Ysgol Tŷ Monmouth Policy

Science & Technology

POLICY STATEMENT

- At Ysgol Tŷ Monmouth, Pupils will expand their involvement in Science and Technology by developing curiosity about the world around us, through investigation and practical activity. They will develop wider skills of critical thinking and problem solving to understand, explore and challenge current ideas, within the world of science and technology. Pupils will have opportunities to design, create and experiment to gain a wider understanding of science and technology.

- Article 29 of the United Nations Convention on the Rights of the Child states that Pupils have a right to an education that develops personality, talents and abilities to the full.

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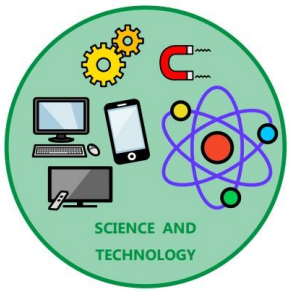
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1. Scope



1.1 Introduction

1.1.1 The importance of science and technology in the modern world cannot be overstated. Changes in society are the key drivers in these areas. Science and technology is increasingly relevant in the opportunities young people encounter.

1.1.2 Teaching and learning in the area of Science and Technology will consider the statements of what matters, which will support Pupils to live an independent and full life, contributing to society and culture in a positive way. The statements of what matters 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.

1.1.3 The statements of what matters are reflected in the curriculum maps, which form the long-term overview for planning and assessment whilst providing opportunities for Pupil's to deepen their knowledge and skills through set stages (attend, engage, explore, consolidate and apply).

1.1.4 Teaching and learning opportunities will be broad and balanced, but specific to the individual needs of the Pupils within each class. Progression is planned through secure, individual steps and may include:

1.1.5 Developed confidence when exploring living things, habitats, growth and change.

1.1.6 Growing understanding of properties and uses of materials.

1.1.7 Growing knowledge and understanding of forces, movement, light, sound, heat and electricity.

1.1.8 Increased understanding and application of food, nutrition, health wellbeing.

1.1.9 Experience of design, making, testing and improving products.

1.1.10 Growing exploration of digital systems, sequencing and programming; and the impact of technology use on people and planet.

1.1.11 Developing skills in data collection, representation and interpretation

1.1.12 Growing consideration of sustainability

1.2 Aims

1.2.1 We have high expectations of all our Pupils and recognise that Pupil progress will be met within the appropriate steps of each Pupil's development. To support progression effectively, we aim to:

- Provide all Pupils with access to meaningful science and technology experiences that are ambitious, inclusive and relevant to everyday life.
- Develop curiosity, enquiry, problem solving and design thinking through carefully structured practical learning.
- Ensure progression from noticing and exploring to comparing, predicting, testing, explaining, designing and evaluating.
- Support Pupils to understand the world around them, including living things, materials, energy, forces, digital systems and technology.
- Build communication, independence, confidence and participation through hands-on learning and repeated opportunities to practise.
- Promote safe, responsible and purposeful use of tools, materials, equipment and digital technologies.
- Enable Pupils to apply learning in real-life contexts, including home, school, community, health, sustainability and employability.
- Provide a curriculum with experience, breadth and balance across the subject, for all Pupils.

2. Curriculum

2.1 Planning and Opportunities

2.1.1 Ysgol Tŷ Monmouth will work toward these aims by planning for and providing experience of a wide range and opportunities.

2.1.2 Planning will start from secure understanding of Pupil needs, strengths, interests and barriers to access.

2.1.3 Planning will be responsive and reviewed regularly so that tasks can be adjusted in the moment where assessment shows that Pupils need more support, a different approach or greater challenge. Experiences will include:

- Experiential learning opportunities.
- Regular opportunities for play and games.
- Opportunities for outdoor learning experiences.
- Multi-sensory play concerning (for example) different states of matter.
- Cooking lessons.
- Specific themed lessons and activities.
- Practical investigations and experiments.
- Activities linked to personal care and understanding the body.
- Building activities to develop problem-solving and innovation.
- Visitors from the local community (including technology workshops).
- Provide opportunities for cross curricular exploration with relationships and sexuality education.
- Access to safe use of technology, whilst building skills related to information and communication sharing.

2.1.4 These experiences will support Pupils at Ysgol Tŷ Monmouth to:

- Develop independence and confidence to share ideas.
- Expand ideas and challenge information given to them.
- Work objectively, with perseverance and resilience.
- Be respectful citizens, with an understanding of their responsibilities to the environment.
- Develop social and communication skills.
- Be creative and expand their experiences of the world.

- Understand key ways to keep their body healthy.
- Understand how their new and developing skills and qualities are useful in the world of work, and their communities.
- Participate in a wide range of roles in preparation for adult life.

2.2 Literacy

2.2.1 The development of communication skills is key to the curriculum at Tŷ Monmouth. Within the area of Science and Technology, Pupils have opportunities to develop their subject specific vocabulary in context; and develop an understanding of the need to present evidence for ideas and opinions. This is important to the wider development of communication skills in everyday life.

2.3 Numeracy

2.3.1 Numeracy skills will be developed and applied throughout the area of Science and Technology. For example, through cooking sessions, Pupils will have the opportunity to use and experiment with measure and ratio, whilst using specific equipment. They will explore size, shape, and measure through building activities, and this will be expanded to include number calculations to make more accurate structures, as skills develop and where appropriate.

2.4 Digital Competence

2.4.1 Pupils will have the opportunity to capture, present, develop and evaluate ideas and data using digital appliances. Pupils will be able to build on their prior learning by expanding their use of appliances, and their independence with this. They will develop their understanding of safety online and discuss this in the wider contexts of everyday life.

3. Integral Skills

3.1 Creativity and Innovation

3.1.1 The curriculum at Tŷ Monmouth is practical and creative. Science and Technology will focus on exploration and curiosity about the physical world, and the world of technology. Pupils will have the opportunity to explore different environments and materials in a multi-sensory way. Over time, this will be expanded to product development and other vocational contexts.

3.2 Personal Effectiveness

3.2.1 Pupils will first be supported to develop confidence, trust, and communication skills. Pupils will then be more likely to share opinions, work independently and explore in an objective way, whilst demonstrating resilience and an understanding that making mistakes is part of the learning process and exploration.

3.3 Critical Thinking and Problem-Solving

3.3.1 Critical thinking and problem solving is supported by personal effectiveness, and once Pupils can communicate and persevere with their explorations, they will begin to problem-solve through trial and error. Their experiences will provide conceptual knowledge which in turn sows the seeds for critical thinking. Supporting Pupils to explore their environment and the materials, creatures, and forces within it helps propel the cycle of problem-solving and critical thinking.

3.4 Planning and Organising

3.4.1 Pupils will be encouraged to develop their confidence so they can become more independent when developing and implementing their ideas or processes. They will learn to use evidence to form conclusions, and become reflective in their learning, both within Science and Technology and across all aspects of their life at Ysgol Tŷ Monmouth.

4. Monitoring & Review

4.1.1 The success of the Science and Technology curriculum may be measured in the following ways:

- Increased participation in practical exploration (including off-site activities and outdoor learning experiences), combined with the achievement of outcomes (progression steps).
- Increase in the success rate of individual learning goals.
- Observation of positive Pupil behaviour, interaction, and work (Including through Motional assessments).
- Termly showcase of project and product development.
- Small steps progress as evidenced via b squared assessment tool.

4.1.2 The implementation of this policy will be monitored through:

- Lesson visits and learning walks
- Review of planning and curriculum maps
- Scrutiny of assessment evidence and Pupil progress records
- Sampling of Pupil work, photographs and practical outcomes
- Discussion with team members, pupils and families
- Evaluation of the extent to which Pupils are making expected progress from their starting points.

5. Legislative Framework

5.1.1 This policy has been drawn up on the basis of law and guidance, namely:

- ALN Code of Practice Wales 2021
- United Convention of the Rights of the Child 1991 Data Protection Act 1998
- Children Act 2004
- Education Act 2002