

Number: WG42770



Llywodraeth Cymru  
Welsh Government

Welsh Government  
Consultation Document

# Curriculum for Wales – Draft Progression Code

Date of issue: 21 May 2021  
Action required: Responses by 16 July 2021

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

## Overview

# Curriculum for Wales – Draft Progression Code

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The draft guidance has been developed by practitioners through a process of co-construction that has been supported by other experts.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 requires the Welsh Ministers to issue a Progression Code, which sets out the way in which schools and settings must make provision for learner progression, as articulated in the principles of progression, 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 guidance published on 28 January 2020.

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, any resulting amendments to the principles of progression will form part of an update to the Curriculum for Wales Framework guidance in autumn 2021. It 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](http://gov.wales/consultations)

#### **Contact details**

For further information:

Curriculum Realisation Unit  
Curriculum and Assessment Division  
The Education Directorate  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ  
e-mail: [curriculumforwales@gov.wales](mailto:curriculumforwales@gov.wales)



@WG\_Education

Facebook/EducationWales

## General Data Protection Regulation (GDPR)

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.

## Your rights

Under the data protection legislation, you have the right:

- to be informed of the personal data held about you and to access it
- to require us to rectify inaccuracies in that data
- to (in certain circumstances) object to or restrict processing
- for (in certain circumstances) your data to be 'erased'
- to (in certain circumstances) data portability
- to lodge a complaint with the Information Commissioner's Office (ICO) who is our independent regulator for data protection.

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](mailto: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/>

## The draft Progression Code

This draft Code has been developed under Section 7 of the Act. The Code sets out the ways in which a curriculum must make provision for all pupils and children. Teaching and learning in a school's and setting's curriculum will not make provision for appropriate progression unless it accords with this Code. Further, a curriculum will not fully encompass the areas of learning and experience (Areas) unless it reflects appropriate progression and unless it accords with the progression Code.

Therefore, any curriculum designed or adopted by a school or setting<sup>1</sup> must make provision that accords with the principles of progression set out in this Code. In respect of funded non-maintained nurseries the requirement is to adopt a curriculum that meets the requirements set out in the Act.

The Code sets out the 5 overarching principles of progression that span the new curriculum requirements, as well as the more specific principles of progression for each of the Areas on which all maintained schools and funded non-maintained settings must base their curriculum. These principles of progression form part of the Curriculum for Wales Framework.

This Code applies to the following schools and settings:

- maintained schools and maintained nursery schools
- funded non-maintained nursery education providers<sup>2</sup>
- 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 Wales<sup>3</sup>.

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

---

<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> This refers to those learners who are not in a school or a PRU. This may be the case where illness prevents a learner from attending such settings.

## Progression

Progression in learning is a process of increasing sophistication, rather than covering a growing body of content. This is individual to each learner. It requires space for diversion, reinforcement and reflection as a learner's thinking develops over time to new levels.

While there may be particular threshold concepts that represent a significant shift in a learner's understanding, these are not linked to specific ages, nor will they happen at the same time in different areas for individual learners.

Learners with additional learning needs (ALN) will also progress at a rate individual to the learner and this may not correlate with the broad two to three year progression step. Pace of progression should be evaluated by the professionals working with learners with ALN.

Supporting learners to make progress is a fundamental driver of the Curriculum for Wales Framework. This is reflected in the statements of what matters, the descriptions of learning for each of these statements and is also the primary purpose of assessment. Understanding how learners progress is critical to learning and teaching and should inform curriculum design, classroom planning and assessment.

The principles of progression below articulate the national expectations for learners' progress throughout the continuum of learning, and give practitioners a higher level understanding of progression. This is not a national curriculum but instead an expectation as to how schools and settings will use the principles of progression. They:

- explain what it means for learners to make progress, the nature of that progression and the principles underpinning it
- describe what progression means and how learners make progress throughout the learning continuum rather than viewing it as movement between atomised statements
- apply across the continuum of learning and so do not refer to specific progression steps.

As well as the overarching principles, principles of progression in this Code are also described in the context of each Area. In that way, they describe how learners make progress within each Area throughout their learning journey. These are distinct from descriptions of learning which provide more specific reference points of what progression should look as learners work towards the statements of what matters. Together, practitioners can use these two elements to understand what it means for learners to progress, and use this to inform learning, teaching and assessment.

A number of conceptual models of progression exist. No single model has been employed in the creation of the descriptions of learning. Instead, practitioners should be mindful of a variety of ways in which learners may progress at different points in the learning journey, and over different lengths of time, as they develop their curriculum.

## Principles of progression

Five principles of progression underpin progression across all Areas. The principles are as follows.

**Increasing breadth and depth of knowledge** - Learners need to acquire both breadth and depth of knowledge. As learners progress, they develop an increasingly sophisticated understanding of concepts that underpin different statements of what matters. They see the relationships between these and use them to further shape and make sense of knowledge and make links across the whole curriculum. This consolidates their understanding of concepts.

**Deepening understanding of the ideas and disciplines within the Areas** - Holistic approaches are particularly important to learning in early steps as learners engage with the world around them. Learners should become increasingly aware of ways in which ideas and approaches can be coherently grouped and organised. As they progress they need to experience and understand disciplinary learning in each of the Areas and see these in the context of the statements of what matters and the four purposes.

**Refinement and growing sophistication in the use and application of skills** - Learners need to develop a range of skills including: physical, communication, cognitive and Area specific skills. In the early stages of learning, this range of skills includes focus on developing gross and fine motor; communicative and social skills. They also develop intellectual skills in applying what they have learned. As learners progress, they demonstrate more refined application of existing skills, and will experience opportunities to develop new, more specific and more sophisticated skills.

Over time, learners become able to effectively organise a growing number of increasingly sophisticated ideas, to apply understanding in various contexts and to communicate their thoughts effectively, using a range of methods, resources or equipment appropriate to their purpose and audience.

**Making connections and transferring learning into new contexts** - Learners should make connections with increasing independence; across learning within an Area, between Areas, and with their experiences outside of school. Over time these connections will be increasingly sophisticated, explained and justified by learners. They should be able to apply their learning in more unfamiliar and challenging contexts.

**Increasing effectiveness** - As learners progress, they should become increasingly effective. This includes increasingly successful approaches to self-evaluation, identification of their next steps in learning and more effective means of self-regulation. They become increasingly able to seek appropriate support and to identify sources of that support. They ask more sophisticated questions and find and evaluate answers from a range of sources. They become increasingly effective at learning in a social and work-related context.

## Expressive arts

**Increasing breadth and depth of knowledge** - Learners demonstrate progression in the Expressive Arts Area by exploring, experiencing and creating increasingly complex meaning. Linking new learning to existing knowledge develops an increased sophistication of conceptual understanding. Moreover, learners learn and refine different types of knowledge and skills including the techniques, processes and skills required to create and interpret in each field of the arts. Additionally the integral skills of creativity; synthesis; critical thinking; and understanding of social and cultural contexts are crucial to this Area.

**Deepening understanding of the ideas and disciplines within areas of learning and experience** - Progression is demonstrated through the continuing development of the knowledge, skills and capacities required to appreciate, create, explore, respond and reflect both within specific disciplines and in combinations of disciplines. In the early stages, learning is characterised by a growing curiosity for being creative and innovative by exploring with a range of resources and materials in various domains. Combining disciplines occurs purposefully but remains organic. As learning progresses, learners become increasingly aware of the expressive arts' disciplines and their key features, including (though not necessarily limited to) art, dance, drama, film and digital media, and music. Learners make links in the creative process across the disciplines to explore, create, interpret and respond.

**Refinement and growing sophistication in the use and application of skills** - Levels of control, accuracy and fluency in using a range of arts' skills will grow as learners progress. For example, in early stage learning this might be characterised by using simple body movements in composing a dance and identifying fundamental aspects such as speed, direction and levels when evaluating one's own work and the work of others. At a more advanced stage of progress, learners might create and evaluate the success of interaction among various aspects of movement in a complex choreographed dance. As they progress, learners continually develop in depth and refine with a growing sophistication these key arts' skills in different disciplines and/or in interdisciplinary activity.

**Making connections and transferring learning into new contexts** - Learners increasingly appreciate the possibility of combining disciplines within the Area in order to appreciate and to achieve/produce creative outcomes. Progression is also characterised by more sophisticated use of relevant skills within individual disciplines and the growing ability to transfer existing skills and knowledge into new contexts within this Area and across other Areas.

**Increasing effectiveness as a learner** - Progression is demonstrated in moving from doing something with the support of the teacher, towards autonomy and sophistication. Progression is likely to grow out of gradual use and re-use of known skills, but could also, on occasion, present as a big qualitative jump.

As learners make progress they increasingly evaluate and create more and more sophisticated creative work independently and with increased collaboration with others. They gain greater confidence by being able to explore, experience, interpret, create and respond through the expressive arts' disciplines within a safe environment. Their evaluation of their own and others' work reflects a developing understanding of process as well as product, and resilience in receiving, and persistence in acting upon, feedback.



## Health and well-being

Progression within the Health and Well-being Area is non-linear and follows different pathways within and between progression steps. Personal concerns, interests and circumstances may have an impact on the pathways along which a learner makes progress, particularly in the context of feelings and emotions; learning may take place at different rates at different times.

**Increasing breadth and depth of knowledge** - Progression within the Area is a continuum of increased sophistication over a period of time whereby existing knowledge is revisited but at a deeper level. Knowledge moves from the concrete to abstract and from merely understanding to understanding consequences. This includes conceptual shifts in knowledge and understanding as well as personal behaviour within physical, emotional and mental well-being, and in relationships and social contexts.

**Deepening understanding of the ideas and disciplines within Areas** - Progression in each of the statements of what matters are connected and interdependent. Together, they focus on progressively developing learners' appreciation and understanding of the significance of making informed decisions regarding their physical, emotional and mental health and well-being. Thus there is a growing understanding of how the statements of what matters interlink in ensuring a clear pathway for where the learner is going and how to get there.

**Refinement and growing sophistication in the use and application of skills** - Progression is demonstrated within the Area as developing confidence, motivation and competence as well as a wider range of skills with increasing accuracy and proficiency. It recognises that physical, emotional, psychological and social skills within and across the domains are to an extent reliant on but not constrained by developmental milestones. This is particularly evident as the initial progression step focuses on recognition and awareness of personal physical, emotional and social skills and then progressively moves towards more accuracy and mastery of these skills.

**Making connections and transferring learning into new contexts** - The transfer of skills and knowledge within the Area is considered as progression within the domain of becoming more socially responsible. As learners become more socially responsible, they progress from primarily considering oneself to considering the impact of their own actions on others at a local, national and global level. Learners will progress from feelings of caring and respecting others to the capacity of advocacy on behalf of others.

As learners progress through the curriculum their understanding of the links across and beyond the school with all aspects of health and well-being will become more sophisticated, and they will be able to identify and balance, with increasing effectiveness, some of the tensions that may exist.

**Increasing effectiveness as a learner** - Progression is exemplified within some aspects of the Area as a journey from developing a skill or a concept with support from others (peers or adults) to gradually becoming more competent and independent, including an increasingly capacity to identify and seek help and support when needed. Experiences focusing on making, justifying and evaluating considered and informed decisions support growth in metacognition as well as exemplifying how learners become more

independent. Over time, learners are able to demonstrate increased self-regulation, with a growing sense of agency and responsibility for their overall health and well-being.

## Humanities

**Increasing breadth and depth of knowledge** - Progression in the Humanities Area is demonstrated by learners engaging with an increasing breadth and depth of knowledge and underlying concepts. Learners increasingly develop the capacity to organise and make links across propositional knowledge, to identify and develop more powerful underpinning concepts, and to make supported judgements in more complex contexts.

Learners connect new ideas and information to knowledge acquired from previous learning from within and outside school and use it to build an increasingly clear and coherent understanding of the world around them.

**Deepening understanding of the ideas and disciplines within Areas** - Progression within this Area is demonstrated in the early stages as learners experience holistic approaches to exploring the world around them and are supported in shaping an understanding of themselves in the world. Learners will move on to more focused awareness of the lives of others, in their own social context, elsewhere in the world and in different eras. As they move through the continuum of learning, learners have an increased understanding of the defining features of the constituent disciplines (including history; geography; religion, values and ethics; business studies and social studies) and how these can be brought together to provide different lenses through which to view issues and address questions or problems.

**Refinement and growing sophistication in the use and application of skills** - As learners experience, understand and apply increasingly complex concepts, they show an increasing accuracy and fluency in using a variety of skills identified in the descriptions of learning and statements of what matters.

As they progress, learners will be continually refining and developing a growing sophistication of key disciplinary skills including those relating to enquiry such as framing questions and using evidence to construct and support an answer and relating to representation and interpretation. Progression in this Area is demonstrated through an ability to work with an increasing number and sophistication of sources of information, and a growing understanding of how to resolve contradictory or conflicting accounts.

**Making connections and transferring learning into new contexts** - Progression in this Area is also characterised through more sophisticated use of relevant skills and the growing ability to transfer existing skills and knowledge into new, and increasingly unfamiliar contexts. As learners progress, they will be able to make links within and between periods and places, identifying similarities and differences, changes and continuities, and use the understanding of concepts to identify connections between new and previous learning. With greater understanding of the world, of other people and their values, in different times, places and circumstances, of their environment and how it has been shaped, learners will demonstrate greater ability to influence events by exercising informed and responsible citizenship.

**Increasing effectiveness as a learner** - As learners make progress within this Area, they will be asking increasingly sophisticated enquiry questions. They will show a greater

independence in finding suitable information, making informed predictions and hypotheses, and making judgments including about reliability and utility. They will also become more able to effectively work with others, especially, but not limited to, taking part in social action.

## **Languages, literature and communications**

The descriptions of learning for Languages, Literacy and Communication Area are intended to reflect the pace and depth of learning in different contexts and have been developed based on a continuum or framework of progression in languages, starting with little or no language and working towards proficiency. Learners will have varying proficiencies in their languages and, to ensure a robust foundation for second and subsequent languages, early steps (such as grapheme-phoneme correspondence) are revisited in each language.

Descriptions of learning in this Area include a higher level of detail at early stages of learning than may be found in other areas of learning and experience. This reflects that these early literacy skills are foundations of effective learning across the curriculum.

The descriptions of learning for the 'Languages connect us' statement of what matters are the same for all learners in all schools. For the other statements of what matters in this Area, there are descriptions of learning for Welsh/English, for Welsh in English-medium settings/schools/streams and for international languages.

**Increasing breadth and depth of knowledge** - Progression in this Area is represented as a coherent continuum. The learner grows holistically in their understanding and purposeful use of languages, literacy and communication when listening and reading, when speaking and writing and when interacting and mediating in a wide range of contexts.

Learners develop an increasingly sophisticated understanding of linguistic concepts that support the more conscious and self-aware development of skills to communicate effectively through speech, writing, gestures, images or other media.

They also progress in their breadth and depth of conceptual knowledge by encountering ideas in languages and literature, initially in more personal and local contexts and moving as they progress to connect with more complex communications in a multilingual world. Learners thus acquire a gradually more nuanced understanding of different viewpoints and increasing command of the skills needed to interpret, evaluate, articulate and respond to differing perspectives.

**Deepening understanding of the ideas and disciplines within Areas** - Progression in this Area is a continuum of increasingly complex engagement with ideas and communicative purposes and of development of language awareness. These are demonstrated in:

- responding to communications when listening, reading, or receiving language in other ways
- producing them when speaking and writing or through other means of communication.

Drawing on a learner's whole linguistic repertoire – however uneven that may be – enables them to progress in all languages. Understanding linguistic concepts in the

language of instruction, for example, can be applied to learning a new language, which facilitates progression in that language as well as improving understanding of the way in which their own languages work. While learners may be at different points of progression in different languages, a focus on plurilingualism allows them to call upon their knowledge of a number of languages to make sense of a spoken or written text, whatever their command of that language, and to increasingly understand and learn from the relationships between different languages.

### **Refinement and growing sophistication in the use and application of skills -**

Progression in the refinement and sophistication of skills moves from literal and simple communicative purpose to more abstract, inferred/implied and nuanced levels of meaning with more complex purposes. Learners gradually develop greater awareness of language and more sophistication in using this awareness to achieve intended purposes in interpreting and producing communications in speech or writing or through other means.

As learners experience, engage with, understand and apply increasingly complex ideas and language awareness, accuracy and fluency in using communication skills grow.

Progression in this Area is also seen in the production of language. As learners become more accomplished, they can adapt and manipulate language to communicate effectively to a range of different audiences. This allows learners to form and develop strong relationships and the confidence to use their voice in society.

Second language learners may use formulaic language with few mistakes initially and, as they progress and when being more ambitious and spontaneous in their use of language, they may appear to make more mistakes. This intrinsic part of successful language learning leads to becoming more fluent and accurate language users.

**Making connections and transferring learning into new contexts** - Progression in this Area has a significant inter-relationship with the learning in all other areas. The learner moves forward along the progression continuum partly through exposure to rich challenges and resources offered by other areas of learning and experience. The thinking needed to understand and to communicate all learning is closely related to that which enables learners to develop receptive, interpretive and expressive language skills. They progress in parallel in languages, literacy and communication in this Area and in disciplinary literacy in the other areas of learning and experience.

The ability to transfer existing knowledge and skills into new contexts is an integral part of progression in this Area. As learners develop an understanding of additional languages, patterns of language use are identified, adapted and applied in new contexts. Modes of communication are adapted for different audiences, and to different disciplinary contexts. Skills in learners' first and second languages enable learning in subsequent languages. As learners progress, they will be able to make links within and between ways of communicating, making good choices about effective methods of communication.

**Increasing effectiveness as a learner** - As they move along the continuum of learning, learners will build on basic linguistic skills to develop a capability that enables them to overcome a range of communicative challenges successfully. These include, for example:

- asking increasingly sophisticated questions

- finding information independently
- making evaluative and critical judgements about the ideas and viewpoints and the means of communication in what they hear, read, and view
- using language effectively to convey their own ideas and viewpoints on various topics.

They will develop the language skills necessary to discuss and evaluate their learning in languages.

## Mathematics and numeracy

In the Mathematics and Numeracy Area the model of progression is based on the development of five interdependent proficiencies, outlined below. This model of progression can be considered as both longitudinal and cross-sectional. To ensure progress in any mathematics learning, proficiencies should be developed and connected in time and should also develop over time.

Each proficiency may relate to multiple principles, and these are set out below.

**Proficiencies** - The following interdependent proficiencies have been used in developing the descriptions of learning and are central to progression at each stage of mathematics learning. Numeracy involves applying and connecting these proficiencies in a range of real-life contexts, across the curriculum.

**Conceptual understanding** - Mathematical concepts and ideas should be built on, deepened and connected as learners experience increasingly complex mathematical ideas. Learners demonstrate conceptual understanding through being able to explain and express concepts, find examples (or non-examples) and by being able to represent a concept in different ways, flowing between different representations including verbal, concrete, visual, digital and abstract.

An increasing breadth of knowledge is achieved through the learners being introduced to new mathematical concepts, and depth of knowledge is achieved through learners being able to represent, connect and apply a concept in different ways and in different situations. The concepts that learners are introduced to will become increasingly complex, and understanding the way in which concepts connect will contribute to a growing understanding of the ideas within this Area. An understanding of how mathematical concepts underpin learning help learners make connections and transfer learning into new contexts.

**Communication using symbols** - Learners should understand that the symbols they are using are abstract representations and should develop greater flexibility with the application and manipulation of an increasing range of symbols, understanding the conventions of the symbols they are using.

The introduction and application of a new concept will involve developing an understanding of how symbols or expressions are abstract representations that succinctly describe a range of situations, thus contributing to a growing understanding of the nature of mathematics. The introduction of new symbols will add to the breadth of knowledge and the communication with symbols will contribute to refinement and growing sophistication in the use and application of skills.

**Fluency** - As learners experience, understand and effectively apply increasingly complex concepts and relationships, fluency in remembering facts, relationships and techniques should grow, meaning that facts, relationships and techniques learned previously should become firmly established, memorable and usable.

Development of fluency and accuracy reflects the refinement and a growing sophistication in the use and application of skills.

**Logical reasoning** - As learners experience increasingly complex concepts, they should also develop an understanding of the relationships between and within these concepts. They should apply logical reasoning about these relationships and be able to justify and prove them. Justifications and proof should become increasingly abstract, moving from verbal explanations, visual or concrete representations to abstract representations involving symbols and conventions.

Refinement and growing sophistication in the use and application of skills will be demonstrated through the application of increasingly sophisticated logical reasoning. The development of an understanding of relationships between mathematical concepts and the development of justifications and proofs, leads to a growing understanding of the nature of mathematics and helps learners make connections and transfer learning into new contexts. The development of justifications and proof help support the increasing effectiveness of learners.

**Strategic competence** - Learners should become increasingly independent in recognising and applying the underlying mathematical structures and ideas within a problem, in order to develop strategies to be able to solve them.

Recognising mathematical structure within a problem and formulating problems mathematically in order to be able to solve them relies on an understanding of the ideas and disciplines within areas of learning and experience alongside a depth of knowledge. It also supports making connections and transferring learning into new contexts and developing increasing effectiveness as a learner. The recognition of the power of mathematics in enabling the representation of situations should lead to a growing appreciation of the usefulness of mathematics.

## **Science and technology**

**Increasing breadth and depth of knowledge** - Progression in the Science and Technology Area is demonstrated by learners exploring and experiencing increasingly complex ideas and concepts that sit within the statements of what matters. Knowledge moves through exploration from a personal understanding of the world to an abstract view that enables learners to conceptualise and justify their understandings. Progression of learning is not linear but cyclical with learners revisiting existing knowledge, linking this with their new learning, and adjusting schema in light of new discovery.

**Deepening understanding of the ideas and disciplines within areas of learning and experience** - Progression in this Area includes the development of a deep understanding of the learning expressed within all the statements of what matters within the Area and the complex relationships and connections which exist between them. Investigative skills which are developed within the context of one statement of what matters can be applied in others. Iterative approaches to problem-solving from

computer science and design and technology can also be beneficial to all sciences. Early stage learning will be typified by a holistic approach to asking questions and exploring the world around the learner, with increasing specialisation at later stages.

**Refinement and growing sophistication in the use and application of skills -**

Investigation, exploration, analysis, problem-solving, and design are key skills required as learners work along the continuum of learning in this Area. As a learner makes progress, there is increasing sophistication in the way in which they explore and investigate problems and the resulting formulation of creative solutions. There is a refinement and increasing accuracy in what learners are able to do and produce both in the physical and digital environments.

**Making connections and transferring learning into new contexts -** As learners progress across the continuum they will increasingly be able to make links between current learning and other experiences and knowledge developed within and beyond this Area. This will include making links with knowledge and experiences from outside the school environment. Problems within science and technology involve ethical or moral dilemmas and it is an increased understanding in the way in which these dilemmas are or even should be approached which will signify progression. Learners will develop the capacity to apply their learning in science and technology to inform their thinking and action beyond the classroom.

**Increasing effectiveness as a learner -** Problem-solving and design tend to be iterative; the development of skills-related resilience and self-efficacy become important to enable learning through a 'trial and improve' approach. Over time there is an increased independence in learning, including interdependence in peer group learning. Learners should develop an awareness of their increasing sophistication of understanding and an ability to regulate their own thinking.