

Science Curriculum Intent

Subject Vision

At Trinity Academy Newcastle, the Science curriculum enables learners to develop curiosity, scientific understanding and confidence in exploring the world around them. Through the study of biology, chemistry, and physics, learners develop the knowledge and skills needed to understand themselves, their environment and the impact of science on everyday life. The curriculum supports learners to become inquisitive, analytical, and independent thinkers who can apply their understanding to real-world situations.

The Role of Science within the Trinity Curriculum

Science forms a key part of the **Core Academic** strand of the Trinity Curriculum Model. Through carefully sequenced learning, practical investigation and scientific enquiry, learners develop subject knowledge alongside literacy, communication, resilience and independence skills that underpin success across the wider curriculum.

Science also contributes to the academy's curriculum drivers by promoting curiosity, critical thinking, problem-solving, and informed decision-making. Learners use scientific understanding to explore issues relating to health, the environment, technology, and society, supporting their preparation for adulthood and future employment.

Assessment and Progression

Assessment is directly aligned to curriculum progression and enables learners to demonstrate growth in scientific knowledge, enquiry skills, application and independence from their individual starting points.

Progress is measured through curriculum mastery, ensuring that learners develop both scientific understanding and transferable enquiry skills over time. Through Trinity Academy's assessment framework, learners are supported to develop confidence and competence in Science across Key Stages 3 and 4

Key Stage 3 Intent

Developing Scientific Knowledge and Conceptual Understanding

Learners develop secure scientific knowledge across biology, chemistry, and physics through a carefully sequenced curriculum. Key concepts are taught progressively, allowing learners to build upon prior learning, strengthen understanding, and make connections between scientific ideas. Learners develop accurate scientific vocabulary and use this confidently when explaining phenomena and communicating their understanding

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Developing Scientific Enquiry Skills

Learners develop the ability to think and work scientifically through observation, practical investigation, and evidence-based reasoning. They learn how to plan investigations, collect and analyse data, identify patterns, and draw conclusions. Through practical experiences, learners develop confidence, resilience, and independence whilst learning how science is used to answer questions about the world around them.

Developing Scientific Literacy and Communication

Science contributes significantly to learners' literacy and communication development. Learners are encouraged to question, explain, discuss, and evaluate scientific ideas using appropriate vocabulary and evidence. The curriculum develops learners' ability to communicate scientific information clearly and confidently in both spoken and written forms

Developing Digital Literacy and Technology Skills

Educational technology is used to enhance learning and engagement within science. Learners use digital tools to research scientific concepts, analyse data, present findings, and explore scientific models and simulations. This supports the academy's commitment to developing digital literacy and aligns with the NAACE EdTech Review Framework by preparing learners to use technology confidently, safely and effectively in education, employment and everyday life

Key Stage 4 Progression

At Key Stage 4, learners build upon the foundations established during Key Stage 3 through personalised qualification pathways.

Learners access:

GCSE Biology

Entry Level Science

according to individual need, attainment and aspiration.

The curriculum develops deeper scientific understanding, scientific literacy and practical investigation skills. Learners apply knowledge to unfamiliar contexts, analyse evidence critically and communicate scientific ideas using increasingly accurate scientific language.

Learners are supported to access the most appropriate qualification pathway whilst maintaining ambitious expectations for progress and achievement.

Supporting SEMH Development

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The Science curriculum has been designed to support learners with SEMH needs through structured routines, clear expectations, and practical learning experiences. Hands-on investigations, collaborative activities and opportunities for success help learners develop confidence, perseverance, and positive attitudes towards learning. Science provides a safe environment in which learners can build resilience, teamwork and self-regulation skills. Practical investigation and enquiry-based learning provide learners with opportunities to experience success, develop self-belief and build confidence in their own ability.

Preparation For Adulthood

Science helps learners understand how scientific knowledge influences everyday life, health, technology, industry, and the environment. Learners explore current scientific issues, develop awareness of STEM-related careers, and gain transferable skills including problem-solving, communication, teamwork, analysis, and numeracy. These skills support future education, employment, and training opportunities. Learners are encouraged to understand how science influences future careers, personal wellbeing, environmental sustainability and informed decision-making throughout adult life.

Intended Outcomes

By the end of Key Stage 4, learners will:

- Develop secure knowledge and understanding of key concepts in biology, chemistry, and physics.
- Apply scientific understanding to real-world situations and contemporary issues.
- Use scientific vocabulary accurately and confidently.
- Safely plan, carry out, and evaluate scientific investigations.
- Analyse evidence and draw informed conclusions using scientific reasoning.
- Use technology appropriately to support scientific enquiry, research, and communication.
- Demonstrate the confidence, resilience, and independence required for further education, employment, and adult life.
- Achieve meaningful accreditation through GCSE Biology or Entry Level Science pathways.

Ambition

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Regardless of starting point or pathway, all learners are entitled to an ambitious Science curriculum that develops curiosity, scientific understanding and critical thinking.

Through carefully sequenced learning and high expectations, learners are supported to become:

- Scientifically literate
- Critical thinkers
- Effective problem solvers
- Independent learners
- Successful learners prepared for further education, employment and adult life