



Ysgol Derwen / Derwen Foundation School

*"Happy together, learning forever,
succeeding wherever we may be"*

Science and Technology Area of Learning and Experience Policy

This Science and Technology Area of learning and experience policy has been created in line with the new curriculum for Wales, encompassing the twelve pedagogical principles for learning and the four core purposes. This policy reflects the school vision for curriculum design and has been developed holistically involving learners, staff, parents, Governors and the local community. As a team we carefully think about what we teach, how we teach and why we teach it. Within all teaching and learning, numeracy, literacy and digital competency is promoted. Whilst planning for this AOLE, consideration is given for the inclusion of the local community, Wales and its language and culture.

The importance of science and technology in our modern world cannot be underestimated. The development in these areas have always been the catalyst for change in society, underpinning innovation and impacting on everyone's lives economically, culturally and environmentally. Taking this into account, the Science and Technology Area of Learning and Experience will be increasingly relevant in the opportunities young people encounter and the life choices that they make.

What Matters Statements

The Science and Technology Area of Learning Experience is driven by the What Matter Statements. What Matters in this Area is expressed in six statements which support and complement one another and should not be viewed in isolation. Together they contribute to realising the four purposes of the curriculum. All Areas of Learning Experiences (AOLE's) are underpinned with challenging opportunities to develop numeracy, literacy and digital competency skills as well as equip learners with the opportunities to develop each of the four core purposes.

Within this area of the curriculum, the What Matter Statements are:

- Being curious and searching for answers is essential to understanding and predicting phenomena.
- Design thinking and engineering offer technical and creative ways to meet society's needs and wants.
- The world around us is full of living things which depend on each other for survival.

- Matter and the way it behaves defines our universe and shapes our lives.
- Forces and energy provide a foundation for understanding our universe.
- Computation is the foundation for our digital world.

Principles

The principles underpinning every Area of Learning and Experience (AoLE) at Ysgol Derwen ensures that the curriculum is:

- authentic: rooted in Welsh values and culture and aligned with an agreed set of stated purposes
- evidence-based: drawing on the best of existing practice within Wales and from elsewhere, and on sound research
- responsive: relevant to the needs of today (individual, local and national) but also equipping all young people with the knowledge, skills and dispositions for future challenges as lifelong learners
- inclusive: easily understood by all, encompassing an entitlement to high-quality education for every child and young person and those of parents, carers and wider society
- ambitious: embodying high expectations and setting no artificial limits on achievement and challenge for each individual child and young person
- empowering: developing competences which will allow young people to engage confidently with the challenges of their future lives
- engaging: encouraging enjoyment from learning and satisfaction in mastering challenging subject matter
- manageable: recognising the implications for and supported by appropriate assessment and accountability arrangements.

Four Core Purposes

Teachers are expected to plan using the four core purposes of the curriculum. These will ensure that our pupils will be:

1. Ambitious, capable learners who:
 - set themselves high standards and seek and enjoy challenge
 - are building up a body of knowledge and have the skills to connect and apply that knowledge in different contexts
 - are questioning and enjoy solving problems
 - can communicate effectively in different forms and settings, using both Welsh and English
 - can explain the ideas and concepts they are learning about

- can use number effectively in different contexts
- understand how to interpret data and apply mathematical concepts
- use digital technologies creatively to communicate, find and analyse information
- undertake research and evaluate critically what they find and are ready to learn throughout their lives.

2. Enterprising, creative contributors who:

- connect and apply their knowledge and skills to create ideas and products
- think creatively to reframe and solve problems
- identify and grasp opportunities
- take measured risks
- lead and play different roles in teams effectively and responsibly
- express ideas and emotions through different media
- give of their energy and skills so that other people will benefit and are ready to play a full part in life and work.

3. Ethical, informed citizens who:

- find, evaluate and use evidence in forming views
- engage with contemporary issues based upon their knowledge and values
- understand and exercise their human and democratic responsibilities and rights
- understand and consider the impact of their actions when making choices and acting
- are knowledgeable about their culture, community, society and the world, now and in the past
- respect the needs and rights of others, as a member of a diverse society
- show their commitment to the sustainability of the planet and are ready to be citizens of Wales and the world.

4. Healthy, confident individuals who:

- have secure values and are establishing their spiritual and ethical beliefs
- are building their mental and emotional well-being by developing confidence, resilience and empathy
- apply knowledge about the impact of diet and exercise on physical and mental health in their daily lives
- know how to find the information and support to keep safe and well
- take part in physical activity
- take measured decisions about lifestyle and manage risk
- have the confidence to participate in performance
- form positive relationships based upon trust and mutual respect
- face and overcome challenge
- have the skills and knowledge to manage everyday life as independently as they can and are ready to lead fulfilling lives as valued members of society.

AOLE Aims

Our aim is to provide experiences and learning which will enable children to have:

- A positive and confident attitude towards science and technology
- An ability to think clearly and use scientific enquiry
- Learn through investigation, with an emphasis on first-hand experience
- To use demonstration, research, exploration and teacher-led investigations when circumstances, resources and the needs of individuals and groups allow
- Teachers need to use their flair, enthusiasm and professional judgement to identify the most sensible, enjoyable and safe methods for the work being conducted
- To develop imaginative thinking in children and to enable them to talk about what they like and dislike when designing and making
- To enable children to talk about how things work, and to draw and model their ideas
- To encourage children to select appropriate tools and techniques for making a product, whilst following safe procedures
- To explore attitudes towards the man-made world and how we live and work within it
- To develop an understanding of technological processes, products, and their manufacture, and their contribution to our society
- To foster enjoyment, satisfaction and purpose in designing and making.

Monitoring

The lead for Science and Technology is Miss Heather Ellingham.

It is the responsibility of the Science and Technology lead to:

- Attend any training and cascade information to all staff
- Participate in an annual learning walk accompanied by SLT and relevant governors
- Review the Policy and Resources on an annual basis. The review will inform any subsequent change.
- Lead and communicate with the school team effectively
- Identify staff training needs in their subject
- Assist staff and Head teacher in identifying and prioritising needs
- Support staff in their planning of subject
- Provide exemplar material/lessons to support staff
- Complete a subject audit and action plan annually
- Audit available resources to enhance the experiences for all children

Assessment and progression

Progression in learning is the process of developing and improving pupil's skills, knowledge and understanding over a period of time. Through the development of this AOLE, there will be principles of progression which will aim to support learners through:

- Increasing breadth and depth of knowledge

- Deepening understanding of the ideas and disciplines within areas of learning and experience
- Refinement and growing sophistication in the use and application of skills
- Making connections and transferring learning into new contexts
- Increasing effectiveness as a learner

The new curriculum is built on learner progression. There has been a change from the current phases and key stages to a continuum of learning from 3 - 16 years old. The new continuum has progression steps, reference points that relate broadly to expectations at 5, 8, 11, 14 and 16 years of age. These progression steps are set out as a series of achievement outcomes, which are broad expectations of learning over two to three-year periods.

Assessment is considered to be an integral part of the teaching and learning in each area. It measures what a pupil actually knows and understands and this informs future teaching. Formal/summative assessment is carried out at specific times during the school year. Continuous and formative assessment takes place on a daily basis and includes:

- Observing and questioning pupils
- Teacher assessment
- Taith 360
- Progression steps

Inclusion

All children are provided with equal access to the Science and Technology AOLE. We aim to provide suitable learning opportunities regardless of disability, gender, race, ethnic origin, culture, language or religion. The school will endeavour to ensure that access to materials, equipment and furniture are adapted to meet any particular needs so that the pupil can work alongside their peers. Individual pupil provision, including universal and enhanced provision, is detail on class provision maps.

This policy was approved by full governing body on: **June 29th 2022**

This policy will be reviewed initially after 12 months and thereafter every two years.

Signed: **R Jones (Headteacher)**
 C Turner (Chair of Governors)