

Year 7 Science

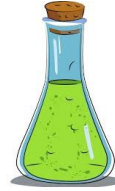
Each class will do units at a different time on a rota system, so there is enough apparatus for everyone

Everyone will start with an introduction unit

Scientific diagrams, hazard symbols, planning and conducting an experiment



We start with skills and safety to prepare for every reaction



P1: Forces
 What are forces
 Measuring forces
 Hooke's law
 Balanced forces
 Moments

Forces builds up from KS2 and introduces calculations

B1: Cells
 How to use microscopes
 What are cells made of
 How the body is organised
 Specialised cells
 Unicellular organisms

We start with the smallest part of biology and build our way up

C1: Reactions
 How to make observations
 Physical and chemical changes
 Word equations
 Fire and fuels
 Exothermic and endothermic reactions
 Conservation of mass



P2: Simple circuits
 Circuit symbols
 Series circuits
 Parallel circuits
 Building circuits

Students in Y11 struggled with electricity so we introduce the core concepts early

We move on to the smallest building blocks of chemistry



B2: Reproduction
 What happens in puberty
 Male and female reproductive systems
 The menstrual cycle and fertility
 IVF
 Growing and having a baby
 Flowers and pollination
 Human impacts

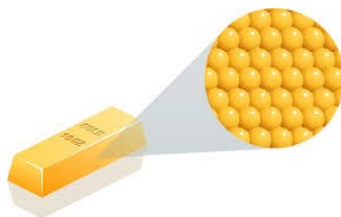
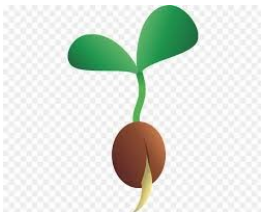
We want to teach about puberty before students go through it, so we can prevent dangerous misconceptions

C2: Particles, atoms, elements and compounds
 The particle model
 Changes of state
 Heating curves
 Gas pressure
 Elements and atoms
 Compounds



P3: Space
 Gravity and weight
 What is in space
 Terraforming other planets
 Star life cycle
 Satellites

Space is so interesting we had to include it, especially as it becomes more and more relevant in modern life



Year 8 Science

Each class will do units at a different time on a rota system, so there is enough apparatus for everyone

Everyone will start with an introduction unit

Learning planning skills through a particular investigation



We build on reactions learned in year 7 in a specific context



P4: Energy

Energy stores and transfers
Fuels and their impacts
Renewable sources
Heat transfer

Energy requires some calculation and practical skill, and is important to prepare for life as a responsible member of the community

B3: Healthy body

Nutrients and tests
Digestive system
Heart
Drugs, alcohol and smoking

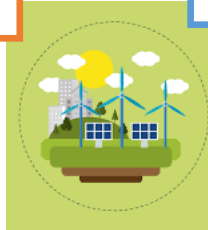
We want to educate them about how to be healthy at a time when many develop unhealthy habits



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C3: Acid and alkalis

Acid and alkali uses
Indicators
Neutralisation
Reactions of acids



P5: Sound and light

Waves
Behaviour of light
Sound
How we hear

Sound and light links biology and physics and requires some complex practical and interpretive skills.

We build on the particles unit from year 7 and learn how to conduct core chemical skills that require more dexterity

B4: Plant science

Plant structures
Chemosynthesis
Respiration
Human influence on food webs
Carbon cycling

Teaching about plants is essential to alter the growing food crisis, and builds on the body structures learned in year 7



C4: Separating mixtures

Solubility
Filtration
Distillation
Chromatography
Making clean water



Food Web



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Year 9 Science

In year 9 students have lessons with a subject specialist. They have one lesson per week each of chemistry, biology and physics. They will have a different teacher for each subject.

B5: Your body

Interactions between organ systems
Breathing and the lungs
Skeleton and joints
Muscles
Prosthetics



We teach about their bodies in detail building on all their prior learning

We teach them how we use the world around us, the benefits and problems

C5L Earth science

Earth structure
Rock types and cycle
Producing metals
Decomposition of ores
Alternative materials
Recycling



P6: Electricity

Static
Current and potential difference
Series and parallel
Electrical power



We build on the year 7 electricity unit with more depth, bridging the gap to GCSE

At Christmas we have a formal exam which is used to allocate sets for year 10 and choose students who are eligible to take triple science as a GCSE option



We prepare them for the GCSE while we teach them how living creatures

B6: Inheritance

DNA
Variation
Evolution
Superbugs
Extinction
Cloning



We teach them the core concepts for GCSE chemistry, building on their year 7 particles unit

C6: Periodic table

Symbols and symbol equations

Balancing equations
Metals and



P7: Magnets and motion

Magnets and magnetic fields
Electromagnets
Newtons first law
Resultant force and speed
Displacement time graphs

We finish with high level physics laws and skills, and how they affect us

In the final half term of the year, year 9 start the Edexcel 9-1 combined science course. We have found it re-engages students before the GCSE and gives us extra time to prepare them fully for exams in year

What do you need to know about Key stage 3 Science at Coopers?

1. **We put safety first**—in the curriculum and in the classroom.
2. **We are experts**—We have a wide range of subject specialists in all three sciences which is very unusual in a secondary school
3. **We teach for the long term**—every few lessons there is a quick quiz covering work they have done earlier in the year to build up their long term memory
4. **We assess for them**—We do a mid unit assessment in class every unit where students get a mark and improvements in particular skills, and an end of unit test structured specifically to help students identify areas of weakness
5. **We assess facts and skills**—our mid unit assessments test their skills as they get the most feedback here, and our end of unit tests are multiple choice and short answer only, to focus on their ability to recall facts
6. **We only set homework that supports their learning**—The only homework we require to be set is improvement tasks for the mid unit assessments, revision for the end of unit tests, and online quizzes on units they have previously studied. If your child needs more work to do at home we recommend they build a routine of revision of old units as good practise before GCSEs

In the last 2 years the science department at Coopers has completely overhauled the curriculum. We have thought about every lesson we teach, when we teach it and why. Using the most up to date evidence in teaching we have changed how we do all our assessments, when and how we set homework and how we teach. We are proud of the work we do. This is a constantly changing model as we adapt to new challenges that arise and include the most up to date educational strategies.