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Consultation Document

Curriculum for Wales – Draft Statements of What Matters Code

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Action required: Responses by 16 July 2021

Mae'r ddogfen yma hefyd ar gael yn Gymraeg.
This document is also available in Welsh.

Curriculum for Wales – Draft Statements of What Matters Code

Overview

The Curriculum for Wales Framework guidance was published on 28 January 2020. Before its publication, the Framework was subject to broad and extensive consultation.

Feedback received signalled what specific, additional guidance schools and settings would require in order to successfully design and realise their own curriculum. Welsh Government committed to publishing:

- guidance for religion, values and ethics
- guidance for relationships and sexuality education
- guidance on careers and work-related experiences
- guidance to support practitioners working with learners at the beginning of the learning continuum
- a curriculum and assessment framework for funded non-maintained nursery settings to adopt
- guidance on developing a curriculum for those responsible for education other than at school
- guidance on British Sign Language.

The draft guidance has been developed by practitioners through a process of co-construction that has been supported by other experts. The feedback phase forms part of the co-construction process. It provides an opportunity for all practitioners and other stakeholders to offer input that will support the further development of the guidance.

In addition to the development of the above aspects of draft curriculum guidance, the Welsh Government has seen the successful passage of associated legislation; the Curriculum and Assessment (Wales) Act 2021 (“the Act”). The Act makes provision for the key concepts, articulated in the statements of what matters, for inclusion by schools and settings in the development, adoption and implementation of their curricula. This consultation sets out the draft proposals for the content of that Code, which draws from the Curriculum for Wales Framework published on 28 January 2020, alongside commitments made by the Minister during the passage of the legislation by the Senedd.

This feedback phase will end on 16 July 2021 after which all responses will be considered and analysed. The draft Code will then be refined, made and laid in the Senedd, subject to the necessary procedures. In addition, the resulting amendments to the statements of what matters will form part of an update to the Curriculum for Wales Framework guidance in autumn 2021. They must be used by schools and settings as part of their curriculum planning, design and implementation.

How to respond

Responses to this consultation should be e-mailed/ posted to the address below to arrive by 16 July 2021 at the latest.

Further information and related documents

Large print, Braille and alternative language versions of this document are available on request.

The Curriculum for Wales framework guidance is available at:

<https://hwb.gov.wales/curriculum-for-wales>

An easy read version is available at

<https://hwb.gov.wales/curriculum-for-wales/a-new-curriculum-in-wales-easy-read/>

A children, young people and families guide is available at

<https://hwb.gov.wales/curriculum-for-wales/a-new-curriculum-in-wales-a-guide-for-children-young-people-and-families/>

The consultation documents can be accessed from the Welsh Government's website at

gov.wales/consultations

Contact details

For further information:

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The Welsh Government will be data controller for any personal data you provide as part of your response to the consultation. Welsh Ministers have statutory powers they will rely on to process this personal data which will enable them to make informed decisions about how they exercise their public functions. Any response you send us will be seen in full by Welsh Government staff dealing with the issues which this consultation is about or planning future consultations. Where the Welsh Government undertakes further analysis of consultation responses then this work may be commissioned to be carried out by an accredited third party (e.g. a research organisation or a consultancy company). Any such work will only be undertaken under contract. Welsh Government's standard terms and conditions for such contracts set out strict requirements for the processing and safekeeping of personal data.

In order to show that the consultation was carried out properly, the Welsh Government intends to publish a summary of the responses to this document. We may also publish responses in full. Normally, the name and address (or part of the address) of the person or organisation who sent the response are published with the response. If you do not want your name or address published, please tell us this in writing when you send your response. We will then redact them before publishing.

You should also be aware of our responsibilities under Freedom of Information legislation

If your details are published as part of the consultation response then these published reports will be retained indefinitely. Any of your data held otherwise by Welsh Government will be kept for no more than three years.

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For further details about the information the Welsh Government holds and its use, or if you want to exercise your rights under the GDPR, please see contact details below:

Data Protection Officer:
Welsh Government
Cathays Park
Cardiff
CF10 3NQ

e-mail: Data.ProtectionOfficer@gov.wales

The contact details for the Information Commissioner's Office are:

Wycliffe House
Water Lane
Wilmslow
Cheshire
SK9 5AF

Tel: 01625 545 745 or
0303 123 1113

Website: <https://ico.org.uk/>

Updates to statements of what matters

This section explains changes being made where they differ from the statements of what matters published as part of the Curriculum for Wales Framework guidance on 28 January 2020. It is included solely for the purposes of this consultation and will not form part of the Statements of What Matters Code.

Expressive Arts

References to the influences and impact of work from diverse cultures, including their contribution to our histories, have been made more explicit.

Humanities

References to Welsh history are made more explicit. Within this the statements of what matters have been strengthened regarding learners developing a common understanding of the diverse history, cultural heritage, ethnic diversity, identities, experiences and perspectives of their local area, Wales and the wider world.

The statements of what matters have also been strengthened on climate change, the climate emergency and ecological impacts to better enable teaching and learning in this area, and to help facilitate wider dialogue around these topics. This aspect links with amends to statements in the Science and Technology Area.

Languages, literacy and communication

Specific references to ‘Welsh, English and international languages’ have been replaced in the statements of what matters with reference to ‘plurilingual’, as defined within the Curriculum for Wales Framework guidance. In the context of this Framework, plurilingual refers to the knowledge, use and connection made between a range of languages. Learners may have varying proficiencies in these languages, from passive knowledge or single word understanding to advanced fluency. The learner is able to make connections between languages, appreciate their interrelation and practise using them individually or together.

Guidance on the requirements being placed on schools and settings in respect of the Welsh and English languages as mandatory subjects is also being included in an update in the autumn to the ‘legislation’ section of the Curriculum for Wales Framework guidance online.

References to ‘speaking and writing’ have also been removed in order to ensure the statements remain relevant when considering British Sign Language (BSL), which is a visual language, as well as spoken languages. The skills of listening and reading, speaking and writing are clearly reflected in the descriptions of learning for Welsh, English and other spoken languages.

Science and technology

The statements of what matters have been strengthened on climate change, the climate emergency and ecological impacts to better enable teaching and learning in this area, and

to help facilitate wider dialogue around these topics. This aspect links with amends to statements in the Humanities Area.

The draft What Matters Code

This draft Code has been developed under section 6 of the Act. It sets out the 27 statements of what matters across the six areas of learning and experience (Areas) on which all maintained schools and funded non-maintained settings must base their curriculum. These statements of what matters form part of the Curriculum for Wales Framework.

The requirement on schools and settings to use the statements of what matters set out in this Code aligns with other requirements regarding the design and development of their curriculum under the Curriculum for Wales Framework.

A curriculum will not encompass an Area unless it encompasses the statements of what matters. Further learning and teaching does not encompass an Area unless it encompasses the statements of what matters. In other words, to meet the requirements of the Act a curriculum must encompass the statement of what matters. Any curriculum designed or adopted by a school or setting must make provision that encompasses the statements of what matters set out in this Code.

This Code applies to the following schools and settings:

- the governing body and head teacher maintained schools and maintained nursery schools
- the proprietor of funded non-maintained nursery education providers¹
- the teacher in charge of a pupil referral unit
- the management committee for a pupil referral unit
- a person who provides teaching and learning for a child, otherwise than at a maintained school, maintained nursery school or pupil referral unit (EOTAS) a local authority in Wales².

¹ In respect of funded non-maintained nurseries the requirement is to adopt a curriculum that meets the requirements set out in the Act. That means the proprietor has a choice as to whether to design a bespoke curriculum or to adopt the curriculum published by the Welsh Ministers pursuant to section 13 of the Act. In maintained schools and maintained nursery schools the head teacher must design a curriculum that meets the requirements set out in the Act.

A funded non-maintained nursery setting is defined in section 80(1)(a) of the Act as nursery education that is provided:

- (i) by a person other than the governing body of a maintained school or maintained nursery school,
- (ii) under arrangements made between that person and a local authority in Wales, in the exercise of its duty to secure nursery education under section 118 of the School Standards and Framework Act 1998, and
- (iii) in consideration of financial assistance provided by the authority under the arrangements;

The term “nursery education” means full-time or part-time education suitable for children who have not attained compulsory school age.

² This refers to those children who are not in a school or a PRU. This may be the case where illness prevents a pupil from attending such settings.

Expressive arts

Exploring the expressive arts is essential to developing artistic skills and knowledge and it enables learners to become curious and creative individuals.

Exploring this Area, both through their own creative work and other people's, engages learners with genres, techniques, tools, materials and practices and enables them to become curious and creative individuals.

By exploring forms and disciplines in the expressive arts, whether through experimentation, play or formal research and inquiry, learners can develop an understanding of how the expressive arts communicate through visual, physical, verbal, musical and technological means. This exploration can also progress their understanding of how the expressive arts shape ideas and feelings. It can encourage them to develop their imagination and draw upon their own experiences, skills and talents to become creative artists themselves.

The expressive arts are also a powerful medium through which learners can explore Wales and its unique traditions, history and diverse cultures. They can provide opportunities for learners to explore their own cultural heritage and that of other people, places and times, and through this discover how the expressive arts can be used to shape and express personal, social and cultural identities. Learners will be exposed to and explore work from diverse cultures and societies and learn about these influences, histories and impact. Learners can also explore how the expressive arts can be used to question and challenge viewpoints and be a force for personal and societal change.

Responding and reflecting, both as artist and audience, is a fundamental part of learning in the expressive arts.

Responding within the expressive arts engages the emotions and the intellect. Response may be a simple sensory reaction to artistic stimulus or a critical analysis of creative work. The ability to reflect is deepened as learners increase their knowledge and understanding of how and why creative work is developed and produced.

Adopting the skills and critical vocabulary encountered in this Area can equip learners to consider creative work in a range of media, forms, genres and styles.

Learning the important skills of refinement and analysis can contribute to their creative development.

Learners' resilience can also be developed when they are encouraged to identify how they can improve their work and respond to feedback from others.

The act of responding encouraged by engagement in this Area challenges learners to reflect on the effectiveness of their own work and that of others, including the work of artists from Wales and beyond.

Creating combines skills and knowledge, drawing on the senses, inspiration and imagination.

By engaging with this Area, learners will be given opportunities to be innovative and bold, to create individual work and to develop their own identity as artists in Wales. This learning and experience can foster resilience and flexibility to overcome challenges.

Creating in the expressive arts embraces a range of activities including planning, drafting, designing, making, choreographing, shaping, composing and editing. Creating requires learners to develop and demonstrate control of a range of skills and an application of knowledge.

During the creative process learners communicate through a variety of art forms or disciplines. Communication includes performing, presenting, sharing, exhibiting and producing with consideration of the audience.

In this Area, learners' engagement with the creative process can enable them to recognise opportunities to transform their ideas safely and ethically into work which has cultural and commercial value, and to use their creative skills to realise ambitions.

Health and well-being

Developing physical health and well-being has lifelong benefits.

This Area can help learners to understand the factors that affect physical health and well-being. This includes health-promoting behaviours such as physical activity, including but not limited to sport; balanced diet; personal care and hygiene; sleep; and protection from infection. It also includes an understanding of health-harming behaviours.

From this understanding, learners can develop positive, informed behaviours that encourage them both to care for and respect themselves and others. These behaviours support learners' sense of self-worth, their overall mood and energy levels.

Learners will be encouraged to develop the confidence, motivation, physical competence, knowledge and understanding that can help them lead healthy and active lifestyles which promote good physical health and well-being.

How we process and respond to our experiences affects our mental health and emotional well-being.

This Area can help learners explore the connections between their experiences, mental health and emotional well-being. By being provided with opportunities to explore the complexities of these connections, learners can be enabled to recognise that feelings and emotions are neither fixed nor consistent.

Having an awareness of our own feelings and emotions is the foundation upon which empathy can be developed. This can enable us to act in a way which supports the mental health and emotional well-being of others. Supporting learners to develop

strategies which help them to regulate their emotions can contribute towards good mental health and emotional well-being.

By learning how to communicate their feelings, learners will be better placed to create a culture where talking about mental health and emotional well-being is normalised.

Our decision-making impacts on the quality of our lives and the lives of others.

This Area can help learners to understand how decisions and actions impact on themselves, on others and on wider society, both now and in the future. It can also help learners understand the factors that influence decision-making, thus placing them in a better position to make more informed and considered decisions.

Learning and experience in this Area can enable learners to develop the critical-thinking skills necessary to consider their decision-making in terms of possible implications, including risks, for themselves and others. This can offer learners opportunities to engage in collective decision-making and to understand the importance of their contributions to this process.

A key decision that affects learners for life is around their career pathways.

How we engage with social influences shapes who we are and affects our health and well-being.

This Area can help learners understand the important role of social influences on their lives. These influences are comprised of rules, social norms, attitudes and values that are created and reinforced by different social groups. It is through interaction with social groups that we experience these influences. They affect our identity, values, behaviours and health and well-being, and often do so without our being aware of it.

Learners will need to engage critically with these social influences within their own culture, as well as those of others, in order to understand how norms and values develop. This can enable them to understand how their own behaviours, relationships and experiences are shaped.

Healthy relationships are fundamental to our well-being.

This Area can help learners understand and value how feelings of belonging and connection that come from healthy relationships have a powerful effect on health well-being.

Learners need to recognise when relationships are unhealthy and need to be aware of how to keep safe, and seek support for themselves and others.

Learners will be encouraged to understand that, throughout their lives, they will experience a range of relationships. They will also be encouraged to develop their abilities to form, nurture and maintain relationships.

As a result, they will see how healthy relationships are vital for a healthy body and mind, allowing us to thrive.

Humanities

Enquiry, exploration and investigation inspire curiosity about the world, its past, present and future.

The learners' journey through this Area will encourage enquiry and discovery, as they are challenged to be curious and to question, to think critically and to reflect upon evidence. An enquiring mind stimulates new and creative thinking, through which learners can gain a deeper understanding of the concepts underpinning humanities, and their application in local, national and global contexts. Such thinking can help learners to understand human experiences and the natural world better.

Appropriate disciplinary approaches, including digital humanities will help learners gather, justify, present, analyse, and evaluate a range of evidence. Interpreting and synthesising information will help learners build upon what they have already learned and further inform their understanding of the world. By thinking critically about their discoveries, learners can then draw informed conclusions, but also understand that some conclusions can only be partial or inconclusive and open to different interpretations. They will need to reflect carefully in order to improve their methodology and extend or deepen their enquiry.

Enquiry is more than an academic exercise; it enables reflection, which can help learners understand the human condition. This, in turn, can add meaning to learners' own lives and contribute to their sense of place and worldview.

This aspect of the Area will encourage the exploration of concepts, including questioning, evidence, evaluation, ethics and judgements.

Events and human experiences are complex, and are perceived, interpreted and represented in different ways.

We encounter and make sense of the world through a variety of events and experiences. Humanities encourages learners to critically review the ways these events and experiences are perceived, interpreted and represented. As they form their own informed viewpoints and recognise those of others, learners can also develop self-awareness.

Learning how various worldviews and factors can influence their own and others' perceptions and interpretations will encourage learners to develop an appreciation of how contexts influence the constructions of narratives and representations. By exploring how and why interpretations may differ and by critical understanding of a range of interpretations and representations derived from a variety of evidence, they will be better placed to evaluate their validity.

This aspect of the Area will encourage the exploration of concepts, including seeking meaning, making judgements, ultimate and philosophical questions, representations, perspectives, interpretations, significance and validity.

Our natural world is diverse and dynamic, influenced by processes and human actions.

Experiencing the wonder of the natural world can contribute to learners' spiritual development and well-being, and can help to cultivate in them a sense of place and sense of belonging, as embodied in the Welsh word *cynefin*.

Nurturing curiosity can help learners understand and appreciate how and why places, landscapes and environments in their locality and elsewhere in Wales, as well as in the wider world, are changing. This in turn will enable learners to identify what makes places and spaces distinct, and to develop an awareness of the interconnections between humans and their environment in both contemporary and historical contexts, including in respect of the climate emergency. Consequently, learners will be in a better position to make connections between the past and present, and to consider possible futures.

Developing an understanding of how human actions in the past and present can affect interrelationships between the natural world and people will heighten learners' awareness of how the future sustainability of our world and climate change is influenced by the impact of those actions. It will also encourage learners to understand, as producers and consumers, their own impact on the natural world. In addition, an exploration of a range of beliefs, philosophies and worldviews about the natural world can help learners realise how these influence people's interactions with the world.

This aspect of the Area encourages learners to explore concepts, including the interrelationships between humans and the natural world, cause and effect, change and continuity, significance, place, space and physical processes.

Human societies are complex and diverse, and shaped by human actions and beliefs.

An appreciation of identity, heritage and *cynefin* can influence learners emotionally and spiritually, and help build their sense of self and of belonging. Through an understanding of themselves, learners develop their own identity and an awareness of how they, as individuals, can shape the communities in which they live. Consequently, learners will come to realise that the choices we all make, individually and collectively, can have major impacts on society.

Through consistent exposure to the story of their locality and the story of Wales, as well as to the story of the wider world, learners can develop an understanding of the complex, pluralistic and diverse nature of societies, past and present. These stories are diverse, spanning different communities as well as in particular the stories of black, Asian and minority ethnic people.

Over time, places, communities and societies evolve, experiencing continuity and change that has affected, and continues to affect, their own and other people's lives. As they explore this, learners can come to appreciate how this evolution is driven by the interplay between a range of factors, including environmental, economic, social, political and cultural processes, human actions and religious and non-religious beliefs and worldviews. It will also help them build an understanding of the causes, consequences and significance of the changes and interrelationships that have shaped societies at different levels of development.

Experiences in this Area can encourage a critical understanding of how societies are and have been organised, structured and led, in the learners' own locality and in Wales, as well as in the wider world. Societies are characterised by a range of cultural, linguistic, economic, legal and political norms and values. They are also dynamic, both driving and reacting to changes on a local, national and global scale. Learners can explore the connections and interdependence between such societies in the past and present, in the context of a globalised world. Further engagement will also encourage them to explore – and develop a tolerant and empathetic understanding of – the varied beliefs, values, traditions and ethics that underpin and shape human society.

This aspect of the Area encourages learners to explore concepts, including chronology, change and continuity, diversity, cause and effect, interconnectedness, community, identity and belonging, authority and governance. This also enables learners to develop a common understanding of the diverse history, cultural heritage, ethnic diversity, identities, experiences and perspectives of their local area, Wales and the wider world.

Informed, self-aware citizens engage with the challenges and opportunities that face humanity, and are able to take considered and ethical action.

Experiences in this Area can help learners develop an understanding of their responsibilities as citizens of Wales and the wider interconnected world, and of the importance of creating a just and sustainable future for themselves and their local, national and global communities. Exploration of the humanities encourages learners to be active, informed, and responsible citizens and consumers, who can identify with and contribute to their communities, and who can engage with the past, contemporary and anticipated challenges and opportunities facing them, their communities and Wales, as well as the wider world. These challenges include climate change and ecological impacts in local, national and international contexts.

This Area will encourage learners to understand the interconnected nature of economic, environmental and social sustainability; justice and authority; and the need to live in and contribute to a fair and inclusive society. Experiences in this Area will also help learners develop an awareness of their own rights, needs, concerns and feelings, and those of others, and of the role such an awareness plays in the creation of a sustainable and interconnected world.

Questioning and evaluating existing responses to challenges and opportunities can encourage learners to develop as self-aware, informed, ethical global citizens, who critically reflect on their own and others' beliefs, values and attitudes. Experiences in this Area will also help learners to consider the impact of their actions when making choices and exercising their democratic rights and responsibilities. These experiences will also underline the need for learners to be able to justify their decisions when acting socially, politically, economically and entrepreneurially. This can enable learners to take committed social action as caring, participative citizens of their local, national and global communities, showing an understanding of and commitment to justice, diversity and the protection of the environment. By responding to challenges, and taking opportunities for social and sustainable action, they can create meaning and purpose in their own lives.

This aspect of the Area encourages learners to explore concepts, including citizenship, authority and governance, interconnectedness, justice and equality, enterprise, rights, and social action and responsibility.

Languages, literature and communication

Languages connect us.

Languages connect us with people, places and communities. This Area is designed to equip learners, as citizens of a bilingual Wales in a multilingual world, with the ability to use languages in a plurilingual context. Meaningful learning experiences go hand in hand with learning about one's own cultural identity as well as the cultural identities of others. Engagement with this Area can therefore foster in learners pride in their sense of identity and belonging to Wales as well as the world.

By raising an awareness of the diversity of languages from a young age, the aim is to enable learners to recognise similarities between languages and to embrace the differences between them. Learning and experience in this Area can support learners to develop an understanding of the origins, evolution and features of a range of languages, providing them with a set of skills such as creativity, mediation, adaptability and empathy.

Understanding languages is key to understanding the world around us.

Languages and literacy are fundamental to human communication. They enable us to make sense of what is heard, read and seen, and thus to develop our understanding, empathy and our ability to respond and to mediate effectively.

This Area aims to provide learners with opportunities to experience languages, as well as images, in a range of forms and genres. The rich and varied nature of these experiences can improve learners' ability to become creative and enterprising in their use of a range of languages in a plurilingual context. They can also help learners to develop the skills to become unbiased and critically-aware interpreters of what they hear, read and see in order to interact as capable, informed citizens of Wales and the world.

Expressing ourselves through languages is key to communication.

Clear and effective communication through language is an important life skill. It calls for the ability to use and adapt languages in a range of roles, genres, forms, media and styles and in a suitable register. In a bilingual and multilingual context, this also calls for the ability to choose an appropriate language and to mediate.

In this Area, learners should be given opportunities to use language in order to be effective as they interact, explore ideas, express viewpoints, knowledge and understanding and build relationships. The learning and experience supports them to develop an awareness of how they use a range of languages to express themselves for different purposes and audiences.

Literature fires imagination and inspires creativity.

Literature expands horizons. In all its forms it can inspire and motivate us, while also helping us to learn more about language and communication.

This Area provides learners with literary experiences that can engage them as listeners, viewers, readers, narrators and creators. These experiences support them to appreciate a creator's craft as well as develop their own creative skills. They should be encouraged to experience and respond to a variety of literature that gives them insight into the culture, people and history of Wales as well as the wider world. Through this, as their understanding of their own and other people's experiences, beliefs and cultures is enhanced, learners can develop their ability to demonstrate empathy. This in turn can contribute to their emotional and mental well-being. In all, the literary experiences offered aim to spark learners' imagination and creativity and help to build a lifelong love of literature.

Mathematics and numeracy

The number system is used to represent and compare relationships between numbers and quantities.

Numbers are the symbol system for describing and comparing quantities. This will be the first abstract concept that learners meet in mathematics, and it helps to establish the principles of logical reasoning. In mathematics the number system provides learners with a basis for algebraic, statistical, probabilistic and geometrical reasoning, as well as for financial calculation and decision-making.

Knowledge of, and competence in, number and quantities are fundamental to learners' confident participation in the world, and provide a foundation for further study and for employment. Computational fluency is essential for problem-solving and progressing in all areas of learning and experience. Fluency is developed through using the four basic arithmetic operations and acquiring an understanding of the relationship between them. This leads to preparing the way for using algebraic symbolisation successfully.

Algebra uses symbol systems to express the structure of mathematical relationships.

Algebra is the study of structures abstracted from computations and relations, and provides a way to make generalisations. Algebraic thinking moves away from context to structure and relationships. This powerful approach provides learners with the means to abstract important features and to detect and express mathematical structures of situations in order to solve problems. Algebra is a unifying thread running through the fabric of mathematics.

Algebraic thinking is essential for reasoning, modelling and solving problems in mathematics and in a wide range of real-world contexts, including technology and finance. Making connections between arithmetic and algebra develops skills for abstract reasoning from an early age.

Geometry focuses on relationships involving shape, space and position, and measurement focuses on quantifying phenomena in the physical world.

Geometry involves playing with, manipulating, comparing, naming and classifying shapes and structures. The study of geometry encourages the development and use of conjecture, deductive reasoning and proof. Measurement allows the magnitude of spatial and abstract features to be quantified, using a variety of standard and non-standard units. It can also support the development of numerical reasoning.

Reasoning about the sizes and properties of shapes and their surrounding spaces helps learners to make sense of the physical world and the world of mathematical shapes. Geometry and measurement have applications in many fields, including art, construction, science and technology, engineering, and astronomy.

Statistics represent data, probability models chance, and both support informed inferences and decisions.

Statistics is the practice of collecting, manipulating and analysing data, allowing representation and generalisation of information. Probability is the mathematical study of chance, enabling predictions of the likelihood of events occurring. Statistics and probability rely on the application and manipulation of number and algebra.

Managing data and representing information effectively provide learners with the means to test hypotheses, draw conclusions and make predictions. The process of reasoning with statistics and probability, and evaluating their reliability, develops critical thinking and analytical skills that are fundamental to enabling learners to make ethical and informed decisions.

Science and technology

Being curious and searching for answers is essential to understanding and predicting phenomena.

Curiosity about science and technology leads us to ask questions about the world around us. By being encouraged to use logic, evidence and creativity, learners will be supported to inquire into and apply scientific knowledge to further understanding of how our world works. Developing and testing models will also help them make sense of its complexity. With evidence derived from observations, new theories can be developed, and existing ideas may be refined or challenged.

Learners need to be able to evaluate scientific claims to help make informed decisions that affect our environment and well-being, including regarding climate change. The choices we make depend on many factors, including moral viewpoints and personal beliefs. However, rigorous and robust evidence-based research provides a solid foundation on which to base decisions. As ethically informed citizens, learners will need to consider the impact of our actions and of scientific and technological developments, locally and elsewhere in Wales, as well as in the wider world, asking 'Just because we can, does that mean we should?'

Design thinking and engineering offer technical and creative ways to meet society's needs and wants.

By applying their experiences, skills and knowledge, learners can design and shape innovative engineered solutions. Being part of a user-centred design process will encourage them to use creativity to develop ideas, manage and mitigate risks, and minimise complexities. When engineering products, services and systems, they will need to understand and control the interactions between materials, structures, components and users. The application of engineering processes allows learners to develop accuracy, precision, dexterity and craftsmanship. By designing and engineering outcomes in response to needs and wants, learners can become enterprising problem solvers.

The world around us is full of living things which depend on each other for survival.

By recognising the diversity of living things and how they interact with their environment, learners can develop an understanding of how these have evolved over significant periods of time. All living things require specific conditions and resources to survive and they may have to compete with other organisms to do so. Humans form part of the living world and our decisions and actions, along with natural selection, can have a significant impact on the diversity of life. Knowing about the structures and functions of living things enables learners to understand how these things grow, develop and reproduce successfully. Developing an understanding of the factors which affect the health and success of organisms allows us to make informed decisions, including about the prevention and treatments of diseases.

Matter and the way it behaves defines our universe and shapes our lives.

The universe and all living things are made up of matter. The behaviour of matter determines the properties of materials and allows us to use natural resources, as well as to create new substances. Understanding the nature of matter can help learners to appreciate the impact that chemistry has on the world around them, as well as how it contributes to advances in science and technology. Chemical reactions happen continuously in our environment as well as in living things. Learning how to control and apply these reactions has benefits to individuals and industry.

Forces and energy provide a foundation for understanding our universe.

Forces and energy can be used to describe the behaviour of everything from the smallest building blocks of matter to the motion of planets and stars. Understanding forces and energy helps us to predict and control the behaviour of our environment. These ideas can be modelled and expressed formally, providing a consistent mathematical framework to describe physical systems. This has enabled some of society's greatest scientific breakthroughs and engineering achievements. An understanding of forces and energy can help learners overcome future challenges and use our planet's resources efficiently and sustainably, helping them become responsible citizens of Wales and the world.

Computation is the foundation for our digital world.

Computation involves algorithms processing data to solve a wide range of real-world problems. Computational processes have changed the way we live, work, study and interact with each other and our environment. They provide the foundation for all software and hardware systems, but learners should also be aware of the limitations of what computers can achieve. To create and use digital technologies to their full potential, learners need to know how they work. They also need to understand that there are broad legal, social and ethical consequences to the use of technology. This can help learners to make informed decisions about the future development and application of technology.