



To Create:
Self-worth, Opportunities & Compassion

Geography Key stage 3

We are embedding transferable 'Skills Builder' skills such as problem solving, aiming high and teamwork to prepare Pupils for future education and employability skills for lifelong learning. In Geography we will focus on **TEAMWORK** including group decision making and recognising the value of others. **PROBLEM SOLVING** by exploring complex problems by analysing cause and effect, and understanding through research.

Furthermore, we want our students to **BUILD RESILIENCE** by setting goals, prioritising tasks and involving others..

By working to support pupils to make progress in their learning, their emotional and social development and their independence. We actively work to support the learning and needs of all members of our community.

All pupils will be given opportunities for fieldwork studies through fieldwork trips built into schemes of work. At KS3 there will be lots of opportunity for model making using a sensory and practical approach to delivering Geography e.g. 3d models of layering plate tectonics, fissures and ice movement.

At KS4 the curriculum is section by unit with Natural Hazards taught first as there are more accessible links to KS3.

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them

- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future

Scientific knowledge and conceptual understanding

The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. Insecure, superficial understanding will not allow genuine progression: pupils may struggle at key points of transition (such as between primary and secondary school), build up serious misconceptions, and/or have significant difficulties in understanding higher-order content.

Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary. They should also apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data. The social and economic implications of science are important but, generally, they are taught most appropriately within the wider school curriculum: teachers will wish to use different contexts to maximise their pupils' engagement with and motivation to study science.

The nature, processes and methods of science

'Working scientifically' specifies the understanding of the nature, processes and methods of science for each Key stage group. It should not be taught as a separate strand. The notes and guidance give examples of how 'working scientifically' might be embedded within the content of biology, chemistry and physics, focusing on the key features of scientific inquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data. 'Working scientifically' will be developed further at key stages 3 and 4, once pupils have built up sufficient understanding of science to engage meaningfully in more sophisticated discussion of experimental design and control.

National Curriculum

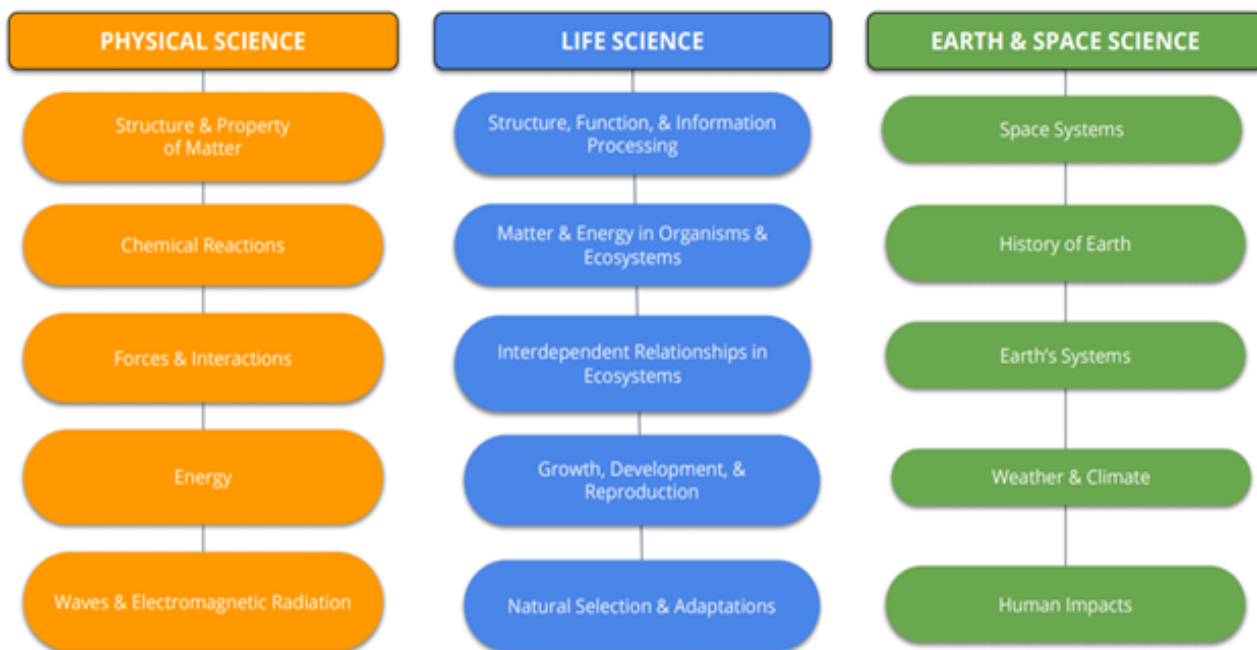
Arts is an independent alternative provider and has the flexibility to introduce content earlier or later than set out in the Science programme of study. In addition, schools can introduce key stage content during an earlier or later key stage if appropriate and in reachable achievement with the pupils' capabilities and attainment. The national curriculum for science reflects the importance of spoken language in pupils'

development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their scientific vocabulary and articulating scientific concepts clearly and precisely. They must be assisted in making their thinking clear, both to themselves and others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions

Pupils engage in:

- The development of mental strategies
- Written methods
- Practical work
- Investigational work
- Problem-solving
- Scientific discussion using precise scientific language.
- Consolidation of basic skills and routines

At A.R.T.S Science is explored through varying thematic topics with a holistic approach such areas covered (but not an exhaustive list) include:



Physical Science units of investigation

Unit	Waves	Structure & Property of Matter	Chemical Reactions	Forces and Interactions	Energy
Investigations	Wave Properties	Atoms and Molecules	Chemical Reactions	Introduction to Newton's Laws	Kinetic and Potential Energy
	Sound Waves	Water Molecules	Conservation of Mass	Newton's 3rd Law	Water Power
	Electromagnetic Waves	States of Matter	Energy in Chemical Reactions	Combining Forces	Temperature average Kinetic Energy
	Light Properties	Phase Changes	Heat Pack (Engineering Challenge)	Newton's 2nd Law	Conservation of Energy
	Refraction and Reflection	Properties of Matter		Magnetic Forces: Repulsive and Attractive Forces	Energy and Forces (Work)
	Transmission and Absorption	Physical vs Chemical Properties		Electromagnets	
	Rainbows	Mixtures		Electromagnetic Engineering Solution	
		Thermal Energy		Gravitational Forces	

Life Science units of investigation

Unit	Structure, Function, & Information Processing	Matter & Energy in Organisms & Ecosystems	Interdependent Relationships in Ecosystems	Growth, Development, & Reproduction	Natural Selection & Adaptations
Investigations	All Living Things Are Made up of Cells	Photosynthesis	Predator, Prey, and Mutually Beneficial Interactions	Sexual and asexual reproduction	Evidence of Common Ancestry (Evolution)
	Cell Structure and Function	Cellular Respiration	Biodiversity	Pollination	Natural Selection
	Cell Membranes	Ecosystem Interactions	Impact of Biodiversity of Resources	Genes (traits of organisms)	Adaptations by Natural Selection
	Multicellular Organisms: Systems and subsystems	Resources and Limitations Within an Ecosystem	Aquatic Invasive Species	Gene Mutations	
	Body Systems	Food Chains or Food Webs		Artificial Selection	
	Application: Connection Between Nerve Cells and Brain	Ecosystem Disruptions			

Earth and Space units of investigation

Unit	History of Earth	Earth's Systems	Weather & Climate	Human Impacts	Space Systems
Investigations	Geologic Time Relative Dating Evidence of Plate Tectonics Plate Boundaries Making Mountains Earthquakes Volcanoes Erosion and Weathering Natural Hazards	Formation of Minerals Rock Cycle Water Cycle Renewable and Non-Renewable Resources Alternative Energies	Weather vs Climate Weather Patterns Extreme Weather The Ocean's Role/Impact on Weather Global Climate Change Human Impacts on Climate Change Impacts of Climate Change	Natural Hazards and Risk Mitigation Human impacts on Living Things Human Use of Natural Resources	Earth, Sun, Moon System Moon Phases and Eclipses Orbital Motions - Planets and Moons (Gravity) Milky Way Earth's Seasons

By the end of key stage 3, pupils will have an understanding of the Science units of study and will demonstrate the matters, skills and processes specified in the Science programme of study to the best of their ability.

Key stage 4 Science

Pupils will :

- use appropriate techniques, apparatus, and materials, paying attention to health and safety.
- Extend knowledge of the Periodic Table
- Pupils will present observations and data using appropriate methods, including tables and graphs
- Pupils will evaluate risks in relation to scientific enquiries.
- Make predictions using scientific knowledge and understanding

- Interpret observations and data, including identifying patterns and using observations,
- Use measurements and data to draw conclusions
- Understand that scientific methods and theories develop to take account of new evidence and ideas.
- Evaluate data, showing awareness of potential sources of error identifying further questions arising from their results
- Apply meaningful questions and develop a line of enquiry based on observations and prior knowledge/experience

At A.R.T.S Key stage 4 Trilogy Science is explored through varying thematic topics with an explicit approach such areas covered (but not an exhaustive list) include:

Key stage 4 Trilogy science units of investigation

Unit	Waves	Structure & Property of Matter	Chemical Reactions	Forces and Interactions	Energy
Investigations	Wave Properties	Atoms and Molecules	Chemical Reactions	Introduction to Newton's Laws	Kinetic and Potential Energy
	Sound Waves	Water Molecules	Conservation of Mass	Newton's 3rd Law	Water Power
	Electromagnetic Waves	States of Matter	Energy in Chemical Reactions	Combining Forces	Temperature average Kinetic Energy
	Light Properties	Phase Changes	Heat Pack (Engineering Challenge)	Newton's 2nd Law	Conservation of Energy
	Refraction and Reflection	Properties of Matter		Magnetic Forces: Repulsive and Attractive Forces	Energy and Forces (Work)
	Transmission and Absorption	Physical vs Chemical Properties		Electromagnets	
	Rainbows	Mixtures		Electromagnetic Engineering Solution	
		Thermal Energy		Gravitational Forces	

Key stage 4 Trilogy science units of investigation

Discipline	Physical Science		Earth & Space Science	Life Science	
Unit	Structure & Property of Matter	Chemical Reactions	Human Impacts	Matter & Energy in Organisms & Ecosystems	Interdependent Relationships in Ecosystems
Investigations	<ul style="list-style-type: none"> Atoms and Molecules Water Molecules States of Matter Phase Changes Properties of Matter Physical vs Chemical Properties Mixtures Thermal Energy 	<ul style="list-style-type: none"> Chemical Reactions Conservation of Mass Energy in Chemical Reactions Heat Pack (Engineering Solution) 	<ul style="list-style-type: none"> Natural Hazards and Risk Mitigation Human impacts on Living Things Human Use of Natural Resources 	<ul style="list-style-type: none"> Photosynthesis Cellular Respiration Ecosystem Interactions Resources and Limitations Within an Ecosystem Food Chains or Food Webs Ecosystem Disruptions 	<ul style="list-style-type: none"> Predator, Prey, and Mutually Beneficial Interactions Biodiversity Impact of Biodiversity of Resources Aquatic Invasive Species

Key stage 4 Trilogy science units of investigation

Discipline	Physical Science		Life Science		Earth and Space Science
Unit	Forces and Interactions	Energy	Growth, Development, & Reproduction	Natural Selection & Adaptations	Space Systems
Investigations	<ul style="list-style-type: none"> Introduction to Newton's Laws Newton's 3rd Law Combining Forces Newton's 2nd Law Magnetic Forces: Repulsive and Attractive Forces Electromagnets Electromagnetic Engineering Solution Gravitational Forces 	<ul style="list-style-type: none"> Kinetic and Potential Energy Water Power Temperature average Kinetic Energy Conservation of Energy Energy and Forces (Work) 	<ul style="list-style-type: none"> Sexual and asexual reproduction Pollination Genes (traits of organisms) Gene Mutations Artificial Selection 	<ul style="list-style-type: none"> Evidence of Common Ancestry (Evolution) Natural Selection Adaptations by Natural Selection 	<ul style="list-style-type: none"> Earth, Sun, Moon System Moon Phases and Eclipses Orbital Motions - Planets and Moons (Gravity) Milky Way Earth's Seasons

At A.R.T.S studying the Key stage 4 Science programme will equip some students to access GCSE pathway of study or other accredited courses of study. studying the sciences as a trilogy provides the platform for more advanced studies,

- [National Curriculum KS4](#)
- [National Curriculum KS3](#)