Assessment for learning and the National Literacy and Numeracy Framework

Guidance

Assessment for learning and the National Literacy and Numeracy Framework

Audience   All practitioners and other education professionals and support staff working in primary and secondary schools.

Overview   This document is part of a series of guidance materials to support practitioners in implementing assessment for learning (AfL) through the National Literacy and Numeracy Framework (LNF) across the curriculum.

Action required   None – for information only.

Further information   Enquiries about this document should be directed to:
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Additional copies   This document can be accessed from the Welsh Government's website at learning.wales.gov.uk

Related documents   Documents to support the implementation of the LNF can be found at learning.wales.gov.uk/resources/nlnf/?lang=en including *Curriculum planning guidance* (Welsh Government, 2013) for implementing the LNF.

Existing documents that support the development of AfL practice can be found at www.wales.gov.uk/topics/educationandskills/schoolshome/curriculuminwales/thinkingandassessmentforlearning/?lang=en including *How to develop thinking and assessment for learning in the classroom* (Welsh Assembly Government, 2010) and *Why develop thinking and assessment for learning in the classroom?* (Welsh Assembly Government, 2010).

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1. Introduction

The Welsh Government wants to ensure that literacy and numeracy are at the heart of learning in all schools throughout Wales. This has been reflected in the 20-point action plan announced by the then Minister for Education and Skills and in the *Improving schools – executive summary* (Welsh Government, 2012)[1]. These emphasise the need for all practitioners[2] to be responsible for literacy and numeracy, for them to be equipped with the appropriate skills to deliver literacy and numeracy across the curriculum. It is important that practitioners' knowledge and understanding of the National Literacy and Numeracy Framework (LNF) is developed, so that common expectations about the standards expected from learners can be shared across the wider school community.

As the LNF is implemented, the use of assessment for learning (AfL) to improve the skills of learners in these two key areas needs to be developed and reinforced across all subjects.

Excellent AfL practice is already well established in many schools across Wales. As the LNF becomes statutory, integrating an AfL approach across the curriculum with links to progression in literacy and numeracy, as outlined in the LNF, will become a key requirement for all practitioners.

The LNF and AfL practice are applicable for all practitioners and learners from Reception through to Year 9, and each party can benefit from developing their familiarity with both.

Publications already exist which provide lists of AfL tools and strategies[3]. This guidance is focused on how AfL can be used to support your implementation of the LNF, and vice versa. It draws together successful examples from school-based case studies with the expertise of assessment professionals and educational researchers to demonstrate a range of ways in which the LNF and AfL can be linked to support and complement each other across the curriculum.

This document forms part of a series of tailored guidance documents designed to support practitioners in the implementation of the LNF.

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[1] learning.wales.gov.uk/docs/learningwales/news/121010executivesummaryen.pdf

[2] The term 'practitioners' has been used throughout the document to refer to all educational professionals working within a school. We believe it is important that all teachers, teaching assistants, other support staff and volunteers are engaged with the LNF.

[3] Some AfL strategies are listed in existing Welsh Government publications, e.g. *How to develop thinking and assessment for learning in the classroom* (2010) (see also the 'References' section on page 78).

2. The National Literacy and Numeracy Framework (LNF)

The National Literacy and Numeracy Framework (LNF) is a statutory curriculum requirement from September 2013, with assessment against the LNF becoming statutory from September 2014.

The overarching purpose of the LNF is to help achieve the aim of the Welsh Government that children in Wales are able to develop excellent literacy and numeracy skills during their time at school. It is essential, therefore, that the development of these skills is interwoven throughout the curriculum and that all practitioners recognise their important role in developing the literacy and numeracy skills of their learners.

The LNF has been designed to provide a continuum of development that clearly sets out annual expected outcomes in literacy and numeracy. It should be used both as a curriculum planning tool and as an assessment framework. Cross-curricular planning using the LNF will be essential to ensure that literacy and numeracy skills are embedded across the curriculum and that progression is supported for all learners.

The key features of the LNF

The LNF provides **expectation statements** from ages 5 to 14. The expectation statements are broken down into year groups that set out the skills learners are expected to develop throughout their time in school.

The literacy component (English-medium and Welsh-medium) of the LNF has three strands.

- Oracy across the curriculum.

- Reading across the curriculum.

- Writing across the curriculum.

The numeracy component of the LNF has four strands.

- Developing numerical reasoning (underpinning strand).

- Using number skills.

- Using measuring skills.

- Using data skills.

Further information on the LNF can be found at learning.wales.gov.uk/resources/nlnf/?lang=en.

A headteacher in a primary school explains the importance of developing a shared understanding of the LNF across the whole of the school community.

'Careful planning is key; all activities must have a purpose. From each task we ask the learners to do we think they should develop skills from the LNF. But for the staff, and consequently the learners, to use the LNF confidently it must be understood. To solve this, the Year 5 and 6 classes in our school have a wall display of the LNF with links and examples of our ongoing work. This means that there is a constant reminder of the requirements of the LNF and also it offers the opportunity for the learners to evaluate which skills they have developed during specific tasks. It also makes us realise which skills need 'more attention' and therefore makes us think about the validity of some tasks. The wall displays have proven to be such a success that our Year 3 and 4 classes are in the process of creating their own LNF wall.

We have found it is really important to get everyone involved in the LNF, including both teachers and classroom assistants, so that everyone has the same, high expectations.

Information about the LNF has also been shared, during governors' meetings and visits, and with parents and carers during a curricular evening where the learners gave various presentations about their work and expectations of the LNF.

In order to make sure that the skills are developed across the curriculum, it is important to evaluate the activities we give our learners in relation to the LNF. Are there some strands that are developed often and others not so much? Sharing ideas and good practice with staff is also important.'

3. What is assessment for learning (AfL)?

Assessment for learning (AfL), also known as formative assessment practice, is the effective use of knowledge of what has been learned and assessed to inform teaching and future learning.

> " **Assessment for learning is the process of seeking and interpreting evidence for use by learners and their practitioners to decide where the learners are in their learning, where they need to go and how best to get there.** "
>
> Assessment Reform Group, 2002

National and international research has produced a large body of evidence which indicates that the application of AfL principles improves the classroom experience for learners and practitioners and improves learner progress and achievement.

AfL is not new, and many good practitioners probably know a lot about it already. Some might not even call it AfL. In fact it is an integral part of everyday teaching, a continuous process that grows through shared understanding, adaptive practice and a clear focus on learning.

Effective AfL is not applied in the same way in all classrooms. It is an approach to teaching and learning that involves learners being engaged in their own learning journey. Learners are able to understand what they can do, set developmental targets for themselves based on this knowledge and recognise, through the different methods of assessment and reflection, whether they have reached these targets. Assessment is formative when it informs future learning[4].

It is important that AfL practice is implemented in an active and not mechanistic way, and that teachers have time and opportunity to develop a deep and shared understanding of the underlying principles. The development of effective AfL practices requires whole-school cultural change which can take several years to become embedded. These guidance materials are designed to support schools and practitioners to engage with the AfL ethos of 'learning to learn'.

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[4]   Some AfL strategies are listed in existing Welsh Government publications, e.g. *How to develop thinking and assessment for learning in the classroom* (2010).

Key elements of AfL

The aim of AfL is to support and empower learners to become independent and autonomous. It is not the same as assessment in its traditional sense of gathering evidence to measure progress, through tests and assessment tasks. AfL is much broader and develops a culture of dialogue, observation, reflection and feedback to enhance ongoing learning.

Looking broadly across the literature, certain key elements have been identified that consistently underlie effective AfL practice. These are:

• sharing learning expectations and success criteria

• engineering effective classroom discussions

• sharing formative feedback

• developing learners as resources for each other

• developing learners as owners of their own learning.

AfL involves asking questions about the quality of learning and being prepared to adapt and enrich teaching and learning in response to what is learned. It embodies effective assessment practice and is applicable to all ages, groups and key stages in any subject across the curriculum.

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A Year 5 teacher reflects on the impact of using AfL in her class as follows.

'In my own classroom, as well as it being evident that AfL has had a positive impact on standards, it has also had a significant impact on well-being.

AfL is an effective vehicle for promoting the development of personal and social education skills, focusing as it does on collaboration and mutual support. This in turn feeds back into further development of skills such as literacy and numeracy, where previously the latter might have been considered more of an independent concern. AfL lessons involving numeracy, for example, have therefore been restructured to provide greater opportunities for learner interaction, and as a result have developed a willingness among learners to take greater educational risks in order to move learning forward.

Also of importance is the creation of 'space', during and especially at the end of lessons, for reflection. This nurtures a community of learning where learners have the opportunity to give effective feedback, monitor their own progress and consider their next steps. They understand that the literacy and numeracy skills being developed are transferable and lifelong, but at the same time understand that curriculum subjects are interlinked. I have been approached by several learners in the past who have informed me of situations outside school where they have been able to utilise learned skills and strategies in a completely different context to those encountered in the school environment.'

4. Using AfL and the LNF together

The LNF serves as a framework for teaching and learning and can be used for formative assessment.

It is intended that the LNF is used directly by practitioners for formative assessment purposes. It provides a progression framework that can be used to develop learning expectations[5] and success criteria and, when used in conjunction with AfL practice, will embed a shared understanding of progression among practitioners and learners.

By using the LNF expectation statements to underpin and inform AfL discussions and feedback about ongoing learning, you and your learners will become increasingly familiar with progression through the LNF as you use it to monitor progression and to plan next steps.

Literacy and numeracy expectations should be incorporated, where possible, into the learning expectations for every lesson. For each LNF statement you should consider 'What will this look like in the context of this lesson?', and your answers will form the basis of the learning expectations and success criteria. This usage will, in turn, support the embedding of the LNF throughout classroom culture.

LNF expectation statements can be used to structure your AfL practice in all curriculum areas; together they can be used to highlight opportunities to make improvements to literacy and numeracy skills in all subjects.

One of the challenges for practitioners, in using the LNF and assessing literacy and numeracy across the curriculum, will be ensuring that learners are stretched in each subject. For example, a good knowledge of a learner's numeracy skills can be used to inform teaching as well as the learner's objectives and next steps in geography at a pace and attainment level that is suitably challenging. Similarly, literacy skills of oracy, reading and writing should be developed across the curriculum at appropriate levels to ensure continuing progress for all learners.

By using the LNF in this way, you will have the support you need to make well founded judgements about learners' attainment, to understand the concepts and principles of progression, and to inform your planning. In turn, every learner will come to know how they are doing and what they need to do to improve.

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[5]   The term 'learning expectations' has been used throughout to encompass learning goals/objectives/intentions. This is the term used in the LNF, so it is important to ensure consistency in terminology.

The LNF should also be used to inform your yearly assessment of learners' literacy and numeracy skills. In your annual reports to parents/carers, you should use the expectation statements from the LNF to describe a learner's progress, areas of strength and next steps for development. (You 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.)

It is important, therefore, that a shared understanding of expectations, and how they can be recognised, is developed across the wider school community and includes dialogue between all practitioners, learners, parents and carers. In this way, all learners can be optimally supported in building their literacy and numeracy skills across the curriculum. Universal use of the LNF will support continuity of assessment, enabling better transfer between years and schools. It will also ensure that assessments are fair, reliable and consistent across classes, schools and regions, and that progress is supported for all learners.

The key benefits of using the LNF and AfL together are as follows.

- The LNF provides a clear progression structure for learners of all ages and levels.

- Learners and practitioners develop a clear understanding of their current achievements and next steps (using the common language of the LNF).

- Cross-curricular planning can be designed to ensure progress in literacy and numeracy (i.e. not just in English, Welsh and mathematics lessons).

- This kind of 'joined-up thinking' across the curriculum will have a real impact on the literacy and numeracy skills of all learners.

- Learners are supported in meeting literacy and numeracy expectations, which will enable higher achievement in other subjects.

A Year 9 teacher in a secondary school advises the following.

'Share techniques and strategies on a whole-school level to help develop the use of the LNF to ensure that there is as much transfer as possible between lessons. The reading skills approach, the questioning strategies, and the demands and focus on accuracy in written expression are equally relevant in all subject areas, and the policies above help to make that apparent.'

A Year 3 teacher said the following.

'Our mathematics coordinator has emphasised to staff the importance of learners subsequently having the opportunity to practise the skills they learn in daily mathematics lessons across the curriculum; for example, work on graphs in a mathematics lesson will see that skill utilised in recording temperatures for a particular city in geography.'

How do you know when AfL and the LNF are working well together?

There are a number of features of effective AfL practice that can be observed in school lessons. Where AfL is being used effectively within the LNF in your school you might expect to see some or all of the following things happening in lessons.

- Learners and practitioners will be able to use the concepts and terminology from the LNF to describe what they observe in the classroom.

- Learners and practitioners will be able to describe what good performance looks like at different levels, using terminology from the LNF expectation statements.

- Learners will be able to develop their own learning expectations linked to the LNF and recognise their own progression needs.

- Practitioners will use more open questions and will encourage learners to participate in classroom talk.

- Practitioners will improve both the oral and written feedback that learners receive.

- Learners will be encouraged to conduct peer and self-assessment related to the LNF.

- Practitioners will engage in peer coaching to further enhance understanding of AfL within the LNF.

- Practitioners will be able to use information from reading and numeracy tests in a formative way, and to impact on the development of literacy and numeracy skills in all subjects.

5. Developing a consistent whole-school, integrated approach to using AfL and the LNF together

As the LNF is a statutory requirement, schools will need to review the extent to which literacy and numeracy are embedded across the curriculum and whole-school curriculum mapping of skills and contexts will be essential. Literacy and numeracy skills must become the primary focus for planning in all subject contexts and therefore clear and coherent curriculum planning is crucial.

The development of a whole-school policy will support a shared understanding of levels of performance, based on the LNF, among practitioners both within and across schools and sectors. It will also ensure equity for all learners.

A deputy head in one primary school describes their approach as follows.

'The implementation of the LNF is the main focus in our school improvement plan. We are currently carrying out an audit of what we presently do in respect to the LNF, cross-referencing our skill ladders with the LNF expectations. We brought in a new system for raising standards in writing and this ties in beautifully to the LNF. It has a half-term focus on a particular genre, e.g. recount. We then spend considerable time studying, reading, discussing and writing a range of material across the curriculum related to that particular genre. As a result, our learners have produced high-quality pieces of work as they have been saturated in one genre. All key aspects of the literacy component of the LNF are covered and focused upon – meaning and purposes, structure and organisation, language and handwriting, grammar, punctuation and spelling.

Although we are fairly confident with the procedural maths we plan to focus on reasoning maths as part of next year's school improvement plan. As a staff we also want to look at assessing and reporting to parents and carers, in terms of LNF expectations and how they straddle different national curriculum levels.'

There are a number of different ways that a school can approach embedding the LNF. Here are two examples.

1. Some schools and year groups may find it easier to have lessons that concentrate on discrete literacy and numeracy skills that can then be applied to other subjects, with input in planning for these given to a cross-section of subject leaders. For example, the LNF reading across the curriculum expectation *follow up initial ideas that interest them by further research* (Year 7, Comprehension), could be applied to an art lesson where learners are finding out about the body of work of a particular artist. Or, the LNF numeracy expectation *construct graphs to represent data including scatter diagrams to investigate correlation* (Year 8, Using data skills) could be used in a geography lesson where learners are investigating population patterns.

2. Some schools might take a different approach by building topics or themes around skills and using subjects across the curriculum to deliver these. For example, an infant school decides to hold a whole-day skills challenge, where a discrete skill is used in every subject on that day. For example, the LNF writing across the curriculum expectations *use specific words which relate to the topic of their writing* (Year 1, Language) and *use simple subject-related words appropriately* (Year 2, Language) could be used in each strand of the Foundation Phase.

By using the LNF as a basis for discussions about learning, to inform AfL classroom practice, you will become increasingly familiar with the expected progression outlined in the LNF and the application of that familiarity will naturally become embedded in your practice.

The LNF is a valuable curriculum planning tool. Collaborative planning, and assessment, will also support non-specialist practitioners in recognising the expected levels of literacy and numeracy skills and ensure that these levels are upheld and developed within different subject areas.

One school explains how they ensured that the LNF was incorporated into their whole-school planning as follows.

'Staff in our school have been divided into two professional learning communities (PLCs) for literacy and numeracy, with one teacher from each year group in each PLC. Each group is led by the English and mathematics subject leaders in the Foundation Phase and across key stages. Members of each PLC will be responsible for carrying out audits within their year group and making necessary changes to planning, alongside relevant subject leaders and the other teacher in their year group. A member of senior staff will oversee both PLCs and ensure that moderation takes place to ensure that both progress in tandem with each other.'

In another school, learner voice is taken into account in cross-curricular planning as follows.

'While many schools listen to learners, I believe it is now important that the English (or Welsh) and mathematics coordinators listen outside their own areas; for example, within our school the English coordinator has listened to learners in areas such as history and science.'

Effective implementation of the LNF and good AfL practice both complement and support each other. Using the LNF as an assessment framework will provide structure and consistency in the whole-school development of AfL across the curriculum. In turn, developing a whole-school approach to AfL will support effective embedding of the LNF across the school.

It may appear easier for an infant, junior or primary school to be able to attain a consistent whole-school approach to the LNF and AfL, as the number of school staff is usually fewer and generally one practitioner is responsible for the majority of the curriculum delivery in every subject. However, it is possible to implement this successfully in secondary schools, as can be seen on the next page.

One secondary school describes how they have developed AfL practice across the curriculum in the context of implementing the LNF as follows.

'Assessment for learning strategies lie at the core of lesson planning across all subject areas and is what we attribute to learners making the most amount of progress. To try to achieve greater consistency in this area, we developed our own version of the 'Teachers' Toolkit' which comprises 22 carefully selected resources, designed to develop learners' communication and higher-order thinking skills. Each member of staff was given the toolkit to support them in their application of the AfL agenda; they were also given the opportunity to take part in cross-curricular workshops to explore how making use of such resources can positively impact on learners' skills development. Staff collectively observed video footage of 'good' lessons and explored how elements of the toolkit could ensure that the standards and progress achieved by learners could be excellent. This whole-school continuous professional development agenda was also supported by INSET training. Each of the INSET workshops was delivered to all staff across all curricular areas.'

A Year 9 teacher in the same school describes how, alongside training and lesson observations, learners' understanding is further built up and supported through their self-evaluation procedures.

'The rigorous self-evaluation procedures we have in place in school have evidenced the extent to which AfL strategies are positively impacting on learners' skills development across the curriculum. Specifically, our most recent whole-school scrutiny of learners' work in Years 8, 9, 10 and 11 was focused on standards in literacy and numeracy and linked to LNF expectations. The book scrutiny process identifies a random sample of learners' work from all areas of the curriculum which is then evaluated and scrutinised by (a) department teams, (b) teaching and learning responsibility post-holders within each department, (c) senior leadership, and finally by (d) subject leaders across each curricular area as a collective exercise. Learners' work is scrutinised according to the following set of criteria: writing skills, reading skills, numeracy and ICT skills, thinking skills, marking and assessment, and progress of learners. From this strand of self-evaluation, alongside lesson observations, we can make judgements about the impact of AfL in developing learners' skills.'

6. How can you involve parents and carers?

Engaging parents and carers in their children's learning has been shown to improve the achievement and well-being of learners. Learners are best supported and inspired to learn in a culture in which the school community, including parents/carers, engage in active dialogue and develop a shared understanding of learning expectations.

The introduction of the LNF from September 2013 means schools and practitioners will need to provide parents/carers with information about how learners will access literacy and numeracy across the curriculum, how literacy and numeracy learning expectations will be embedded across the curriculum, how progress against the LNF will be measured, and how the school will use an AfL approach to ensure a smooth transition and continuing success in delivery.

There are a number of ways that parents and carers can be encouraged to engage with the LNF. Firstly, alert parents/carers to the guidance that is being produced specifically for them. You may want to hold a parents'/carers' meeting to talk through this, about the changes and how you are going to implement the LNF in your school. Inviting parents/carers into the classroom so they can see their children's work and how this links to the LNF can be a good stimulus for discussion, both at school and at home. Encourage familiarity with the LNF by referring to them in reports and other home-school communication. Encourage learners to talk to their parents/carers at home about the LNF and what LNF skills they are learning in other subjects.

Developing this dialogue with parents/carers about the way the LNF is used in school will further help to embed understanding across the school community.

The Welsh Government has already established the parent's/carer's guide *How was school today?* (2013)[6]. It is designed to provide parents/carers with information that will enable and encourage them to take an active part in their child's education.

Schools and practitioners should consider ways in which the use of this document can be encouraged and enhanced through further dialogue with parents/carers in the context of the LNF.

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[6] www.wales.gov.uk/docs/dcells/publications/1303-how-was-school-today-primary-spread-en.pdf

A primary school headteacher shares her strategy of involving parents/carers as follows.

'In our school we have worked closely with parents, carers and governors to share the skills, strategies and pedagogy staff have fully embedded. We have hosted an 'Effective Learning Exhibition' where skills projects from all year groups from Reception to Year 6 were displayed. We have also demonstrated 'effective learning strategies' to parents and carers during lesson times on an open morning. Furthermore, open evenings have also celebrated the high standard of work learners produce throughout the whole school and the effective learning strategies we use as a team.'

The same school also encourage parents and carers to become involved in lessons as follows.

'As a school, we enlist the help and support of parents, grandparents or carers that are willing to help and offer their expertise in the classroom. In the case of the activity 'Building a component for the Apollo 13 lunar capsule' (see 'Case study 4' on page 61), such expertise was given by a grandfather who has helped the school on numerous science/technology projects.'

7. Using AfL and the LNF to develop literacy and numeracy skills in the Foundation Phase

The Foundation Phase is the statutory curriculum for all three to seven-year-old children in Wales and consists of seven Areas of Learning. As the LNF is intended as the framework for all learners aged 5 to 14, practitioners will be expected to embed it into Foundation Phase teaching for children aged five to seven.

It is important to stress that the LNF is intended to be incorporated alongside the existing good practice in the Foundation Phase. Literacy and numeracy skills will need to be taught and assessed through all of the seven Areas of Learning in the Foundation Phase curriculum. The LNF is not intended as a replacement for the Foundation Phase curriculum. Instead, it is intended that the LNF expectations are addressed and taught through the existing Foundation Phase curriculum and that they should be incorporated into ongoing assessments and progression monitoring.

The LNF and the Foundation Phase curriculum are fully compatible and both can be supported by following an AfL approach, which emerges naturally from Foundation Phase practice. Literacy and numeracy can be developed in the different curriculum Areas of Learning, even with children of a young age. This may predominantly be done through play and the exploration of carrying out everyday activities.

The first action you could take is to discuss and explore the LNF with colleagues in the Foundation Phase. Make sure you understand what all the learning expectations are – it is important to gain an understanding of what these expectations look like in Year 1 and Year 2 classes – and see where you are already delivering these.

To maintain consistency across the Foundation Phase you may want to plan lessons, topics and activities with colleagues. It will be beneficial to bridge your understanding with colleagues from other year groups. Whole-school and cross-phase collaboration will be crucial for the successful implementation of the LNF and to ensure that a shared understanding is developed between all practitioners and children[7].

[7]   Case studies in this section are adapted from the 2011 Estyn report *Literacy and the Foundation Phase: An evaluation of the implementation of the Foundation Phase for five to six-year-olds in primary schools with special reference to literacy* (see 'References' section on page 78).

The English subject leader in a primary school describes the implementation of literacy and numeracy skills in the Foundation Phase.

'We wanted to ensure we would improve standards in children's literacy skills and their attitude to learning. I agreed clear criteria for evaluating standards and provision with my colleagues.

This involved leading whole-staff training sessions on good practice so that all practitioners, including support staff, had a clear understanding. I also demonstrated lessons and coached staff. The school's performance management arrangements identified practitioners' training needs. In-house support and external courses supported their professional development.

All the teachers in our school maintain careful records of children's progress through their observations and half-termly assessments. After each review, I meet with them to examine the outcomes of children's learning and achievements. After reviewing the evidence, they identified what worked well and agreed improvements. The introduction of new strategies and resources for teaching literacy and numeracy became the focus for the next monitoring and evaluation of work.'

In everyday classroom experience, the LNF needs to be embedded. This means that all lessons and activities need to contain learning expectations that are linked to the LNF. As the LNF expectations are broad there are a number of ways of doing this. One way is to take a topic-based approach to teaching.

A teacher in Year 2 describes how literacy skills were embedded across the curriculum using AfL techniques to support this.

'Our children were enjoying the story of *The Three Billy Goats Gruff*. As part of their work, they devised posters, made masks and wrote a play script of the story. We used the small outdoor grassed and decked area for dramatising the story and put up the 'wanted' posters that the children had made. Wearing the masks, children took turns to act out the story. When one group was acting, the other children were the audience. They had already prepared peer-assessment sheets that included success criteria, which would help them judge the quality of the drama. They evaluated how well children took on the roles of different characters, read information accurately, spoke clearly and cooperated together.

The outdoor environment provided an ideal setting for the drama and with the provision of benches became a natural theatre. The 'goats' were able to trip trap effectively on the decking area and the 'troll' hid behind a low wall.

The work that children had undertaken over time on the story, writing the posters and preparing the script all came together in this very worthwhile activity. The use of the outdoors added a relevant, interesting and enjoyable dimension to children's learning. Children learned how to modify their talk to the requirements of an audience, project their voices and organise their writing in different forms for different purposes. The activity also helped them to understand the links between reading and writing.'

In this example AfL strategies of involving all children and peer assessment are evident. Examples of some of the LNF expectation statements that can be mapped to the Foundation Phase activities are given in the table on the next page.

	Element	Aspect	Learning expectation	Mapped activity
Oracy across the curriculum	Developing and presenting information and ideas	Speaking	• Adopt a specific role, using appropriate language in structured situations.	Acting out the story.
		Listening	• Retell narratives or information that they have heard, sequencing events correctly.	Writing a playscript.
		Collaboration and discussion	• Contribute to discussion, keeping a focus on the topic and taking turns to speak. • Share activities and information to complete a task.	All activities
Reading across the curriculum	Responding to what has been read	Comprehension	• Recall and retell narratives and information from texts with some details.	Devising posters, writing a playscript.
		Response and analysis	• Show understanding and express opinions about language, information and events in texts.	All activities.
Writing across the curriculum	Organising ideas and information	Meaning, purposes, readers	• Write for different purposes.	Devising posters, writing a playscript.

It is essential that, even at this young age, children are given responsibility for their own learning. One way of managing this is to involve the children as much as possible in deciding what they are going to learn, what their targets for progression are, and how they are going to meet these targets.

An infant school explains how they have given their children responsibility for their own learning.

'At the end of each term, we ask children for their ideas about the work they would like to do the following term. In the spring term, the topic chosen was 'Beyond the wardrobe' because the children were very excited and interested in the story of Narnia. Together, we planned the kinds of things they wanted to include, such as a Narnia role-play area and a 'Frozen Lake' writing room.

To support the teaching we have replaced our content-led schemes of work with skills-based learning based on the expectations from the LNF. These identify the core skills as well as specific skills for thinking, communication and numeracy. This approach includes planning for continuous and enhanced provision. Plans include very specific learning intentions for children and a clear focus on the development of skills. Despite being structured, the plans are flexible enough for us to be able to adapt them readily to meet children's interests and learning needs. Ensuring children have opportunities to initiate their own learning is central to our school's approach.

Children are allowed to move freely around the classroom and have independent access to the outdoors.'

Further guidance on developing literacy and numeracy across the curriculum can be found in the Welsh Assembly Government's 2008 Foundation Phase documents – *Mathematical Development and Language, Literacy* and *Communication Skills* (see 'References' section on page 78).

8. Using AfL and the LNF to develop literacy and numeracy skills across the curriculum

The LNF provides an overarching framework designed to help ensure that every learner can make good progress in literacy and numeracy. The implementation of the LNF is to be underpinned by robust AfL, with practitioners building their familiarity with the LNF by continuously monitoring all learners' progress in oracy, reading, writing, number, measuring and data skills, and numerical reasoning throughout the year, using the LNF expectation statements.

Before this happens, you will need to agree with your fellow practitioners what the various elements and aspects of the LNF will look like in practice in your classrooms.

Whole-school curriculum planning and auditing, and mapping against the LNF, provide valuable continuous professional development (CPD) for practitioners and ensure that a shared understanding of the LNF is maintained across teachers in different subjects and different year groups.

Staff may select expectation statements and discuss in detail how, in different lesson contexts, the selected skills would be recognised. Essentially, this is the process that will help you to break the statements down into constituent skills and identify success criteria.

Ask yourself the following.

- What changes are expected to happen as a result of this lesson?

- What measurable or observable indicators will make it obvious that these changes have happened?

The success criteria for any given piece of learning summarise the key steps or 'ingredients' the learner needs in order to fulfil the learning intention. Think about the main things you expect the learner to do or include or focus on, and identify links to the LNF.

AfL is based on the principle that learners will improve most if they understand the aim of their learning, where they are in relation to this aim and how they can achieve the aim (or close the gap in their knowledge). It is not an add-on or a project; it is central to effective teaching and learning.

In a primary school, a teacher explains how they involve learners in embedding the LNF across the curriculum as follows.

'Effective listening to learners informs planning and moves literacy and numeracy forward across the curriculum. In our school, learners' opinions are valued. Marking, learning journeys, plenaries and discussion sessions are all used effectively to embed our knowledge of the LNF and develop literacy and numeracy across the curriculum.'

By using the LNF and AfL to support each other, using LNF terminology to formulate learning expectations and success criteria, learners too will become increasingly aware of 'what progression looks like' in literacy and numeracy skills.

Selecting LNF expectations in this way, to discuss and develop their understanding of success within a range of cross-curricular tasks, will provide learners with the skills and understanding to evaluate and assess their own work and that of their peers.

A Year 3 teacher talks about the importance of becoming familiar with the detail of the LNF so that literacy and numeracy can be developed across the curriculum.

'It is essential that all staff have a very good knowledge of the LNF and steps towards each goal in the Foundation Phase/national curriculum. They need to assess continually on an individual basis.'

A Year 5 teacher describes how AfL can be used to integrate the LNF across the curriculum.

'Although the AfL training I have received did not specifically relate to literacy and numeracy, its overarching nature easily lends itself to adaptation across a huge range of contexts. This of course also applies to literacy and numeracy; therefore it makes sense that their paths will cross naturally (and beneficially) in curriculum situations.

For example, encouraging learners to determine success criteria for the use of numeracy skills in a cross-curricular context allows them to take ownership of their learning and increases independence during the task. Subsequent review of success against these criteria, whether undertaken through self-assessment, peer assessment or instant teacher feedback, supports the learner in understanding 'where they are' and 'where they need to be'.

Our lesson objectives are separated from the context of the lesson, enabling and encouraging the learners to understand the transferable nature of skills being learned. Our aim is to focus the learners' thinking on each of the skills as separate entities which could prove useful in other situations (both within and out of school, now and in later life).

For example, in a design and technology lesson (context is 'designing a cam toy' – see Case study 3 page 57), separating the objectives and context in this way ensures that the measuring skills being developed are seen as skills which are not always associated with design and technology, but are transferable. The objectives and context are made explicit to the learners at the start of the lesson.'

Using the LNF to set learning expectations and monitor progression

Overview

LNF expectation statements should be used to frame and define the end learning expectation or goal. By using the LNF in this way,

learners' understanding of progression will be reinforced and they will come to understand how to develop and demonstrate their literacy and numeracy skills in a range of contexts.

In the LNF, expectation statements of skill progression are set out for each year group. Your task is to build a picture of what these skills look like across the curriculum and to integrate opportunities for learners to develop and demonstrate them in their work.

A Year 9 teacher explains how the LNF became embedded in their school.

'We ensure that **learning objectives** are skills-focused and linked to the LNF. This enables learners to engage in more relevant and accurate reflection of the extent to which they have made progress in their learning and more significantly engage in discussion on how they can apply these skills to other areas of their learning.'

The teacher also explains that AfL became embedded in the following way.

'By providing learners with clear **success criteria** or affording them with the opportunity of generating their own success criteria, this enables each learner to accurately assess their own progress.'

Success criteria need to focus on the different elements or steps towards the learning expectation not just the end product. They will be task specific and less generic than the learning expectations and LNF expectation statements.

It is important to try to involve learners in the process of developing the success criteria – discussing and identifying skills and subskills needed to achieve the learning expectation. This allows them to understand what is required and to take control of their own learning. This may create slightly different stages of progression for each learner, although ultimately they should all lead to the same overarching expectation.

A teacher in one primary school said the following.

'Tasks such as creating success criteria give learners confidence in knowing what is expected of them and act as a checklist for them to know they are on the right track. Peer assessment is also key because learners can often see things in a different light and therefore can offer advice that us teachers sometimes don't think of! Learners learn from each other and lessons are very much learner-centred. We put the responsibility of learning in the hands of the learners and the results are evident. Our learners are confident with their learning but at the same time feel happy to ask for guidance.'

Developing effective learning expectations

To develop effective progression routes to an overarching learning expectation there are a number of steps that can be followed.

1. Make sure you understand thoroughly what your overarching learning expectation is. This is probably something that is curriculum-based.

2. Use the LNF to help identify all the different skills and subskills that make up the progression towards that end learning expectation and sequence them.

3. Identify which of these skills and subskills you will be able to assess to inform the path of progression.

4. Discuss the learning expectations and progression routes with learners and, where possible, provide models of success.

5. Don't be afraid to tweak or change the skills, subskills and progression route following information from your assessments, but always keep in mind the end expectation.

> **It is common practice to present learning expectations at the beginning of a lesson. Here, a headteacher in a primary school explains how using an alternative approach can be beneficial.**
>
> 'Setting quality learning objectives and valuable success criteria are also critical to learner progress and integral to learners' understanding of where they need to go next in their learning. As a staff we are mindful of the need to mix things up; sometimes withholding the objective can lead to more purposeful and thoughtful discussion at the start of a lesson. It is also helpful in aiding learners to understand the 'big picture'.'

Using questioning skills and 'talk for learning' to develop literacy and numeracy skills

Overview

The benefits of questioning and collaborative 'talk for learning' are now widely recognised. In a talking classroom, learners are actively involved and motivated to learn. They generate and develop their own ideas and develop transferrable skills which they are then able to use flexibly regardless of context or subject area.

The effective use of open questioning will enable you to assess your learners' prior literacy and numeracy knowledge and ensure their engagement at appropriate levels in all subjects. Specifically incorporating LNF expectation statements in your discussions will enable you and your learners to identify and reflect on barriers to learning, and work out solutions to overcome them.

Open questioning, which probes deeper understanding of the learning expectation and associated success criteria, has been shown to engender more sustained learning than using closed questions or simply being 'told' the answer.

However, you need to be clear about the purpose of your questions. Indeed, it is important to consider whether the question is even worth asking. In an effective AfL classroom, these open-ended questions should be differentiated and there should be a culture where both you and your learners can ask questions to and of each other.

In this way learners and practitioners will become increasingly able to challenge themselves and their peers in a culture of trust and collaborative enquiry[8], through the use of a variety of AfL techniques such as learning partners; think, pair, share; no hands up[9].

Exploratory questions should be used to:	'Talk for learning' should be used to:
- find out what learners know and understand in literacy and numeracy - develop learner engagement in literacy and numeracy across the curriculum - promote discussion and thinking of literacy and numeracy skills and how these are transferable across subjects - promote further learning (including independent enquiry) - prompt thinking and reflection on their own literacy and numeracy skills and what they can do to improve - review learning experiences and how these might be transferable.	- explore ideas in literacy and numeracy and build understanding of these two underpinning areas - encourage collaborative learning and thinking - encourage learners to generate their own questions about literacy and numeracy and how these can be used in other areas - help learners to use each other as learning resources - share strategies on what to do when stuck.

To engage learners, promote discussion and establish what learners already know, you might introduce a topic with a 'big question' such as the following.

- How would a mathematician tile my bathroom?

- Ninety-nine per cent of the human body is made up of oxygen, carbon, hydrogen, nitrogen, calcium and phosphorous. Are we just a mixture of chemicals?

- Is dancing a sport?

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[8] In some schools collaborative learning approaches may already be in place. Depending on the existing school culture learners may need to be coached, e.g. agreeing ground rules for speaking and listening, mutual respect, and roles within a group. Evidence suggests that these can be developed relatively quickly.

[9] Further explanation of these strategies can be found in existing guidance (see 'References' section on page 78).

To develop active discussions you might ask the following.

- Who else thinks that?

- Why do you think that?

- What do others think?

To embed links to the LNF, be on the lookout for opportunities to ask the following.

- Have you seen graphs like this in a different context?

- How else might you present this information?

- How can you apply what you have learned in English to how you will write your science report?

To allow learners time to reflect on their learning you might ask the following.

- What have you learned?

- Why is it important?

- How did you learn?

- How can you improve?

A Year 9 teacher explains some of the different approaches used in his school to develop questioning and 'talk for learning' in different subject lessons and how these have impacted on the learning.

- **'Developing more varied questioning techniques** has ensured that staff and learners are engaging with exploring of misconceptions in learners' responses, being provided with statements to debate as opposed to closed questions to which to respond.

- **Promoting higher-order questioning** to develop learners' higher-order thinking skills; we have employed a 'question matrix' based on Anderson's Taxonomy and made use of 'thinking dice' to stimulate progress in learners being able to pose their own questions to facilitate significant progress.

- Employing a **visualiser** (a digital camera device that we use with interactive whiteboards) to facilitate more instant formative assessment; through using this device, learners engage in a more effective collective peer assessment of learners' work. This in turn facilitates a more relevant and instant 'modelling' of how to generate an effective **marking dialogue** which impacts on the accuracy of learners' responses.

This high focus on questioning and discussion has impacted on learners' ability to explore key concepts, make connections between literacy and numeracy skills and other subjects, identify patterns and make more complex inferences.

- Due to the very **frequent use of think, pair, share** and because of the high focus we have placed on developing oracy and independent thought as a means of developing writing skills, learners are developing more independent writing skills and not overly relying on worksheets or writing frames.'

Developing effective questioning skills and 'talk for learning'

To develop effective questioning and a culture of 'talk for learning' in your classroom there are a number of steps that can be followed.

1. Set enquiry-based lessons – introduce a topic with a 'big question'.

2. Prepare in advance of the lesson a set of open questions that are linked to the learning expectation and success criteria. Try to find places to intersperse these throughout the lesson.

3. Use a range of strategies such as talk partners; think, pair, share; no hands up; etc.

4. Allow 'wait time' for learners to discuss their answers and formulate and share responses in a non-threatening way.

5. Encourage and support collaborative work and talk for learning – provide opportunities for groups to share ideas.

6. Encourage learners themselves to question and explore.

7. Model 'thinking aloud', and demonstrate thinking vocabulary – 'I think … ', 'Because …' or 'What if …?'

8. Model active listening – showing respect for other people's views but being prepared to support or challenge with own views.

9. Encourage learners to make links – recognise how that learning can be applied in a range of situations.

Improving feedback to address literacy and numeracy skills

Overview

Feedback is information given to the learner about their achievement in relation to agreed learning expectations. Whether oral or written, feedback[10] is only 'formative' if it informs future learning. It should be aimed specifically at fostering improvement. Feedback that is clearly linked to the LNF expectations will be one of the most essential aspects of using an AfL approach.

Your feedback should be focused, specific, descriptive and manageable and use concepts and terminology from the LNF where possible. Learners will need to be given the opportunity to reflect and act on any feedback they receive in order to improve upon their literacy and numeracy skills. Practitioners should also use the feedback they give to ensure that they adapt their planning and teaching to ensure that literacy and numeracy skills are being accessed in a suitable way in their subjects.

Using the LNF expectations to formulate learning expectations, and using feedback to highlight the processes that drive progress towards those goals, will support learning and teaching and embed the LNF in day-to-day assessment in the classroom.

Feedback is a key feature of AfL practice, but it can be challenging to make it work in the classroom. It can take time and practice to develop the skill of providing effective feedback. The aim is to engage learners with ongoing assessment and motivate them to improve their learning outcomes.

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[10] Feedback has been found to have very high effects on learning across all age groups and in different subject areas. John Hattie, whose work draws on around 800 meta-analyses (52,637 studies), identifies feedback as the most powerful, single moderator that enhances achievement.

Effective feedback causes thinking to take place. It redirects or refocuses the learner's (or the teacher's) actions so that effort and activity are aligned with achieving the desired learning expectation.

Taking the time to provide good and effective feedback does not mean that you should spend four times as long on 'marking'. Instead, focusing on one aspect for a learner to improve upon, rather than aiming to mark up every detail, is a good way to use this method.

A primary teacher explains how they have developed their feedback approach to combine implementation of the LNF with AfL and share good practice across the school.

'Improving the quality of teachers' feedback in learners' draft books has been instrumental in developing literacy and numeracy across the curriculum in our school. INSET was held early in the autumn term 2012 on AfL comments. The nature of samples of comments was discussed, with an emphasis on how effective these are in moving learners' work forward and linking to the LNF. Open ended questioning was emphasised. Year 3 learners' books were shared as an example of good practice in demonstrating how learners' work compares pre- and post-drafting when effective feedback has been provided.

The process of editing through AfL in Year 3 involves sharing teacher questioning in draft books, with the quality of learners' responses also highlighted. As such, good practice is consistently modelled and learners become aware of good practice. This has in turn led to an improvement in the quality of self-assessment and peer assessment in that learners become familiar with good questioning to improve work (with links to the LNF) and consequently become more autonomous with their editing.

A similar process is involved with numeracy. The LNF has ensured that AfL impacts across the curriculum. Updated schemes of work ensure that this is the case.'

Developing a culture of feedback

To develop effective feedback in your classroom there are a number of steps that can be followed.

1. Use the LNF expectations to formulate learning expectations and success criteria for the work to be produced.

2. Identify progress within the LNF; compare current performance with previous work, e.g. 'I can see you have focused on improving …as now you are showing …What if you try …?'.

3. Give verbal feedback as and when it seems appropriate throughout the lesson, e.g. 'Do you think you could develop your ideas further by including some direct quotes from the play?'.

4. Give feedback that is focused, specific, clear and informative, e.g. 'Your letter works well because you have included all the relevant information and used appropriate persuasive language', rather than simply indicating what is correct.

5. Provide specific guidance on how to improve and not just tell learners when they are wrong, e.g. provide a specific instruction about how they can act to immediately improve the quality of their work.

6. Give timely, spontaneous feedback at the point of learning, rather than after the event.

7. Create a time at the beginning of your next lesson when learners can address any written feedback.

8. Provide a balance between support and challenge – encouraging further (manageable) effort by the learner.

Using the LNF to develop peer and self-assessment

Overview

These two areas of AfL are often dealt with together, as it is found that skills developed through peer assessment often help with the understanding and effective use of self-assessment. Knowledge of

the learning expectations and the success criteria underpin these two approaches, as without these learners have no framework with which to assess themselves or each other.

Self-assessment and peer assessment are not innate skills, but need developing in learners to help them get the most out of using these techniques. It is useful to begin with assessing anonymous pieces of work and for practitioners to model feedback skills.

The skill of giving effective feedback needs to be explicitly and effectively modelled, and taught by practitioners across the curriculum. As outlined in the section on 'Improving feeback to address literacy and numeracy skills' (see page 33), this is more than just checking for errors or areas for improvement – it is part of a shared learning culture where learners see themselves and their peers as 'resources' to support their learning, and the practitioner acts more as a facilitator in the learning process.

A simple, but very effective process of peer assessment can be developed from actively involving the learners in generating the success criteria for a task. Peers should then assess one another's work and provide formative feedback based on the agreed, and mutually understood, success criteria. The peer assessment process will consolidate each learner's understanding of the success criteria and provide them with another perspective on their own work. It is essential that learners are then given the opportunity to reflect and act on the feedback they receive to make improvements to their own work.

'Spotlighting' can be used during the course of day-to-day learning. When learners are engaged in work, periodically ask them to pause to focus on a piece of work or an issue that you feel everyone can benefit from sharing. For example, you might use a visualiser[11] to share an example of written work, or you might ask a group to explain the processes they have gone through in a science activity. The rest of the class are then invited to offer formative feedback. You can begin this process by modelling effective feedback (focused, specific, clear and informative) and in time, as they develop their skills, the rest of the class should be invited to offer formative feedback – sometimes formulating it collaboratively and highlighting links to the LNF.

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[11] A visualiser is a digital camera device that points downwards. It is connected to an LCD projector and/or a computer, enabling the display of objects, documents, pictures, etc., onto an interactive whiteboard.

As learners become increasingly skilled in assessing the work of their peers effectively, they will also become more able to assess and improve their own work.

Learners do, however, need access to high-quality learning objectives and success criteria and this can only follow the development of teacher skills in this area. A thorough familiarity with, and regular discussion of, the LNF progression statements will support the necessary processes for all concerned.

A teacher describes how peer and self-assessment is carried out in their school.

'We give learners the responsibility of assessing their own work and the work of peers. Learners are encouraged to use our 'correcting code' to correct mistakes and are given coloured pens to do so. This gives ownership and importance to the task. Learners are constantly encouraged to look objectively at their work in order to recognise the positives and recognise which areas need improvement. In order to do this, learners must know what is needed in order to succeed in the first place. This is why we use success criteria for our tasks. Our learners can confidently identify what is needed to succeed with a task and this is due to expectations, preparation, development and consistency.

Of course, evaluating doesn't always have to be in the written form. Learners are also encouraged to give oral feedback to either staff or to their peers and more specifically asked to justify their opinion and also to offer advice about how to improve the work. Each class has a visualiser which means effective work can be displayed and discussed with the whole class.'

The teacher goes on to describe how these approaches were used in a lesson where learners were writing a diary in the guise of a Roman soldier.

'The learners were given a planning sheet which they had to complete with a partner. The reason for this was to encourage discussion, the sharing of ideas and also to evaluate each other's work. The planning sheet required the learners to look through many resources (information books, their projects, their notes from the videos, the internet, previous worksheets) in order to complete each part fully. This meant they developed many skills from the LNF:

- oracy skills, e.g. discussion, questioning

- reading skills, e.g. skimming, scanning, independent and detailed reading

- writing skills, e.g. choosing appropriate language, writing in note form, using the standard form of various verbs.

Using the planning sheet correctly was important, i.e. to make sure they used all the information they had found and written, to ensure their diary was as information-packed as possible. The learners had to discuss and decide upon the content of the sentences they wrote with their partner and also co-correct the sentences to make sure spelling and sentence structures were correct.'

Developing peer and self-assessment

To develop effective peer and self-assessment there are a number of steps that can be followed.

1. Share the learning expectations with learners, highlighting LNF expectations in every lesson, and ensure they understand them.

2. Together decide what the success criteria should be and what these mean in practice – discuss what success would look like in the context of this lesson.

3. Encourage learners to set targets for themselves, using LNF expectation statements, and identify the steps they need to take to achieve these targets.

4. Develop a set of rules for learners to follow when undertaking peer or self-assessment, e.g. 'We give a reason to explain what we have said about a piece of work.'

5. Actively and consistently model what specific feedback looks like to avoid general comments such as 'Well done' or 'Neat handwriting'.

6. Learners can read aloud their work to each other and develop a set of questions (based on the success criteria) to interrogate the quality of the piece.

7. Learners can be encouraged to mark their own and others' work against an agreed set of criteria.

8. Allow learners time to address feedback gathered during peer and self-assessment, so that work can be improved, issues addressed, or new targets set.

Peer coaching among practitioners to develop and embed AfL and the LNF

Overview

When implementing the LNF, it is important that practitioners work together in developing their understanding of the LNF and to recognise opportunities to develop literacy and numeracy skills in every lesson.

An effective and rewarding approach to practitioner professional development in relation to AfL skills and strategies is peer coaching. It is particularly effective as part of a whole-school policy aimed at developing a shared understanding of new guidelines or practices, such as the introduction of the LNF. Peer coaching is a formative way for practitioners to explore the strategies needed to implement the LNF and develop a deeper understanding of the processes involved.

A peer-coaching model can improve the quality of assessment for learning practices in the context of the LNF and build capacity and sustainability. Working with a peer will enhance your understanding of the progressive learning expectations outlined in the LNF as well as support you in implementing the LNF and extending your AfL practice. Focusing on literacy and numeracy across the curriculum will help to develop all practitioners' understanding of progression.

The primary goal of peer coaching is to rethink the way things are done and adapt to change. As the LNF is introduced, the benefits of peer coaching can go both ways – not only do the observed practitioners get specific feedback but the observers are exposed to a wider variety of classroom approaches from which further dialogue and learning can stem. Practitioners have often reported unexpected learning from observing colleagues working in different subject areas or with learners of different ages. In particular, practitioners of Key Stages 2 and 3 have often been surprised when observing the learning approaches and assessment methods that are used in the Foundation Phase.

A teacher in a secondary school describes how they use lesson observations among other whole-school practices to develop AfL and embed the LNF.

'We monitor and evaluate thoroughly through lesson observations, with a view to sharing a common approach to developing reading skills and questioning strategies and to focus on the level of demand we should expect in terms of accuracy in written expression.

We also monitor and evaluate implementation through scrutiny of department meeting minutes and learner voice. We regularly schedule learning-focused discussions in meetings of senior and middle leaders. We use this forum to find success, establish what makes it good practice and share it with all staff.'

Developing peer coaching in your school

To develop effective peer coaching among staff members in your school there are a number of steps that can be followed.

1. Peer coaching pairs, or teams, should discuss their understanding of the LNF and their understanding of effective AfL classroom practice and explore together ways in which these can best be implemented in tandem in their classrooms.

2. Begin by identifying where you are now – whether you are starting out, on the way, nearly there or already an expert.

3. Timetable a series of ongoing mutual lesson observations, including pre- and post-discussion time. You should reflect on the specific aspects of the LNF and AfL that you want to develop, and discuss and agree these with your peer coach before each session.

4. Each lesson observation should be followed by discussion and feedback and an action plan for your next steps.

Each peer coaching session needs to be focused upon identified needs and expectations. A clear set of protocols and responsibilities should be agreed in advance. Coaches are not expected to provide the answers – it is important that practitioners are enabled to find solutions for themselves.

Using information from reading and numeracy tests in a formative way

Overview

Reading and numeracy tests, which are closely related to the LNF, will be conducted annually for all learners from Years 2 to 9. These tests are intended to provide a 'summative snapshot' of overall performance in terms of progress for cohorts and for individuals. However, assessment information from the national reading and numeracy tests can be used formatively and be developed to support teaching and learning.

Formative assessment and summative assessment should work alongside each other, so as to make summative assessment more meaningful to everyday practice.

Tests can provide a rich source of information which can be engaging and provide stimulus for learners to ask questions, think deeply, review and explore ideas.

For example, for learners from Year 4 upwards, the national reading tests offer a range of specific extended response questions that you can use (on an optional basis) to explore your learners' reading skills and provide formative assessment information[12]. Commentary is provided on patterns of performance and common comprehension errors and some suggestions are provided for developing particular reading comprehension skills as outlined in the LNF.

By looking at your learners' responses you can identify any questions that have caused difficulties or identify where learners' answers are imprecise or reveal a lack of experience in following the exact requirements of a question.

[12]   learning.wales.gov.uk/resources/extended-responses/?lang=en

A teacher from one school explains how they used learning support staff to work with individuals in the basis of question-level analysis of test data.

'We have also focused on using support staff to work with groups of learners to work on individual or group LNF targets, identified by using the tests diagnostically. This can be in short sessions of about 10 minutes each day. This has been effective in raising attainment significantly. Through staff addressing their needs so specifically the learners have gained increased skills which can then be practised and applied across the curriculum.'

A Year 8 teacher who trialled the optional open questions in the national literacy tests said the following.

'After my class had completed the national reading test, we built a series of lessons around the optional extended response questions. First, everyone had a go at writing their own answers to the questions relating to one of the texts. We then had a class discussion on what we might expect the best answers to include. Together, we identified the LNF skills that we would use to answer each question and developed some success criteria linked to LNF progression.

We shared some example answers and learners took turns suggesting improvements that would lead to progression on the literacy component of the LNF.

For example, one question in the Year 8/9 test required the reader to *identify different views of a topic and any areas of agreement and contradiction* (Year 8, Responding to what has been read: Response and analysis). In order to progress this skill we agreed to further explore the controversial issue outlined in the test text (whether it was a good idea to keep animals in zoos) by researching and sharing some alternative viewpoints, therefore working towards being able to *identify different interpretations of facts and information and evaluate their relative merits* (Year 9, responding to what has been read: Response and analysis).

In other questions learners were able to identify skills such as 'summarise and synthesise information' or 'use inference and deduction to understand layers of meaning'.

Using the agreed success criteria, learners were able to evaluate answers and suggest improvements such as 'This answer explains that the writer is trying to persuade us to his point of view, it would be better if it included some examples of how he does it.'

We all found this a really useful exercise for thinking about the LNF skills used in the test and it helped learners to reflect on their own answers and identify their own progression targets.'

As national reading and numeracy tests become established, you can develop effective methods of using information from the tests in a more formative way.

For example, there are a number of steps that can be followed.

1. When marking the national reading and numeracy tests for your learners look for patterns of achievement, common errors or misconceptions.

2. Question-level analysis can reveal strengths and areas for improvement across a whole class or year group, and their performance can be compared with that of a nationally representative sample.

3. Use the information you derive to reflect on your own practice and to inform your planning and teaching.

4. Use the information you derive to feed back to individual learners and share this information with the class teacher for the next year.

5. Identify question types that have proved difficult for groups or for individuals. This can be useful for identifying areas of learning that need to be revisited.

6. In a lesson, set learners the task of making up their own questions related to a test and thinking of the marking criteria that would go with them.

7. Using a selection of responses, given by the class but anonymised, ask learners working in pairs or groups to rank them using the marking criteria. (If the influence of handwriting is removed from the examples, learners are much more able to focus on the quality of the response.)

8. Learners can be their own best critics. Showing them the marking criteria and encouraging them to compare their responses with those that gained maximum marks can be enlightening. (This needs to be done sensitively within a culture that has embedded the use of feedback and peer and self-assessment.)

9. Use the optional open questions provided with the national reading tests to explore individual and group understanding of the texts used in the tests. (These are intended to be used after the official test has been completed.)

Following these activities learners can be asked to identify some learning targets in relation to the LNF that will help them improve their performance.

9. Case study examples of whole lessons

In this section a range of lesson case studies are presented to illustrate how the LNF expectation statements can be recognised and assessed in day-to-day lessons using AfL. Each was submitted by a different teacher, and each has its own style and focus.

You might find it helpful to consider a typical lesson in your class and identify which of the LNF expectations you might observe in your learners. Look also at the expectation statements in the years above and below those of your learners so that you grow to recognise progression and can target expectations appropriately for all learners, including those with additional learning needs (ALN) and the more able and talented.

Remember the LNF and AfL are applicable to all learners, from 5 to 14 years old, and across all curriculum areas.

Case study 1: Developing literacy and numeracy in the Foundation Phase

In this school, all learners were working on the whole-school topic of 'Space'. Collaborative planning and cross-curricular mapping of LNF skills ensured that opportunities for progression in literacy and numeracy were identified and highlighted in every lesson across the school (where appropriate[13]). Further examples of cross-curricular lessons on the whole-school 'Space' theme are presented in Case study 4 (see page 61).

Part 1: Out of this world

Context: In this lesson learners explored what they (already) knew about space.

Learning intentions: To discuss different ways of presenting information; to express preferences and give reasons; to record relevant information in a variety of ways.

As is often the case in the Foundation Phase, practitioners adapt the teaching in response to something initiated by one of the children, to support and encourage their 'independent learning'. This activity stemmed from a discussion that blossomed when one of the Year 2 children brought in a book from home which he enjoyed.

Initially, in a whole-class discussion session, the Year 2 teacher established the children's prior knowledge and understanding of the topic asking the following.

• What did the children (already) know?

• What did they want to find out?

Next, the group talked about different ways of presenting information, using the book as the first example then finding other, alternative ways of presenting various facts. All children were able to contribute something to the class discussion and a number of LNF skills were assessed.

Further discussions occurred both in talking partners and within a group situation and reporters cascaded the main points to the rest of the class so that further discussion could take place on the areas of interest.

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[13] While there are almost always opportunities to use some literacy skills, there are some lessons where numeracy skills cannot be incorporated.

Part 2: Mathematical questions

Context: In this lesson children were asked to generate a question involving numbers and space and to research and present their answers in writing.

Learning intentions: To ask mathematical questions; to understand and record relevant details/data from texts.

In order to incorporate a numeracy focus, it was agreed that each question should, in some way, involve numbers.

Each child generated a question, for example 'How fast does a space shuttle travel into space?', which they would then research and present their findings in writing. After the discussions were complete, children worked independently on their writing task, finding the answers to their questions and looking for supporting illustrations if required.

As they were already engaged with the topic (as part of the whole-school thematic planning), these Year 2 children were able to pose numerical questions to further their knowledge and understanding of space, e.g. 'How many days does it take for the Earth to orbit the sun?', 'How many of the Earth's moons could you

fit on the planet Mercury?', 'How old is the planet Jupiter?', ' If you weigh 100lbs on Earth how much would you weigh on Jupiter?'.

Children then researched the answers to their questions using a variety of sources. For this activity, they initially worked in talking partners.

The teacher then modelled and suggested different ways of presenting their answers to remind the children that there is more than one way to present numerical ideas.

Most children were able to read and write numbers to 100. Later, when they reported the information to the class, some children showed that they could read numbers over 100, over 1,000 and in some cases over 100,000.

LNF links: Year 2 – Numeracy – Using number skills

Use number facts and relationships:

- Read and write numbers to 100.
- Compare and order 2-digit numbers.

LNF links: Year 2 – Numeracy – Using data skills

Collect and record data; Present and analyse data; Interpret results:

- Gather and record data from:
  – lists and tables
  – diagrams
  – block graphs
  – pictograms where the symbol represents one unit.

- Extract and interpret information from lists, tables, diagrams and graphs.

LNF links: Year 2 – Oracy across the curriculum – Developing and presenting information and ideas

Speaking:

- Welsh-medium statement: Use some mutations that have been practised orally, *e.g. fy mag, i dref*.

Listening:

- Welsh-medium statement: Answer questions by using the correct formats, *e.g. Ydy? Ydy/Nac ydy*.

LNF links: Year 2 – Literacy – Reading across the curriculum – Locating, selecting and using information

Reading strategies:

- Identify and use text features, *e.g. titles, headings and pictures*, to locate and understand specific information.

- Look for key words to find out what the text is about.

- Use the different features of texts to make meaning, *e.g. pictures, charts and layout*.

Comprehension:

- Explain relevant details from texts.

- Draw upon relevant personal experience and prior knowledge to support understanding of texts.

Part 3: Presenting the facts

Children were asked to consider how they would present their work so that their ideas were organised and the reader could see the facts clearly and quickly.

Learning intention: To present work in a clear, organised way.

Children were asked to consider which layout they would use:

- mind maps

- bullet points

- KWL grids[14]

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14 A KWL grid highlights prior knowledge and can be used as a starting point for investigations. It indicates areas of interest, promotes researching skills and can be used for assessment. Columns in the grid are headed 'What do I know about this topic? (K)', 'What do I want to know about it? (W)', 'What have I learnt about it? (L)'.

- diagrams

- annotated drawings.

These are AfL strategies that we find work well with this age group.

For example, one child asked the question 'What distance is the Moon from Earth?'. Illustrations of the Earth, Moon and a rocket were provided, complete with labels, alongside the answer 'The moon is about 224,000 miles from the Earth.'

During the lesson, the success criteria were reviewed during 'pit stops' and learners looked at examples of what their peers had produced.

Different layouts were presented to the class, and we discussed, as a class, questions such as the following.

- What were the positive points about each?

- Which layout(s) completely fulfilled the success criteria?

After sharing their work and reviewing the success criteria as a class, learners reviewed and improved their own work taking into account what they had learned in the class discussions.

LNF links: Year 2 – Literacy – Writing across the curriculum – Organising ideas and information

Meaning, purposes, readers:

- Write for different purposes.

- Write text which makes sense to another reader, which may include details and pictures.

- Use talk to plan writing.

- Experiment with different formats and layouts on-screen, using the facility to move text and pictures around easily.

Structure and organisation:

- Follow and build upon a form modelled by the teacher.

- Use different types of writing appropriate to purpose and reader.

LNF links: Year 2 – Literacy – Writing across the curriculum – Writing accurately

Language:

- Understand and use language appropriate to writing.

- Use simple subject related words appropriately.

LNF links: Year 2 – Literacy – Reading across the curriculum – Locating, selecting and using information

Reading strategies:

- Identify and use text features, *e.g. titles, headings and pictures*, to locate and understand specific information.

- Look for key words to find out what the text is about.

- Use the different features of texts to make meaning, *e.g. pictures, charts and layout*.

Comprehension:

- Explain relevant details from texts.

- Draw upon relevant personal experience and prior knowledge to support understanding of texts.

Case study 2: Developing literacy in a history lesson in Year 5

In this case study a Year 5 teacher describes a history lesson in which a very wide range of literacy skills were developed.

Context: In this lesson the learners were asked to write a diary as written by a Roman soldier after a day of battle against the Celts.

To prepare for this activity learners had already completed a number of tasks, including:

• creating a project (homework task) about the Roman army

• watching videos and making notes

• many investigative tasks using books and tablet computers, e.g. discovering the Latin names for the weapons and armour so that they could use these terms within their diary.

Learners had also studied what made an effective or ineffective Roman soldier's diary in order to further develop their understanding of the requirements of a successful diary. They had also created Celtic masks and Roman shields (art work) and had a 'Romans vs Celts' role play lesson where they had to display the different fighting techniques used by both sides.

These tasks alone developed many cross-curricular literacy skills and could be developed further to include the numeracy strands.

Successful activities

Learners were given a planning sheet which they had to complete with a partner. The sheet provided a number of prompts to support planning, e.g. the purpose of the battle, how the Celts lived and fought, as well as what happened and how they felt. The reason for this was to encourage discussion, the sharing of ideas and also to evaluate each other's work. To challenge the more able learners, the partners were chosen based upon ability. Those who needed additional assistance co-worked with a classroom assistant. This group of learners disucussed ideas and came to decisions about the best ideas and sentences for the content of their work and this is what they did for the diary.

The planning sheet required the learners to look through many resources (information books, their projects, their notes from the videos, the internet, previous worksheets) in order to complete each part fully. This meant they developed many skills from the LNF.

After completing the planning sheet, as a class we again looked at the example of an effective diary and this led to creating success criteria for their own diary. Once the learners had done this they were ready to start writing their diary using the detailed planning sheet and the success criteria.

What worked well

Many of the activities worked well because the learners saw that there was a purpose for each and that each one built upon each other. During and after each activity the learners were 'AfL-ing', thus developing skills and knowledge.

Using the planning sheet correctly was particularly important, i.e. to make sure learners used all the information they had found and written, to ensure their diary was as information-packed as possible. Therefore, to make sure the learners did include everything, and in order, they were asked to highlight the sheet as they went on. The challenge also was to change these previously written notes to meaningful and interesting sentences, thus creating an effective diary. This meant the learners had to discuss and decide upon the content of the sentences they wrote with their partner, and also co-correct the sentences to make sure spelling and sentence structures were correct. They also had a word sheet to help them.

At the end of each lesson the learners would evaluate their written work so far against the success criteria and if they noticed any areas for improvement they knew to pay attention to these during the next lesson.

LNF links: Year 5 – Literacy – Reading across the curriculum – Responding to what has been read

Comprehension:

- Show understanding of main ideas and significant details in texts, *e.g. mindmapping showing hierarchy of ideas, flowchart identifying a process*.

- Identify and explore ideas and information that interest them.

Response and analysis:

- Gather and organise information and ideas from different sources.

- Identify what the writer thinks about the topic, *e.g. admires a historical figure, only interested in facts*.

LNF links: Year 5 – Literacy – Writing across the curriculum – Organising ideas and information

Meaning, purposes, readers:

- Write with a clear purpose, showing consideration for the reader, *e.g. by choosing appropriate vocabulary and presentational devices*.

- Expand upon main idea(s) with supporting reasons, information and examples.

- Use techniques in planning writing, *e.g. mindmapping, sequencing, placemat activities.*

- Revise and improve writing, explaining why they have made changes.

Structure and organisation:

- Use features which show the structure of the writing, *e.g. sub-headings, captions*.

- Use paragraphs, which have a main idea and related details.

LNF links: Year 5 – Literacy – Writing across the curriculum – Writing accurately

Language:

- Use language appropriate to writing, including standard forms of English.

- Use appropriate vocabulary, including subject-specific words and phrases.

LNF links: Year 5 – Literacy – Writing across the curriculum – Writing accurately

Grammar, Punctuation, Spelling, Handwriting:

- Use different sentence structures, including complex sentences showing relationships of time, or cause, *e.g. before you start …, if you do this then …*

- Use the full range of punctuation to guide the reader in complex sentences, *e.g. commas, bullet points, speech marks and apostrophes for possession*.

- Use a variety of strategies to spell words with complex regular patterns, *e.g. exercise, competition*.

- Produce legible, cursive handwriting with increasing fluency.

- Welsh-medium statement: Use the standard forms of a variety of verbs, *e.g. present, past and negative forms*.

- Welsh-medium statement: Mutate correctly, especially after most prepositions and pronouns, *e.g. am funud, dy fam*.

- Welsh-medium statement: Spell an increasing number of plural forms, *e.g. -oedd, -od, -ydd*, and words with double consonants, *e.g. cynnwys*, correctly in context.

Case study 3: Developing numeracy in a design and technology lesson

This case study shows a Year 5 teacher's lesson plan followed by her reflections on the lesson after delivery.

The lesson plan

Context: The learners were asked to design a cam toy.

Learning objectives:

Design and technology	Numeracy – Using measuring skills	Literacy
• To develop a simple specification (construction diagram) for their product. • To develop and communicate their design ideas. • To evaluate design ideas as they develop.	• To use measuring instruments (read scales) with 10 equal divisions between each major unit. • To make use of simple conversions. • To measure/ calculate perimeter. • To record using decimal notation. (Also a range of numerical reasoning skills.)	• Explain information and ideas. • Speak clearly using formal language. • Listen to others (asking questions and responding). • Contribute to group discussion taking some responsibility for completing the task well. • Build on and develop the ideas of others in group discussions.

Success criteria: As determined by the learners during the previous lesson, they are as follows.

- Drawings fit on one piece of paper.

- In each pair both drawings are exactly the same.

- Keep the pencil sharp.

- Measure as accurately as possible.

- Draw all lines with a ruler.

- Write measurements in millimetres (and convert to centimetres).

- Work out perimeter of frame.

- Draw ends of arrows precisely.

Challenge and support: (Three learners with ALN in numeracy, one learner with an individual behaviour plan with one-to-one support.) Learners will be working in cooperative pairs. Challenge more able learners to take into account the depth of the wood when calculating the amount needed.

Planning phase: (Setting the scene, bridging from what is already known, clarifying success criteria.) Recap on the reason for drawing accurate diagrams onto squared paper, using examples of learners' initial (unscaled) drawings as stimulus. Start with exercise in mental numeracy skills converting between millimetres and centimetres, and a recap of preparatory work done. Introduce learning objectives and context, as well as key skills to be developed. Learners to recall yesterday's success criteria. Hand out task sheet and discuss.

Development phase: (Setting the challenge, group work, intervention opportunities, class discussion – listen to each other and comment, peer assessment.) Learners need to consider how they will construct a frame of a suitable size to support the cams they have chosen to use, then transfer their ideas onto squared paper in the form of an accurate, actual-size diagram. Explain that mistakes and the need to revise plans are to be expected. Task sheet can be completed as the lesson progresses, and regular reference should be made to the success criteria.

Traffic lighting is used during this phase to monitor progress and establish who may need more support, in relation to specific success criteria.

Stop to share good examples as the lesson progresses and to remind about success criteria where needed. Also share and discuss any problems encountered (and significance of the depth of the wood to be used for the frame of the cam toy – more able and talented learners).

Reflection phase: (What the learners have discovered/their methods of working, what they have learned from each other, relating back to success criteria, traffic lighting to find out how understanding has shifted.) Select two or three pairs to share and explain their work at this stage. Give opportunities for peer assessment, again in relation to specific success criteria, and questioning by peers if they feel that further clarification is needed. Offer brief teacher feedback in each case. Discuss next steps and how the completed diagrams will assist with construction of the toy.

Discuss other situations/examples of where the numeracy and design and technology skills developed today may be useful. What might be the next steps in their development of these skills?

The teacher's reflections

The teacher reflected on the lesson and concluded the following.

- Separation of objectives and context ensures that the measuring skills being developed are seen as skills which are not always associated with design and technology, but are transferable. The objectives and context are made explicit to the learners at the start of the lesson.

- It is important for learners to establish where they are with their learning at the start of a lesson, and what their targets are. Determining success criteria supports the learners by acting as a checklist as they move through the lesson, allowing them a feeling of independence as well as success as they reach their goals. It also focuses them on the specific skills being developed (in this case measuring skills which in turn support development of design and technology skills).

- Traffic lighting is used mid-lesson rather than at the end, and against specific numeracy skills as determined in the success criteria. Work can then be self-assessed or peer assessed with time still remaining in the lesson to provide support where needed, which increases the likelihood of learners making progress and successfully incorporating numeracy skills into their design and technology work.

- Opportunities are provided for learners to develop their literacy skills through discussion and questioning. In discussion I would expect to be able to approach any of the groups, and for any member of that group to explain how their work is progressing. When sharing their ideas with the class the listeners are encouraged to ask questions for clarification or further details at the end, and the presenters should be able to respond appropriately.

- Time is given for reflection at the end of the lesson which includes determining success, once more against specific success criteria. The learners consequently gain a greater understanding of how they have moved on with their learning. This includes how their numeracy and design and technology skills have developed, as well as how the numeracy skills have contributed to their success in a design and technology lesson. This is reinforced by discussing next steps and by linking their learning from this lesson to other situations where the numeracy and design and technology skills developed might prove useful.

Case study 4: Developing literacy and numeracy across the curriculum in Years 5 and 6

In this case study, the schools have developed a thematic, cross-curricular approach to learning and as a result various skills projects have been produced by classes across the Foundation Phase and Key Stage 2. Here, just some of the range of lessons are highlighted to show LNF links.

Science investigation: The Sun is at its highest point in the sky at midday. Is this correct and are shadows longest or shortest at this point?

Learners in Year 6 were given the above question to plan an investigation. Each group during the planning process:

- chose the equipment they would use

- decided what they would change/keep the same

- decided what they would measure and how they would achieve this – which equipment

- considered how they would conduct the experiment – method.

Learning intentions: To contribute purposefully to group discussion to achieve agreed outcomes; to use the features of a scientific report to record; to measure accurately; to record data in the most appropriate format.

Individually, learners then needed to decide how they would best present these results. Which method of data presentation would be the most appropriate? Many learners decided to use a line graph and/or table. They chose which scale they would use. Most groups decided to use tape measures and measure in centimetres and millimetres for more specific measurements.

LNF skills observed

Oracy	Writing	Numeracy
During the planning stage, learners: • contributed purposefully to group discussion to produce a good investigation plan • followed up points in group discussions, showing agreement or disagreement and giving reasons.	When writing the plan, learners: • used the features of the chosen form – a scientific report on the investigation undertaken • used bullet points and subheadings to organise effectively the presentation of data and ideas • included subject-specific words and phrases.	During the activity, learners: • recorded measurements in different ways, e.g. 16.3cm = 163mm • represented data using tables and line graphs • extracted and interpreted information from their graphs.

AfL: Questioning/group work.

LNF links:

- Literacy – Oracy across the curriculum – Developing and presenting information and ideas – Collaboration and discussion.

- Literacy – Writing across the curriculum – Organising ideas and information – Meaning, purposes, readers.

- Literacy – Writing across the curriculum – Writing accurately – Language.

- Numeracy – Using measuring skills – Length, weight/mass, capacity.

- Numeracy – Using data skills – Collect and record data, Present and analyse data, Interpret results.

Space travel calculations

Learning intention: To ask mathematical questions.

In pairs, learners designed mathematical questions relating to the cost of travelling into space as a tourist. They were encouraged to design questions that would allow them to estimate, round and use number relationships, e.g. 'How many times could I go to New Zealand for the same price as a space flight?'. They were given autonomy to choose a method to record their answers. A mix of KWLs[15], QuAD[16] grids, discussions and mindmaps were chosen.

As the numbers involved were in the hundreds of thousands, it was also important for learners to recognise the appropriateness of using a calculator.

LNF skills observed

Numeracy – Using number skills – Estimate and check
Learners demonstrate a variety of methods, including mental and written strategies. They confidently used the inverse to check their workings and used rounding to estimate.   • Check answers using inverse operations.   • Estimate by rounding to the nearest 10, 100, 1000 or whole number.

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[15]   A KWL grid highlights prior knowledge and can be used as a starting point for investigations. It indicates areas of interest, promotes researching skills and can be used for assessment. Columns in the grid are headed 'What do I know about this topic? (K)', 'What do I want to know about it? (W)', 'What have I learnt about it? (L)'.

[16]   QuADS – 'QUESTION: What do I want to know? (Qu)', 'ANSWER: What have I found out? (A)', 'DETAIL: What interesting facts and extra details have I discovered? (D)', 'SOURCE: Where did I find my information (S)'.

> **AfL:** Asking questions.
>
> **LNF links:**
>
> - Numeracy – Using number skills – Estimate and check.
> - Numeracy – Using number skills – Calculate using mental and written methods.
> - Numeracy – Using number skills – Use number facts and relationships: Read and write numbers to 1 million and numbers to 3 decimal places.
> - Numeracy – Using number skills – Use number facts and relationships: Multiply and divide numbers by 10 and 100.

Drawing planets to scale

In talking partners, learners were challenged to draw the planets to scale. They were asked to discuss the methodology and the approach they could use. All agreed that they needed to find the diameters of the planets. Some thought that these should be rounded.

The use of a compass was modelled using the visualiser before learners began to decide on a scale for themselves. During regular pit stops, learners reviewed their progress through talk and discussion. Many started with the smaller planets and only realised after getting to the larger planets that it would not be possible to draw them with the same scale. At this point, it was important for the teacher to pose a number of 'What if … ?', 'Could we try … ?', 'Another possible way would be …' suggestions. These prompts are on display on the classroom wall.

> **AfL:** Asking questions/classroom talk/peer and self-assessment.
>
> **LNF links:**
>
> - Numeracy – Develop numerical reasoning – Represent and communicate: Select and construct appropriate charts, diagrams and graphs with suitable scales.

Pie chart – comparing planet sizes

Learning intentions: Present information in the most appropriate way.

Following the work on drawing planets, a small group of more able learners recognised, through a reflection exercise (reflection triangle), that at a glance, it could be difficult to recognise which planet was the largest. Therefore, they were challenged to come up with a solution: 'How can you show, simply and effectively, the relative sizes of the planets?'.

Using reasoning skills, the learners determined that a graph or diagram is a useful snapshot of a situation. They investigated different types of graph using a spreadsheet computer program, and decided that a pie chart was their preferred medium.

Some very high-level mathematics was required to translate the data into a pie chart, but all strategies used were the learners' own, with some prompting of the process given by the teacher. When the learners had constructed their own pie chart, they made another using the spreadsheet program.

LNF skills observed

Numeracy – Using data skills: Collect and record data, Present and analyse data, Interpret results

• Represent data using:
   – lists, tally charts, tables, diagrams and frequency tables
   – bar charts, grouped data charts, line graphs and conversion graphs.
 	
• Extract and interpret information from an increasing range of diagrams, timetables and graphs (including pie charts).
 	
• Use mean, median, mode and range to describe a data set.

> **AfL:** Encouraging learning autonomy.
>
> **LNF links:**
>
> - Numeracy – Developing numerical reasoning – Represent and communicate: Select and construct appropriate charts, diagrams and graphs with suitable scales.
> - Numeracy – Using data skills – Collect and record data, Present and analyse data, Interpret results: Represent data using:
>   - lists, tally charts, tables, diagrams and frequency tables
>   - bar charts, grouped data charts, line graphs and conversion graphs.

Interactive table resource

Learning intentions: To estimate and visualise size when measuring; make careful observations and accurate measurements using ICT equipment.

While investigating and researching the planets in the solar system, Year 5/6 learners were challenged to examine the relative sizes of the planets. An interactive table activity was authored to support learners in their numeracy work on 'scale' as well as further their understanding of 'the relative positions and key features of the planets'. Learners were given autonomy to use the resource for their own learning; objectives were therefore differentiated by outcome.

The interactive table can have up to six learners working collaboratively with their own set of tools. Standing around the table, learners see a black background with images of the sun and eight planets – all jumbled up. There are also text labels for each of the planets. The planets can be moved around the table by touch, plus they can be resized. Each learner has access to their own 'toolkit'. The toolkit contains:

- a web browser – enabling learners to look up facts, figures and images of planets
- a number pad – allowing learners to annotate the table, e.g. planet diameters, distances between planets

- a calculator

- a ruler – to be used to resize planets to scale.

> **AfL:** Encouraging learning autonomy.
>
> **LNF links:**
>
> - Numeracy – Developing numerical reasoning – Identify processes and connections: Estimate and visualise size when measuring and use the correct units.
> - Numeracy – Developing numerical reasoning – Represent and communicate: Select and construct …diagrams …with suitable scales.

At its simplest, the activity has been used by a learner with additional learning needs (on a one-to-one basis) to order the planets. At its most challenging, a group of Year 5 learners used the web browser to research the diameters of the planets. They rounded the measurements and annotated the diagram. They then resized each planet using the ruler in the toolkit. Working collaboratively, they were able to come up with solutions to problems they encountered such as fitting all the planets on the table (decrease the scale).

Having done this, they then decided to examine the distance between planets and to adjust the activity accordingly. They were unable to complete the whole solar system in this way, and so were advised to increase the scale and focus on the relationship between two neighbouring planets. They then made comparisons between pairs of planets.

In all cases, learners have been enthused and inspired by the activity and have demonstrated sound understanding of the key concepts covered. As well as meeting set curriculum objectives, it has encouraged collaboration and problem solving and created opportunities for learners to direct their own learning.

Designing a space board game

Learning intentions: To ask subject-related questions; to use subject-specific words and phrases; to use features and layout to enhance presentation and clarity.

Working in pairs or groups of three, learners in Year 6 were asked to design a board game that specifically asked and answered questions concerning the Earth and beyond – areas they had been studying in their science lessons. For example, 'How many days does it take for the Earth to orbit the Sun?', 'At what time of day would shadows be at their shortest?', 'Which planet is closest to the Sun?'.

These games would be used to help future learners in this age group to study the Earth and beyond in an interesting, informative fun-filled way.

At all stages, learners were asked to review the success criteria to ensure that the end product was the best that it could be.

'Pit stops' were regularly made to review what the learners perceived to be their strengths and what they did to overcome difficulties. For example, which sources did they use and how could you ensure that learners were writing the same answers for each question? (In the end some learners decided to use a study guide so that they asked relevant questions and adhered to the success criteria.)

AfL: Talking partners/pit stops/review success criteria/peer and self-assessment.

LNF links:

- Literacy – Oracy across the curriculum – Developing and presenting information and ideas – Speaking.
- Literacy – Oracy across the curriculum – Developing and presenting information and ideas – Listening.
- Literacy – Oracy across the curriculum – Developing and presenting information and ideas – Collaboration and discussion.
- Literacy – Reading across the curriculum – Locating, selecting and using information – Reading strategies.

- Literacy – Writing across the curriculum – Organising ideas and information – Meaning, purposes, readers.
- Literacy – Writing across the curriculum – Organising ideas and information – Structure and organisation.
- Literacy – Writing across the curriculum – Writing accurately.

LNF skills observed

Oracy	Writing
Learners needed to: • express issues and ideas clearly using specialist vocabulary during the planning and designing stage • respond to others with questions and comments which focused on reasons, implications and next steps (the planning stage) • contribute purposefully to group discussion to achieve agreed outcomes (the planning stage).	Learners were required to: • adapt writing style to suit the future Year 6 audience and ensure that the purpose (to deliver subject content on the Earth and beyond) was achieved • edit, reflect and improve their writing independently – had they remembered question marks and was the spelling accurate as the success criteria for the task required • use features and layout to enhance presentation and add clarity – how had they separated their questions and answers (learners were asked to reflect on how they would achieve this in the success criteria) • use subject-specific words and phrases.
Reading	
Learners: • used a range of strategies to skim and scan for information • selected essential points.	

Peer and self-assessment

Learning intentions: To discuss agreed outcomes through questioning and comments; to agree/disagree with peer assessment evaluations; to reflect on, edit and improve their work.

The learners were then asked to design a space game based on their Earth and beyond questions. They also needed to supply a list of equipment and materials that they would need to produce a game that would last at least a year and beyond. Furthermore, they needed to provide a list of instructions that would make the objectives of the game very clear.

The success criteria stated that the game would need to:

• be a teaching/revision tool on the correct subject content

• be a vibrant, colourful game

• be a durable game that would not fall apart after a few occasions

• add a sense of fun to the learning process too.

After their first draft of the game, and based on the appearance, durability and how learners playing the game would reach their objective, another partnership within the class reflected on and evaluated their work. They were to choose two positive points about the design using the success criteria as their guide to comment on both points. Furthermore, they had to write one point for improvement also based on the success criteria.

Discussion immediately afterwards between the partnerships clarified and put into further context the comments made on their plans so that both partners could further improve their work in the next stage.

At the end of the design process, each partnership reflected on their progress to date (what they thought of their design), as well as the improvements they had made to their work and how these amendments had enhanced their work.

LNF skills observed

Oracy	Writing
Years 5 and 6 learners: • expressed issues and ideas clearly during the evaluating stage • responded to others with questions and comments which focused on reasons, implications and next steps – the evaluating stage (peer and self-assessment) • contributed purposefully to group discussion to achieve agreed outcomes (the re-evaluating stage) • followed up points in group discussions, showing agreement or disagreement giving reasons – the evaluating stage (peer and self-assessment).	Year 6 learners: • adapted the writing style to suit the audience and purpose • edited, reflected and improved their work independently • used features and layouts to enhance the presentation of their ideas – how will they present a list of instructions clearly, which presentational features should they choose • used subject-specific vocabulary • focused on neat presentation, accurate spellings and punctuation.

Using padlet[17]

Learning intentions: To ask questions (Year 5); to reflect on learning (Year 6).

In pairs, learners in Years 5 and 6 created a class padlet to both pose questions and display answers to questions posed. For example, one learner asked 'How many times would you need to go to Australia and back to travel the same distance as going to the moon?'.

Meanwhile, the question 'What distance did the Apollo 13 mission travel before the oxygen tank exploded?' was answered by another child on a different padlet: 'I have learned that Apollo 13 went 200,000 miles from Earth.'

[17] Padlet is an internet application that allows people to express their thoughts on a common topic easily. It works like an online sheet of paper where people can put any content (e.g. images, videos, documents, text) anywhere on the page, together with others, from any device.

They verified their answers by looking at reliable sources and comparing information on different web pages.

LNF skills observed

Oracy	Writing
Learners in Years 5 and 6: • used a range of strategies to skim and scan for information • selected essential points • assessed the quality and reliability of information on web pages, considering its origins and verifying accuracy.	Learners used: • features and layout which were clearly constructed to enhance their ideas • subject-specific words and phrases such as 'mission duration', 'oxygen tank', 'closest approach' and 'the first aborted Apollo mission'.

AfL: Asking questions; ICT.

LNF links:

• Literacy – Reading across the curriculum – Locating, selecting and using information – Reading strategies.

• Literacy – Writing across the curriculum – Organising ideas and information – Structure and organisation.

• Literacy – Writing across the curriculum – Writing accurately – Language.

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Case study 5: Developing literacy in a history lesson in Year 9

In this case study a Year 9 teacher describes a history lesson, highlighting the links to developing literacy at the appropriate level. While this is, in many ways, similar to the history lesson in Case study 2 (see page 52), it is important to note that the teacher is addressing literacy skills at a much higher level.

Context: In this lesson learners had to gather and compare evidence from a variety of sources to understand trench and battle conditions in the First World War so that they could write a letter from a First World War soldier to his family and improve their work.

Starter activity: Introduce the topic and reading strategies that will be used. Learners were shown a small extract from a letter informing a parent of their son's death then asked 'What is this an extract from?'. Learners looked at the document for 10 seconds then shared their ideas. We discussed examples of word choices that learners had picked to support their ideas of what the text was about. This generated some discussion and some learners came to different conclusions from the same words/phrases, so we were able to discuss the idea of plurality and the need for contextual information to add understanding to our reading.

We established that the time limit ensured that the learners had to use the skill of skimming, and highlighted what that skill is used for.

We then showed a second, larger extract from the same document and learners were challenged to find three words that supported their interpretation.

We established that this task uses the techniques of scanning.

There followed an open discussion in which learners explored and described the difference in the two processes. For this discussion we used a random number generator so that any learner could be asked to answer a question which corresponds with their given number (AfL technique to encourage the involvement of all learners – could use lollipop sticks or similar). During the discussion each response was followed up with a second question to a new learner asking if their opinion is the same or different (AfL 'bounce' strategy).

Activity 1: Develop and reinforce reading strategies to get a better understanding of the content of the material

Learners were given two letters, one explaining the true horrors of the war, and another that was much more guarded and jovial. One was dated 1916, the second was dated 1915. Both were written to parents.

The class was organised into groups of five or six and each learner was given a grid with 30 boxes on it. Their task was to summarise one of the letters into 30 words (one word in each box).

Learners then worked within their table groups to produce a 30-word summary of the letter which all of the group agreed showed the key elements of the original. This then generated discussion regarding the decision process that happened on each table at a group level (why did the group prioritise certain pieces of information rather than others?), establishing that prioritising information and ideas is a key element of reading.

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Activity 2: Scan materials for contradictions and use those contradictions to develop understanding of historical context

In pairs, learners used graphic organisers to visually represent the contradictions in each text, looking at key areas such as weather/conditions/food/friends/death/battles/emotions/thoughts for the future.

We then had a class discussion in which learners were asked to suggest theories why one of the letters is relatively positive while the other is extremely negative. Again random number generators and 'bounce' strategies were used. This is a key area of the lesson to reinforce previous learning regarding the battles and chronology of the war and how this contributed to conditions and morale.

We concluded the discussion by establishing that letter one is most likely to be the most realistic letter as a historical document.

LNF links: Year 9 – Literacy – Reading across the curriculum – Responding to what has been read

Response and analysis:

- Distinguish between facts/evidence and bias/argument.
- Identify different interpretations of facts and information and evaluate their relative merits.
- Evaluate the usefulness and reliability of texts.

Activity 3: Mapping success criteria for writing

In groups learners were asked to respond to the question 'If you were to write your own realistic letter from the front line, what features and ideas would you have to include to ensure it was successful?'.

Learners annotated letter one to label the features that they thought made it most realistic and most authentic, then as a class we discussed which evidence they had picked and why. The discussion focused on helping learners identify specific quotes from the letter and discussing why they were effective, e.g. 'terrifying' and 'horrific' were identified as emotive adjectives.

As a class we agreed on the key success criteria for their own letter (AfL strategy of involving learners in generating success criteria).

Activity 4: Transfer learning gained through reading and deconstructing text into a piece of writing

Learners were then asked to write the first half of their letter, on the understanding that the process would happen in a workshop fashion aimed at continually driving their improvement, making sure that they were using the success criteria agreed on the board.

After a set amount of time, learners looked at one another's work to identify what success criteria have been used so far (AfL peer assessment against agreed criteria).

Learners then had to plan how they were going to meet the remaining success criteria in their own writing.

The teachers then shared some of the letters learners had started, commenting on the letter to that stage against success criteria, and discussing with the class the learner's plan on how they will move to incorporate the remaining success criteria, inviting suggestions from other class members if required (AfL activating learners as resources for each other).

LNF links: Year 9 – Literacy – Writing across the curriculum – Organising ideas and information

Meaning, purposes, readers:

- Plan appropriately to develop writing for different purposes and audiences.
- Make imaginative choices about content and presentation of writing, using ICT with discrimination.
- Improve writing through independent review and redrafting.

LNF links: Year 9 – Literacy – Writing across the curriculum – Organising ideas and information

Structure and organisation:

- Select, interpret and evaluate ideas and information convincingly or objectively.

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> **LNF links: Year 9 – Literacy – Writing across the curriculum – Writing accurately**
>
> **Language:**
>
> • Use a wide range of technical terms, language and expression consistent with the subject content.

Plenary: Reflection on how work could be improved

Using random numbers learners were invited to explain how they had improved their own work and to ask different learners to evaluate how effective it had been. This is a key area to consolidate understanding of the success criteria.

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