

# Year 7 Science

## Term 1 and Term 2

### Safety, Cells, Particles and Forces



Students are learning about Safety first in Year 7 because these are skills we will use in Science lessons throughout Secondary school.

Students are learning about the following topics because almost every lesson over the next seven years will involve elements of the topics Cells, Particles or Forces. These are building blocks for the rest of our time in Gordano Science.

#### Previous topic:

In our feeder Primary Schools we know that students have studied

Cells:

- How do humans change and develop with age?
- Why do humans need a circulatory system and how does it work?
- How do your lifestyle choices affect the way your body functions?
- How are nutrients and water transported around our bodies?

Particles:

- How can we compare and group everyday materials based on their properties?
- How do substances dissolve in liquids?
- How can we separate solutions?
- Why are some materials better suited for certain purposes?
- Why are some changes irreversible?

Forces:

- Why do objects fall to Earth and what affects the rate of fall?
- What is friction and how does it affect the movement of objects?
- How do gears, levers and pulleys affect forces?

#### Next topics:

Classification and evolution, breathing circulation and respiration, elements mixtures and compounds, the periodic table, electricity and magnetism, light and sound.

#### Core knowledge/skills/concepts

How to stay safe and enjoy Science lessons

Cells make up all living things: What are cells?

How do cells work together to make a body?

What is stuff made of?

How does a force affect the way things move?

# Year 7 Science

## Term 1 and Term 2



### Essential vocabulary

Bunsen Burner, microscope, flammable, corrosive, irritant, damage to the environment, hazard, risk, independent variable, dependent variable, control variable

Cell wall, cells, chloroplast, concentration, diffusion, nucleus, observation, organisation, red blood cells, root hair cell, specialised cell, sperm cell, unicellular, vacuole

Particle, solid, liquid, gas, diffusion, compound, atoms, elements, compounds, formulae

Speed, Distance, Accelerating, Gradient, Force Diagram, Constant Speed, Stationary, Balanced Forces, Unbalanced Forces, Friction, Streamlined.

### Threshold concepts

There are risks in the lab and there are ways we can keep ourselves safe.

All living things are made from cells, they are organised further to make organisms.

All matter is made of atoms. Different types of atoms are different elements. Atoms can be arranged as elements, compounds and mixtures.

Forces can cause objects to move accelerate or decelerate, this includes gravity, friction and air resistance. We can measure and graph speed, acceleration and other forces.

### Opportunities for reading

BBC bitesize <https://www.bbc.co.uk/bitesize/subjects/zng4d2p>

BBC Newsround Science news stories <https://www.bbc.co.uk/newsround>

The Smart Science book will be used in lesson time.

### How and when will the core learning be assessed?

There will be lots of opportunities for formative assessment and TRIO in class time.

Educake homework once a fortnight, these test a wide range of knowledge, key words and concepts then provide students and staff with feedback.

In class summative assessment, in the form of a bespoke, 30 mark, written test at the end of each topic, students will complete TRIO on each of these afterwards. Staff will mark these and they will be standardised.

### Links to other topics/subjects

These topics will give students the underpinning knowledge need to continue their study of Science and will be the basis of many future topics.

Cell models link to Art and Design Technology.

Scale calculation and forces link to Maths.

# Curriculum 'Glossary' and guidance



Students are learning about..... at this point in Year 7 because...

The 'why this and why now?' question

**Previous topic:** To support understanding of how the curriculum is sequenced

**Next topic:**

## Core knowledge/skills/concepts

Aspects that must be known without compromise and retained in the long-term memory (think of it as a checklist for teachers and students to work towards securing)

## Essential vocabulary

Tier 2 as well as Tier 3

Tier 2= valuable academic words that appear across the school curriculum e.g evaluate, authority, indicate (our 'word of the week' comes for Tier 2 vocabulary lists)

Tier 3= subject specific vocabulary

## Threshold concepts

'Gateway' concepts that are essential for students to be able to progress onto more complex ideas. In other words, they require mastery before moving onto other concepts.

## Opportunities for reading

## How and when will the core learning be assessed?

Formative assessment to inform responsive teaching and TRIO opportunities as well as summative assessment.

## Links to other topics/subjects

(we will create time to come together to really explore these)