



How we teach Science at Anglesey

Contents

1. Subject vision statement (p3)
2. Subject Implementation (p4)
3. Meeting the aims of the National Curriculum (p5-6)
4. Curriculum content overview (p7)
5. Subject Impact (p8)
6. Pupil Photos (p19)
7. Pupil Voice (p10)



Our School Vision:

Inquisitive, Resilient, Independent

At Anglesey, we are a vibrant and nurturing school community, where children are given the skills to become, inquisitive, resilient, independent learners.

Our curriculum provides a range of creative, challenging and inspiring experiences for all. This equips our children with the life skills to be happy, flourish and be successful...*Today, tomorrow and in the future.*

1. Subject Vision Statement

Our Intent:

To provide a high quality science education embedded with meaningful, memorable learning experiences, including utilising our school grounds

To recognise the importance of science and scientific enquiry in every aspect of our daily lives.

For all our children to learn about the established facts of science (substantive knowledge) as well as working scientifically (disciplinary knowledge)

To promote a love of science and increase pupil's science capital and link with careers.

To enable our children to build arguments, explain concepts confidently and will be familiar with scientific terminology.

To develop a shared, consistent vocabulary to be able to discuss their understanding.



2. Subject Implementation

The acquisition of key scientific knowledge, as well as understanding how to work scientifically, is integral to our science lessons. Children build their own knowledge organisers throughout the units to help them to learn and retain the vocabulary and knowledge contained within each unit. They are encouraged to identify what skills they are using by referring to 'working scientifically' lenses. Our whole school approach to the teaching and learning of science involves the following;

- Science is taught weekly in a sequence of planned lessons. All children are catered for through adapted planning suited to their abilities. Essentials for all are established in planning.
- Previous learning is referred to within 'Flashback' questions. These reinforce previous learning – previous lesson, previous topic and previous years.
- Misconceptions are anticipated and addressed through careful planning.
- Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. Planning involves teachers creating practical, engaging lessons with opportunities for precise questioning in class to test conceptual knowledge and skills, and assessing children regularly to identify those children with gaps in learning.
- Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout. Teachers refer to lenses to develop the children's ability to describe the skills they are using.
- Through enrichment days, such as 'science week, speakers and educational visits', we promote the profile of Science as well as utilising the outdoor environment where at all possible.

3. Meeting the aims of the National Curriculum

Purpose of study

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Aims

The national curriculum for science aims to ensure that all pupils:

- 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

3. Meeting the aims of the National Curriculum

In Key Stage 1:

Pupils should be taught to:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

In Key Stage 2:

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

4. Curriculum Topic Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	Use natural materials.	Talk about different weather/Ice-change of state	The Five Senses	Mini beasts and where they live and what they eat/The life cycle of a chick.	Materials and their properties/textures	Name animals and their offspring/the importance of oral hygiene
Reception	The Five Senses Changes in Autumn	Changes in Winter/Water-change of state.	Bugs survival/animal hibernation/woodland habitat	Changes in Spring/Food for animals/the lifecycle of a duckling	The lifecycle of a caterpillar. Plant survival/Harvest crops/pond habitat	Exercise and our body/Changes in Summer
Year 1	Animals, including humans	Seasons A	Animals, including humans	Materials Seasons B	Plants	Plants Seasons C
Year 2	Animals, including humans	Living things & their habitats	Living things & their habitats	Plants	Plants	Materials
Year 3	Animals, including humans	Animals, including humans	Rocks	Plants Biodiversity	Forces and Magnets	Light
Year 4	Living things & their habitats	States of matter	Animals, including humans	Animals, including humans	Sound	Electricity
Year 5	Living things & their habitats	Materials	Materials	Space	Animals, including humans	Forces
Year 6	Living things & habitats	Evolution & inheritance	Electricity Renewable energy	Animals, including humans	Animals, including humans	Light

5. Subject Impact

Our children will be able to talk like a scientist, use accurate vocabulary, be able to identify 'working scientifically' skills, ask questions and show a curiosity about the world around them. They will know more and remember more by making links with previous learning in science and links with other areas of the curriculum.

Children will have:

Meaningful, memorable learning experiences that will last a lifetime

An understanding and appreciation of their local environment and how to live sustainably

An understanding of science related careers that our children could pursue

A richer scientific vocabulary which will enable them to articulate their understanding of taught concepts.

We measure impact through:

- Prior understanding assessments before teaching topics using 'what I know already' opportunities, followed by
- Knowledge and understanding assessments at the end of each topic through quizzes, key questions, pupil made knowledge organisers
- Working scientifically continual assessments within lessons using lenses for children and teachers to refer to
- Observation of teaching and learning assessing teachers' level of subject knowledge, identifying CPD needs
- Assessing children's confidence in developing their independence in their learning, can they raise their own questions and hypothesis for investigation? (Y5&6)
- Marking and feedback- encouraging 'deeper' thinking for greater depth understanding
- Formative assessment through questioning during lessons and investigations
- Pupil voice - conversations with children so that they can talk about their science lessons and discoveries they have made, whether they are able to use and explain the meaning of scientific vocabulary
- Using a range of questioning to explore children's understanding
- Checking that children's misconceptions are addressed through oral and written feedback
- Whether children are prepared to take risks
- Children reaching Age Related Expectations year on year

6. Science Photos



7. Pupil Voice

Year 1 Pupil

we learned about deciduous trees and evergreen. Deciduous trees lose their leaves, evergreen trees don't.

Year 1 Pupil

I know the names of these flowers: daisy, rose, buttercup, sunflower.

Year 3 Pupil

These materials are magnetic, metal, paper clip, heater, fridge.

Year 3 Pupil

There are different ways that seeds disperse: explode, animals, water, wind.

Year 6 Pupil

We learned about the circulatory system and about the chambers of the heart and that blood vessels carry oxygen and nutrients around the body.

