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National Literacy and Numeracy Framework

To support schools in introducing the National Literacy and Numeracy Framework

Information

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National Literacy and Numeracy Framework

Audience

Primary, secondary and special schools in Wales; Welsh local authorities and regional education consortia; unions; various organisations that have an interest in literacy and numeracy; and members of the public.

Overview

This information document is to accompany and help schools in Wales to implement the National Literacy and Numeracy framework (LNF).

Action required

None – for information only.

Further information

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Additional copies

This document is only available on the Welsh Government's website at www.wales.gov.uk/educationandskills

Related documents

National Literacy Programme (Welsh Government, 2012); *National Numeracy Programme* (Welsh Government, 2012); *The Skills Framework at key stage 2: An evaluation of the impact of the non-statutory Skills framework for 3 to 19-year-olds in Wales at key stage 2* (Estyn, 2011); *The Skills Framework at key stage 3: An evaluation of the impact of the non-statutory Skills framework for 3 to 19-year-olds at key stage 3* (Estyn, 2012); *Routes for Learning routemap* (Welsh Assembly Government, 2006); *Assessment of 5- to14-year-old children's mathematical progress in schools in Wales* (Welsh Government, 2012); *Language, Literacy and Communication Skills* (Welsh Assembly Government, 2008); *Guidance on the teaching of writing skills* (Welsh Assembly Government, 2010); *Developing higher-order literacy skills across the curriculum* (Welsh Assembly Government, 2010).

This document is also available in Welsh.

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Introduction

The Minister for Education and Skills has made raising standards of literacy and numeracy in schools a priority. In his keynote address 'Raising Schools Standards' on 29 June 2011, to the Institute of Welsh Affairs, he announced the intention to introduce a new National Literacy and Numeracy Framework (LNF) for all learners aged 5 to 14.

Literacy and numeracy skills are absolutely essential in order for young people to reach their potential whether they are planning to enter further or higher education or the employment market. The National Literacy Programme and the National Numeracy Programme set out the actions the Welsh Government intends to implement to improve literacy and numeracy standards in Wales. The plans for a statutory national framework and for a system of national testing are integral to both programmes.

The LNF has been developed to help achieve our aims that the children of Wales are able to develop excellent literacy and numeracy skills during their time in school. The current national curriculum introduced from 2008 seeks to weave skills development throughout the curriculum and is, therefore, underpinned by the non-statutory *Skills framework for 3 to 19-year-olds in Wales* (Welsh Assembly Government, 2008) which covers developing thinking, communication, ICT and number. The Estyn report *The Skills Framework at key stage 2: An evaluation of the impact of the non-statutory Skills framework for 3 to 19-year-olds in Wales at key stage 2* in July 2011 and similar report for Key Stage 3 in May 2012 found that the skills framework had not been effective. The LNF will replace the communication and number element of the non-statutory skills framework. **It will be a statutory curriculum requirement from September 2013, with assessment against the LNF becoming a statutory requirement from September 2014.**

The LNF is based on research into effective teaching, assessment, recording and reporting practice, and the success of similar international systems. It was developed in partnership with an Association of Directors of Education in Wales (ADEW) advisory panel consisting of local authority literacy and numeracy advisers. Consultation on the LNF took place between **11 June and 12 October 2012**. The results of the consultation have informed the development of the final version of the LNF.

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The LNF has been developed as a curriculum planning tool for schools that will provide a continuum of development, clearly setting out annual expected outcomes in literacy and numeracy.

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Purpose, aims and features of the National Literacy and Numeracy Framework (LNF)

The LNF is first and foremost a curriculum planning tool that supports all teachers to embed literacy and numeracy in their teaching of the curriculum. Our aim is to support all teachers to see themselves as having an important role in developing the literacy and numeracy skills of their learners. All schools currently have curriculum planning arrangements and these will need to be adapted to support cross-curricular planning using the LNF. While we acknowledge that skills development for younger learners, in particular, may be more erratic, effective cross-curriculum planning for skills and a framework for continued development is important for all learners.

Key aims

The key aims of the LNF are to:

- help teachers of **all** subjects to identify and provide opportunities for learners to apply literacy and numeracy across the curriculum, and is broken down by year group
- describe, with precision, the **annual national expectations for literacy and numeracy** for learners 5–14, and progression indicators for learners with additional learning needs
- help determine **learner progress** in literacy and numeracy and provide annual reports to parents/carers based on teacher assessment so that teachers, learners and parents/carers are all clear how learners are progressing and what are the next steps. **There will be no national level data collection**.

Key features

The key features of the LNF include the following.

- Through expectation statements, the LNF sets out the skills we expect learners to develop throughout their time in school, from ages 5 to 14, and is broken down into year groups.
- The LNF is split into components for literacy and numeracy, which are in turn split into strands.
- The literacy strands are: oracy across the curriculum, reading across the curriculum and writing across the curriculum.
- The numeracy strands are: developing numerical reasoning, using number skills, using measuring skills and using data skills.
- Each strand is further split into elements, with literacy also broken down into aspects.

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- The literacy component is available in both English and Welsh. The expectations in both English and Welsh are similar, with a few distinctive elements in the Welsh literacy component, reflecting the unique requirements of the Welsh language.
- In addition to being a curriculum planning requirement, the LNF is also to be used by teachers for formative assessment.
- The LNF will be used to inform teachers' assessment of learners' literacy and numeracy skills and will be reported annually to parents/carers. **There will be no national level data collection.**

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LNF implementation and support

The LNF will be fully supported by a comprehensive range of online guidance and training materials and by a national programme of support.

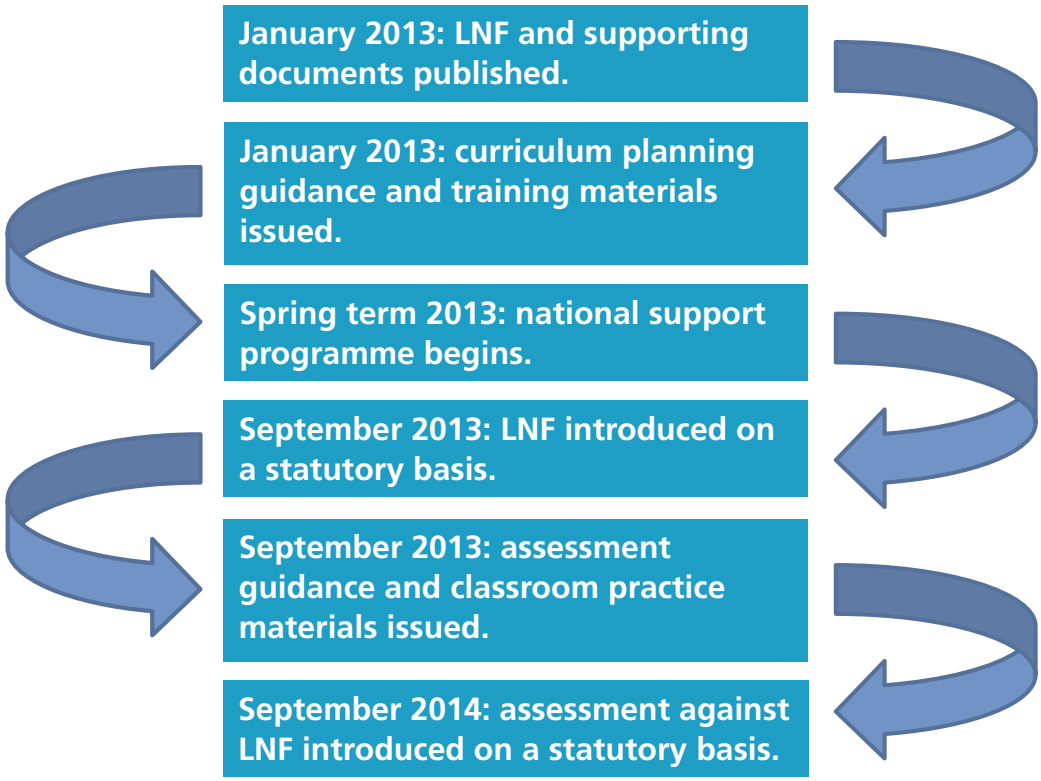
Guidance and training materials

A suite of guidance and training materials are being developed to help schools and teachers implement the LNF – curriculum planning guidance, assessment guidance, training materials and classroom materials.

National support programme (NSP)

A programme of support is being developed to provide hands-on support and training for all schools and teachers in implementing the LNF. This is in addition to the training and guidance materials currently being developed.

Timetable



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The national curriculum

The LNF and the whole curriculum

The LNF is a curriculum planning tool, which builds on the current good practice that exists in many schools. It aims to help bring about coherent approaches to developing literacy and numeracy across the curriculum, informing teachers of all subjects how they can provide opportunities for learners to apply literacy and numeracy across the curriculum. Therefore, in both primary and secondary schools, planning for developing literacy and numeracy skills needs to be truly cross-curricular rather than focused on English, Welsh and mathematics lessons.

The national curriculum implemented from 2008 introduced a skills-based approach to the curriculum designed to ensure that skills were developed across the curriculum. It is underpinned by the non-statutory skills framework which covers thinking, communication, ICT and number skills. The LNF builds on the expectations set out in the skills framework. However, it will be a statutory curricular requirement under section 108(9) of the Education Act 2002. It will also provide greater clarity for teachers to assess and track skills progression. The LNF will replace the communication and number components of the non-statutory skills framework. The thinking and ICT skills components remain in place to guide schools on these important skills and these will be looked at separately for future guidance.

The LNF and the review of curriculum and assessment

In developing the LNF we have had to carefully consider what the appropriate expectations at each age and key stage should be. During this process questions have been raised about the current curriculum requirements, particularly in respect of English, Welsh and mathematics, and whether the current attainment levels specified in the subject Orders are sufficiently rigorous or stretching. The expectations set out in the LNF seek to raise the bar in some instances. We have taken the opportunity to realign expectations to ensure we have a rigorous approach to raising standards and ensuring our learners reach their potential. This means that LNF expectations for the end of Key Stage 2 are closer to Level 5 and expectations at the end of Key Stage 3 are closer to Level 6. The review of assessment arrangements and curriculum will look specifically at this and alignment.

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About the LNF

Structure of the LNF

The LNF describes in detail the skills that we expect children and young people to acquire and master from ages 5 to 14. It has two components – literacy and numeracy. These are divided into the following strands.

Within **literacy** we expect children and young people to become accomplished in:

- oracy across the curriculum
- reading across the curriculum
- writing across the curriculum.

Within **numeracy** we expect children and young people to become accomplished in:

- developing numerical reasoning
- using number skills
- using measuring skills
- using data skills.

The LNF focuses on the learners' **acquisition of** and ability to **apply** the skills and concepts they have learned to complete realistic tasks appropriate for their stage of development. Teachers will be able to use the LNF to:

- develop curriculum content to ensure that all learners have opportunities to develop and refine the skills set out in the LNF
- integrate literacy and numeracy into their teaching – whatever the subject matter
- inform discussions with parents/carers, learners and other teachers about learner performance
- help learners with their own self-assessment activities and planning for learning
- monitor, assess and report on individual learner performance
- identify learners who may benefit from intervention or who are working beyond age-related expectations.

Learners and parents/carers will benefit from the clearer understanding of literacy and numeracy skills and the better picture of learning needs and progression that the LNF will provide.

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Supporting progression for all learners

Providing year-on-year expectations provides clarity to support progression. It provides teachers with a clear understanding of what children are expected to have achieved and what they will go on to learn about in future years. However, we know that for a range of reasons not all children will progress in the same way. Not all schools face the same challenges, with some schools serving very disadvantaged areas. Children come from a range of backgrounds which means they make progress in different ways and at different rates. For example, learners with English or Welsh as an additional language have different challenges in relation to language and literacy acquisition. Nevertheless, the year-by-year nature of the LNF allows teachers to ensure that they are incorporating the appropriate skills into their delivery of the curriculum and its content. Teachers, as part of reporting to parents/carers, will be able to put into context learners' language development and other factors.

The LNF also allows teachers to take account of the needs of their more able and talented learners. It enables teachers to plan for and support skill development where learners are making faster progress than might typically be expected and where learners would benefit from further stretch or challenge.

Setting out year-on-year expectations is important for all learners in order to give clarity about a learner's progress and to ensure that the critical building blocks for skill development are in place for all learners.

The LNF in the Foundation Phase

As set out in 'Supporting progression for all learners' above, we recognise that not all children progress in the same way and this is particularly true of children's development in the early years which can follow different trajectories. The year-by-year nature of the LNF allows teachers to ensure that they are incorporating the appropriate skills into their delivery of the curriculum and its content. For three to five-year-olds, the patterns of learning can vary even more and the LNF, therefore, covers 5–14. However, during the consultation exercise there were suggestions that there would be value in the extending the LNF into Foundation Phase for three to five-year-olds and this will be considered.

The LNF in Welsh-medium schools

The literacy components within the LNF have been developed so that the expectations in English and Welsh are similar. There are a few distinctive aspects in the Welsh language version to reflect the unique requirements of the Welsh language but, apart from these, the skills to be applied are almost identical and are transferable from one language to the other. This means that learners in English, Welsh and bilingual schools will essentially be focusing on the same literacy skills, regardless of the main language of provision.

Where distinctive Welsh-language features have been identified, these have been translated into English and are signposted in the English components. This makes the expectations of both languages transparent, which is particularly helpful for teachers' planning in bilingual settings and for English-speaking parents/carers who send their children to Welsh-medium/bilingual schools.

In Welsh-medium primary schools it is recognised that language and literacy skills acquisition in the early years may follow a different pattern. Immersion methodology will develop children's Welsh language skills and by Key Stage 2 there will be increasing parity in the development of both Welsh and English literacy skills. As a consequence in Reception to Year 3 inclusive, Welsh-medium schools will only be required to use the Welsh literacy component of the LNF (alongside numeracy). From Year 4 onwards we expect Welsh-medium schools to use both the English and Welsh components. This will in effect mean that the English literacy component will be used when English is being taught, and the Welsh literacy component being used across the curriculum. Schools can also use the English component in Reception and Years 1–3 if they wish.

The LNF will be used by Welsh-medium schools in curriculum planning, making sure that all teachers incorporate literacy and numeracy skills into their teaching as already described. Teachers, as part of providing a narrative assessment and reporting to parents/carers, will be able to put learners' language development into context, both in terms of progress in English and Welsh literacy and their home language.

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Learners with additional learning needs (ALN)

We intend the LNF to be inclusive of all learners. We have, therefore, designed a set of expectations that are inclusive of all learners and will ensure that those with ALN are included in each element. Progression is identified from early precursor skills which are described in detail in the *Routes for Learning* routemap (Welsh Assembly Government, 2006) (available at www.wales.gov.uk/topics/educationandskills/schoolshome/curriculuminwales/additionaleducationalneeds/routeslearning/?lang=en). The LNF sets out how learners' skills are refined and augmented as they progress towards the expected standards for Reception. Some skill elements will not emerge until a later stage of the LNF. In such cases, the relevant cells in the LNF are shaded grey to show this.

Teachers, learners, parents and carers will use these progression statements in similar ways to those described previously. The LNF also describes a continuum of development and learners may progress further or faster in some aspects than in others, with achievements spanning several years. This may apply particularly to learners with ALN, especially where a disability might prevent the achievement of specific items. For more able and talented learners working at higher levels, schools should provide greater challenge. The level of demand may be increased by extending the breadth, depth and complexity of tasks.

Learners for whom English is an additional language (EAL)

As set out in 'Supporting progression for all learners' on page 9, we recognise that learners will not all progress in the same way and at the same rates. In particular, we recognise that **learners for whom English or Welsh is an additional language** have different challenges in relation to language and literacy acquisition. EAL learners are assessed against a five-stage model of language acquisition and this will provide the context for the LNF. The year-by-year nature of the LNF will guide and allow teachers to incorporate the appropriate skills into their delivery of the curriculum and its content at the appropriate time for EAL learners. Teachers, as part of reporting to parents/carers, will be able to put into context learners' language development.

Learners for whom English or Welsh is an additional language are often accessing English/Welsh for the first time and will, therefore, require additional focused support to help them acquire appropriate literacy skills. Learners may initially demonstrate skills that are well below their age expectations in some aspects of the literacy components. Teachers should decide when it is appropriate to use the LNF as the basis of formative assessment for these learners and should not use the Routes to literacy component for their formative assessment. It is envisaged, however, that with appropriate targeted interventions EAL learners should work towards meeting the expectations of the LNF.

Learners with dual literacy

One of the essential elements of a bilingual country is the ability to move with ease between languages and become fully bilingual. This capability is prized not only because it will allow people in Wales to access both English and Welsh, giving access to a wide and varied linguistic heritage, but also because the skill provides learners in Wales with a head start in literacy skills that can be further developed and applied to European and world languages.

The LNF focuses on the range of literacy skills required to ensure competence in English and Welsh. In order to develop dual literacy skills where learners can move freely between the English and Welsh language, learners need to be given specific learning opportunities that will help to ensure proficiency in both languages. These opportunities involve providing learners with access to conversations and materials in both languages, with meaningful tasks that require proofreading and re-drafting skills, leading to synthesis, analysis and application of ideas within a range of subject-specific contexts.

The LNF supports dual literacy and, in order to ensure that it is fully embedded within the education system in Wales, additional guidance and training will be developed.

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Assessment against the LNF

The LNF is primarily a curriculum planning tool. It is also an assessment tool in that it informs teacher assessment. Assessment against the LNF is intended to be used formatively by schools and individual teachers to support learner progress, classroom and curriculum planning. Reports based on assessment for learning will be narrative, allowing for flexibility in learners' progress – it is not intended to be a 'best-fit' approach. Teachers will use the LNF to assess:

- individual progress to form the basis for informed discussion with learners, parents/carers and between teachers about learners' current strengths and areas for development
- group progress to inform curriculum and school development planning.

Progression through the LNF will demonstrate how learners are performing against the expectations for literacy and numeracy at the end of each academic year.

There will be no national data collection in relation to assessments made against the LNF. Teachers will not be expected, nor would it be appropriate, to use the LNF to arrive at a single statement about whether a learner is working at/above/below the expected level for their age. Instead, the LNF and assessment against it should be used to help describe a learner's progress, areas of strength and next steps for development.

In both primary and secondary schools planning for assessment needs to be truly cross-curricular rather than being undertaken through English, Welsh and mathematics alone. Schools will need to be satisfied that whole-school systems are in place to support the cross-curricular assessment of literacy and numeracy skills. Schools will be required to report on individual progress, strengths and areas for development in literacy and numeracy to parents/carers on an annual basis and to report on the overall progress and standards across the school on an annual basis. It is our expectation that these reports will be narrative in their format.

Assessments made against the LNF will generate valuable information about patterns of performance, strengths and areas of concern. This will be useful for teachers, parents/carers, governors and those who support school improvement at a local or regional level.

Formal assessment against the LNF will become a statutory requirement from September 2014. This means that schools will have a full academic year to focus on embedding the LNF into their curriculum planning and their teaching and learning before being required to assess learners' progress against it.

Schools should still use the LNF to support Assessment for Learning (AfL) as part of good teaching practice. This will inform reports to parents/carers on their child's progress in literacy and numeracy, which will still be required on an annual basis from September 2013. The reports to parents/carers should include information based on the reading and numeracy tests and a narrative report on literacy and numeracy based on the LNF.

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The LNF and the national tests

In addition to the LNF and the formative, narrative assessments made against it we are introducing national reading and numeracy tests.

These will provide summative data, collected and analysed nationally and used as part of the national accountability model. Test data will give teachers clear indicators of skill development and progress, and will make an important contribution to the evidence teachers use to make annual judgements about learners' skill acquisition.

Assessment against the LNF and the outcomes of tests will give different perspectives on learners' progress. This reflects the fact that they are assessing slightly different aspects of the same skills and that one is a snapshot, summative view while the other will draw on a far broader range of evidence. Where test results seem to contradict outcomes against the LNF or in other assessments the most important thing will be for teachers to consider the reasons for any difference and address them appropriately.

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Overview of the literacy component of the LNF

Literacy is the use of language skills in daily activities at school, at home, at work, and in the community. It involves both using literacy skills and knowing how to use English and Welsh. Literacy describes a set of skills, including speaking, listening, reading and writing, which enable us to make sense of the world around us. Literacy is not narrowly about the mechanics of being able to decode the words on a page or write a grammatically correct sentence, although these are essential skills in their own right. It is about the skills needed to understand written and spoken language, to interpret what has been written or said, and draw inferences from the evidence that surrounds us. It is also about being able to communicate in our turn – fluently, cogently and persuasively. Literacy is based on reading, writing and oral language development across all subject areas. The literacy component is designed to assess learners' abilities to use the oracy, reading and writing skills they have learned to address realistic and age-appropriate tasks and problems. Literacy is not the same as English or Welsh; as a consequence the LNF expectations do not address all aspects of the English and Welsh subject Orders and need to be used in combination with other forms of assessment to develop a comprehensive picture of learner achievement.

The curriculum connection

In schools, responsibility for developing and evaluating literacy skills rests with all teachers and not just the language specialist(s). All learners are expected to apply and extend their literacy skills across the curriculum. The literacy component of the LNF will, therefore, help teachers in primary, secondary and special schools address the literary skills requirements of the English/Welsh programmes of study but not the more literary/creative aspects of the subject Orders.

Progression in literacy

The aim of the literacy expectations is to encourage learners to develop and demonstrate their skills in oracy (speaking and listening), reading and writing for different purposes across the curriculum. The expectations are essentially concerned with developing and recognising learners' ability to select and apply literacy skills in ways that are appropriate to each context.

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The expectations are designed to recognise learners' progression in terms of both underpinning techniques and of the skills of application. Each age-related expectation builds on the previous year's expectation to ensure year-on-year progression for each element, whereas, below Reception, statements reflect incremental progression but are not related to age. It is important to note that where the wording of an expectation is identical to the previous year's expectation the progression is inherent in another aspect of the expectations, for example the strategies and challenges will be more demanding at each stage.

The LNF is inclusive of all learners. Learners with ALN may be working below age-related expectations for most, or all, of their school career, whereas more able and talented learners who are working beyond the Year 9 expectations are able to access extension statements which focus on higher-order skills.

The literacy strands

Strand 1 – Oracy across the curriculum

People communicate their needs, feelings, thoughts; retell experiences with others; and express their ideas through the power of the spoken word. People refer to their intentions by asking questions, voicing/expressing opinions and making choices through a variety of media, and by building on previous experiences. Listening and responding appropriately to others and a range of other media are an essential component in the development and use of language and in collaboration and discussion.

The oracy across the curriculum strand focuses on one element – Developing and presenting information and ideas. This is subdivided into three aspects.

- Speaking
  - communicate ideas and information to a wide range of audiences and a variety of situations.
- Listening
  - listen and respond to the viewpoints and ideas of others.
- Collaboration and discussion
  - contribute to discussions and presentations
  - discuss the viewpoints/ideas of others to reach agreement.

Strand 2 – Reading across the curriculum

Through reading, people access the ideas, information, and experiences that help them to understand themselves, their world and to learn and work effectively.

The reading across the curriculum strand focuses on two elements – Locating, selecting and using information, and Responding to what has been read. These are subdivided into three aspects. Locating, selecting and using information is subdivided into this aspect.

- Reading strategies
  - use a range of appropriate reading strategies to make sense of texts
  - use strategies to improve the fluency of reading
  - assess quality and reliability of texts.

Responding to what has been read is subdivided into these two aspects.

- Comprehension
  - gain an understanding of unfamiliar information
  - identify main ideas, events and supporting details
  - predict, make inferences, understand layers of meaning
  - make connections within/across a range of texts/themes
  - carry out research to develop a full understanding.
- Response and analysis
  - organise and analyse relevant information
  - distinguish between facts, theories and opinions
  - compare a range of views
  - evaluate the content, presentation and reliability of texts.

Strand 3 – Writing across the curriculum

People write to record and explore their thoughts, feelings, and opinions; to communicate with others; and to express their ideas through the power of language.

The writing across the curriculum strand focuses on two elements – Organising ideas and information and Writing accurately. These are subdivided into four aspects. Organising ideas and information is subdivided into these two aspects.

- Meaning, purposes and readers
  - plan and adapt writing style to suit the audience and purpose
  - improve writing through independent review and redrafting
  - write to ensure full coverage of a topic
  - improve the presentation of the writing (by including the use of ICT)
  - reflect, edit and redraft to improve writing.
- Structure and organisation
  - use a structure that is appropriate to the purpose and focus of the task
  - select analyse and present information appropriately
  - establish a structure to organise writing.

Writing accurately is subdivided into these two aspects.

- Language
  - use language appropriate to writing
  - use appropriate technical terms and vocabulary/language appropriate to the the subject-specific context.
- Grammar, punctuation, spelling, handwriting
  - specific statements relating to the progression of each aspect depending on the type of writing and the age level.

Overview of the numeracy component of the LNF

Numeracy refers to the application of mathematical understanding in daily activities at school, at home, at work, and in the community. There is more to numeracy than teaching the rules and procedures of mathematics. However, it is imperative that the fundamental mathematical techniques are taught to a standard that allows learners to be numerate. Numeracy describes the set of skills needed to tackle real-world problems in a variety of situations by applying numerical reasoning in order to plan how to solve the problem, and then carrying out the mathematical procedures to find the solution.

Numeracy is different to the mathematics subject in that it is the application of the skills learned in mathematics in a cross-curricular, real-world way, and not purely about the skills themselves. The numeracy component of the LNF reflects this, especially in Key Stage 3, where it is not expected that the procedure skills need to become much more advanced, but the context and problem will become more difficult and so the reasoning skills (e.g. knowing how to solve the problem) are expected to develop.

The curriculum connection

In schools, responsibility for developing and evaluating numeracy skills is that of **all** teachers. Depending on the tasks developed or selected, using the numeracy component will help teachers in primary, secondary and special schools address a wide range of outcomes from the mathematics programmes of study. Learners in all schools are expected to apply and extend their numeracy skills across all subject areas, e.g. map reading/making in geography, tracking progress in physical education, using perspective in visual arts, etc. The numeracy component of the LNF has therefore also been developed to apply in all curriculum areas. Numeracy tasks and problems typically draw on concepts and skills from across the curriculum, and can be grouped according to purpose or context, e.g. when managing finances.

Progression in numeracy

Progression through the stages is demonstrated by an increasing ability to independently solve problems and carry out the relevant mathematical procedures.

It is important to note that where the wording of an expectation is identical at different ages the progression is inherent in another aspect of the expectations or in the greater complexity of the

problem. This is particularly the case in Key Stage 3, where many of the numerical procedures are known but the challenge is in improving numerical reasoning through increasingly complex tasks.

Following the consultation in the summer of 2012, we were asked to consider the skills that more able and talented learners might be able to display beyond those shown in Year 9. The 'Extension' column reflects our conclusions on natural extensions of certain, but not all, skills in the LNF. Indeed, it wouldn't be appropriate to show full progression of every skill as it is not intended to be a column for a Year 10 learner, and not every skill can be advanced in terms of its numeracy, otherwise it will become more purely and academically mathematical.

Thus, the 'Extension' column pays particular attention to those skills that the more able and talented learners might display. This can be by adapting more efficient methods of previous skills, e.g. by using skills such as use of powers to find more efficient ways of calculating compound interest. It could also be by extending to more complex versions of previous skills that require additional consideration and reasoning, e.g. what happens to the area of an image if the size is increased in two-dimensions as opposed to just one.

The 'Extension' column will not be tested as part of the set of national numeracy tests.

The numeracy strands

The LNF focuses on four strands of numeracy, with distinct elements within those strands. The expectations in each of the strands help teachers to get precision in the expected progress of these skills in an age-appropriate context. The supporting exemplification material will demonstrate how these skills can be seen in tasks from across the curriculum. The strands are set out here.

Strand 1 – Developing numerical reasoning

The LNF focuses on four strands of numeracy, with distinct elements within those strands. In some cases, the element is a collection of related areas, which reflects the fact that they are interconnected and shouldn't be broken up further. For example, in a real-life context, areas are linked with volume as well as angle and position; thus they count as one element (i.e. Area and volume; Angle and position) and not two. The expectations reflect that connectivity.

The expectations in each of the strands help teachers to get precision in the expected progress of these skills in an age-appropriate context. The supporting exemplification material will demonstrate how these skills can be seen in tasks from across the curriculum.

The elements underneath this strand refer to the skills needed to identify what processes are needed to solve a real-world problem, how to express that approach in their workings, and how to draw conclusions by reviewing their own processes and answers for reasonableness. The Developing numerical reasoning strand focuses on three elements.

- Identify processes and connections.
- Represent and communicate.
- Review.

Once it is known how to tackle a problem, there is a separate set of skills in carrying out the procedures to get the correct answer. These procedures can further be broken down into using number skills, measuring and handling data, which is reflected in the structure of the numeracy component.

Strand 2 – Using number skills

Number skills describe the fundamental skills needed to be comfortable with using and manipulating numbers when carrying out procedures. It is here that a learner will learn how to count, that numbers come in a certain order, that non-whole numbers can be represented in different ways, and how to use checking strategies to ensure that the procedure has been carried out correctly.

Also reflected in this strand is the specific context of money and the building blocks of financial education. The Using number skills strand focuses on five elements.

- Use number facts and relationships.
- Fractions, decimals, percentages and ratio.
- Calculate using mental and written methods.
- Estimate and check.
- Manage money.

Strand 3 – Using measuring skills

Measuring skills mainly reflect the importance of knowing what measurements to use in which context and what standard units to use, as well as giving precision on how and when these concepts can be introduced. Later on the concepts of mixing units to give compound measures is introduced, e.g. speed as metres per second. The Using measuring skills strand focuses on four elements.

- Length, weight/mass, capacity.
- Time.
- Temperature.
- Area and volume. Angle and position.

Strand 4 – Using data skills

Representing the results of tackling the problem or question involves handling data, and can be done in several ways, such as through a single answer, a table or a chart of some kind. Applying the correct, or best, data-handling procedure is a procedural skill in itself, and this strand of the component helps to show what skills teachers can expect to see in learners of a given year group who are operating at their expected level.

More advanced data skills also allow the learner to draw conclusions and hypotheses from the results. The Using data skills strand focuses on three elements.

- Collect and record data.
- Present and analyse data.
- Interpret results.

Appendix 1: Glossary of literacy terms (to accompany the English-medium literacy component)

There are three documents published by the Welsh Government which are very useful reference points for knowledge about literacy.

- *Language, Literacy and Communication Skills* (Welsh Assembly Government, 2008) includes information particularly relevant to the Foundation Phase.
  www.wales.gov.uk/dcells/publications/policy_strategy_and_planning/early-wales/whatisfoundation/page4/sevenareas/llc/fplanglitcommepdf;jsessionid=B1E15F787946CA1EE4F758268699C67C?lang=en
- *Guidance on the teaching of writing skills* (Welsh Assembly Government, 2010) has a comprehensive glossary of grammatical terms and of spelling.
  www.wales.gov.uk/docs/dcells/publications/100524writingen.pdf
- *Developing higher-order literacy skills across the curriculum* (Welsh Assembly Government, 2010) includes information about text types, commentaries on learners' writing from across the curriculum and references to other resources.
  www.wales.gov.uk/docs/dcellspublications/100426higherorderliten.pdf

The terms included in this glossary are used in the Oracy across the curriculum, Reading across the curriculum and Writing across the curriculum strands of the LNF. The Welsh-medium references included in the glossary are to illustrate where the English and Welsh literacy components differ.

Communication/language development

Language is fundamental to thinking and learning and so is integral to every subject and the whole curriculum. Language is used:

- orally (speaking) – some children may use alternate systems to the voice such as signing; non-verbal communication often accompanies speaking and listening including facial expressions, gestures and body movements
- in writing (print and on-screen) – often texts include pictures and images which are integral to meaning
- silently (reading, listening and thinking).

Oracy

Purposes

Important purposes for talk for the learner are the exploration and exchange of information and ideas, the presentation of findings and results for others' response, and finding out what others know and think. Other purposes are the development of social and collaborative skills, learning to talk clearly and fluently, and learning to understand, critique and present ideas orally.

Audience/listeners

The nature of the listeners or audience affects a speaker's choice of vocabulary, the levels of formality, the structure of the language and the tone and style of speaking.

- If the talk is between friends and peers the talk is likely to be less formal, with participants taking shorter turns, and the topic is likely to be less explicitly examined as the participants know each other and do not usually need to explain themselves.
- If the talk is to a larger audience where not everyone is familiar to the speaker the talk is likely to be more formal, more impersonal, with greater explicitness and less interaction.
- If the talk is between participants of unequal status, for example headteacher and learner, the talk is likely to be formal and the tone and style more explicit and precise.

Variation

Talk varies much more than writing, and is strongly influenced by factors such as context, purpose and who is present. There are different patterns and expectations of talk between boys and girls, between the English of speakers from different cultural backgrounds and depending on contexts such as work, leisure or social activity.

In more formal situations participants are expected to use standard English, which is the language used in public life. Spoken standard English tends to keep colloquialisms and slang to a minimum, and use technical terms and expressions where appropriate.

Formal/informal

Informal talk is often characterised by shorter turns, unfinished sentences, use of words and phrases, *e.g. 'like', 'stuff'*, and references to what is shared by the group, *e.g. latest in-words, shared interests*.

Formal talk usually includes more complete sentences, with the tone and style more impersonal.

Presentation/discussion

In a presentation the speaker talks for some time, usually without interruption, to an audience of at least three people, involving some degree of formality for a specific purpose. Discussions can take place between people in small and larger groups, and involve frequent interaction between participants. A formal debate involves both presentation and discussion.

Welsh-medium: Mutation

In Welsh, under certain circumstances, one consonant changes to another at the start of a word, *e.g. dau fachgen/dwy ferch*. There are three types of mutation: soft, nasal and aspirate.

Reading

Texts

Texts, in print and on-screen, can include many different features intended to communicate meaning. A mixture of words, pictures, photographs, diagrams, and other ways of representing content is common in texts for children from the youngest ages. Texts on-screen may have additional features such as sound/audio, moving images/film, hyperlinks, tool bars and menus. When a text includes more than words – such as pictures, moving images, sound – these are referred to as **multi-modal texts**. The LNF focuses on making meaning from texts using all the features in them.

Strategies for making meaning in reading

There is a range of strategies that learners use to make sense of what they read. Some techniques are particularly important at the early stages of learning to read, and others are more significant when reading for information from Key Stage 2 onwards.

Early strategies include the following.

- **Phonic knowledge** – using knowledge of letters and sounds to make words. Words are constructed from phonemes (sounds) and phonemes are represented by graphemes (written letters).
- **Decoding** – reading words by looking at letters and parts of words.

- **Sight vocabulary** – words a learner recognises on sight without having to decode them or work them out, usually high-frequency words.
- **Graphic knowledge** – using knowledge of key features of the writing system, including the basic shape of letters, patterns such as the plural form of nouns and spelling of verb endings, the difference between upper and lower case, etc. This may also include features such as layout, font, use of diagrams, etc.
- **Context** – using clues from the content of the text or from prior/general knowledge to work out the sense.
- **Syntax/syntactic** – using the structure of the sentence and grammar to work out what a word is.
- **High-frequency words** – words which occur most often in young children's reading and writing. Many of them are very common, *e.g. 'the', 'and', 'is'*, and recognising them helps a reader become proficient quickly.

Reading strategies include the following.

- **Skimming** – reading to get an initial overview of the subject and main ideas of a text, perhaps by techniques such as reading the beginning and ending of paragraphs or reading down the middle of the page.
- **Scanning** – looking for information by identifying key words and locating information around them.
- **Gist** – reading to follow the thread of an argument or narrative, the main features of a topic or the way it is handled.
- **Key words** – used particularly in searching the internet for relevant information, essential to efficient searching.
- **Close reading** – careful reading in order to extract specific information, and also to gain a complete understanding of the text's intentions and the way in which language choice and sentence structure combine to produce particular messages.

Information handling strategies include the following.

- **Collate** – gather together all the information about a topic from different sources, summarising where appropriate.
- **Analyse** – look for patterns, underlying assumptions, reasons for, and effects of, the way the topic is handled.

- **Synthesise** – assessing and sorting facts, opinions and ideas from a range of sources and bringing them together to present a consistent and coherent interpretation.
- **Deduce** – link together different, explicit pieces of information and draw a conclusion.
- **Infer** – understand information or views which are not explicitly stated.

Evaluating texts includes considering the following.

- **Bias and objectivity** – how far the text is impartial, reporting facts which are supported by evidence, or the content is partial, selective, and supporting a particular perspective.
- **Facts, theories and opinions** – distinguishing between **facts** (information which is verifiable and supported by other information, though it may be subject to change in the longer term), **theories** (ideas which are based on evidence and seek to link or explain information) and **opinions** (the views and interpretations of a writer which are based on personal judgement).
- **Critique** – to discuss or comment on an idea or resource etc., giving an assessment of its qualities and usefulness.
- **Reliability** – the trustworthiness of information, looking at where it has come from, who has said it and whether it is supported by others. This is particularly an issue with information from the internet.
- **Viewpoint** – the stance or position of the writer of the text which can be deduced or inferred by the way the content is handled.

Organisational features of texts include the following.

- **Presentational devices** – used to give clarity and to organise sentences and paragraphs, *e.g. bullet points, tables, subheadings, arrows, captions (labels for pictures, diagrams, etc.), flow diagrams*.
- **Reference** – features to help the reader find information, *e.g. contents, index, glossary, dictionary, chapter headings*.
- **Text structure** – how the whole text is organised, *e.g. by chronology, argument, process.* Sections are sometimes signalled by **headings** (for main sections) and **subheadings** (for subsidiary sections).

Writing

Purposes

The purpose for writing influences the choices a writer makes about the words to use, the forms of sentences and the overall shape of the writing. Writing may be just for the writer (notes, lists, drafts) or may be intended to inform or influence a reader. Some purposes are connected to commonly-used text types, such as to instruct in a recipe. Giving writing a specific purpose helps the writer make good choices about what to say and how to say it.

Readers

The expected reader or audience also influences the writer's choices of words, sentences and overall shape of writing. The writer makes adjustments, such as the use of technical language, the amount of detail included or the explicitness of explanation, depending on who will read the writing. Where the writing is always for the teacher there is unlikely to be development of the variety and range of the learner's writing.

Text types

There are conventions for some kinds of writing which can be learned and are helpful for learners. These conventions should not be treated as 'rules' which cannot be broken. Some of the most common types include the following.

- **Description** – provide information about an event, object, place, etc., without passing judgement on it or offering an explanation.
- **Discussion/argument** – exploration of pros and cons of a topic, presenting arguments and information from differing viewpoints, sometimes resulting in a conclusion.
- **Explanation** – reasons and details are included to show why and how, often including expressions of causes and consequences, and connections between events or ideas.
- **Instruction** – to help readers do something, *e.g. recipes, vehicle repair manuals, self-assembly instructions.* Instructional texts tend to provide step-by-step instructions and use imperative verbs.

- **Persuasion** – to be persuasive is to try to influence or convince the reader. A continuous, persuasive text typically consists of a statement of the viewpoint, arguments and evidence for this thesis, possibly some arguments and evidence supporting a different view and a final summary or recommendation. Other types of persuasive texts (*e.g. advertisements*) use a combination of textual features including words, sounds and images, in order to persuade.
- **Recount/narrative** – retells events in chronological order. It may be fictional or include information.
- **Report** – an event or a process described, not necessarily chronologically.

There is a range of conventions associated with these text types which may be used and often a text is a combination of different conventions. Imaginative use of different techniques is the mark of a confident writer.

Grammar

Grammar is the rules that govern the relationships between words in a language. Grammar is most frequently taught in relation to writing, as the written form is closest to standard English, and correctness is expected by readers. **Standard forms of English** are the grammatical constructions and vocabulary associated with public uses of English and are generally the correct forms for writing.

adjective

A word that describes or modifies a noun. It may come before or after the noun, *e.g. 'the old man' or 'the chair is blue'*. There are different kinds of adjective: number or quantity (*e.g. few*), quality (*e.g. good*), possessive (*e.g. my*), interrogative *(e.g. which*), demonstrative (*e.g. this*). **Adjectival phrases** have the same function but use several words, *e.g. 'dark blue with red spots'*, *'more than usual'*.

adverb

A word that describes or modifies a verb, *e.g. 'the river runs quickly', 'it floods frequently'*, often ending in *-ly*. **Adverbial phrases** have the same function but use several words, *e.g. 'less frequently than other forms of transport', 'less reliable than expected'*.

clause

A distinct part of a sentence including a verb. There are two kinds: a **main clause** (*e.g. 'I stirred the solution'*) and a **subordinate clause** (*e.g. 'until the salt dissolved'*). The main clause makes sense on its own, but a subordinate clause does not.

conditional

A tense of a verb which expresses the idea that what happens depends on something else. Conditional forms often involve conjunctions such as 'if' or 'then' and verb forms such as 'would', 'could' or 'may', used especially for hypothesis or possibilities.

connective

A word used to link sentences or clauses or to connect words in a phrase. They express different kinds of link: cause (*e.g. because*), opposition (*e.g. but*), addition (*e.g. and*), time (*e.g. until*).

elaboration

Explaining something in more detail to give clarity and full coverage.

paragraph

A section of a piece of writing which is on a single topic. A new paragraph indicates a change of time, place or subject and begins on a new line. A paragraph usually is **cohesive**, meaning it is connected together, often shown in pronouns, adverbial clauses, etc. There are often links to other sections of text at the beginning and ends of paragraphs which gives **coherence** overall.

noun

A word that names a thing or a feeling. The four types of noun are: common (general, *e.g. animal, chair*), proper (a specific name, *e.g. Bangor*), abstract (an idea or concept, *e.g. happiness*), collective (a group, *e.g. herd, crowd*).

sentence

- **simple sentence**

  A simple sentence has only one clause and one main verb. Simple sentences are not always short, as parts of them may be expanded or elaborated, but they remain 'simple' grammatically as long as they have only one clause.

- **compound sentence**

  A compound sentence is created when two simple sentences are joined by conjunctions such as ‘and’, ‘or’ and ‘but’.

- **complex sentence**

  A sentence with a main clause and at least one subordinate clause. The subordinate clause is introduced either by a conjunction such as ‘although’ or ‘because’, or by a relative pronoun such as ‘who’ or ‘which’.

subject–verb agreement

The linked words, subject and verb, agree with each other in terms of number, case, gender and person, *e.g. ‘I say/he says’ (person), ‘they were very healthy puppies’ (number)*.

tense

Is the form of the verb that tells us when something is happening, *e.g. past, present, future or continuous.*

verb

A word that expresses an action or state of being. Verbs can be in different tenses. Verbs can be active or passive: ‘Owain Glyndŵr won the Battle of Bryn Glas’ (active), ‘The Battle of Bryn Glas was won by Owain Glyndŵr’ (passive).

Spelling

Words vary from the simplest (consonant-vowel-consonant) to complex words. Complex words are polysyllabic, and are often made from other words and prefixes and suffixes. Some words are regular and follow common patterns, while other words are less regular, *e.g. ‘beautiful’*, and conform less to common conventions, making them more difficult to spell. This is because they originate from a language other than English/Welsh (Beau-French).

Spelling strategies

There are several techniques that learners can use to read and spell correctly. They include the following.

- **Graphic knowledge** – sequences of letters that occur often, *e.g. bread, beautiful.*

- **Morphology** – word structure where parts of a word have meaning, *e.g. prefixes (pre, meaning before, e.g. unclear, undeserving), suffixes added to the end of a word to change it's meaning, e.g. quickly, slowly.*
- **Segmenting** – breaking a word up into its parts, *e.g. un-like-ly.*
- **Roots** – base form of a word from which other words derive (i.e. **word derivation**), *e.g. unbelievable.*
- **Word families** – groups of words that have a common feature or pattern; they have some of the same combinations of letters in them and a similar sound, *e.g. brain, chain, complain*.

consonant

All letters of the alphabet except the vowels 'a', 'e', 'i', 'o', 'u'.

Welsh-medium: consonant

All letters of the alphabet except the vowels 'a', 'e', 'i', 'o', 'u', 'w', 'y'.

prefix

A group of letters added to the beginning of a word to change its meaning, *e.g. 'unclear'.*

root word

A word to which prefixes and suffixes may be added to make other words, *e.g. the root word is 'polite' in 'politely', 'impolite', 'politeness'.*

suffix

A group of letters added to the end of a word to change its meaning, *e.g. 'thought' to 'thoughtful' or 'walk' to 'walked'.*

Punctuation

Punctuation is generally related to the grammar of a sentence and usually marks sections of a text.

Apostrophe (')

Used to show contraction/omission, *e.g. 'haven't'*, or possession, *e.g. 'the singer's voice'*.

colon (:)

Used to introduce a list, a second clause or a quotation that expands or illustrates the first clause.

comma (,)

Used to separate parts of a sentence or list.

exclamation mark (!)

Used at the end of a sentence to show emotion such as shock, humour, joy, anger.

full stop (.)

Used to indicate the end of a sentence. A **capital letter** is used to mark the beginning of a sentence (or a proper noun).

question mark (?)

Used at the end of a sentence to show that it is a question.

quotation marks (‘ ’) or single inverted commas

Used to show a direct quotation from another text. Similar to **speech marks (“ ”) or double inverted commas** which are used to show direct speech in a text.

semi-colon (;)

Used to separate a clause or phrase in a sentence. It is stronger than a comma, but not as strong as a full stop.

Atodiad 1: Rhestr o dermau llythrennedd (i gyd-fynd â'r gydran llythrennedd cyfrwng Cymraeg)

Mae tair dogfen a gyhoeddwyd gan Lywodraeth Cymru sy'n bwyntiau cyfeirio defnyddiol iawn i gael gwybodaeth am lythrennedd.

- Mae *Sgiliau Iaith, Llythrennedd a Chyfathrebu* (Llywodraeth Cynulliad Cymru, 2008) yn cynnwys gwybodaeth sy'n berthnasol i'r Cyfnod Sylfaen.
  www.wales.gov.uk/dcells/publications/policy_strategy_and_planning/early-wales/whatisfoundation/page4/sevenareas/llc/fplanglitcommwpdf?lang=cy
- Mae *Canllaw ar addysgu sgiliau ysgrifennu* (Llywodraeth Cynulliad Cymru, 2010) yn cynnwys rhestr gynhwysfawr o dermau gramadegol a sillafu.
  www.wales.gov.uk/docs/dcells/publications/100524writingcy.pdf
- Mae *Datblygu uwch sgiliau llythrennedd ar draws y cwricwlwm* (Llywodraeth Cynulliad Cymru, 2010) yn cynnwys gwybodaeth am fathau o destunau, sylwadau ar ysgrifennu dysgwyr ar draws y cwricwlwm a chyfeiriadau at adnoddau eraill.
  www.wales.gov.uk/docs/dcells/publications/100426higherorderlitcy.pdf

Defnyddir y termau sydd wedi'u cynnwys yn y rhestr hon yn y llinynnau Llafaredd ar draws y cwricwlwm, Darllen ar draws y cwricwlwm ac Ysgrifennu ar draws y cwricwlwm o'r FfLlRh. Mae'r cyfeiriadau at y Gymraeg wedi cael eu cynnwys yn y rhestr o dermau er mwyn dangos ble mae'r cydrannau llythrennedd Cymraeg a Saesneg yn gwahaniaethu.

Datblygiad cyfathrebu/iaith

Mae iaith yn hanfodol i feddwl a dysgu ac felly mae'n rhan annatod o bob pwnc a'r cwricwlwm cyfan. Defnyddir iaith:

- ar lafar (siarad) – gall rhai plant ddefnyddio systemau amgen i'r llais fel arwyddo; mae cyfathrebu di-eiriau yn aml yn cyd-fynd â siarad a gwrando gan gynnwys mynegiannau'r wyneb, ystumiau a symudiadau'r corff
- yn ysgrifenedig (mewn print ac ar sgrin) – mae testunau'n aml yn cynnwys lluniau a delweddau sy'n allweddol i gyfleu ystyr
- yn dawel (darllen, gwrando a meddwl).

Llafaredd

Dibenion

Mae ystyried a chyfnewid gwybodaeth a syniadau, cyflwyno canfyddiadau a chanlyniadau er mwyn i eraill ymateb iddynt

a chanfod beth mae eraill yn ei wybod ac yn ei feddwl yn rhai o ddibenion pwysig siarad i'r dysgwr. Mae dibenion eraill yn cynnwys datblygu sgiliau cymdeithasol a chydweithredu, dysgu sut i siarad yn glir ac yn rhugl, a dysgu sut i ddeall, beirniadu a chyflwyno syniadau ar lafar.

Cynulleidfa/gwrandawyr

Mae natur y gwrandawyr neu'r gynulleidfa'n effeithio ar yr eirfa a ddewisir gan siaradwr, lefelau o ffurfioldeb, strwythur yr iaith a chywair ac arddull siarad.

- Os yw'r ymddiddan rhwng ffrindiau a chyfoedion mae'n debygol o fod yn llai ffurfiol, gan gynnwys defnyddio 'ti', gyda'r cyfranogwyr yn cymryd troeon byrrach, ac mae'n debyg y bydd y drafodaeth ynghylch y pwnc yn llai manwl am fod y cyfranogwyr yn adnabod ei gilydd ac nid oes angen iddynt esbonio eu hunain fel arfer.
- Os yw'r ymddiddan â chynulleidfa fwy o faint lle nad yw'r siaradwr yn adnabod pawb mae'r ymddiddan yn debygol o fod yn fwy ffurfiol, yn fwy amhersonol ac yn fwy penodol a bydd llai o ryngweithio.
- Os yw'r ymddiddan rhwng cyfranogwyr o statws anghyfartal, er enghraifft pennaeth a dysgwr, mae'r ymddiddan yn debygol o fod yn ffurfiol a bydd y cywair a'r arddull yn fwy pendant a chywir.

Amrywio

Mae ymddiddan yn amrywio llawer mwy nag ysgrifennu ac mae ffactorau megis cyd-destun, diben a phwy sy'n bresennol yn cael cryn ddylanwad arno. Ceir gwahanol batrymau o ymddiddan rhwng bechgyn a merched, rhwng siaradwyr Cymraeg o wahanol gefndiroedd diwylliannol a chan ddibynnu ar gyd-destunau megis gwaith, hamdden neu weithgaredd cymdeithasol ac mae'r hyn a ddisgwylir gan y fath ymddiddan yn amrywio hefyd.

Mewn sefyllfaoedd mwy ffurfiol disgwylir i gyfranogwyr ddefnyddio Cymraeg safonol, sef yr iaith a ddefnyddir mewn bywyd cyhoeddus. Mae Cymraeg safonol llafar yn tueddu i gyfyngu cymaint â phosibl ar y defnydd o ymadroddion llafar a bratiaith gan ddefnyddio termau ac ymadroddion technegol lle y bo'n briodol.

Ffurfiol/anffurfiol

Nodweddir ymddiddan anffurfiol yn aml gan droeon byrrach, brawddegau heb eu gorffen, defnyddio geiriau ac ymadroddion, e.e. *'joio'*, a chyfeiriadau at yr hyn a rennir gan y grŵp, e.e. *y geiriau*

diweddaraf sydd mewn ffasiwn, diddordebau tebyg. Mae ymddiddan ffurfiol yn aml yn cynnwys brawddegau mwy cyflawn, ac mae'r cywair a'r arddull yn fwy amhersonol.

Cyflwyniad/trafodaeth

Mewn cyflwyniad mae'r siaradwr yn siarad am beth amser, fel arfer yn ddi-dor, â chynulleidfa sy'n cynnwys o leiaf dri unigolyn, gyda rhywfaint o ffurfioldeb ac at ddiben penodol. Gall trafodaethau ddigwydd rhwng unigolion mewn grwpiau bach neu grwpiau mwy o faint lle mae'r cyfranogwyr yn aml yn rhyngweithio â'i gilydd. Mae dadl ffurfiol yn cynnwys cyflwyniad a thrafodaeth.

Treiglo

Yn y Gymraeg, o dan amodau penodol sy'n cynnwys cenedl enwau, arddodiaid ac ati, newidir un gytsain am gytsain arall ar ddechrau gair, *e.e. dau fachgen/dwy ferch.* Mae yna dri math o dreiglad: treiglad meddal, treiglad trwynol a threiglad llaes.

Darllen

Testunau

Gall testunau, mewn print neu ar sgrin, gynnwys llawer o wahanol nodweddion y bwriedir iddynt gyfleu ystyr. Mae cymysgedd o eiriau, lluniau, ffotograffau, diagramau a ffyrdd eraill o gynrychioli cynnwys yn gyffredin mewn testunau i blant o'r oedrannau ieuangaf. Gall fod gan destunau ar sgrin nodweddion ychwanegol megis sain, delweddau symudol/ffilm, hyperddolenni, bariau offer a dewislenni. Pan fydd testun yn cynnwys mwy na geiriau – megis lluniau, delweddau symudol, sain – cyfeirir at y rhain fel **testunau aml-foddol**. Mae'r FfLIRh yn canolbwyntio ar wneud synnwyr o destunau gan ddefnyddio'r holl nodweddion ynddynt.

Strategaethau ar gyfer gwneud synnwyr wrth ddarllen

Mae ystod o strategaethau y gall dysgwyr eu defnyddio i wneud synnwyr o'r hyn a ddarllenant. Mae rhai technegau'n arbennig o bwysig ar gamau cynnar y broses o ddysgu darllen, ac mae eraill yn bwysicach wrth ddarllen i gaffael gwybodaeth o Gyfnod Allweddol 2 ymlaen.

Mae **strategaethau cynnar** yn cynnwys y canlynol.

- **Gwybodaeth ffonig** – defnyddio gwybodaeth am lythrennau a seiniau i wneud geiriau. Mae geiriau'n cael eu ffurfio o ffonemau (seiniau) ac mae ffonemau'n cael eu cynrychioli gan graffemau (llythrennau ysgrifenedig).

- **Dadgodio** – darllen geiriau drwy edrych ar lythrennau a rhannau o eiriau.
- **Geirfa weledol** – geiriau y mae dysgwyr yn eu hadnabod wrth eu gweld heb orfod eu dadgodio na'u gweithio allan, geiriau aml eu defnydd fel arfer.
- **Gwybodaeth graffig** – defnyddio gwybodaeth am nodweddion allweddol ar y system ysgrifennu, gan gynnwys siâp sylfaenol llythrennau, patrymau megis ffurf luosog enwau a sillafiad terfyniadau berfau, y gwahaniaeth rhwng priflythrennau a llythrennau bach, ac ati. Gall hyn hefyd gynnwys nodweddion megis diwyg, ffont, y defnydd o ddiagramau, ac ati.
- **Cyd-destun** – defnyddio cliwiau o gynnwys y testun neu o wybodaeth flaenorol/gyffredinol i wneud synnwyr ohono.
- **Cystrawen/cystrawennol** – defnyddio strwythur y frawddeg a gramadeg i weithio allan beth yw gair.
- **Geiriau aml eu defnydd** – dyma'r geiriau sy'n codi amlaf pan fydd plentyn bach yn darllen ac yn ysgrifennu. Mae llawer ohonynt yn gyffredin iawn, *e.e. 'y', 'a', 'mae'*, ac mae eu hadnabod yn helpu plentyn i ddod yn ddarllenydd hyfedr yn gyflym.

Mae **strategaethau darllen** yn cynnwys y canlynol.

- **Cip ddarllen (sgimio)** – darllen er mwyn cael trosolwg cychwynnol o bwnc a phrif syniadau testun, efallai drwy ddefnyddio technegau megis darllen dechrau a diwedd paragraffau neu ddarllen i lawr canol y dudalen.
- **Llithr ddarllen (sganio)** – chwilio am wybodaeth drwy nodi geiriau allweddol a dod o hyd i wybodaeth berthnasol iddyn nhw.
- **Byrdwn neu hanfod darn** – darllen er mwyn dilyn llinyn dadl neu naratif, prif nodweddion pwnc neu'r ffordd y caiff ei drin.
- **Geiriau allweddol** – fe'u defnyddir yn benodol wrth chwilio'r rhyngrwyd am wybodaeth berthnasol, sy'n hanfodol i waith chwilio effeithlon.
- **Darllen manwl** – darllen yn ofalus er mwyn cael gwybodaeth benodol, a hefyd er mwyn deall yn llawn fwriad y testun a'r ffordd y mae'r iaith a ddewisir a strwythur brawddegau'n cyfuno i lunio negeseuon penodol.

Mae **strategaethau trin gwybodaeth** yn cynnwys y canlynol.

- **Coladu** – casglu ynghyd yr holl wybodaeth am bwnc o wahanol ffynonellau, gan grynhoi lle y bo'n briodol.

- **Dadansoddi** – chwilio am batrymau, tybiaethau sylfaenol, rhesymau pam mae'r pwnc yn cael ei drin yn y fath fodd ac effeithiau hynny.
- **Cyfuno** – asesu a threfnu ffeithiau, barn a syniadau o amrywiaeth o ffynonellau a'u dwyn ynghyd i roi dehongliad cyson a chydlynol.
- **Dod i gasgliadau** – cysylltu gwahanol ddarnau o wybodaeth benodol a dod i gasgliad.
- **Dehongli** – deall gwybodaeth neu farn nas nodir yn benodol.

Mae **gwerthuso testunau** yn cynnwys ystyried y canlynol.

- **Rhagfarn a gwrthrychedd** – i ba raddau y mae testun yn ddiduedd, gan nodi ffeithiau sydd wedi'u hategu gan dystiolaeth, neu a yw'r cynnwys yn unochrog ac yn ddewisol ac yn cefnogi safbwynt penodol.
- **Ffeithiau, damcaniaethau a barn** – gwahaniaethu rhwng **ffeithiau** (gwybodaeth y gellir ei gwirio ac sydd wedi'i hategu gan dystiolaeth arall, er y gellir ei newid yn y tymor hwy), **damcaniaethau** (syniadau sy'n seiliedig ar dystiolaeth ac sy'n ceisio cysylltu neu esbonio gwybodaeth) a **barn** (syniadau a dehongliadau ysgrifennydd sy'n seiliedig ar farn bersonol).
- **Beirniadu** – trafod syniad neu adnodd ac ati neu wneud sylwadau arno, gan asesu ei rinweddau a pha mor ddefnyddiol ydyw.
- **Dibynadwyedd** – i ba raddau y gellir dibynnu ar wybodaeth, gan edrych ar ffynhonnell yr wybodaeth honno, pwy sydd wedi'i chyfleu ac a yw'n cael ei hategu gan bobl eraill. Mae hyn yn arbennig o bwysig yn achos gwybodaeth o'r rhyngrwyd.
- **Safbwynt** – barn neu safbwynt ysgrifennydd y testun y gellir eu dehongli neu eu casglu o'r ffordd y mae'r cynnwys yn cael ei drin.

Mae **nodweddion trefniadol testunau** yn cynnwys y canlynol.

- **Dyfeisiau cyflwyno** – fe'u defnyddir i wneud i destun fod yn fwy eglur ac i drefnu brawddegau a pharagraffau, *e.e. pwyntiau bwled, tablau, is-benawdau, saethau, penawdau (labeli ar gyfer lluniau, diagramau, ac ati), diagramau llif.*
- **Cyfeiriadau** – nodweddion i helpu'r darllenydd i ddod o hyd i wybodaeth, *e.e. cynnwys, mynegai, rhestr termau, geiriadur, penawdau penodau.*

- **Strwythur testun** – sut mae'r testun cyfan wedi'i drefnu, *e.e. yn gronolegol, dadl, proses*. Mae adrannau weithiau'n cael eu nodi gan **benawdau** (ar gyfer prif adrannau) ac **is-benawdau** (ar gyfer isadrannau).

Ysgrifennu

Dibenion

Mae diben ysgrifennu yn dylanwadu ar y dewisiadau y mae ysgrifennydd yn eu gwneud o ran pa eiriau i'w defnyddio, ffurfiau brawddegau a ffurf gyffredinol y gwaith ysgrifennu. Gall gwaith ysgrifennu fod at ddefnydd yr ysgrifennydd yn unig (nodiadau, rhestri, drafftiau) neu gellir ei ddefnyddio i roi gwybodaeth i ddarllenydd neu i ddylanwadu arno. Mae rhai dibenion yn gysylltiedig â mathau o destunau a ddefnyddir yn gyffredin, megis cyfarwyddiadau mewn rysáit. Mae rhoi diben penodol i waith ysgrifennu yn helpu'r ysgrifennydd i wneud dewisiadau da o ran beth i'w ddweud a sut i'w ddweud.

Darllenwyr

Mae'r darllenydd neu'r gynulleidfa ddisgwyliedig hefyd yn dylanwadu ar y geiriau, y brawddegau a ffurf gyffredinol yr ysgrifennu a ddewisir gan yr ysgrifennydd. Mae'r ysgrifennydd yn gwneud addasiadau, megis defnyddio iaith dechnegol, faint o fanylion a gynhwysir neu pa mor fanwl y mae'n esbonio pethau, gan ddibynnu ar bwy fydd yn darllen y gwaith ysgrifennu. Pan fo'r gwaith ysgrifennu bob amser ar gyfer yr athro/athrawes mae'n annhebygol y datblygir amrywiaeth ac amrediad gwaith ysgrifennu'r dysgwr.

Mathau o destunau

Mae confensiynau'n perthyn i rai mathau o ysgrifennu y gellir eu dysgu ac sy'n ddefnyddiol i ddysgwyr. Ni ddylid trin y confensiynau hyn fel 'rheolau' na ellir eu torri. Nodir yma rai o'r mathau mwyaf cyffredin.

- **Adrodd/naratif** – mae'n ailadrodd digwyddiadau yn eu trefn gronolegol. Gall fod yn ffuglen neu gall gynnwys gwybodaeth.
- **Adroddiad** – digwyddiad neu broses a ddisgrifir, nid yn gronolegol o reidrwydd.

- **Cyfarwyddo** – i helpu darllenwyr i wneud rhywbeth, *e.e. ryseitiau, llawlyfrau atgyweirio cerbydau, cyfarwyddiadau hunangydosod*. Mae testunau cyfarwyddiadol yn tueddu i roi cyfarwyddiadau cam wrth gam a defnyddio berfau gorchmynnol neu ferfenwau.
- **Darbwyllo** – ystyr bod yn ddarbwyllol yw ceisio dylanwadu ar y darllenydd neu ei argyhoeddi. Fel arfer mae testun darbwyllol, parhaus yn cynnwys datganiad o'r safbwynt, dadleuon a thystiolaeth o blaid y gosodiad hwn, efallai rhai dadleuon a thystiolaeth sy'n cefnogi safbwynt gwahanol a chrynodeb neu argymhelliad terfynol. Mae mathau eraill o destunau darbwyllol (*e.e. hysbysebion*) yn defnyddio cyfuniad o nodweddion testunol gan gynnwys geiriau, seiniau a delweddau, er mwyn darbwyllo.
- **Disgrifio** – rhoi gwybodaeth am ddigwyddiad, gwrthrych, lle, ac ati, heb fynegi barn arno na chynnig esboniad.
- **Esbonio** – cynhwysir rhesymau a manylion er mwyn dangos pam a sut, sy'n cynnwys yn aml nodi achosion a chanlyniadau, a chysylltiadau rhwng digwyddiadau neu syniadau.
- **Trafodaeth/dadl** – ystyried manteision ac anfanteision pwnc, cyflwyno dadleuon a gwybodaeth o wahanol safbwyntiau, weithiau gan ddod i gasgliad.

Gramadeg

Gramadeg yw'r rheolau sy'n rheoli'r cydberthnasau rhwng geiriau mewn iaith. Addysgir gramadeg mewn perthynas ag ysgrifennu gan amlaf, oherwydd mai'r ffurf ysgrifenedig sydd agosaf at Gymraeg safonol, a disgwylir cywirdeb gan ddarllenwyr. **Ffurfiau Cymraeg safonol** yw'r cystrawennau gramadegol a'r eirfa sy'n gysylltiedig â defnyddio Cymraeg yn gyhoeddus ac fel arfer y rhain yw'r ffurfiau cywir ar gyfer ysgrifennu.

adferf

Gair sy'n disgrifio neu'n goleddfu berf, *e.e. 'rhedodd yn gyflym', 'cyrhaeddodd yn hwyr'*. Mae i **ymadroddion adferfol** yr un swyddogaeth ond maent yn defnyddio nifer o eiriau, *e.e. 'yn gyflymach na mathau eraill o drafnidiaeth', 'llai dibynadwy na'r disgwyl'.*

amodol

Amser berf sy'n mynegi'r syniad bod yr hyn sy'n digwydd yn dibynnu ar rywbeth arall. Mae ffurfiau amodol yn aml yn cynnwys cysyllteiriau

megis ‘os’ neu ‘yna’ a ffurfiau berfol megis ‘byddai’, ‘gallai’ neu ‘gall’, a ddefnyddir yn arbennig ar gyfer damcaniaethau neu bosibiliadau.

amser

Dyma ffurf y ferf a ddywed wrthym pan fydd rhywbeth yn digwydd, *e.e. gorffennol, presennol, dyfodol neu barhaus*.

ansoddair

Gair sy’n disgrifio neu’n goleddfu enw. Gall ddod o flaen neu ar ôl yr enw, *e.e. ‘yr hen ddyn’ neu ‘cadair las’*. Ceir gwahanol fathau o ansoddeiriau: nifer neu faint (*e.e. ychydig*), ansawdd (*e.e. da*), meddiannol *(e.e. fy*), gofynnol (*e.e. pa)*, dangosol (*e.e. hwn*). Mae i **ymadroddion ansoddeiriol** yr un swyddogaeth ond maent yn defnyddio nifer o eiriau, *e.e. ‘glas tywyll â smotiau coch’, ‘mwy nag arfer’.*

berf

Gair sy’n mynegi gweithred neu fodolaeth. Gall berfau fod mewn gwahanol amserau ac maen nhw’n rhedeg, h.y. mae ffurf wahanol i bob person. Gall berfau fod yn weithredol neu’n oddefol: ‘Enillodd Owain Glyndŵr Frwydr Bryn Glas’ (gweithredol), ‘Cafodd Brwydr Bryn Glas ei hennill gan Owain Glyndŵr’ (goddefol).

brawddeg

- **brawddeg syml**

  Dim ond un cymal ac un brif ferf sydd gan frawddeg syml. Nid yw brawddegau syml bob amser yn fyr, am y gellir ymestyn rhannau ohonynt neu ymhelaethu arnynt, ond maent yn dal i fod yn ramadegol ‘syml’ cyhyd ag mai dim ond un cymal sydd ganddynt.

- **brawddeg gyfansawdd**

  Caiff brawddeg gyfansawdd ei chreu pan gaiff dwy frawddeg syml eu cysylltu â chysyllteiriau megis ‘a’, ‘neu’ ac ‘ond’.

- **brawddeg gymhleth**

  Brawddeg â phrif gymal ac o leiaf un is-gymal. Cyflwynir yr is-gymal naill ai gan gysylltair megis ‘er’ neu ‘oherwydd’, neu gan ragenw perthynol megis ‘a’ neu ‘y’.

cymal

Rhan benodol o frawddeg sy’n cynnwys berf. Ceir dau fath: **prif gymal** (*e.e. ‘Troais y toddiant*’) ac **is-gymal** *(e.e. ‘nes i’r halen*

doddi'). Mae'r prif gymal yn gwneud synnwyr ar ei ben ei hun, ond nid felly yn achos is-gymal.

cysylltiol

Gair a ddefnyddir i gysylltu brawddegau neu gymalau neu i gysylltu geiriau mewn ymadrodd. Maent yn mynegi gwahanol fathau o gysylltiad: achos (*e.e. oherwydd)*, gwrthgyferbyniad (*e.e. ond*), ychwanegiad (*e.e. ac*), amser (*e.e. tan*).

cytundeb rhwng y goddrych a'r ferf

Mae'r geiriau cysylltiedig, y goddrych a'r ferf, yn cytuno â'i gilydd o ran nifer, cyflwr, cenedl a pherson, *e.e. 'Dywedais i/dywedodd ef' (person), 'roeddent yn gŵn bach iach iawn' (nifer)*. Sylwer bod enghreiffitau yn y Gymraeg nad ydynt yn dilyn y drefn hon, *e.e. Dywedodd y plant*.

enw

Gair sy'n enwi peth neu deimlad. Nodir isod y pedwar math o enw: cyffredin (cyffredinol, *e.e. anifail, cadair*), priod (enw penodol, *e.e. Bangor*), haniaethol (syniad neu gysyniad, *e.e. hapusrwydd)*, torfol (grŵp, *e.e. buches, torf*).

paragraff

Rhan o ddarn ysgrifenedig sy'n ymwneud ag un pwnc. Mae paragraff newydd yn nodi newid amser, lle neu bwnc ac mae'n dechrau ar linell newydd. Fel arfer mae paragraff yn **gydlynol**, sy'n golygu ei bod wedi'i gysylltu, a ddangosir yn aml mewn rhagenwau, ymadroddion/geiriau adferfol, ac ati. Yn aml ceir cysylltiadau â rhannau eraill o destun ar ddechrau a diwedd paragraffau sy'n rhoi **cydlyniad** yn gyffredinol.

treiglo

Yn y Gymraeg, o dan amodau penodol sy'n cynnwys cenedl enwau, arddodiaid ac ati, newidir un gytsain am gytsain arall ar ddechrau gair, *e.e. dau fachgen/dwy ferch*. Mae yna dri math o dreiglad: treiglad meddal, treiglad trwynol a threiglad llaes.

ymhelaethu

Esbonio rhywbeth yn fanylach er mwyn rhoi eglurder ac ymdrin ag ef yn llawn.

Sillafu

Gall geiriau amrywio o'r rhai symlaf (cytsain-llafariad-cytsain) i eiriau cymhleth. Mae geiriau cymhleth yn amlsillafog ac, yn aml, maent yn cynnwys geiriau eraill a rhagddodiaid ac ôl-ddodiaid. Mae rhai geiriau'n rheolaidd ac yn dilyn patrymau cyffredin, tra mae geiriau eraill yn llai rheolaidd, *e.e. 'wats'*, ac yn cydymffurfio llai â chonfensiynau cyffredin, sy'n golygu eu bod yn fwy anodd eu sillafu. Gall hyn fod oherwydd eu bod nhw'n tarddu o'r Saesneg.

cytsain

Holl lythrennau'r wyddor ar wahân i'r llafariaid 'a', 'e', 'i', 'o', 'u', 'w', 'y'.

gwreiddair

Gair y gellir ychwanegu rhagddodiaid ac ôl-ddodiaid ato er mwyn gwneud geiriau eraill, *e.e. y gwreiddair yw 'trefn' yn 'trefnus', 'anhrefn', 'trefnu*'.

ôl-ddodiad

Grŵp o lythrennau a ychwanegir at ddiwedd gair er mwyn newid ei ystyr, *e.e. 'darlun' i 'darlunio' neu 'cerdded' i 'cerddediad'.*

rhagddodiad

Grŵp o lythrennau a ychwanegir at ddechrau gair er mwyn newid ei ystyr, *e.e. 'aneglur'*.

Strategaethau sillafu

Mae nifer o dechnegau y gall dysgwyr eu defnyddio i ddarllen a sillafu'n gywir. Maent yn cynnwys y canlynol.

- **Gwreiddiau** – ffurf sylfaenol gair y mae geiriau eraill yn deillio ohoni (h.y. **tarddiad gair**), *e.e. coll, colled, colli.*
- **Gwybodaeth graffig** – cyfresi o lythrennau sy'n digwydd yn aml, *e.e. cae/mae, mwy/llwy.*
- **Morffoleg** – strwythur gair lle mae gan rannau o air ystyr, *e.e. rhagddodiaid (lle mae 'rhag' yn golygu o flaen, e.e. aneglur), ôl-ddodiaid (ychwanegir ar ddiwedd gair i newid yr ystyr, e.e. 'darlun' i 'darlunio' neu 'cerdded' i 'cerddediad').*
- **Segmentu** – rhannu gair yn elfennau, *e.e. plan-hig-ion*.

- **Teuluoedd o eiriau** – grwpiau o eiriau sydd â nodwedd neu batrwm cyffredin; mae ganddynt rai o'r un cyfuniadau o lythrennau ynddynt a sŵn tebyg, *e.e. cae, chwaer, chwarae.*

Atalnodi

Yn gyffredinol mae atalnodi'n ymwneud â gramadeg brawddeg ac fel arfer mae'n nodi rhannau o destun.

atalnod (,)

Fe'i defnyddir i wahanu rhannau o frawddeg neu restr.

atalnod llawn (.)

Fe'i defnyddir i nodi diwedd brawddeg. Defnyddir **priflythyren** i nodi dechrau brawddeg (neu enw priod).

colon (:)

Fe'i defnyddir i gyflwyno rhestr, ail gymal neu ddyfyniad sy'n ymhelaethu ar y cymal cyntaf neu'n ei egluro.

collnod (')

Fe'i defnyddir i ddangos cywasgu/hepgor, *e.e. 'a'i'*.

dyfynodau (' ') neu ddyfynodau sengl

Fe'u defnyddir i ddangos dyfyniad uniongyrchol o destun arall. Maen nhw'n debyg i **ddyfynodau (" ") neu ddyfynodau dwbl** i ddangos araith uniongyrchol mewn testun.

ebychnod (!)

Fe'i defnyddir ar ddiwedd brawddeg i ddangos emosiwn fel sioc, hiwmor, llawenydd, dicter.

gofynnod (?)

Fe'i defnyddir ar ddiwedd brawddeg i ddangos mai cwestiwn ydyw.

hanner colon (;)

Fe'i defnyddir i wahanu cymal neu ymadrodd mewn brawddeg. Mae'n gryfach nag atalnod, ond nid yw mor gryf ag atalnod llawn.

Appendix 3: Glossary of numeracy terms

The focus of this glossary section is on the terms and concepts that are relevant to numeracy and the LNF. It includes some, but not all, of the specialist mathematical terms that appear in the standards.

Appropriate
Suitable for intended task, context and complexity. The use of 'appropriate' in the LNF recognises that different contexts require different treatments.

Approximation
Refers to an estimate, result or check that is not exact but is close enough to be useful in a practical context.

Average
Sometimes used synonymously with 'arithmetic mean'. Measures of average include mean, median and mode.

Bar chart/bar graph
A form of representation of numerical data. Frequencies are represented by bars of equal width where the lengths of the bars represent the frequencies. The bars may be presented vertically or horizontally.

Capacity
A measure of quantity of liquids.

Compound measures
Compound measures combine two different types of measurement, *e.g. speed in metres per second, population density in number of people per square kilometre or run rate in runs per over.*

Compound shape
Complex shapes that can be broken down into separate simple shapes.

Data

- **Discrete data**
  Data resulting from a count of separate items or events, *e.g. number of people at a football match.*
- **Continuous data**
  Data that can take any value, *e.g. length, capacity, time, temperature*.

Fractions

- **Proper fractions**
  The numerator (top number) is less than the denominator (bottom number), *e.g. ¼*.
- **Improper fractions**
  The numerator is greater than the denominator, *e.g. 7/4*.
- **Mixed numbers**
  A whole number and a proper fraction together, *e.g. 1¾*.

Frequency table

A table for a set of observations showing how frequently each event or quantity occurs.

Grouped data

Organising large amounts of data into groups that are consecutive and non-overlapping, where appropriate, arranged in equal intervals.

Inverse operations

Operations that are opposite to each other, *e.g. addition and subtraction, multiplication and division, square and square root*.

Mass

In everyday usage, mass is often referred to as weight, the units of which are often taken to be kilograms (*e.g. a person may state that their weight is 75kg*). In scientific use, however, the term 'weight' takes gravitational force into account.

Mean

A type of average based on equal sharing. The mean is the sum of quantities divided by the number of them, *e.g. the mean of 5, 6, 14, 15 and 45 is (5 + 6 + 14 + 15 + 45) ÷ 5 = 17.*

Median

A type of average. The median is the middle number or value when all are arranged in order, *e.g. the median of 5, 6, 14, 15 and 44 is 14*. Where there is an even number of values, the mean of the two middle values is calculated, *e.g. the median of 5, 6, 7, 8, 14 and 44 is (7 + 8) ÷ 2 = 7.5.*

Mixed numbers
See **Fractions**.

Mode
A type of average. The most frequently occurring value in a set of data, *e.g. the mode of 1, 8, 2, 2, 9, 3, 3, 3, 3, 7 is 3.*

Order of operations
A convention of using operations in a particular order often expressed as BODMAS or BIDMAS.

B	Brackets first	**B**
O	Orders (i.e. powers, square roots, etc.)	**I** Indices
DM	Division and Multiplication	**DM**
AS	Addition and Subtraction	**AS**

Pictogram
A form of representation of data. Pictures/symbols/icons are used to represent objects. For large numbers, one symbol represents a number of objects. Part symbol represents a proportion of a number.

Pie chart
A form of representation of data. A circle is divided into sectors where the size of the sector represents appropriate proportions of the data.

Proportion
A part of quantity often described using terms such as percentage, fraction, decimal, and ratio.

Range (in relation to data handling)
A measure of spread in statistics, i.e. the numerical value calculated by finding the difference between the greatest and the least values in a set of numerical data.

Ratio
A comparison of quantities written a:b, *e.g. a mixture made up of two ingredients in the ratio 3:1 is three parts of the first ingredient to one part of the second.*

Reciprocal
What to multiply a value by to get 1, *e.g. the reciprocal of 4 is ¼.*

Round (verb)
To express a number or measurement to a required degree of accuracy, *e.g. 537 rounded to the nearest 10 is 540*.

Scale
The ratio between the size of something real and the size of a representation of it.

Standard form
Using powers of 10 to record very large or very small numbers, *e.g. 6500000 can be written as* 6.5×10^{6} *and 0.000000321 can be written as* 3.21×10^{-7}.

Standard units
Units that are agreed throughout a community, *e.g. a metre is a standard unit of length.* Non-standard units are, therefore, those that are not widely agreed, *e.g. cupful.*

Table
An orderly arrangement of information, numbers or letters, usually in rows and columns.

Tally
(Make) marks to represent objects counted.

Volume
A measure in three-dimensional space.

Weight
See **Mass**.

Appendix 4: Related documents and links

National Literacy Programme (Welsh Government, 2012)
www.wales.gov.uk/topics/educationandskills/schoolshome/literacynumeracy/literacyprogramme/?lang=en

National Numeracy Programme (Welsh Government, 2012)
www.wales.gov.uk/topics/educationandskills/schoolshome/literacynumeracy/numeracyprogramme/?lang=en

The Skills Framework at key stage 2: An evaluation of the impact of the non-statutory Skills framework for 3 to 19-year-olds in Wales at key stage 2 (Estyn, 2011)
www.estyn.gov.uk/english/docViewer/205514.4/the-skills-framework-at-key-stage-2-july-2011/?navmap=30,119,196,/?lang=en

The Skills Framework at key stage 3: An evaluation of the impact of the non-statutory Skills framework for 3 to 19-year-olds at key stage 3 (Estyn, 2012)
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