating and Purifying Substances

Topic 3: Atomic Structure\*

Topic 4 The Periodic Table\*

Topic 5: Ionic Bonding\*

Topic 6: Covalent bonding\*

Topic 7: Types of Substance\*

Topic 8: Acids and Alkalis

Topic 9: Calculations involving Masses\*

Topic 10: Electrolytic Processes\*

Topic 11: Obtaining and using Metals

Topic 12: Reversible Reactions and Equilibria

## Chemistry Paper 2

Topics 3, 4, 5, 6, 7 and 9 are also examined on this paper.

Topic 13: Groups in the Periodic table

Topic 14: Rates of Reaction

Topic 15: Heat Energy changes in Chemical Reactions

Topic 16: Fuels

Topic 17: Earth and Atmospheric Science.

## Physics paper 1:

Topic 1: Motion

Topic 2: Forces and Motion

Topic 3: Conservation of Energy

Topic 4: Waves

Topic 5: The Electromagnetic Spectrum

Topic 6: Radioactivity

## Physics paper 2:

Topic 7: Energy- Forces Doing Work

Topic 8: Forces and their Effects

Topic 9: Electricity and Circuits

Topic 10: Magnetism and the motor effect

Topic 11: Electromagnetic induction

Topic 12: Particle Model

Topic 13 Forces and Matter

## **Triple Science**

Triple science students take 3 separate GCSE qualifications in Biology, Chemistry and Physics. Each GCSE is requires 2 1 hour and 45 minute exams. In total, this means that the students will sit six exams for science

The content on the paper is similar to combined science, with the following topics added.

Biology- no new topics

## Chemistry paper 1:

Transition Metals, Alloys and Corrosion.

Quantitative Analysis

Dynamic Equilibria, calculations involving volumes of gases

Chemical Cells and Fuel Cells

## Chemistry paper 2:

Hydrocarbons

Alcohols and Carboxylic acids

Polymers

Qualitative Analysis: Tests for Ions

Bulk and Surface Properties of Matter, including Nanoparticles.

## Physics paper 1:

Astrophysics

## Physics paper 2:

Static Electricity.

## Revision Resources

For each of these resources, please remember that the exam board we are studying is Edexcel.

### **Free websites:**

Educake: <https://www.educake.co.uk/forstudents>

Seneca: <https://senecalearning.com/en-GB/>

Free science Lessons: <https://www.youtube.com/c/Freesciencelessons>

BBC bitesize: <https://www.bbc.co.uk/bitesize/examspecs/zqkww6f>

### **Paid Websites**

Tassomai: <https://www.tassomai.com/>

### **Revision books/ flashcards**

Edexcel revision guides, work books and flash cards can all be found here:

[https://www.cgpbooks.co.uk/secondary-](https://www.cgpbooks.co.uk/secondary-books/gcse/science?sort=best_selling&quantity=36&page=1&view=grid&currentFilter=KeyStage_59&filter_key%20stage=KeyStage_59&filter_exam%20board=ExamBoard_143%2CEXAMBOARD_284)

[books/gcse/science?sort=best\\_selling&quantity=36&page=1&view=grid&currentFilter=KeyStage\\_59&filter\\_key%20stage=KeyStage\\_59&filter\\_exam%20board=ExamBoard\\_143%2CEXAMBOARD\\_284](https://www.cgpbooks.co.uk/secondary-books/gcse/science?sort=best_selling&quantity=36&page=1&view=grid&currentFilter=KeyStage_59&filter_key%20stage=KeyStage_59&filter_exam%20board=ExamBoard_143%2CEXAMBOARD_284)