



Northern Ireland
Curriculum

Guidance on Teaching, Learning and Assessment at Key Stage 4

Supporting Pupil Progression and
Improvements in Learning across
the Curriculum



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Introduction

Research highlights the importance of quality teaching, learning and assessment to ensure that pupils make progress in their learning, improving learning outcomes and raising subject standards (Teaching and Learning Research Programme (TLRP), 2006; 2007; 2010a; 2010b; 2011).

Quality teaching, learning and assessment are an integral part of the Northern Ireland Curriculum at Key Stage 4. These are a focus for school improvement and are essential characteristics of a successful school (DENI, 2009a).

The principal and senior management team should lead the school in self-evaluation and development planning, focusing on improving the quality of teaching, learning and assessment at a whole-school level. The General Teaching Council for Northern Ireland (GTCNI) defines teaching, learning and assessment at classroom level as core professional competencies that teachers should have opportunities to develop throughout their careers.

At Key Stage 4, schools need to meet the statutory requirements of the Northern Ireland Curriculum and the Key Stage 4 Entitlement Framework (HMSO 2006; 2007; 2011). They need to give pupils a child-centred, broad and balanced curriculum experience to enable them to build on their learning from Key Stage 3. Visit www.nicurriculum.org.uk for information about what this involves.

Schools also need to ensure there are opportunities for developing and assessing pupils' progression in:

- the Cross-Curricular Skills;
- Thinking Skills and Personal Capabilities (TSPC); and
- subject knowledge and understanding.

Appendix 1: *The 'Big Picture' of the Curriculum at Key Stage 4* shows how the different components of the curriculum are connected.

Aims

This guidance is informed by research evidence. It provides useful links and references to other relevant information. The guidance supports principals, senior leaders/managers and teachers to plan and develop quality teaching, learning and assessment at whole-school and classroom levels. It offers teachers different approaches to learning and using assessment to improve learning. Progression in learning is a key focus of the guidance. Teachers can use these approaches to move pupils from shallow, surface learning to deep learning. This is essential for improving learning outcomes and raising standards. The guidance aims to encourage and promote:

- effective and manageable planning and development of quality teaching, learning and assessment;
- an integrated and coherent approach to teaching, learning and assessment that focuses on progression, improving learning and raising standards;
- teaching skills and capabilities alongside knowledge and understanding through enquiry;
- developing a shared understanding of standards; and
- the effective use of assessment data to:
 - improve teaching and learning;
 - track and monitor pupil progress;
 - identify low achievement and underachievement;
 - set targets, and for benchmarking; and
 - contribute to raising standards.

Section 1

Developing Quality Teaching and Learning



The Teaching and Learning Research Programme (TLRP) began in 1999. It aimed to improve learning through a wide range of educational research projects mainly based in schools in England. The main phase of research was completed in 2009. In 2011, the TLRP published a review of this work and the implications for Northern Ireland. The TLRP sets out ten guiding principles for effective pedagogy, drawing on evidence from school-based research (Appendix 2). These principles underpin this guidance.

The Department of Education's policy on school improvement (DENI, 2009a) highlights the importance of teaching and learning. Quality teaching and learning is one of the characteristics of a successful school. It is a key principle that underpins school improvement.

... a recognition that improvement comes first and foremost through high quality teaching from committed and professional teachers whose skills and competence are recognised and respected and their professional development supported ...
(DENI, 2009a)

Improving the quality of teaching and learning should be a focus of:

- school self-evaluation (DENI 2010a);
- school development planning (DENI 2010b);
- head teachers' self-evaluation against the National Standards for Head Teachers (Northern Ireland Edition) (RTU, 2005);
- teacher self-evaluation (ETI, 2005) against professional competency, which teachers are required to demonstrate and develop throughout their careers (GTCNI, 2011); and
- Performance Review and Staff Development (PRSD) (RTU, 2013).



St. Benedict's College, Geography – Pupils work in groups on an enquiry-based task about immigration and develop their capability to work with others.

Research (TLRP, 2011; PricewaterhouseCoopers, 2008; DENI, 2009a), school self-evaluation and school development planning guidance (DENI, 2010a; 2010b) suggest that when planning and developing teaching and learning at a whole-school level the principal and leadership team should ensure that teaching and learning:

- equips learners in the broadest sense to:
 - be independent and lifelong learners;
 - develop as individuals;
 - participate as active citizens; and
 - contribute to the economy and the environment;
- is part of a whole-school policy, aligned to assessment that contributes to school improvement;
- is child-centred, inclusive and meets the individual learning needs of all pupils;
- involves and engages pupils in the learning process;
- engages parents and the wider community in supporting pupils' learning;
- includes intervention strategies to support low achievers and underachievers;
- is informed by assessment and other information to promote improvement;
- supports Department of Education Community Relations Equality and Diversity policy (CRED) (DENI, 2011a);
- is a focus for school self-evaluation and development planning;
- supports collaborative classroom enquiry and the sharing of innovations in classroom practice;
- is a focus for continuous staff professional development, supporting teachers to develop their knowledge and skills and adapt and develop their roles, especially through classroom enquiry;
- supports improvements in literacy and numeracy across the curriculum, focusing on developing Communication and Using Mathematics skills (DENI, 2009a; 2011b);
- promotes Using ICT to enhance learning across the curriculum and develop pupils' Using ICT skills;
- supports developing skills alongside knowledge and understanding;
- focuses on standards and intended learning outcomes; and
- encourages teachers to motivate pupils by giving them relevant, challenging learning experiences that promote positive dispositions and attitudes to learning.



Belfast Royal Academy, Modern Languages, French – Teacher assisting pupils with a research task.

Table 1 outlines the characteristics of quality teaching and learning in the classroom. This is informed by the research, policy and guidance referred to on page 7. School leaders and teachers can use this as a guide for:

- Performance Review and Staff Development (PRSD);
- teacher self-evaluation; and
- planning teaching and learning in their classrooms.

Table 1

Quality teaching and learning

Characteristics of Quality Teaching and Learning in the Classroom	
Create a safe learning environment	Teachers should create an environment that encourages pupils to share their views and participate in their learning. Teachers should build good relationships with and between pupils, based on trust, co-operation and respect.
Set high expectations	Schools and teachers should convey and set realistically high expectations that challenge and inspire pupils.
Acknowledge prior learning	Teachers need to take into account the personal and cultural experiences of different groups of pupils. They need to help pupils to make explicit what they already know and understand, and the skills they have developed. This will help pupils to identify what they need to do to make progress and help teachers plan the next steps.
Recognise the significance of informal learning	Teachers should support pupils to make connections between the formal learning process and pupils' informal learning. This may make their formal learning more meaningful.
Use a range of teaching and learning strategies	Teaching and learning strategies should: <ul style="list-style-type: none"> • be learner-centred; • involve and engage pupils in the learning process; • provide a range of appropriate opportunities for pupils to acquire and develop skills and capabilities alongside knowledge and understanding; • include enquiry-based and active learning approaches that motivate, engage and challenge pupils; • encourage pupils to work both collaboratively and independently; • promote positive attitudes and dispositions to learning such as commitment, determination and the confidence to take responsibility for learning; and • enable pupils to develop their metacognitive ability.

Characteristics of Quality Teaching and Learning in the Classroom	
Take into account individual learning needs	<p>Teachers should get to know pupils as individuals and gain a good understanding of:</p> <ul style="list-style-type: none"> – their abilities; – their personalities; – what motivates them; and – how they learn best. <p>Teachers should differentiate lessons in terms of levels of demand to meet individual pupil needs.</p> <p>Teachers should ensure that their lessons are well-structured and that they deepen and consolidate learning.</p>
Use ICT to enhance learning	<p>Teachers can use ICT in innovative ways to extend and enrich their pupils' learning experience.</p>
Provide scaffolded support	<p>Teachers should provide activities and structures of intellectual, social and emotional support to help pupils to progress in their learning. This helps pupils to gain confidence in their own ability and gradually to take greater responsibility for their learning.</p>
Enable pupils to develop and apply their knowledge and understanding in different contexts or subjects	<p>Teachers should engage pupils in learning about big ideas, key issues and concepts, key processes, subject narratives and discourses.</p> <p>Teachers should enable pupils to connect, transfer and apply their learning from one subject or context to another.</p>
Enable pupils to develop their capacity for critical thinking and problem solving	<p>Teachers need to provide pupils with motivating and challenging learning opportunities to use higher order thinking skills. This requires pupils to apply their learning to abstract concepts in unfamiliar contexts.</p> <p>Teachers can use effective questioning and, for example, interpret Blooms' Taxonomy (revised) as a guide for formulating questions.</p>
Support pupils to acquire and develop Cross-Curricular Skills	<p>Teachers should provide pupils with a range of opportunities to acquire and develop the Cross-Curricular Skills of Communication, Using Mathematics and Using ICT.</p>
Illustrate expected standards	<p>Teachers should provide model answers/responses to illustrate quality and standards and explain how the work demonstrates these.</p>
Encourage learning through collaboration	<p>Learning is a social activity. Teachers should provide opportunities for pupils to work together, to share ideas and thinking and to learn from and with others.</p>

Characteristics of Quality Teaching and Learning in the Classroom

<p>Empower pupils to become independent learners</p>	<p>Teachers need to support pupils to gain confidence and develop the skills to manage and take responsibility for their own learning.</p> <p>Teachers need to enable pupils to make the connections between the Thinking Skills and Personal Capabilities and Assessment for Learning. Teachers can encourage pupils to engage actively in their own learning, for example by discussing how they learn and what they are good at and setting targets for improvement.</p> <p>Teachers should enable pupils to develop their metacognitive ability. They can encourage pupils to think about how they think and learn, reflect on their learning and apply this to new learning situations.</p> <p>Teachers should develop and use the language of thinking skills to discuss and promote learning.</p>
<p>Align assessment with teaching and learning and use it to improve learning</p>	<p>Teachers should align assessment with teaching and learning. This will ensure assessment validity as teachers will design assessment to assess pupils' performance against learning outcomes.</p> <p>Teachers should use assessment to help improve learning as well as to indicate the stage a pupil is at in their learning.</p>

The role of parents and the local community in supporting pupils' learning

Research (Cummings, et al., 2010), DE policy (DENI, 2009a) and guidance (DENI, 2011b) highlight the importance of schools developing links and engaging with parents and the wider community to promote inclusion and to improve pupils' social, emotional and academic outcomes.

When schools, families and community work together to support learning, children tend to do better in school, stay in school longer and like school more.
(Harris and Goodall, 2007)

Schools are required to devise strategies for developing links with parents and the community as part of their school development planning (DENI, 2010b).

Parental engagement

'Parental engagement is a powerful lever for raising achievement in schools ... where parents and teachers work together to improve learning, the gains in achievement are significant' (Harris and Goodall, 2007).

Research also shows that parental engagement can lead to pupils having more positive attitudes and behaviour and improved attendance (ibid.). Parents may be involved in a range of school activities, but unless they are directly connected to their child's learning they have little impact on achievement (ibid.). To successfully engage parents in their child's learning, schools need to consistently reinforce the importance of the role that parents play in supporting their child's education. By working together, teachers and parents can develop a two-way relationship based on mutual trust, respect and a commitment to improving learning outcomes (ibid.). This can help pupils to overcome the social, emotional and academic challenges they may face during the course of their school life.

The research also shows links between parents' level of engagement and their experiences of education and socio-economic status. Parents who have a negative schooling experience are less likely to want to engage with schools. Schools and teachers often view these parents as 'hard to reach'. Language may also present a barrier to parental engagement for the parents of newcomer pupils.

Schools and teachers need to convince parents of the value of their support. Teachers need to show parents practical ways to help their child with their learning. They may also need to help parents to develop the skills and knowledge to support their child's learning. Schools can engage parents by offering bespoke forms of support such as literacy and numeracy classes, parenting skills support or pastoral care provision. Schools can work with the Inclusion and Diversity Service (DENI, 2009b) to develop strategies to support and engage parents of newcomer pupils in their child's learning.

Research conducted in Northern Ireland schools shows that parental engagement is a key factor in raising attainment in literacy and numeracy in schools serving disadvantaged communities (PricewaterhouseCoopers, 2008). Engaging with parents is particularly important to support underachieving pupils from disadvantaged communities (Cummings et al., 2005). This research shows how, for example, training parents as reading partners and involving them in literacy and numeracy workshops can help to raise pupil attainment in these key areas.

An Education and Training Inspectorate (ETI) evaluation (ETI, 2010) of the extended school programmes outlines the characteristics of effective practice. Those related to improving quality achievement and high standards include:

- linking programmes to a positive impact on pupils' learning;
- focusing on raising attainment;
- supporting pupils to overcome barriers in their learning;
- having a clear focus on meeting the needs of individuals and supporting pupils;
- supporting parents to help with their child's learning; and
- improving levels of attainment related to higher levels of motivation, attendance and increased self-worth, together with a sense of belonging to a community (ibid.).

Visit the following websites for further information about developing strategies to engage parents and the wider community:

Inclusion and Diversity Service www.education-support.org.uk/teachers/ids

DENI Extended and Full Service Schools www.deni.gov.uk

Extended School Information Systems www.niesis.org

Shared education

Schools should work collaboratively with others from different sectors and educational institutions to improve educational outcomes for pupils as well as build good relations (Connolly, Purvis and O'Grady, 2013).

Shared education gives teachers opportunities to share good practice and engage in professional development (ibid.). It is an opportunity for schools and teachers to work together to develop quality teaching and learning in the classroom. They should also consider how they could use assessment to improve learning outcomes for all pupils. They can do this by working collaboratively to enhance and deliver curriculum activities with a focus on school improvement.

Schools and teachers from different sectors can also work together to develop strategies to engage parents and the wider community in their children's learning.

School self-evaluation and development planning

Teaching, learning and assessment should be a focus of the school's self-evaluation process and development planning. When planning for school improvement, the principal and senior leaders can use this guidance to generate questions for discussion and to set quality indicators for teaching, learning and assessment policy and practice. This will help them to identify areas for improvement.

The principal and senior leaders should consider to what extent their school's Key Stage 4 curriculum is:

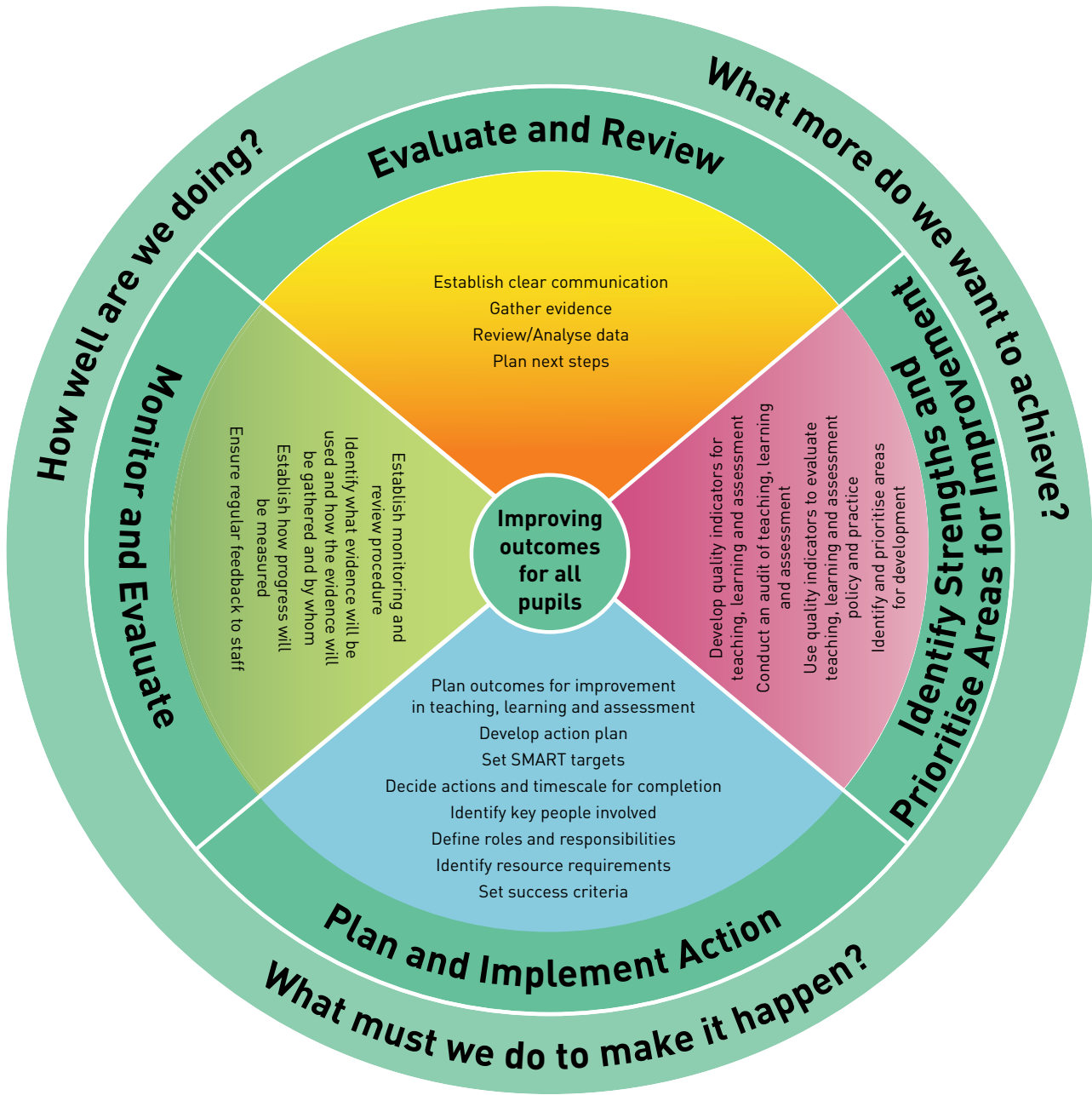
- pupil-centred;
- broad and balanced; and
- coherent, supporting continuity and progression in learning.

The principal and senior leaders should also consider:

- the quality of teaching, learning and assessment;
- pupil, parent and community engagement in learning;
- to what extent assessment is an integral part of the teaching and learning process;
- how to use assessment to measure pupils' progression in learning;
- how to use assessment to improve learning outcomes for all pupils;
- how to use pedagogy to develop an integrated approach to teaching skills and capabilities as well as subject knowledge and understanding;
- how to set and share standards; and
- to what extent they use assessment effectively to improve learning and raise standards.

Figure 1 shows the three key questions that schools can use to help inform development planning. Schools can use the stages in the self-evaluation and development planning processes shown in Figure 1 to plan a strategic whole-school approach to teaching, learning and assessment. They can then set targets for improvements over a three-year period.

Figure 1
Planning, teaching, learning and assessment



Section 2

Developing Pupils' Learning within Subjects



As pupils progress from Key Stage 3 to Key Stage 4, some of their curriculum's structure will change. At Key Stage 4 pupils work towards qualifications offered in the context of the Key Stage 4 Entitlement Framework (HMSO 2006; 2007; 2011). This change in structure can mean that teachers change their teaching and learning priorities to narrow the focus onto course content (ETI, 2012).

However, every subject teacher still has a responsibility to develop and assess pupils' subject knowledge and understanding. They are also responsible for developing the Cross-Curricular Skills and Thinking Skills and Personal Capabilities (Other Skills). Teachers should not teach these components of learning separately. They should complement and enhance one another. Teachers should develop an integrated approach to teaching, learning and assessment of the skills, capabilities, knowledge and understanding. This allows teachers to focus attention on infusing skills and capabilities within subject experiences. This helps pupils to progress from describing what they are learning to analysing it.



Ashfield Girls' High School, Chemistry – Pupils develop their knowledge and understanding about chemical reactions and their skills of problem solving through an investigation.

At Key Stage 4, we measure pupil achievement and school success mainly in terms of the outcomes of examinations and grades. However, this can lead to focusing teaching and learning narrowly on prescribed examination content (ETI, 2012). The Chief Inspector's Report states that teaching and learning needs to move beyond this focus on content-based knowledge to focus more on skills. Teachers should not view this as sacrificing content coverage for developing skills. Including skills alongside knowledge and understanding enhances pupils' ability to understand content successfully.

The components of learning

At Key Stage 4, the Northern Ireland Curriculum (HMSO, 2006; 2007; 2011) defines three components of learning:

- subject knowledge and understanding;
- the Cross-Curricular Skills; and
- the Thinking Skills and Personal Capabilities (referred to as the Other Skills at Key Stage 4).

When planning teaching and learning, teachers should consider how to:

- enable pupils to develop the different components of learning outlined below;
- provide pupils with a broad, balanced, coherent and continuous curriculum experience; and
- enable pupils to understand how these components of learning are connected.

Subject knowledge and understanding

At Key Stage 4, the range of subject knowledge and understanding is usually based on the content of the qualification specification. With the exception of new subjects introduced at Key Stage 4, such as Business Studies, most subjects should build on the pupils' learning from Key Stage 3. Teachers will introduce increasingly complex new ideas and concepts. These increase the breadth of pupils' knowledge by extending what they already know. To increase the depth of pupils' learning, teachers need to enable them to improve their cognitive and metacognitive abilities by supporting them in developing their Thinking Skills and Personal Capabilities.

The Cross-Curricular Skills

The Cross-Curricular Skills of Communication, Using Mathematics and Using ICT are the core skills through which young people access and apply their knowledge and understanding. Teachers should plan the skills of Communication and Using Mathematics as part of a whole-school approach to improving standards in literacy and numeracy (DENI, 2011b).

At Key Stage 3, teachers use the Levels of Progression to assess pupils in Communication, Using Mathematics and Using ICT. It is not statutory for teachers to use the Levels of Progression at Key Stage 4. However, teachers can use them in formative ways, especially where pupils are working below Level 7, in each of the Cross-Curricular Skills. For example, teachers could focus on developing specific aspects of these skills in their subject's teaching and learning. They could use the Levels of Progression to monitor pupils' progress and to help them to improve these skills.

Communication skills

Teachers should enable pupils to develop skills in:

- communicating meaning, feelings and viewpoints in a logical and coherent manner;
- making oral and written summaries, reports and presentations that take account of audience and purpose;
- participating in discussions, debates and interviews;
- interpreting, analysing and presenting information in oral, written and ICT forms; and
- exploring and responding, both imaginatively and critically, to a variety of texts.



St Colmcille's High School, Education for Employability – Pupils develop their interview techniques and communication skills during class mock interviews.

Using Mathematics skills

Teachers should enable pupils to develop skills in:

- using mathematical language and notation with confidence;
- using mental computation to calculate, estimate and make predictions in a range of simulated and real-life contexts;
- selecting and applying mathematical concepts and problem solving strategies in a range of simulated and real-life contexts;
- interpreting and analysing a wide range of mathematical data;
- assessing probability and risk in a range of simulated and real-life contexts; and
- presenting mathematical data in a variety of formats that take account of audience and purpose.



Saint Benedict's College, Mathematics – Teacher supporting a pupil to solve a mathematical problem and to develop their Using Mathematics skills.

Using ICT skills

Teachers should enable pupils to make effective use of information and communications technology (ICT). Pupils should use ICT in a range of contexts to access, manage, select and present information, including mathematical information.



Ashfield Girls' High School, English – As part of the teacher's approach to effective questioning the teacher uses ICT to enhance learning. Pupils use an interactive pupil response system to record their answers to questions.

Thinking Skills and Personal Capabilities (the Other Skills)

At Key Stage 4, the Thinking Skills and Personal Capabilities are classified as the Other Skills. Thinking Skills help pupils to:

- construct their own learning;
- gain a deeper understanding of concepts and issues; and
- make progress in their learning.

Alongside Personal Capabilities, developing Thinking Skills supports pupils to become independent and lifelong learners.

At Key Stage 3, there are five Thinking Skills and Personal Capabilities:

- Managing Information;
- Thinking, Problem Solving and Decision Making;
- Being Creative;
- Working with Others; and
- Self-Management.

At Key Stage 4, the Thinking Skills and Personal Capabilities are grouped differently to reflect the approach to skills across the United Kingdom. These include:

- Problem Solving;
- Self-Management; and
- Working with Others.

Progression Maps

For Problem Solving, Self-Management and Working with Others, teachers can use the Progression Maps in Appendix 3 to plan for progression in learning and to assess pupils. The Progression Maps at Key Stage 4 are generic. They allow teachers to contextualise and adapt them to their subject. Progression Maps illustrate how pupils might demonstrate progression in their skills and capabilities.

Problem Solving skills

Teachers should enable pupils to develop skills to:

- identify and analyse relationships and patterns;
- propose justified explanations;
- reason, form opinions and justify their views;
- analyse critically and assess evidence to understand how information or evidence can be used to serve different purposes or agendas;
- analyse and evaluate multiple perspectives;
- explore unfamiliar views without prejudice;
- weigh up options and justify decisions; and
- apply and evaluate a range of approaches to solve problems in familiar and novel contexts.

Self-Management skills

Teachers should enable pupils to develop the capability to:

- plan work;
- set personal learning goals and targets to meet deadlines;
- monitor, review and evaluate their progress and improve their learning; and
- effectively manage their time.

Working with Others skills

Teachers should enable pupils to develop the capability to:

- learn with and from others through co-operation;
- participate in effective teams and accept responsibility for achieving collective goals; and
- listen actively to others and influence group thinking and decision-making, taking account of others' opinions.



St Colmcille's High School, Local and Global Citizenship – Pupils develop their knowledge and understanding about symbols, cultural identity and conflict. They are also developing the skills to work with others and to resolve conflict.

Managing Information and Being Creative are not referred to separately at Key Stage 4, although these skills remain relevant. Typically, opportunities to use these skills occur in activities. For example, pupils might demonstrate the skill of Being Creative, by applying ingenuity to Problem Solving. When developing the skill of Managing Information, pupils might demonstrate their ability when taking part in a collective activity rather than a task specifically targeting information management. As pupils' learning activities become more complex, describing these skills separately becomes less relevant. This reflects the developmental changes expected of pupils in Key Stage 4.

Why are these skills and capabilities important?

These skills and capabilities support young people to develop as individuals. They help to prepare young people for employment and their role as active citizens in society. Policy and research refers to these skills as being important for:

- personal development;
- effectively participating in society (Hoskins and Deakin-Crick 2008);
- independent and lifelong learning (Higgins et al., 2004; Meyer et al., 2008);
- further and higher education (DELNI, 2011); and
- employment (CBI, 2012; DELNI, 2012).

Attitudes and dispositions

Teaching and learning should encourage pupils to develop a range of positive attitudes and dispositions (see The 'Big Picture' of the Curriculum at Key Stage 4, Appendix 1) that will help them to:

- develop as an individual;
- contribute constructively to society and the economy; and
- value and protect the environment.

Developing attitudes and dispositions such as personal responsibility, commitment, resourcefulness and determination will enable pupils to manage and take greater control of their own learning. These attitudes and dispositions, along with self-belief, will help pupils to:

- overcome challenges in their learning;
- learn from their mistakes; and
- develop their capability for independent and lifelong learning.

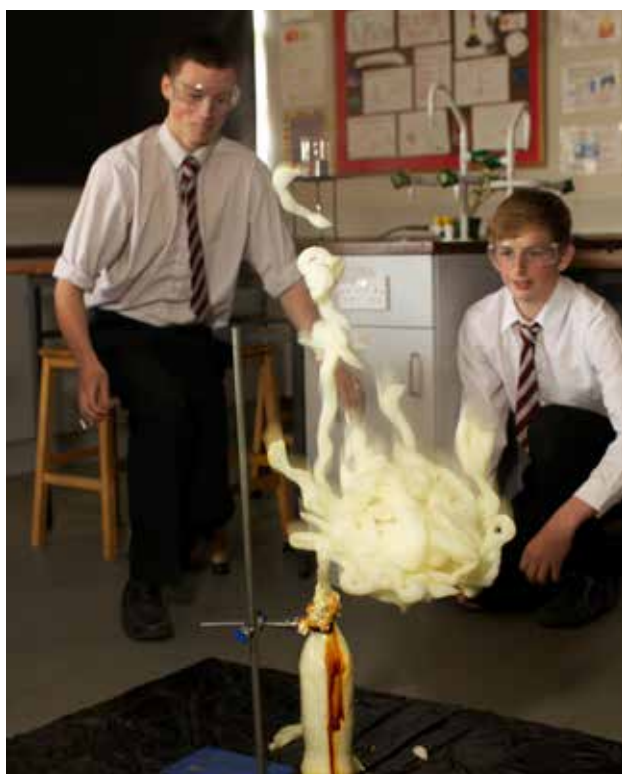
Motivation

Research shows that a pupil's level of motivation affects their level of engagement with a task, enjoyment of activities, how and what they learn, and, ultimately, their performance (Smith et al., 2005). Pupils' attitudes, disposition and motivation to learn are interrelated and can reinforce one another. Motivation is one of the most important factors for progression in learning and increased independent learning (Meyer, 2008).

Motivation and demotivation are the result of causal chains rather than single causes (Smith et al., 2005). However, what happens in the classroom has significant impact on levels of pupil motivation. Pupil learning experiences strongly influence their motivation. Unrewarding learning experiences with little challenge lead to pupil disaffection and disengagement (Harland et al., 2002). Research highlights how summative assessment and testing can have a negative effect on pupil motivation to learn and especially on less able pupils (Harlen and Deakin-Crick, 2002).

Research suggests that teachers can increase levels of pupil motivation by:

- using a range of teaching, learning and assessment approaches;
- using active enquiry-based approaches to learning;
- using ICT to enhance learning;
- encouraging collaborative learning;
- setting high expectations of pupils;
- encouraging cognitive engagement;
- making learning relevant;
- avoiding unnecessary repetition;
- involving pupils in their learning;
- valuing the pupil voice; and
- recognising pupil achievement.



Strangford College, Chemistry – 'Elephants toothpaste investigation'. Pupils engage in their learning about chemical reactions.



Belfast Royal Academy, Modern Languages, French – The enjoyment and challenge of learning.

Section 3

Developing Quality Assessment



Assessment should form an integral part of the Key Stage 4 school curriculum. It must reflect curriculum requirements. It should be part of the teaching and learning process that supports independent learning. Assessment along with teaching and learning should be a focus of school self-evaluation, development planning, teachers' self-evaluation and PRSD.

Research suggests that the focus of assessment in schools, especially at Key Stage 4, is often on summative assessment, tests and examinations. However, summative assessment is only one aspect of assessment. One of the aims of this guidance is to broaden teachers' assessment literacy, which Webb (2002) defines as:

... knowledge about how to assess what students know and can do, interpret the results of these assessments, and apply these results to improve student learning and program effectiveness. Assessment plays a crucial role in motivating pupils to learn and in improving learning and raising standards. (Stiggins, 2008; DENI 2009a; 2011b)

Assessment is also a key professional competency, which requires teachers to use a range of assessment strategies and assessment information to make teaching more effective (GTCNI, 2011).

When planning assessment, schools should consider the principles and purposes of assessment and to what extent the school assessment policy and practice reflects these.

Principles of assessment

Throughout all key stages of the Northern Ireland Curriculum, teachers should base quality assessment on the following five key principles. It should:

- be complementary to and supportive of learning;
- be valid and reliable;
- be fit for purpose and manageable;
- support teachers' professional judgement; and
- support accountability.

Purposes of assessment

Assessment can serve different purposes according to how we use the information it provides (TLRP, 2010b). Teachers need to use a range of assessment approaches that are fit for purpose (GTCNI, 2011).

The four main purposes of assessment are:

- diagnostic;
- formative;
- summative; and
- evaluative.

Diagnostic assessment

Diagnostic assessment normally takes place at the beginning of a learning programme. Teachers should use diagnostic assessment to identify pupils' strengths and learning needs. They can also use it to identify the nature of a pupil's learning difficulties. Teachers can then use the information from diagnostic assessment to plan and develop interventions to address the learning difficulties identified. They should share this information with the pupil to plan the next steps to improve their learning.

Formative assessment or Assessment for Learning (AfL)

Formative assessment is part of the everyday teaching and learning process. Teachers can gather evidence about a pupil's learning by, for example, observing, listening, questioning, discussing, and reviewing their work. They should use a range of assessment approaches to gather evidence to:

- help identify underachievement as soon as it emerges;
- identify progress and gaps in learning (including individual support needs);
- set learning goals and success criteria; and
- provide quality feedback to pupils.

Ten guiding principles underpin AfL. It should:

- be part of effective planning;
- focus on how pupils learn;
- be central to classroom practice;
- be a key professional skill;
- be sensitive and constructive;
- foster motivation;
- promote understanding of goals and criteria;
- help learners know how to improve;
- develop the capacity for self-assessment; and
- recognise all educational achievement (ARG, 2002).

For more information about AfL strategies, teachers should refer to *AfL Assessment for Learning a Practical Guide*, (CCEA, 2009), available at www.nicurriculum.org.uk



St Colmcille's High School, Education for Employability – Teacher provides feedback to pupils about their interview performance and how they can improve on their questioning and answering techniques.

Summative assessment

Summative assessment gives pupils, parents and teachers valuable information about a pupil's overall performance at a specific point in his or her learning. Summative assessment usually takes place after pupils have completed a unit of work, a module or at the end of each term and/or year. The information it gives indicates progress and achievement.

At Key Stage 4, the results of summative assessment are usually expressed in grade-related or numerical terms. A grade or percentage indicates a pupil's rank in the class, year group or performance in a qualification such as a GCSE. However, without other information this grade is of little value in improving the pupil's learning. It will detract from the real purpose of learning, which is to enable progression. The key to improving learning is for teachers to share with pupils what these grades or numbers mean in terms of what the pupil can do and the next steps to improve their learning. Summative assessment, therefore, needs to be formative in its own right and used to help pupils improve their learning (Assessment Reform Group (ARG), 2008; Black et al., 2011).

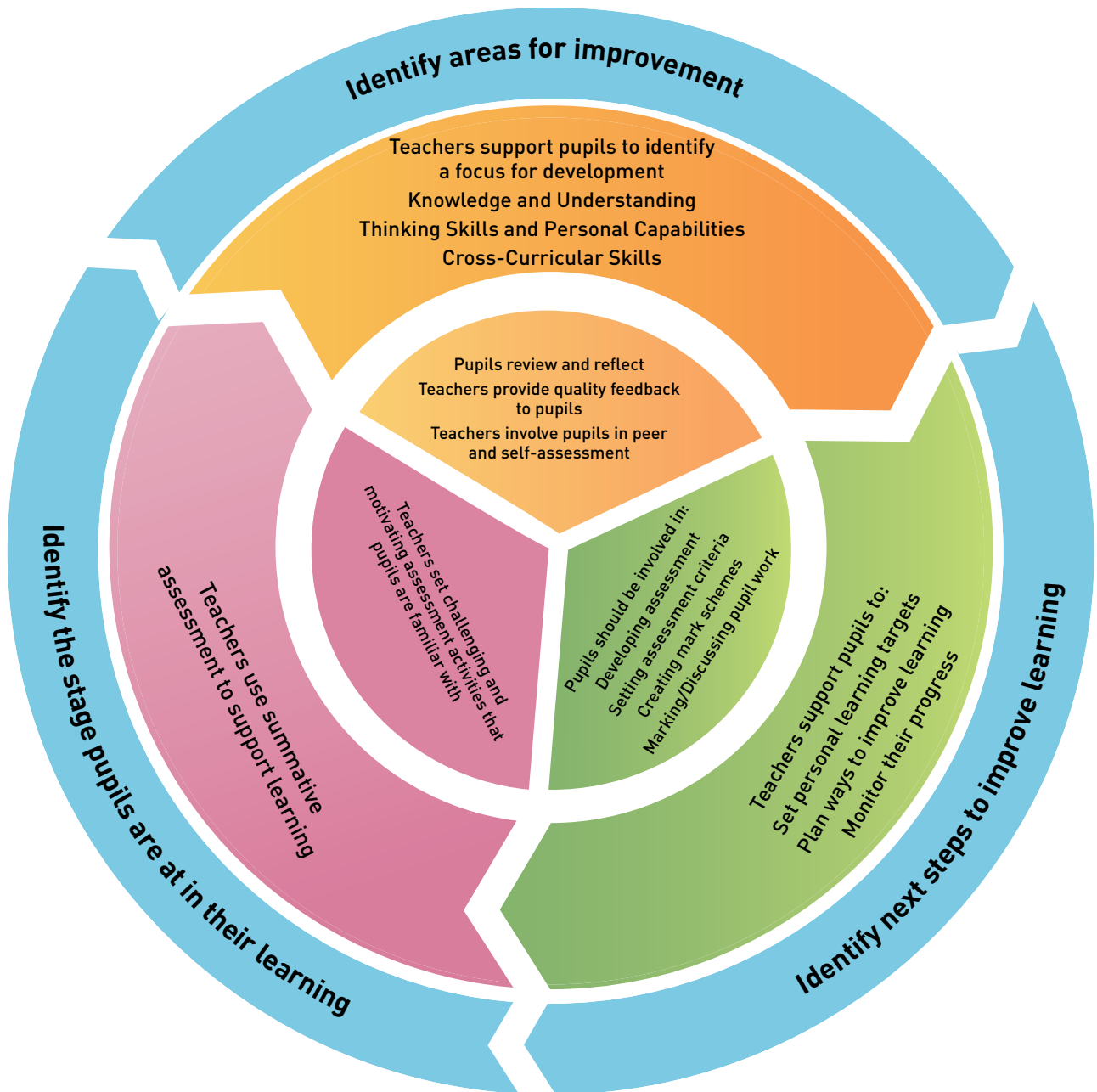
Using summative assessment to support improvements in pupils' learning

Educationalists have seen formative and summative assessments as serving two separate purposes. Recently, however, they have recognised that formative and summative assessments are interrelated and complementary. These forms of assessment can serve both purposes, depending on how teachers use the assessment information and feedback (Black et al., 2003; Harlen, 2005; Taras, 2005). Research suggests that teachers could make better use of assessment by taking into account this interrelationship (ARG, 2008).

The information from formative assessment, supplemented by valid subject class tests/tasks, helps to ensure dependable summative assessment (Harlen, 2005).

Figure 2 shows how teachers can use summative assessment to improve learning (Black et al., 2003; Black et al., 2010; Black et al., 2011; Harlen, 2005).

Figure 2
Using summative assessment to improve learning



Evaluative assessment

The main purpose of evaluative assessment is to ensure that there is appropriate accountability at all levels for the performance of our school system. Schools and teachers should use assessment information for curriculum planning and monitoring and accountability. For evaluative purposes, the Department of Education requires information on the outcomes of subject qualifications at the end of Key Stage 4. The Department uses this information for benchmarking and target setting.

Schools can use this information to judge their performance against the targets that DENI set. This information also informs school development, action planning and improvement. Teachers can also use the information to set class targets to improve specific pupil outcomes.

Equity and fairness

The terms equity and fairness are often used interchangeably (Stobart, 2005). They refer to the idea that assessment should be inclusive and give pupils equal opportunities to demonstrate their performance and achievements (ibid.). An equitable or fair school assessment system is inclusive and free from bias. This means that pupils are not disadvantaged because of their personal and social circumstances. Gender, ethnic origin or socio-economic status should not be an obstacle to pupils achieving their potential.

At Key Stage 4, the qualifications that awarding bodies such as CCEA offer must meet the regulatory authorities' conditions for accreditation. The qualifications must be valid, reliable, equitable and fair. They should not disadvantage any particular group of learners.

Schools also need to ensure that their internal assessment and assessment arrangements are equitable and fair. In practice, teachers should:

- consider how their assessment methods meet their pupils' cultural and linguistic diversity;
- review their assessments to ensure the type of assessment, rubric and language structure is appropriate for all pupils; and
- ensure that all pupils have access to the curriculum and opportunities to acquire and develop the knowledge, understanding and skills being assessed.

Validity

Validity is the extent to which assessment measures what it was intended to assess. At Key Stage 4, a valid teacher-based assessment is one that assesses essential subject knowledge, understanding, skills and capabilities as set out in the minimum requirements and learning outcomes of the Northern Ireland Curriculum or qualification specifications.

Reliability

Reliability is how much we can trust an assessment to give consistent information on a pupil's progress. For teacher-based assessment to be reliable, schools must ensure that they minimise potentially biased judgements and variation in the standards that different teachers apply. This requires professional discussion in and between subject departments about stretch, challenge and expectations. This is why internal standardisation in and across departments is an important process.

Validity and reliability in Key Stage 4 qualifications

Qualifications at Key Stage 4 must meet the regulatory authorities' requirements for accreditation. The regulatory authorities require that the qualifications are fit for purpose and therefore valid and reliable.

The problem of validity and reliability

A reliable assessment produces the same results on retest. If it is consistent in its methods and criteria, it will produce similar results with a similar cohort of students. Unfortunately, no assessment is completely valid or reliable, and even observational assessment is not completely valid as learners may over-perform or feel inhibited. Teachers' judgements are generally subjective, so it is best to base judgements on consistent performance by pupils over a period of time. (For a more detailed discussion of this issue see Atherton, 2011.)

To avoid this problem, teachers should use different approaches to assessment. They should not base judgements on a single assessment exercise. They should tell pupils and their parents that assessment outcomes are far from scientific and that small differences in percentage marks will have little real meaning. Consistent performance over time is what counts. Teachers should assess the progression of learning on this basis.

Assessment: making judgements about pupil performance

Norm-referencing and criterion-referencing are the two main assessment procedures that educationalists use to make judgements about pupil performance in aspects of their learning.

Norm-referencing

Norm-referenced assessments rank and award grades to pupils within a particular cohort taking the same test. This involves fitting a ranked list of raw scores to a predetermined distribution curve. For example, the top ten percent of the cohort receive A grades, the next 20 percent B grades and so on.

Criterion-referencing

Criteria-referenced assessments judge pupil performance against predetermined fixed criteria. The course learning outcomes provide these criteria. The criteria define what the pupils need to do to demonstrate a particular level of performance. The criteria set can include knowledge, understanding and skills.

Balancing norm- and criterion-referencing assessment

Traditionally, schools and teachers use norm-referencing for class tests and internal examinations. Norm-referencing is also used for awarding grades at GCSE. Norm-referenced assessment allows schools and teachers to compare pupil performance with the wider population of those they are assessing.

Criterion-referencing assesses pupils against agreed set criteria. Teachers can use the assessment information to identify criteria that pupils are not meeting and work with pupils to improve this aspect of their learning.

Teachers should use both norm- and criterion-referenced assessment. They need to use norm-referenced assessment to help prepare pupils for GCSE examinations. However, teachers could use criterion-referenced formative assessment to support improvements in pupil learning.

The Key Stage 4 statutory assessment requirements

Schools should plan assessment alongside teaching and learning. This should be part of school self-evaluation (DENI, 2010a) and development planning (DENI, 2010b). Planning should focus on progression in learning and improving learning outcomes for all pupils. Schools also need to ensure they meet the statutory requirements for assessment at Key Stage 4.

The statutory assessment requirements

At Key Stage 4, schools must assess pupils in:

- Communication
- Using Mathematics
- Using ICT
- Thinking Skills and Personal Capabilities (Other Skills):
 - Problem Solving;
 - Self-Management; and
 - Working with Others; and
- each subject that pupils study (HMSO, 2009).

Meeting the Key Stage 4 statutory assessment requirements

All subjects are responsible for giving pupils opportunities to acquire and develop the Cross-Curricular Skills and Thinking Skills and Personal Capabilities. However, not all subjects are required to assess each skill separately.

For the skills of Communication and Using Mathematics, in most cases evidence will come from English (and/or Irish in Irish-medium schools and units) and Mathematics at the level of the qualification relevant to the pupil (for example Entry Level or GCSE). Feedback to the English and Mathematics (and, in Irish-medium schools, Irish) departments, as appropriate, should support the assessment of Communication and Using Mathematics (DENI, 2011b). The acquisition, development and assessment of the skills of Using Mathematics and Communication should be part of the school's policy and strategy to improve standards in Literacy and Numeracy (*ibid.*).

When planning to meet the statutory assessment arrangements, senior leaders, heads of department and teachers need to decide which subject(s) will provide assessment evidence for Using ICT at Key Stage 4. If pupils are taking an ICT qualification, evidence should come from their work. Otherwise, the evidence should come from other subject(s). Schools need to consider their subject option blocks when timetabling. They need to identify and delegate responsibility for assessing Using ICT to appropriate subject teachers. Schools need to ensure that they can assess all pupils in Using ICT regardless of the combination of subjects they may choose at Key Stage 4.

Evidence for the Thinking Skills and Personal Capabilities should also come from pupil work. This may be from work completed as part of a skills qualification or from different subjects. As for the Cross-Curricular Skills, schools should consider their subject option blocks and decide which subjects can contribute to Problem Solving, Self-Management and Working with Others.

Assessing the Other Skills at Key Stage 4

Pupil progress in Problem Solving, Working with Others and Self-Management is unlikely to be linear. Pupils may show uneven progress when developing skills and capabilities. Pupils may reach a plateau in a particular aspect of a skill, and they may not make further progress for a while. For example, they may acquire mastery over one aspect of a skill but when confronted with a new type of problem or different context they may return to novice status.

Pupils can only make sustained progress through practice and by applying the skills they have learned repeatedly in a range of contexts and at increasing levels of challenge and demand. Pupil progress in skills and capabilities is therefore more likely to be cyclical. Teachers can use the Progression Maps in Appendix 3 when assessing pupils in the TSPC, and they should assess these skills within a subject context.

Assessing pupil progress in the Other Skills should be formative and diagnostic (Figure 3). Teachers assess pupils to discover:

- what skills they have acquired;
- where they are secure in those skills; and
- where they need to consolidate skills before encountering new material.

This sort of assessment can only follow after teachers have taught the skills and given pupils opportunities to demonstrate them. Then, a combination of teacher observation, pupil peer evaluation and self-evaluation can provide a picture of where the pupil has developed a degree of mastery in the skills.

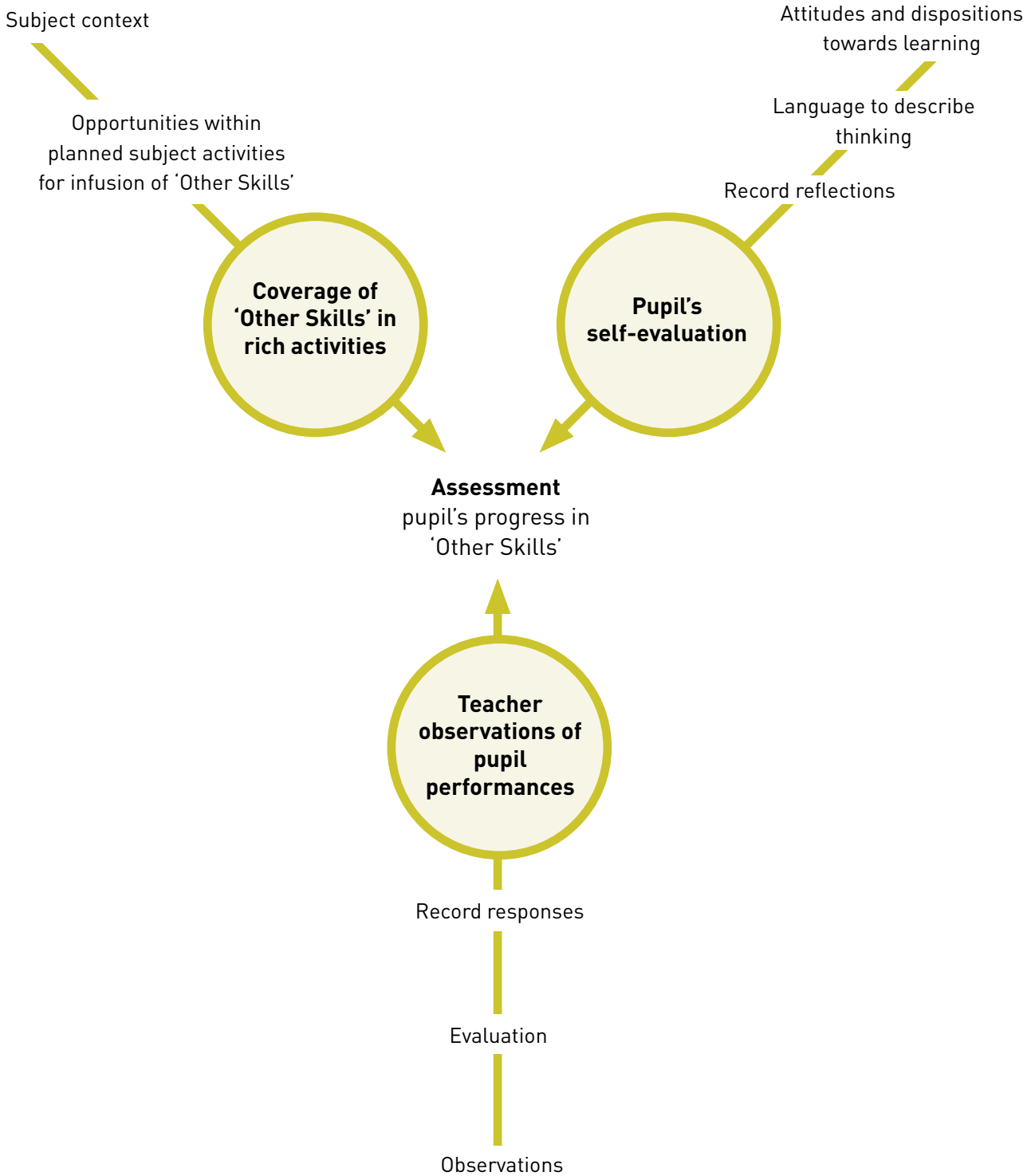
To be able to assess skills, teachers must ensure that pupils have:

- opportunities to apply them; and
- time to reflect on their performances.

Teachers should regularly observe pupils using these skills to form an impression of how well they can demonstrate them.

Figure 3

Diagram of factors involved in assessing progression in the Other Skills



Even where teachers have planned an assessment opportunity to focus on a particular skill, pupils' performances will typically demonstrate a blend of skills. To assess progress, the teacher must know the pupil and use subject expertise and professional judgement.

The outcome of this sort of assessment is not a measurement of the skill. It is a diagnostic check to see where the next development is likely to come from, and how best to guide the pupil towards it. The outcome follows from planned activities that feature a skills component, coupled with teacher observation of how individual pupils cope when carrying out the activity. It is not necessary to devise elaborate assessment tasks related to progress in a skill, if opportunities to acquire and demonstrate the skills have formed part of the pupil's learning experiences.

Audit of assessment practice

Schools could conduct an audit as part of the school self-evaluation process. This ensures that all pupils are assessed in each of these skills and capabilities. The audit could be part of a broader evaluation of the school's assessment practice. Senior leaders and teachers should:

- review skills and capabilities progression from Key Stage 3 to Key Stage 4;
- identify which subjects are best placed to assess each of the skills and capabilities;
- consider subject options and whether there are sufficient and appropriate opportunities to assess each pupil in each of the skills and capabilities;
- consider how to assess each of the skills and capabilities;
- ensure the coherence and consistency of approaches to assessment;
- consult on the manageability of current processes;
- ensure equity and fairness;
- review the quality and frequency of continuing professional development; and
- assess the impact of current assessment practices on learner motivation and improvement.

Schools can then use this information to identify and prioritise assessment areas for improvement in their school development plan.

Section 4

Planning for Progression in Learning



At Key Stage 4, the focus is on subject specifications and the challenge of understanding more complex concepts than at Key Stage 3. The idea of progression in learning remains the same. Progression in learning is not just about the amount of subject content that pupils know. Progression is about moving pupils from shallow, surface learning to deep learning. Figure 4 illustrates the differences between shallow and deep learning.

Figure 4
From shallow to deep learning



From Säljö, in Atherton, J S (2011)

Learning should be a challenge. Progression in learning is about teachers enabling pupils to:

- know and understand more – in quantity, breadth and depth;
- think more critically – research, question, analyse information, break ideas apart and piece information together;
- apply their learning to unfamiliar contexts;
- communicate better – structure responses in clearer and better ways; and
- become more capable – think about thinking and learning, learn from mistakes, manage their own learning and work with others.

These will help pupils to develop the attitudes, dispositions and skills needed for independent and lifelong learning.

To make real progress, pupils need:

- clear development in all aspects of learning;
- the interest and motivation to learn;
- the confidence to try, struggle and even fail; and
- the ability to learn from experience.

Planning for progression

Teachers need to plan for progression in the following components of learning:

- Cross-Curricular Skills;
- Thinking Skills and Personal Capabilities; and
- subject knowledge and understanding.

Teachers need to identify and plan opportunities for pupils to acquire and develop these components of learning in all subjects. As most subjects at Key Stage 4 are taught through qualifications and specifications, teachers need to build opportunities to develop skills and capabilities into their schemes of work.

Ideally, schools should plan skills and capabilities as part of the teaching and learning and assessment cycle at a whole-school level. This ensures coherence, continuity and progression across Key Stage 3 and Key Stage 4.

Teachers also need to build opportunities for assessment in to their teaching and learning. They should use assessment information to help improve learning and ensure progression. This helps to ensure that assessment is integral to teaching and learning.

Teachers can use the Progression Maps (Appendix 3) for Problem Solving, Self-Management and Working with Others when planning progression.

Problem Solving

In Problem Solving, pupils demonstrate progress by moving from recognising an issue to trying out different ways to resolve it. At first, teachers might need to guide pupils towards re-applying a method they have already encountered. Later, they will recognise when and where it is possible to re-apply approaches they already know about. This means that pupils can, when presented with new or unfamiliar material, choose to apply a method that has previously been successful for similar cases. Eventually, pupils will be ready to take on new, more difficult material that challenges them to experiment before deciding how to proceed.



St Benedict's College – Geography – Pupils investigate what factors influence vegetation growth. Pupils design their own investigation and develop their Problem Solving and field work skills.

For pupils to progress along this continuum of skills development, teachers need to teach them how to apply different methods and approaches in particular subject disciplines. For example, when studying literature, learning how an author might construct a story using a narrative arc introduces pupils to the structures and patterns of narrative such as crisis, resolution and denouement. Pupils can then use these concepts to analyse how an author achieves their effects in a novel. This analysis solves the problem of how an author makes a particular story work.

In mathematics, teachers might see a similar deepening of understanding as pupils extend their knowledge of algebra from manipulating terms on either side of the equals sign to recognising and applying the order of precedence and applying the quadratic formula to solve equations. In science, pupils might progress from observing a demonstration of an experiment to carefully observing and describing new instances of related phenomena. They may then formulate and test hypotheses to explain their observations.

The way pupils encounter and conceptualise problems varies from subject to subject. There are recognised approaches and methods particular to each. By singling out an overarching idea of Problem Solving as a skill, teachers can encourage pupils to make connections between what they are learning in one subject and the possibility of reusing that knowledge elsewhere. Pupils realise that they can repurpose and reapply concepts, methods and approaches learned in one subject to another. This allows them to build their repertoire of Problem Solving strategies.

At Key Stage 4, schools and teachers must find ways of drawing commonalities of approach to the attention of pupils. This encourages them to make the connections across their learning in different subjects. If pupils have a foundation in TSPCs, they become used to teachers pointing out connections. Eventually, they will try to see for themselves whether they can reapply what they know and can do in one situation to another.

Perhaps the most direct way to achieve this is to recognise the skill of Problem Solving, so that pupils develop a language of skills and capabilities to highlight the transferability of knowledge, understanding and skills across the curriculum. As pupils become more familiar with Problem Solving, they will have a set of procedures that they can use to decide the best way to continue with their work.

One measure of progress in Problem Solving skills is the move from problem *solving* to problem *seeking*. The pupil with well-developed Problem Solving skills will move on from tackling given problems to finding new instances for themselves. Pupils will do this by, for example, identifying where they can make improvements or address issues and imperfections, or by suggesting an alternative way forward. Developing Problem Solving skills also involves considerations such as resilience, determination and perseverance. Many problems don't have convenient solutions. They require prolonged engagement. Particularly demanding problems may require pupils to apply creative thinking when conventional methods prove inadequate. Once pupils begin to use ingenuity, creativity and adaptability as part of their Problem Solving, they are ready for more demanding challenges.

Deciding when pupils have grasped a topic sufficiently and giving them the next challenge, pitched just beyond their ability, is significant. Pupils will become bored if the challenge is repetitive or not demanding enough. If the challenge is too far beyond their capability, pupils will see it as impossible and give up. For pupils to make sustained progress in mastering a subject, teachers should provide carefully structured and pitched challenges that encourage deeper understanding. Feedback from various forms of assessment can be particularly useful when judging whether an individual or a class is ready for more demanding Problem Solving tasks.

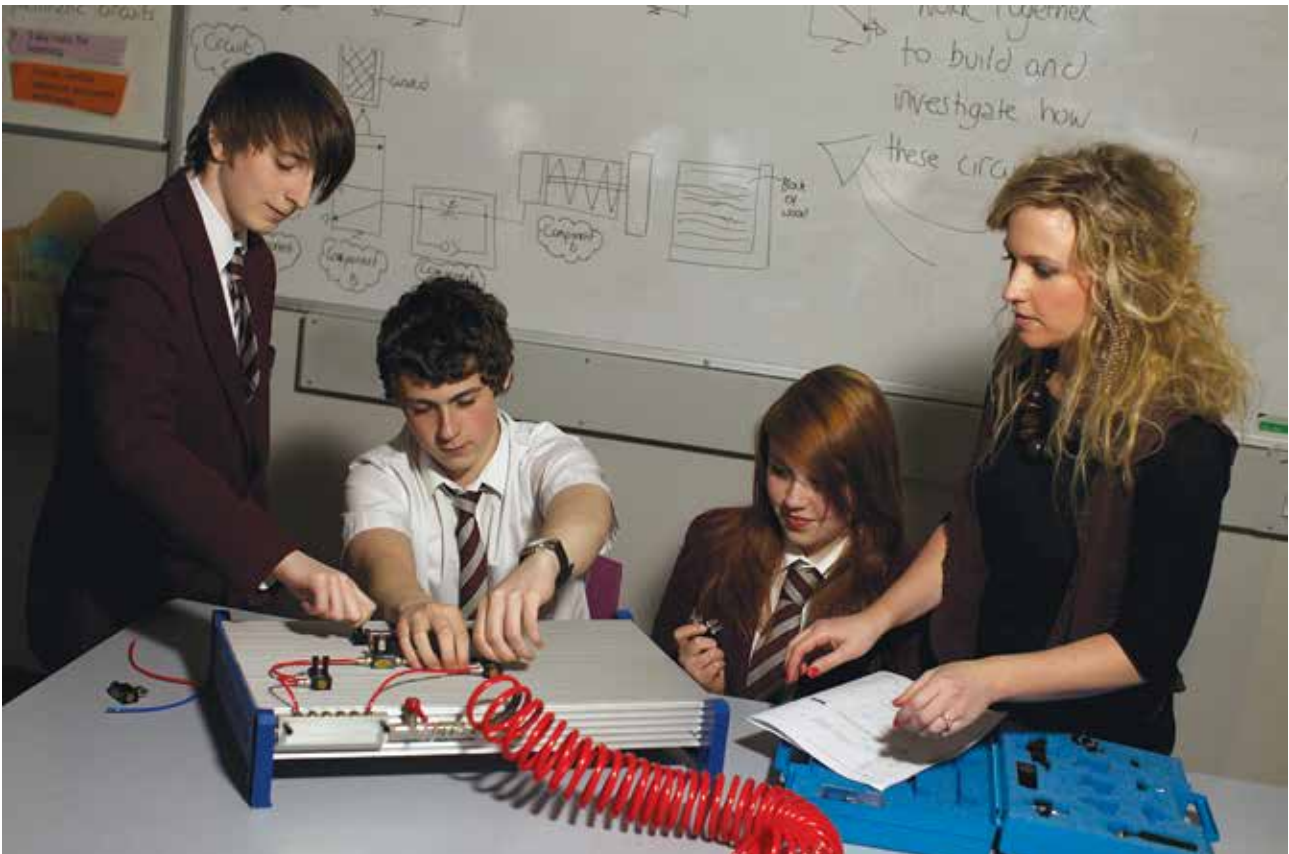
Teachers may feel frustrated by their pupils' reluctance to move on from a merely descriptive approach to confronting problems in a subject. An ability to analyse an issue or topic demonstrates not just the breadth of pupils' knowledge, but also the depth of their understanding. By focusing more on developing TSPC, rather than just content, teachers can help pupils to deepen their understanding. These skills support pupils to take greater responsibility for their own learning and to become independent learners. They will also better prepare pupils for learning new and challenging content.

Pupils will develop their Problem Solving skills more effectively if we teach these skills explicitly. Pupils need to see examples of Problem Solving skills in practice. Teachers should choose the right time to model Problem Solving skills by demonstrating how to work through a process that leads to a solution. Pupils should have opportunities to rehearse the particular approaches they have seen demonstrated.

Working with Others

Working with Others builds on pupils' experiences of Key Stage 3. An ability to collaborate successfully is not only a desirable life skill. It can also significantly enhance the quality of learning.

When planning at Key Stage 4, teachers must decide where to build in time for group work. Effective group work depends on establishing relationships that foster co-operation and collaboration. Sometimes pupils don't develop these features of working as a group quickly or smoothly. There is a big difference between working in a group and working as a group. Where groups do work well together, the potential benefits are significant. Pupils learn with and from each other and develop skills in co-operating, which leads to improved performance.



Strangford College, Technology and Design – Pupils work together to investigate electronic circuits and develop their communication and problem solving skills.

Pupils sometimes need opportunities to work with friends in a group where they feel comfortable and accepted. They should also experience new situations where they have to establish working relationships with people they don't know and might feel less comfortable with. By working collaboratively, pupils can build and develop relationships with others and develop their social and communication skills. For example, pupils learn to share information, co-operate and listen to and support others.

Giving the group a task or activity that has genuine scope for collaborative working is particularly significant in structuring successful group work. Choosing when to incorporate a Working with Others approach can be difficult, as what works well with one group might not necessarily succeed with another.

Developing greater skills when Working with Others involves pupils recognising when a collaborative approach will be helpful. They will only start to do this when group activity has already become a regular part of their classroom experience.

Regular group work enables pupils to become familiar with reporting their individual contributions. This allows teachers to assess individual contributions to group outcomes.

Working together in groups benefits pupils' learning. Skills that pupils develop in this area complement and enhance their general social skills. For example, by occasionally having older pupils mentor younger ones, pupils become used to working with different age groups. Industry, business and higher education recognise that the social and collaborative skills gained from working in teams are highly desirable qualities in future employees.

Although the general pattern for Key Stage 4 might be predominantly individual working, finding occasions for group work can be valuable. Setting up and running group activities can be time consuming, but the possibilities to enrich learning make the effort worthwhile. Changing emphasis from mainly delivering content to also developing skills is unfamiliar ground for many teachers. It is not easy to make a problem solving approach or a group activity work straight away. Research has shown that a skills-based component to the curriculum works effectively, but may take some years and commitment to develop. Pupils benefit by deepening their learning and becoming more independent learners.

Self-Management

The skills associated with Self-Management may seem to be obvious by the time pupils have reached Key Stage 4. These include:

- becoming more independent as learners;
- taking responsibility for their own learning;
- sustaining involvement; and
- developing resilience and perseverance.

If our young people want to develop these qualities, they will need support to grow as increasingly self-aware and reflective individuals.

Self-Management skills are connected to developing the qualities of a reflective learner. To make progress in this area of the curriculum, pupils need opportunities to reflect on their individual experiences of learning in a structured way. Self-Management skills relate closely to the principles of Assessment for Learning. These skills develop from regular peer and self-assessment, together with feedback and discussion.

Pupils have already formed attitudes and dispositions to learning before they reach Key Stage 4. These can be difficult to change. Teachers can influence mistaken perceptions that limit expectations. One indicator of future educational achievement is how much the pupil considers their intelligence to be a fixed attribute. Those who believe that they will not excel in a subject, because they don't possess the requisite 'talent', tend not to, and this can become a self-fulfilling prophecy. By contrast, those who see intelligence as a quality that they can develop are more likely to succeed. Educationalists should challenge the widespread misconception that intelligence is fixed, and teachers can help pupils to realise that they can achieve success in learning through sustained effort.

Using the language of skills and capabilities brings the attributes of Self-Management skills into the conversation between learner and teacher. This can only happen if teachers make a shared vocabulary for talking about progress and reflecting on learning part of the daily exchanges in class. This involves setting aside time to teach pupils how to become reflective learners. Teachers should use the techniques of Assessment for Learning and, in particular, the more difficult AfL practices such as peer and self-evaluation. This also means allowing pupils adequate time for the metacognitive part of reflecting on learning to take place.



Belfast Royal Academy, English – Pupils review their contribution to a debate on what makes a hero.

At Key Stage 4, pupils continue to need clear advice and guidance to make their reflections on performance productive.

Giving pupils their marks and grades from end-of-topic tests alone will not improve learning. Teachers should provide meaningful feedback after end-of-topic tests to help pupils to identify:

- where their strengths lie;
- where they need to make greater effort; and
- what to do to improve.

Teachers need to support pupils to become more effective in their approach to learning. Helping pupils develop their metacognitive ability allows them to recognise their own strengths and weaknesses so that they can decide where they need to make more effort. The skills of self-management may come less easily for pupils who face challenges at Key Stage 4, but these skills are crucial for their eventual success. Such pupils might need more individually tailored support and guidance, and more hands-on help to appreciate the most effective ways to improve their performance at school.

Pupils with uneven progress at Key Stage 4 will benefit most from meaningful feedback. Teachers can use the range of approaches to assessment suggested here, including the use of data and observations from continuous, ongoing formative assessments and summative assessments, in a diagnostic way to inform decisions. Teachers and pupils can gain greater insight into the underlying causes of any problems by using meaningful information about pupil performances. This in turn leads to individualised approaches to overcoming any specific difficulties so that pupils continue to make progress and don't feel out of their depth. As teachers help pupils to succeed, pupils are more likely to internalise the learning experience in ways that reorient their attitudes and dispositions to a more positive outlook.

Revised Bloom's Taxonomy

The revised version of Bloom's Taxonomy (Anderson and Krathwohl, 2001) illustrates progression in learning. Teachers can use it as a framework to:

- set tasks and learning objectives;
- construct effective questions; and
- assess pupils' progression in their learning.

(See Appendix 4: Formulating Effective Questions)

The revised version of Bloom's Taxonomy has a knowledge dimension and a cognitive process dimension. These are classified into hierarchical steps. The knowledge dimension ranges from concrete to abstract. It classifies the types of knowledge pupils should acquire, develop and construct (Table 2).

Table 2
The knowledge dimension – major types and subtypes

concrete knowledge		abstract knowledge	
factual	conceptual	procedural	metacognitive
knowledge of terminology knowledge of specific details and elements	knowledge of classifications and categories knowledge of principles and generalizations knowledge of theories, models, and structures	knowledge of subject-specific skills and algorithms knowledge of subject-specific techniques and methods knowledge of criteria for determining when to use appropriate procedures	strategic knowledge knowledge about cognitive tasks, including appropriate contextual and conditional knowledge self-knowledge

www.celt.iastate.edu/pdfs-docs/teaching/RevisedBloomsHandout.pdf

The Revised Bloom's Taxonomy cognitive process dimension of increases in cognitive complexity from lower to higher order thinking skills (Table 3).

Table 3
The cognitive process dimension

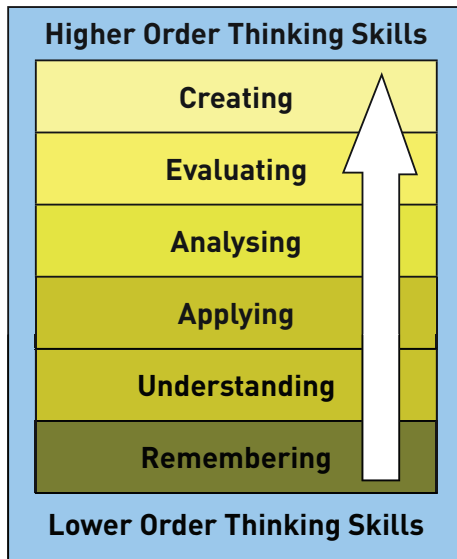


Figure 5
The knowledge and cognitive process dimensions

The model in Figure 5 illustrates how the knowledge and cognitive dimensions are connected.



The model is based on the revised version of Bloom's Taxonomy of educational objectives. Anderson and Krathwohl (2001). www.celt.iastate.edu/pdfs-docs/teaching/RevisedBloomsHandout.pdf

Approaches to support progression in learning

Activities and approaches to teaching and learning that have previously formed a regular part of pupil experiences at Key Stage 4 may become lost or diluted because of time pressures. Getting the course finished can take precedence over developing deeper understanding. By setting aside anxiety about completeness and focusing on deeper understanding instead, teachers can improve outcomes.

For example, if pupils are to move their understanding on from description to analysis, they need opportunities to:

- talk about thinking and learning;
- ask questions;
- see the teacher model examples of analysis;
- understand what the teacher means by analysis in a specific context;
- know what is involved in being analytical;
- rehearse the skills of analysis;
- refine and apply their analytical skills in a range of familiar and unfamiliar contexts;
- reflect on their learning; and
- receive quality feedback from the teacher and from their peers to help them to consolidate their learning, assess their progress and identify the next steps to improve their learning.

The following section considers enquiry-based learning. It provides several approaches that teachers can use to help pupils develop the skills associated with deeper understanding.

Teachers can scaffold pupils' learning by drawing out particular approaches to Problem Solving, Self-Management and Working with Others. To deepen pupils' knowledge, understanding and skills, teachers can adapt one or more of these approaches to suit their subject context.

Enquiry-based learning

Memorising and recalling information is no longer the most important skill in our society. Most of the knowledge we need is readily accessible. Pupils need skills and capabilities to access and apply knowledge in familiar and unfamiliar contexts.

Teachers can use enquiry based-learning to develop pupils' thinking skills and personal capabilities as well as their knowledge and understanding. This enables pupils to construct their own meaning and progress in their learning.

Enquiry-based learning involves:

- learning stimulated by enquiry or problem;
- a learner-centred approach with the teacher acting as facilitator of learning;
- focusing on the process of constructing knowledge and deepening understanding;
- active learning;
- using effective questions to stimulate enquiry and solve problems;
- collaborative working;
- self-reflection/evaluation; and
- independent learning.

The teacher as facilitator

In enquiry-based learning, there is a shift from a teacher-centred model to a learner-centred approach to teaching and learning (Table 4). The teacher's role as facilitator supports and guides pupils in the learning process and empowers them to become independent learners.

Table 4

The shift in the role of pupils in enquiry-based learning

teacher centred		pupil led	
from	passive recipients of knowledge	to	active and participatory learners
	focus on answering questions		asking questions
	being 'spoon fed'		taking greater responsibility for their learning
	competing with one another		collaborating in their learning
	wanting to have their say		actively listening to others
	learners of individual subjects		connecting their learning

The teacher's role as facilitator involves:

- engaging all pupils in the learning process;
- creating a trusting classroom environment where pupils feel able to share and exchange ideas and work co-operatively by:
 - respecting and taking individual differences into account;
 - discussing what they do not understand and viewing their mistakes as learning opportunities;
 - becoming resilient and persistent to overcome challenges to their learning; and
 - respecting each other's views and accepting, responding and acting on constructive criticism;
- setting the parameters for the enquiry;
- making thinking important and explicit;
- asking effective questions to stimulate thinking, exploration and discussion;
- encouraging pupils to ask questions;
- supporting and motivating pupils to engage in the learning process and task;
- challenging pupil thinking, extending the boundaries of their understanding and supporting them to find answers to questions and solutions to problems;
- valuing all pupil contributions;
- providing pupils with opportunities for self-reflection and review; and
- assessing progress, identifying gaps in pupils' learning and supporting them to close those gaps.



St Benedict's College, Geography – Teacher facilitates group work and discussion about immigration.

What type of enquiry to use?

There are three main types of enquiry:

- structured;
- guided; and
- open.

Table 5

Types of enquiry

Structured enquiry	Guided enquiry	Open enquiry
Increasing amount of time to complete enquiry		
Teachers present an issue or problem and a structure for approaching it.	Teachers provide questions to stimulate enquiry. Pupil learning is self-directed. They use their own approach to exploring the issue and questions. Teachers support pupils to construct learning.	Pupils formulate their own questions and work through the enquiry cycle. Teacher and pupil co-construct learning.

When planning an enquiry, teachers need to consider the level of structure to provide. This will depend on:

- the time available;
- pupils' previous experiences of enquiry-based learning; and
- the pupils' range and level of skills.

Where pupils have limited experience of enquiry-based tasks or there is limited time, teachers could begin with a structured enquiry. As pupils gain more experience and skills, teachers could move them on to guided or open enquiry tasks. The nature of the enquiry should allow for differentiation and creative outcomes.

Having decided on the type of enquiry, teachers can use the step-by-step guide (Figure 6) to plan their enquiry.

Figure 6
Step-by-step guide to planning an enquiry

Step 1: Activate prior learning

Teachers consider what prior learning is required for pupils to successfully engage in the enquiry, and how the activity will build on and progress their learning.

Step 2: Identify a topic/issue and frame as a question or problem to solve

Teachers identify a question to use as a focus for the enquiry (see the next section, on effective questioning). Teachers discuss with pupils what they already know and how this is connected to the enquiry or problem. They should let pupils suggest questions for the enquiry. This gives pupils the opportunity to be more involved, interested and motivated. Alternatively, teachers could give their pupils some key questions to explore as part of learning about the topic.

Step 3: Identify essential knowledge and understanding, key concepts and skills

Teachers identify knowledge and understanding, key concepts and skills that pupils need to master in order to successfully complete the investigation. Based on this, they discuss the focus of the enquiry and agree intended learning outcomes with pupils.

Step 4: Identify the thinking questions

Teachers support pupils to identify key questions to ask. This helps pupils to understand the topic/issue. Teachers model the process of the enquiry or otherwise provide scaffolding for pupils to learn in stages, leading to deeper learning and understanding.

Step 5: Manage information

Pupils research, gather, select, analyse and interpret information or evidence, using the methods and approaches provided and modelled by the teacher.

Step 6: Critical thinking

Pupils consider different perspectives and opinions. They critically evaluate information and ideas. Pupils test ideas and potential approaches or solutions and persist until they find solutions. Pupils construct an appropriate response or argument. They draw well reasoned conclusions based on their findings.

Step 7: Communicate

Pupils structure their response to express what they have learned.

Step 8: Reflect/Evaluate

Pupils reflect on and evaluate their learning. They identify strengths and areas for development. They suggest how they can improve their learning in subsequent activities.

Teachers can also include the following approaches to enable pupils to develop skills and capabilities to make progress in their learning.

Assessment to improve learning

Use a range of assessment approaches to improve learning such as effective questioning, quality feedback, peer and self assessment.

Working collaboratively

Use group work strategies. Support pupils to learn with and from others. Pupils can take on different roles and responsibilities and contribute to group decision-making.

Active teaching and learning

Use appropriate active teaching and learning methods to stimulate and challenge pupils, varying their classroom experience.

Use technology to enhance learning

Teachers should consider how they can use ICT to enhance the pupils' learning experiences, in particular, relating subject content to examples of real-world applications.

Effective questioning to develop thinking critical skills

Effective questioning is a key element of teaching and learning. Effective questions encourage pupils to think, reflect and learn. Teachers should use effective questioning as part of their teaching, learning and assessment pedagogy.

Effective questions should:

- help improve pupils' communication skills;
- stimulate thinking;
- generate further questions;
- take pupils to the limits of their understanding and beyond;
- encourage pupils to reflect on prior learning experiences;
- encourage pupils to apply what they already know;
- generate thoughtful, informed, reasoned responses;
- help pupils to clarify their understanding and misconceptions; and
- offer opportunities for all pupils to hear others' answers, helping them to reflect on their own understanding. (Ofsted, 2012)

Teachers can use the Revised Bloom's Taxonomy (Anderson and Krathwohl, 2001) to create questions. Appendices 4 and 5 provide question frameworks that teachers may find useful.



Ashfield Girls' High School, English – Effective questioning, pupils write down their responses to the teacher's question on mini-whiteboards in a lesson about devices used in language and presentation

Planning effective questioning

Questioning is most effective when it allows all pupils to become fully involved in the learning process. When planning lessons, teachers should:

- use the Revised Bloom's Taxonomy to create a range of questions from simple to complex;
- create a safe environment where pupils feel comfortable answering questions;
- consider class dynamics and involve all pupils in class discussion, answering and asking questions;
- ensure they match questions appropriately to the pupils' ability range;
- ensure there is no bias in the questions, for example by checking for gender and cultural bias;
- ask questions that stimulate thinking and learning;
- think about the types of questions and key questions that they might ask pupils, depending on the purpose or intended learning outcomes of the lessons;
- think through possible pupil responses and their own; and
- have model answers to help illustrate and explain more difficult concepts/ideas.

This provides a useful starting point to formulate and pose other questions as the lesson or activity unfolds.

Effective questioning techniques

When using effective questioning, teachers may find the following techniques helpful.

- Use the 'no hands up' rule, mini whiteboards or digital voting systems to encourage everyone to keep thinking as you could ask anyone for a response.
- Give pupils time to think before responding to the question, allowing them to think about others' responses and to reflect on their own. If pupils do not respond, do not give the answer. Ask a prompt question instead.
- Focus questions – if a pupil is having difficulty answering a question, support the pupil by leading her or him through the steps to find the answer. This will help the pupil to understand the thinking process.
- Ask open-ended questions that encourage a range of responses and stimulate thinking.
- Sequence and ask questions that range in their level of challenge. Progress from low order to higher order questions.
- Ask big questions at the start of the lesson that pupils can answer at the end of the lesson. These could be value-based and require interpretation of information, discussion and collaborative thinking.
- Use questions to build on ideas. Ask different pupils questions and allow them to develop their responses and encourage discussion.
- 'Phone a friend' – if a pupil cannot answer a question, allow them to nominate a friend to answer. This encourages whole-class listening and participation.
- Hot-seating – a pupil agrees to sit on the hot-seat and take questions from pupils and the teacher. This encourages active listening and challenges the pupil.
- Preview – display and share questions that you will ask at the start of the lesson. You can use this method to signify key concepts and learning. This helps pupils to focus and think about what they are learning.
- Pair rehearsal – pupils discuss the question and agree their responses. This encourages interaction and exchange of ideas and thinking.
- Target questions to groups – listen to group discussions and ask the group specific questions. This allows teachers to adapt their questions to suit the level that pupils are working at.
- Developed questions – pupils have to answer the question using key words or phrases or expand on previous responses. This helps to develop their thinking and communication skills.

Appendix 6 provides some questions that teachers can use to reflect on their classroom questioning technique.

Active teaching and learning methods

Active teaching and learning is about engaging pupils in their learning. Active learning is about pupils learning through participating in motivating and challenging tasks and activities.

For examples of different active learning approaches, refer to the CCEA guide on *Active Learning and Teaching Methods for Key Stage 3* available at www.nicurriculum.org.uk. Teachers can also use these approaches at Key Stage 4.

When planning an enquiry-based task or activity, teachers can consider which active teaching and learning methods they might use. This will depend on the focus of the enquiry. Teachers could consider using the following examples of active learning methods.



St Colmcille's High School, Local and Global Citizenship – Pupils participating in a four corners debate on the topic of flags and cultural identity.

Example 1:

Mind Maps

Mind Maps

Skills Capability focus:

Critical Thinking
Problem Solving
Working with Others

What are they?

Mind maps are diagrams created around a key word, concept or idea. They visually represent information and the connections between concepts.

How do they work?

Pupils create mind maps to structure and connect their ideas, allowing them to express their thinking visually.

When can they be used?

Pupils can use mind maps at any point in the enquiry, for example at the start of the activity to generate questions or to explore ideas.

Example 2:

Carousel

Carousel

Skills Capability focus:

Self-Management
Working with Others

What is it?

This is a structured information gathering activity. Pupils work in small groups and share their ideas about an issue.

How does it work?

The teacher gives each group a sheet of A3 paper with a key question or a different question for each group on the enquiry issue. Pupils have a time limit to record their responses to each question in turn.

For each question, pupils discuss whether they agree or disagree with the previous responses. They justify their thinking and write down their own thoughts on the issue. As a debrief, pupils in each group can discuss and share their thinking and ideas.

When can it be used?

Carousel is also a useful evaluation tool. Questions might include: what have you learned today? What was most surprising/shocking/interesting/useful for you today? What might you have done differently?

Example 3:

Plus, Minus and Interesting

Plus, Minus and Interesting
<p>Skills Capability focus:</p> <p>Critical Thinking Problem Solving Self-Management</p>
<p>What is it?</p> <p>This method helps pupils to examine all sides of an idea, topic or argument. It encourages pupils to move away from their initial emotive responses and to think about an issue from different perspectives.</p>
<p>How does it work?</p> <p>Pupils discuss a topic or issue and note some benefits, disadvantages and interesting points using the headings: Plus, Minus and Interesting.</p>
<p>When can it be used?</p> <p>This is a useful way to evaluate and make decisions about options to problem solving. Pupils can use it to explore options further.</p>

Example 4:

Strengths, Weaknesses, Opportunities and Threats

SWOT				
Strengths, Weaknesses, Opportunities and Threats				
<p>Skills Capability focus:</p> <p>Critical Thinking Problem Solving Working with Others</p>				
<p>What is it?</p> <p>This method helps pupils to examine all sides of a proposal. It encourages pupils to think objectively.</p>				
<p>How does it work?</p> <p>Pupils evaluate a proposal or option. They outline their thoughts on a sheet of A3 paper and share and discuss them with others, using the format below.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 5px;">Strengths</td> <td style="padding: 5px;">Weaknesses</td> </tr> <tr> <td style="padding: 5px;">Threat</td> <td style="padding: 5px;">Opportunity</td> </tr> </table>	Strengths	Weaknesses	Threat	Opportunity
Strengths	Weaknesses			
Threat	Opportunity			
<p>When can it be used?</p> <p>This is a useful way to evaluate and make decisions about options to problem solving. Pupils can use it to explore options.</p>				

Using ICT to enhance learning and develop pupils' skills

Using ICT effectively is central to key DENI educational policies, including the numeracy and literacy strategy (DENI, 2011b). It is important for schools to maximise using ICT to ensure that added value is provided in terms of improvements in teaching and learning and in supporting the drive to raise standards for all pupils (DENI, 2007). ETI (2012) emphasises the need to embed ICT across all aspects of teaching and learning in all schools. DE has a key priority to ensure that young people acquire the skills to use ICT effectively, confidently and safely.

At Key Stage 4, schools need to have a co-ordinated whole school approach to using ICT to enhance pupils' learning and developing Using ICT skills. Schools need to plan, structure and integrate ICT effectively within teaching and learning. Subject teachers need to identify appropriate opportunities to use ICT. Teachers need to use ICT selectively and purposefully to add value to their pupils' learning experience.



Belfast Royal Academy – Modern Languages, French – Using ICT to enhance pupils' learning, pupils developing their listening skills and Using ICT skills.

Teachers should use ICT to enable pupils to develop their subject knowledge and understanding as well as their Using ICT skills. The effective use of ICT should support pupils to make progress in their learning and lead to improved learning outcomes. Teachers can use the enquiry-based learning model (page 52) to plan Using ICT to enhance learning. When using the model, teachers should consider:

- Value added – how will Using ICT add value to the activity?
- Improving subject knowledge and understanding – how will Using ICT contribute to improving the pupils' knowledge and understanding of the topic or issue?
- Using ICT as a focus for development – what is the Using ICT skills focus?
- Links with other skills and capabilities – is there a focus on developing other skills and capabilities? If so, how do these relate to Using ICT?
- Prior learning – what do pupils already know and understand about the topic or issue? What Using ICT skills do pupils have?
- Assessing progression – how will you assess progression in Using ICT skills?
- Improving learning – how will you use the assessment information to help pupils to improve their learning?

Using assessment to improve learning

When planning teaching and learning, teachers should consider how they will use assessment to improve learning. This should include formative assessment and may include a summative assessment component. Depending on how teachers use the assessment information and feedback, both can be used to improve learning (Harlen, 2005). Teachers should use a range of assessment strategies as an integral part of developing pupils' learning. These should include:

- a focus on learning;
- creating assessment criteria;
- effective questioning; and
- quality feedback.

A focus on learning

Teachers should involve pupils in the assessment process. For example, teachers could discuss with pupils how they would like to be assessed and agree success criteria.

Creating assessment criteria

After considering the prior learning and identifying a focus for the enquiry, teachers could discuss and agree assessment criteria with pupils.

Assessment criteria should be valid and assess the intended learning from the subject specification or scheme of work. Teachers should define:

- the criteria they use to measure each pupil against; and
- the knowledge, understanding, skills and capabilities they expect pupils to demonstrate as a result of their learning experience.

Assessment criteria introduce objectivity, consistency and transparency to the assessment process. They help to:

- reduce potential teacher bias;
- make assessment fair and more reliable; and
- improve pupil learning.

When setting and agreeing assessment criteria, teachers can use effective questioning to ask pupils:

- about processes involved in the enquiry;
- to identify key aspects of knowledge, understanding and skills and capabilities that they will demonstrate during the enquiry;
- about the steps they might take to complete the enquiry;
- to think about how they might structure their response; and
- to consider the relative importance of parts of the enquiry and whether to give these more weight in the assessment.

In the context of the enquiry, teachers can discuss with pupils the characteristics of an excellent, a good, and an under-developed response. If appropriate, teachers should give examples. This helps pupils to understand what is expected from them to achieve an excellent response, what they need to do and what learning they need to demonstrate. Assessment criteria are a series of specific statements that outline expected learning. Teachers can set assessment criteria for each response. Table 6 shows an example of assessment criteria for an excellent response.

Table 6
Developing assessment criteria

Assessment Criteria		
An excellent response will display		
(Statements about the knowledge and understanding that the pupil is expected to demonstrate.)	(Statements about the thinking skills/personal capabilities that the pupil is expected to demonstrate.)	(Statements about the any of the Cross-Curricular Skills that the pupil is expected to demonstrate.)

Teachers should use assessment criteria to:

- give their pupils clear information about what is expected, the focus of assessment and what success will look like;
- enable them to make fair, sound and consistent judgements about pupil performance on the basis of assessment evidence;
- help teachers and pupils monitor pupil progress;
- provide quality feedback on what pupils have done well, what they may have missed out and how to improve their learning; and
- support peer and self-assessment.

Where teachers are using examination type questions or past examination papers, they could involve pupils in setting assessment criteria and mark schemes. This will help pupils to develop a better understanding of assessment and focus on areas for improvement. Teachers can also use the following formative assessment approaches to complement summative assessment.

Effective questioning

Teachers should use effective questioning to encourage pupils to reflect on their learning and assess their progress. Teachers can use the approach shown on page 56 to develop effective questions to assess their pupils' learning. Table 7 illustrates the type of questions they might ask.

Table 7

Examples of types of questions

Purpose of Question	Examples
To clarify pupils' thinking/reasoning	What do you mean when you say...? Can you give me some examples of what you mean? What was your thinking behind your idea/approach? What were your reasons for your approach? Why do you think that? How did you reach that conclusion?
To evaluate pupils' learning experience	What parts of the activity did you do well? Why do you think you did well? What parts of the activity did you find difficult? Why did you find this difficult? What approach did you use? What other approaches did you consider?
To identify pupils' new learning	What have you learned from this activity that is new? How will this learning be helpful next time?
To encourage pupils to think about the next steps	What will you do to help to improve your skills/capabilities? What will you do to help to improve your understanding about ...? What would happen if you did things differently?

Quality feedback to pupils

Quality feedback is about giving pupils frequent, focused, meaningful information about their work and how to improve it (Black et al., 2003; Black et al., 2010; Black et al., 2011; Harlen, 2005). Feedback to pupils may be oral or written. It must be constructive and support pupils to 'close the gap' in their learning. Delayed feedback can be meaningless to the pupil. Teachers should give feedback promptly. This helps to motivate pupils, which is a crucial element in helping them to become successful learners.

Quality feedback should:

- be specific to the pupil;
- focus on learning;
- be linked to success/assessment criteria;
- be accurate and make sense to pupils;
- give pupils clear guidance on how to improve their learning; and
- enable pupils to act to improve their learning.

Most feedback is verbal and informal. Teachers can also give pupils written feedback when marking their work. This involves annotating pupil work and writing meaningful comments. They might find the following five steps helpful when giving pupils structured feedback:

- highlight success by identifying some areas where the pupil has succeeded;
- identify areas for improvement;
- suggest ways to make improvements by providing constructive comments and examples of how pupils could do this;
- give the pupil time to review their work and make improvements; and
- review and discuss the changes with the pupil.



Belfast Royal Academy, English – English Language, Teacher and pupils discussing poetic techniques and their effects on the reader.

Peer and self-assessment

Teachers should plan peer and self-assessment opportunities to complement teaching and learning and other assessment methods. Peer and self-assessment contribute to developing the pupils' personal capabilities of Working with Others and Self-Management. Peer and self-assessment help pupils to plan, monitor, redirect and evaluate how they think and promote deep learning (Sebba et al., 2008).

Peer and self-assessment succeed when pupils clearly understand their purpose and processes and have the motivation and commitment to take steps to improve their learning (Black and Wiliam, 1998). Pupils must be able to:

- determine at what stage they are in their learning;
- identify gaps in their learning;
- set targets for improvement; and
- know what they need to do to close gaps in their learning.

To help pupils to determine what stage they are at and to identify gaps in their learning, teachers should:

- promote peer and self-assessment as an intrinsic part of the learning process;
- actively involve pupils in deciding how best to assess their knowledge, understanding and skills;
- actively involve pupils in developing the assessment criteria;
- ensure pupils understand the criteria for quality work so that they can make fair judgements about their own and others' work;
- support pupils to acknowledge their strengths and weaknesses and assume greater responsibility for their own learning;
- encourage pupils to ask meaningful questions about the quality of their own and others' work; and
- provide timely quality feedback to pupils about their learning.

To help pupils to set targets to improve their learning, teachers should:

- define good work so that pupils understand what they are aiming to achieve;
- show exemplars of good work and expected standards;
- engage pupils in critiquing the exemplars to draw out criteria;
- encourage self-reflection by allowing pupils time to respond to feedback;
- clearly illustrate examples of learning targets that pupils can model;
- encourage pupils to set realistic, time-limited learning targets;
- encourage pupils to record, monitor and regularly review their learning targets and progress; and
- work with pupils to discuss and review their targets.

To help pupils to determine the steps to take to improve their learning, teachers can:

- encourage pupils to discuss and ask questions about how they could improve their learning;
- support pupils to explore and identify different ways of improving their work;
- encourage pupils to think about what they might have done differently;
- provide explicit feedback about what was good, where effort was made and potential areas for improvement or greater effort;
- help pupils to plan and manage current and future work to meet learning targets; and
- help pupils to become aware of how different learning approaches, strategies and scaffolds may improve their thinking and learning.

For examples of peer and self-assessment strategies, see *CCEA Guidance on Subject Assessment at Key Stage 3*, Appendix 3, available at www.nicurriculum.org.uk

Scaffolding reflection

Teachers should allow pupils time to reflect on their learning. This allows them to think about what and how they are learning and, if necessary, to adapt their approaches to achieve their goals.

Teacher reflection

Teachers should take time to reflect on the effectiveness of teaching and learning. This allows them to verify what their pupils have learned. This helps teachers to decide what they may need to teach again in a different way, or how to focus future teaching plans.

Section 5

Developing a Shared Understanding of Standards



Improving learning outcomes for all pupils is one of the key focuses of the Department of Education's Policy for School Improvement (DENI, 2009a). In particular, the policy focuses on raising standards in literacy and numeracy (DENI, 2011b). If schools and teachers want to improve standards in literacy, numeracy and other subjects they must first have a clear and shared understanding of what standards mean. Three main types of standards are used in education:

- content standards;
- assessment standards; and
- performance standards (or grade standards) (Ofqual, 2013).

Content standards

Content standards refer to the demands of the specification, curriculum or programme of study. They define the content that pupils need to learn. They include subject knowledge, skills and understanding. Teachers can make content more or less demanding by increasing or decreasing:

- the breadth of the subject knowledge, understanding and skills that pupils need to learn; and
- the depth to which the subject matter is studied, or the level of proficiency of the skills pupils need to acquire.

Assessment standards

Assessment standards are used to measure what pupils know and can do in terms of their knowledge, understanding and skills. Subject departments in schools set these standards as part of the assessment process. Awarding organisations also set standards. Qualifications use standards to assess whether a pupil has demonstrated sufficient knowledge, understanding and skills to achieve a particular qualification or grade. Assessment standards refer to the assessment's level of demand.

Performance standards

Performance standards refer to the quality of the outcome. For example, in GCSEs the performance standards are also referred to as grade standards. These are only defined in subjects for key grades A, C and F.

Demand

Content, assessment and performance standards relate to the level of demand or how challenging an assessment or qualification is. The level of demand depends on the:

- level of subject knowledge required;
- skills or processes the candidate must apply;
- level of abstract thinking needed; and
- strategy required to respond to an assessment.

What do standards mean in practice?

At Key Stage 4, most pupils will follow courses leading to GCSE qualifications. The awarding organisation will set content, assessment and performance standards.

Raising standards in literacy and numeracy has become synonymous with improving pupil performance in the GCSE subjects of English and Mathematics respectively. GCSE English and Mathematics may be seen as a measure of Literacy and Numeracy.

We can only improve assessment and performance standards in Literacy and Numeracy and other subjects by improving the quality of teaching and learning in the classroom and using assessment to improve learning outcomes for all pupils. We cannot achieve this by using only a traditional approach to teaching and learning with an overemphasis on summative assessment, marks and grades. To achieve improvements in learning outcomes and standards, teachers need to use a variety of teaching, learning and assessment approaches.

Setting internal standards

Apart from the standards that external qualifications set, schools and teachers can set internal subject content, assessment and performance standards. Schools may base these standards on subject qualification standards, but they can go beyond this. Where teachers use a range of approaches to teaching, learning and assessment, such as those outlined in this guidance, they can set content standards that focus on:

- deepening learning by developing pupils' critical thinking skills and challenging them to explore topics/ issues in greater depth, helping to improve pupils' understanding and shifting the balance in learning from content to skills (ETI, 2012); and
- developing personal capabilities to promote independent learning.

Teachers can set assessment standards that:

- are congruent with teaching and learning;
- are based on the valid assessment of programme of study learning outcomes;
- are based on challenging enquiry-based activities and tasks;
- include skills and capabilities; and
- emphasise what pupils can demonstrate in terms of knowledge, skills and understanding rather than just grades.

Teachers can set performance standards based on assessment criteria and criterion-referenced to include skills and capabilities as well as knowledge and understanding.

Sharing standards

Teachers need to have a shared understanding of content, assessment and performance standards in their own subjects. They also need to have an understanding of how they contribute to improving these standards in the Cross-Curricular Skills and Thinking Skills and Personal Capabilities. This helps to ensure consistency in setting standards, judging pupil performance and measuring progression in learning.

At Key Stage 4, English and Mathematics are the main subjects in which pupils will acquire, develop and be assessed in the Cross-Curricular Skills of Communication and Using Mathematics. Therefore, teachers of English and Mathematics establish and apply school standards for literacy and numeracy.

The DE strategy to improve outcomes in literacy and numeracy (DENI, 2011b) states that schools can achieve this by using a whole school approach, led by the English and Mathematics departments. Teachers from other subjects then feed back information about their pupils' progress in Communication and Using Mathematics to the English and Mathematics departments (*ibid.*). Therefore, the English and Mathematics departments have a lead role to play in sharing these standards with colleagues in other subjects.

If teachers of subjects other than English and Mathematics are to support pupils to make progress in these skills, they need to know assessment and performance standards. If teachers use GCSE English and Mathematics assessment and performance standards, other subject teachers need to know how they can contribute to improving these standards. Other subject teachers can use these standards in a formative way to support pupils to make progress in their Communication and Using Mathematics skills.

Similarly, in schools that offer ICT as a GCSE, the ICT department should play a lead role in sharing standards with other subject teachers.

Developing a shared understanding of standards

Individual teachers, subject departments and the whole school need to develop a shared understanding of standards. This includes the breadth, depth and quality expected of pupils' work in terms of knowledge, understanding, skills and capabilities.

As part of continuous professional development, teachers should have opportunities to engage in discussion about content, assessment and performance standards. They can do this by, for example, participating in departmental and interdepartmental meetings and in moderation of pupil work.

Teachers need to illustrate content standards for pupils. They can do this by clearly explaining the purpose of pupils' learning, what they expect pupils to demonstrate in terms of learning outcomes and in relation to the depth and breadth of learning. They also need to illustrate assessment and performance standards for pupils and clearly explain what they must demonstrate to achieve them. Teachers should also share standards with parents to help them to understand how their child is progressing.

To develop agreed standards and improve learning, teachers must engage in the teaching, learning and assessment processes outlined in the previous sections.

They should also engage in professional dialogue to:

- develop a common understanding of school and departmental content assessment and performance standards;
- provide clear performance expectations for pupils;
- set challenging learning targets for pupils;
- make consistent judgements when applying and setting subject assessment and performance standards;
- develop an understanding of what constitutes good pupil work;
- monitor progress to identify low achievement and underachievement; and
- improve learning outcomes and support progression by planning teaching and learning to meet each pupil's individual needs.

Internal moderation at Key Stage 4

To develop a shared understanding of assessment and performance standards, teachers should have opportunities to work collaboratively. They can:

- work within their departments to share these standards for their subjects; and
- work departmentally and interdepartmentally to share standards for Using ICT (if appropriate) and the Thinking Skills and Personal Capabilities (Other Skills).

Teachers should engage in professional dialogue about the quality demonstrated in a range of examples of pupil subject work. Where different departments have engaged in enquiry-based learning and setting assessment tasks/activities, teachers can use the internal moderation process to:

- select examples of pupil work that illustrate the range of assessment standards;
- agree assessment criteria and marking conventions before reviewing the work;
- review the examples against the agreed assessment criteria;
- discuss their initial judgements with colleagues and identify areas where views about standards may differ;
- identify strengths and weaknesses in pupil performances;
- reach consensus about assessment standards; and
- use the insights they gain to improve teaching, learning and assessment practices.

Schools can use departmental and inter-departmental moderation to quality assure the assessment process. This provides opportunities for continuous professional development. It also helps teachers to develop consistency in their judgements by agreeing criteria and applying shared standards in departments and across the school.

As part of their assessment policy and practice, schools should help to ensure that teachers develop a shared understanding of assessment standards by:

- providing regular opportunities for internal standardisation in and across departments as part of the school's staff development programme;
- supporting teachers to gather selective evidence of pupil work that illustrates standards; and
- building a bank of examples of pupils' work to exemplify standards.

Sharing assessment and performance standards with pupils and parents

Subject teachers should give pupils examples of work that illustrates the expected standards. This allows pupils to discuss what they need to do to achieve these standards.

Teachers should share their understanding of standards with parents. This helps parents to appreciate how their child is progressing and to support their learning. To help parents understand assessment and performance standards, teachers could:

- explain what assessment standards are and how they use them;
- explain the expected standards for the subject;
- explain the expected standards for skills and capabilities;
- provide examples of their child's work, to illustrate the standard they are working at;
- identify strengths and a focus for development; and
- provide concrete examples of what parents can do to help their child to make improvements in their learning.

Section 6

Effective Use of Data for Tracking and School Improvement



The effective use of data in school self-evaluation and planning for improved outcomes for pupils is central to DENI's school improvement policy and strategy to improve outcomes in literacy and numeracy (DENI, 2009a; 2011b). Research shows that effective use of assessment data is essential for school improvement (Kirkup et al., 2005).

... data is only effective if it stimulates questions about the actual learning that is taking place and how it can be developed further ... (Kirkup et al., 2005)

Using assessment data effectively

Good practice emerges when schools and teachers use data to inform actions that:

- enhance teaching and learning;
- improve learning outcomes; and
- contribute to raising standards.

School assessment data is important for making internal subject comparisons and for benchmarking performance against similar schools.

Senior leaders, heads of department, heads of year and teachers need to regularly gather and record assessment data from a range of sources linked to other school information. Schools should use this assessment data to:

- communicate and share assessment information;
- plan and inform teaching and learning;
- monitor and track pupil performance and progress over time and across subjects;
- analyse and interpret assessment outcomes;
- compare progress between groups, subjects, individuals or schools;
- identify low achievement and underachievement for support and set targets for progression and improvement;
- identify gifted and talented learners who require support to achieve their full potential;
- develop intervention strategies to support learning; and
- help improve learning outcomes for all pupils.

Schools should manage assessment data through a whole-school system. Teachers should have access to the information they need and be able to enter and process new data easily. Schools can use Schools Information Management Systems (SIMS) and Assessment Manager, to record and analyse their assessment data.

Gathering and recording assessment data

To use assessment data effectively, schools must establish manageable processes and procedures. The school or FE college that the pupil attends is responsible for the pupil's learning. It is also responsible for reporting to parents, including obtaining and collating reports from other providers. The report should cover all of the pupil's educational progress (DENI, 2006). At Key Stage 4, this will involve schools collaborating with partner schools and other educational institutions within their Area Learning Communities (ALCs) to develop a managed and co-ordinated approach to gathering and recording assessment data. Schools and partner institutions need to have an efficient system to share and exchange information about pupils.

The extent to which schools can use assessment data to improve learning outcomes depends on collecting the right type and quality of data. Schools and teachers need to ensure that they do not focus too much on collecting academic data, such as grades and percentages, at the expense of other rich formative assessment information. Before gathering and recording assessment information, schools need to ask:

- Is the information appropriate for this purpose?
- What will we use the assessment evidence for?
- Could we use assessment evidence already available for this purpose?
- Do we need to gather other assessment evidence?
- Is the assessment evidence dependable?
- How will we gather and record the assessment information?
- When and how often will we gather and record the assessment evidence?
- Who is responsible for gathering the data?
- How will we analyse and interpret the data?
- How will we use the data to improve the quality of teaching, learning and assessment?
- How will we use the data to improve learning outcomes?

Tracking and monitoring pupil progression

Tracking and monitoring pupils' progress effectively is essential to promoting high standards. The process of tracking and monitoring pupil progress is cyclical. It can begin with gathering assessment data and move on to target setting, reviewing pupil progress and teaching and learning programmes, then implementing intervention strategies to support individuals. This helps to ensure that pupils make progress throughout Key Stage 4. Schools should use a whole-school system involving all staff to regularly track and monitor pupils' progress.

To track and monitor pupil progression, schools can use:

- classroom observation;
- ongoing formative assessment;
- planned departmental periodic assessments;
- internal subject tests; and
- standardised tests and examinations, where available.

Schools might also track other data such as attendance and behaviour as these can have a major impact on pupil progress. They could examine how this information relates to pupil performance and progress. Data tracking enables teachers to identify low achievement and underachievement at an early stage and intervene to help pupils to improve their learning. Schools can use external data to target pupils who may be falling short of their potential. External data can include results from standardised assessment such as Year 11 Information Systems (Yellis).

Key questions

Schools should analyse data for different purposes within the school. For example, the principal and senior leadership team may use performance data for benchmarking and target setting at a whole-school level. Heads of departments might use the data to compare pupil and class performance in their subject. Schools may find the following key questions helpful when analysing data.

Standards

- How does the school's present performance compare with achievement in previous years?
- Is performance significantly lower or higher in one area of the curriculum than in others?
- Are there any steady trends, for example upward or downward, in pupil performance in any area of the curriculum over time?
- Does a particular year group or key stage perform significantly lower or higher compared to their expected achievement or to the performance of the previous cohort(s)?
- Does a particular class perform significantly lower or higher compared to another class in the same year group?
- Do some groups of pupils perform better than other groups? If so, why?

Learning, teaching and intervention strategies

- Which systems and practices in our school have a positive or negative influence on our pupils' learning and achievements?
- Which specific strategies appear to be working well and which strategies less well?

Contextual factors influencing pupil achievement

- What factors from outside the school may affect our pupils?
- What trends do we see in our pupil populations with identified additional or special educational needs?
- How do our literacy and numeracy scores correlate with attendance?
- What areas of literacy and numeracy are the most difficult for our pupils?
- How do boys' and girls' performances compare across the curriculum?
- Are there significant performance discrepancies between the general pupil population and pupils with special or additional educational needs or newcomer pupils?
- Do any sub-groups of our pupils overlap? For example, how many of our pupils with special educational needs receive free school meals? How many of our newcomer pupils are on our SEN register?

Comparison with other schools

- How does our performance in literacy and numeracy compare with other schools?
- How does it compare with schools of a similar size?
- How does it compare with schools in the same free school meal band?
- How does our performance in literacy and numeracy compare with averages for the board area and for Northern Ireland? (DENI, 2009c)

Identifying low achieving and underachieving pupils

Schools can use Assessment Manager to record assessment data at departmental level. This provides a picture of pupil performance in and across all Key Stage 3 subjects. Schools can analyse the assessment data for trends, for example to identify:

- patterns of consistent underperformance in individuals or groups of pupils; and
- low achievement and underachievement.

Those involved in analysing and interpreting assessment data need to be objective and critical. They need to challenge any stereotyping in expectation and data trends.

Low achievement

Low achievement occurs when a pupil is achieving to her or his full ability, but is well below average compared to her or his peers.

Underachievement

Underachievement occurs when a pupil's performance is below what is expected, based on their ability. This includes gifted and talented pupils. Their achievement may be much higher than that of their peers, but they may still be underachieving in relation to what they are capable of.

Many factors related to low achievement and underachievement are not directly measurable. Teachers can use observation and other school data to identify low achievement and underachievement. They can also use their knowledge of pupils and their professional judgement to complement assessment information. They should consider other factors associated with underachievement such as:

- personal/individual differences and behaviours;
- behavioural and emotional factors;
- socio-economic and cultural factors;
- special educational needs;
- coasting;
- attendance figures;
- persistent absenteeism;
- student mobility; or
- poor communication skills.

Detailed analysis of assessment and other data can help to compare different groups' performances, for example comparing the performance of pupils receiving free school meals with the class or year norm. Schools can use this data to identify underachievement in particular groups.

Intervention strategies

Analysing assessment data, together with teachers' observation and discussion with pupils, can help to identify aspects of learning that pupils find difficult and that act as barriers to their learning. If teachers identify a pupil as underachieving in areas of literacy or numeracy, they should follow the guidance in *Count, Read: Succeed A Strategy to Improve Outcomes in Literacy and Numeracy* (see also DCSF, 2007 *Effective Teaching and Learning for Pupils in Low Attaining groups* and PricewaterhouseCoopers (2008) *Literacy and numeracy of pupils in Northern Ireland*).

Intervention strategies can include:

- additional provision for specific areas of subject knowledge and understanding;
- a focus on developing specific skills such as self-management and study skills;
- mentoring support;
- targeted support to tackle specific problems, for example improving motivation, concentration, self-esteem and self-efficacy;
- pastoral support for pupils experiencing behavioural or emotional problems; and
- engaging the wider community and parents in learning support programmes for their child.

Teachers should continue to monitor the pupil closely when learning support is in place. This enables them to measure any improvement and evaluate the added value of the support.

Target setting

Target setting takes place at three levels. At whole-school level, senior leaders and heads of departments set targets by considering the cohort's ability and previous performance. These targets may include a specific focus on improving literacy, numeracy or aspects of subject learning and learning outcomes. At departmental level, heads of department and individual teachers set targets by considering the ability of the class and their previous performance. At an individual level, the teacher and pupil set targets by considering the pupil's learning needs.

Benchmarking

Whole-school and departmental target setting may be numerical and will draw on:

- external benchmarking data, provided by the Department of Education and the Education and Library Boards, that allows schools to compare themselves with other similar schools; and
- internal benchmarking data, provided by the school's senior leadership, that allows individual departments to consider how related departments are performing and where they might collaborate to improve specific aspects of teaching and learning.

Schools should put strategies in place to improve learning and raise standards to achieve and exceed the milestones and long-term targets that DENI (2011b) set.

Table 8
DENI Key Stage 4 targets for Literacy and Numeracy

Key Stage 4	Milestones		Long term target
	2011/12	2014/15	2019/20
	Percentages of pupils achieving expected A*–C grades		
School leavers with at least 5 GCSEs A*–C (or equivalent) including GCSEs in English and Maths	61%	66%	70%+
School leavers with at least 5 GCSEs A*–C (or equivalent) including English and Maths – Girls	65%	70%+	70%+
School leavers with at least 5 GCSEs A*–C (or equivalent) including English and Maths – Boys	56%	62%	70%+
School leavers with at least 5 GCSEs A*–C (including English and Maths) – pupils eligible for free school meals only †	39%	49%	65%+
School leavers with at least 5 GCSEs A*–C (or equivalent) including Gaelte, English and Maths – pupils educated through the medium of Irish	to be confirmed	to be confirmed	70%+

† If the criteria for entitlement to Free School Meals are changed, this target will be reconsidered.

Source: *Count Read Succeed (DENI, 2011b)*

Class and individual target setting

Individual target setting is qualitative. Teachers should base target setting on their insights into individual pupils. Target setting focuses on specific areas and strategies for improving a pupil's own previous best performance. The targets must be as motivational as possible. They should refer to specific challenging but achievable aspects of knowledge, understanding, skills and capabilities. These should include the Cross-Curricular Skills and Numeracy and Literacy. Teachers should base the targets on their awareness of the standards expected in their subjects in Year 11 and Year 12.

At the start of the year, within each subject teachers should work with individual pupils and the whole class to help them to identify and set their own learning targets. Teachers should take into account their knowledge of each pupil's ability and prior attainment. They should monitor and track pupil progress against short (weekly, monthly), medium (termly) and longer term targets (yearly and end of Key Stage). This allows them to assess each pupil's progress against specific learning goals.

References

Anderson, L W and Krathwohl, D R, (Eds.) *A Taxonomy for Learning, Teaching and Assessing: A revision of Bloom's Taxonomy of Educational Objectives, complete edition* (Longman, 2001)

Assessment Reform Group, *Changing Assessment Practice, Process, Principles and Standards*, (Assessment Reform Group 2008), available at www.aaia.org.uk

Atherton, J S, *Teaching and Learning: Assessment* (2011), available at www.learningandteaching.info

Black, P and Wiliam, D, 'Assessment and classroom learning' in *Assessment in Education: Principles, Policy and Practice*, 5(8): 7-74 (1998)

Black, P, Harrison, C, Lee, C, Marshall, B and Wiliam, D, *Assessment for Learning: Putting it into Practice* (Open University Press, 2003)

Black, P, Harrison, C, Hodgen, J, Marshall, B and Serret, N, 'Validity in teachers' summative assessments' in *Assessment in Education: Principles, Policy and Practice*, 17(2): 215-232 (2010)

Black, P, Harrison, C, Hodgen, J, Marshall, B and Serret, N, 'Can teachers' summative assessments produce dependable results and also enhance classroom learning?' in *Assessment in Education: Principles, Policy and Practice*, 18(4): 451-469 (2011)

Bloom B S, (Ed.) *Taxonomy of Educational Objectives, the classification of educational goals, Handbook I: Cognitive Domain* New York: McKay (1956)

Confederation of British Industry (CBI) *Learning to Grow: what employers need from education and skills* (Education and Skills Survey, 2012), available at www.cbi.org.uk

CCEA *Active Learning and Teaching Methods for Key Stage 3*, available at www.nicurriculum.org.uk (2007)

CCEA *Assessment for Learning: A Practical Guide*, available at www.nicurriculum.org.uk (2009)

CCEA *Guidance on Subject Assessment at Key Stage 3*, available at www.nicurriculum.org.uk (2012)

Connolly, P, Purvis, D, O'Grady, P J, *Advancing Shared Education. Report of the Ministerial Advisory Group*, Queen's University Belfast, School of Education, available at www.qub.ac.uk (2013)

Cummings, C, Dyson, A, Papps, I, Pearson, D, Raffo, C, and Todd, L, *Evaluation of the Full Service Extended Schools Initiative: End of First Year Report* (DfES, 2005)

Cummings, C, Dyson, A, Jones, L, Laing, K, Scott, K and Todd, L, *Extended Service Evaluation Reaching Disadvantaged Groups and Individuals: Thematic Review* (Department for Schools and Families, 2010)

Day, C, Sammons, P, Hopkins, D, Harris, A, Leithwood, K, Gu, Q and Brown, E, *10 strong claims about successful school leadership*, National College for Leadership of Schools and Children's Services (2010)

Department for Children, Schools and Families (DSCF), *Effective Teaching and Learning for Pupils in Low Attaining Groups*, Research Report (2007)

Department for Employment and Learning Northern Ireland, *Success through Skills - Transforming Futures*, available at www.delni.gov.uk (2011)

Department for Employment and Learning Northern Ireland *Success through STEM One Year On*, available at www.delni.gov.uk (2012)

References

- Department for Education in Northern Ireland (DENI), *Delivering the Entitlement Framework: Guidance for schools*, available at www.deni.gov.uk (2006)
- Department for Education in Northern Ireland (DENI), *Use of Information and Communications Technology in Schools*, Circular 2007/24 (2007)
- Department for Education in Northern Ireland (DENI), *Every School a Good School: a Policy for School Improvement*, available at www.deni.gov.uk (2009a)
- Department for Education in Northern Ireland (DENI) *Every School a Good School: Supporting Newcomer Pupils*, available at www.deni.gov.uk (2009b)
- Department for Education in Northern Ireland (DENI), *Effective use of Data*, available at www.deni.gov.uk (2009c)
- Department for Education in Northern Ireland (DENI), (ETI) *Together Towards Improvement: a Process of Self-Evaluation Post Primary*, available at <http://dera.ioe.ac.uk> (2010a)
- Department for Education in Northern Ireland (DENI), *Every School a Good School: School Development Planning*, available at www.deni.gov.uk (2010b)
- Department for Education in Northern Ireland (DENI), *Community Relations, Equality and Diversity in Education*, available at www.deni.gov.uk (2011a)
- Department for Education in Northern Ireland (DENI), *Count Read: Succeed, a Strategy to Improve Outcomes in Literacy and Numeracy, Every School a Good School*, available at www.deni.gov.uk (2011b)
- Dyson, A and Raffo, C, 'Education and disadvantage: the role of community-orientated schools' in the *Oxford Review of Education*, 33(3), 297–314 (2007)
- Education and Training Inspectorate, *The Reflective Teacher*, available at www.etini.gov.uk (2005)
- Education and Training Inspectorate, *An Evaluation of Extended Schools*, available at www.etini.gov.uk (2010)
- Education and Training Inspectorate, *Chief Inspector's Report 2010–2012*, available at www.etini.gov.uk (2012)
- The Education Northern Ireland Order (2006)*, (HMSO, 2006), available at www.legislation.gov.uk
- The Education (Curriculum Minimum Content) Order (Northern Ireland) 2007* (HMSO, 2007)
- The Education (Pupils Reporting) Regulations (Northern Ireland) 2009* (HMSO, 2009)
- The Education (2006 Order) (Commencement No. 3) Order (Northern Ireland) 2011* (HMSO, 2011)
- General Teaching Council for Northern Ireland (GTCNI) *Teaching: the Reflective Profession*, available at <http://epublishbyus.com> (2011)
- Harland, J, Moor, H, Kinder, K and Ashworth, M, *Is the Curriculum Working? The Key Stage 3 Phase of the Northern Ireland Curriculum Cohort Study* (NFER, 2002)
- Harlen W and Deakin Crick R, 'A systematic review of the impact of summative assessment and tests on students' motivation for learning' (EPPI-Centre Review, version 1.1*), in *Research Evidence in Education Library*, Issue 1, EPPI-Centre, Social Science Research Unit, Institute of Education (2002)

- Harlen, W, 'Teachers' summative practices and assessment for learning – tensions and synergies' in *The Curriculum Journal*, 16(2): 207–203 (2005)
- Harris, A and Goodall, J, *Engaging Parents in Raising Achievement Do Parents Know They Matter?* A research project commissioned by the Specialist Schools and Academies Trust (2007), available at <http://webarchive.nationalarchives.gov.uk>
- Higgins, S, Baumfield, V, Lin, M, Moseley, D, with Butterworth, M, Downey, G, Gregson, M, Rockett, M, Oberski, I, and Thacker, D, *Thinking skills approaches to effective teaching and learning: what is the evidence for impact on learners?* Evidence for Policy and Practice Co-ordinating Centre, Social Science Research Unit, Institute of Education, University of London, 2004
- Hoskins, B and Deakin Crick, R, *Learning to Learn and Civic Competences: different currencies or two sides of the same coin?* (Joint Research Centre – Institute for the Protection and Security of the Citizen, 2008)
- Kirkup, C, Sizmur, J, Sturman, L and Lewis, K, *Schools' Use of Data in Teaching and Learning* (DfES, 2005)
- Meyer, B, Haywood, N, Sachdev, D and Faraday, S, *Independent Learning Literature Review*, Department for Children, Schools and Families (DCSF), Research Report No DCSF-RR051, available at www.education.gov.uk (2008)
- PricewaterhouseCoopers, *Literacy and Numeracy of Pupils in Northern Ireland*, DENI, available at www.deni.gov.uk (2008)
- Ofqual, *Standards*, available at www.ofqual.gov.uk (2013)
- Ofsted, *Questioning to promote learning*, available at www.fromgoodtooutstanding.com (2012)
- Regional Training Unit (Northern Ireland) *National Standards for Headteachers* (Northern Ireland Edition) (RTUNI, 2005)
- Regional Training Unit (Northern Ireland) PRSD Scheme, available at www.rtuni.org (RTUNI, 2013)
- Sebba, J, Deakin Crick, R, Yu, G, Lawson, H, Harlen, W and Durant, K, *Systematic review of research evidence of the impact on students in secondary schools of self and peer assessment*, EPPI-Centre, Social Science Research Unit, Institute of Education, University of London, 2008
- Smith C, Dakers J, Dow W, Head G, Sutherland M and Irwin R, 'A systematic review of what pupils, aged 11–16, believe impacts on their motivation to learn in the classroom' in *Research Evidence in Education Library*, EPPI-Centre, Social Science Research Unit, Institute of Education, University of London, 2005
- Stiggins, R, *Assessment Manifesto: A Call for the Development of Balanced Assessment Systems*, Assessment Training Institute, 2008
- Stobart, G, (2005) 'Fairness in multicultural assessment systems' in *Assessment in Education*, 12(3): 275–287
- Taras, M, 'Assessment – summative and formative – some theoretical reflections' in the *British Journal of Educational Studies*, 53(4): 466–478 (2005)
- Teaching and Learning Research Programme, *Improving teaching and learning in schools: A Commentary by the Teaching and Learning Research Programme* (TLRP, 2006)

References

Teaching and Learning Research Programme, *Principles into Practice: A teacher's guide to research evidence on teaching and learning* (TLRP, 2007)

Teaching and Learning Research Programme, *Professionalism and Pedagogy a Contemporary Opportunity: A Commentary by the Teaching and Learning Research Programme and the General Teaching Council for England* (TLRP, 2010a)

Teaching and Learning Research Programme, *Assessment in schools: Fit for purpose?* Institute of Education University of London (TLRP, 2010b)

Teaching and Learning Research Programme, *A Review of the Teaching and Learning Research Programme (TLRP) and its implications for Northern Ireland*, final report for the Department of Education, prepared by Galanouli, D, Gardner, J and Gallagher, C (TLRP, 2011)

Webb, N, *Assessment literacy in a standards-based urban education setting*, a paper presented at the annual meeting of the American Educational Research Association, New Orleans, Louisiana, April 1–5 (2002)

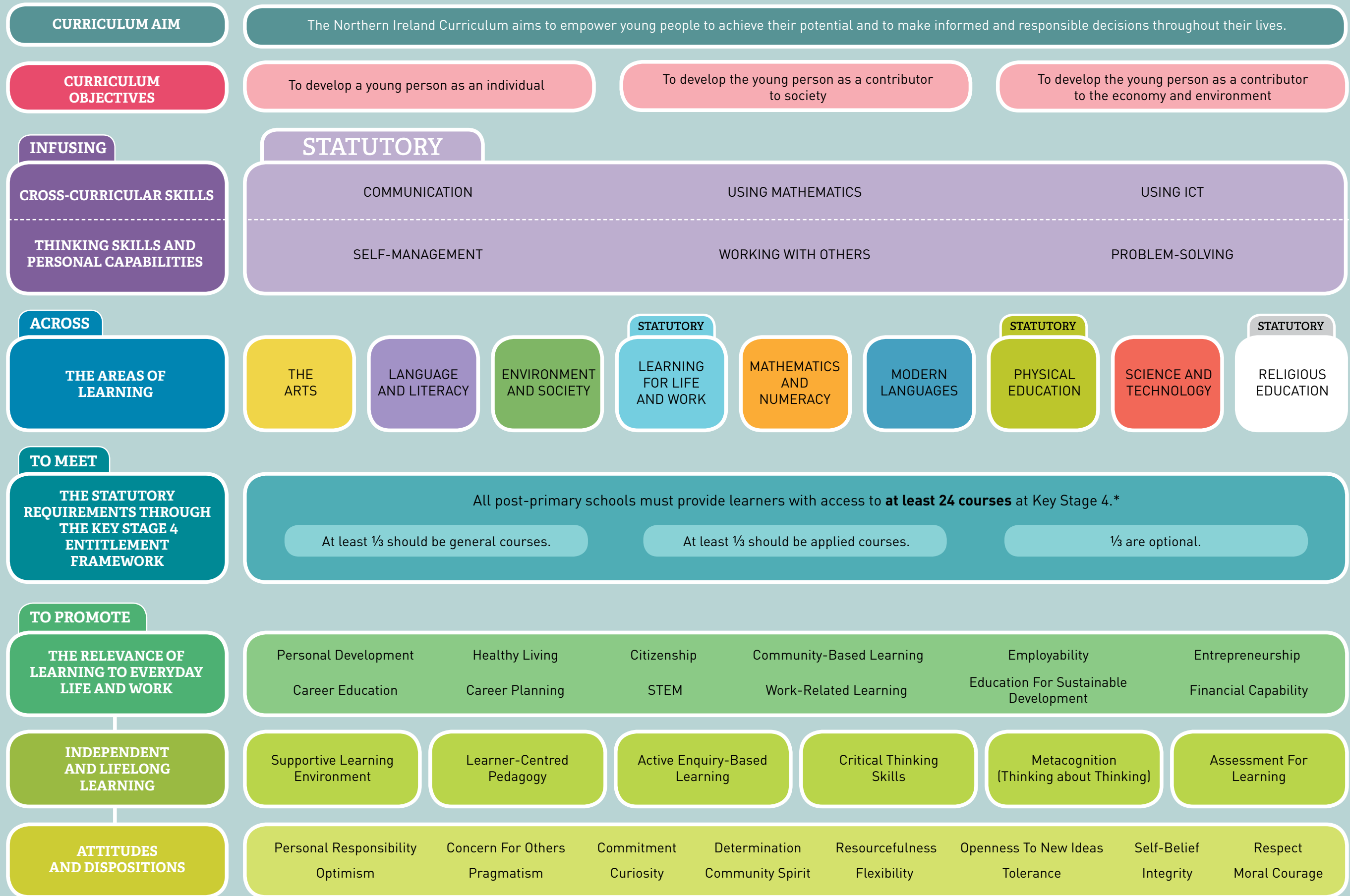
Appendices



Appendix 1

The Big Picture of the Curriculum at Key Stage 4

The Big Picture of the Curriculum at Key Stage 4



* See the DENI website at www.deni.gov.uk for a list of approved courses at Key Stage 4. The full requirements for the Key Stage 4 Entitlement Framework will be phased in. From 2013 schools will be required to provide access to at least 18 courses – a third of these must be general and a third applied. This will increase to 21 courses by September 2014 and the full 24 by September 2015 (DENI, Circular no. 2012/09).

Appendix 2

Ten Principles for Effective Teaching and Learning

Effective teaching and learning

Evidence-informed principles to guide policy and practice

1. **Equips Learners for Life in its Broadest Sense**

Learning should aim to help people to develop the intellectual, personal and social resources that will enable them to participate as active citizens and workers and to flourish as individuals in a diverse and changing society. This implies a broad view of learning outcomes and that equity and social justice are taken seriously.

2. **Engages with Valued Forms of Knowledge**

Teaching and learning should engage with the big ideas, facts, processes, languages and narratives of subjects so that learners understand what constitutes quality and standards in particular disciplines.

3. **Recognises the Importance of Prior Experience and Learning**

Teaching should take account of what learners know already in order to plan their next steps. This means building on prior learning as well as taking account of the personal and cultural experiences of different groups.

4. **Requires the Teacher to Scaffold Learning**

Teachers should provide activities which support learners as they move forward, not just intellectually, but also socially and emotionally, so that once these supports are removed, the learning is secure.

5. **Needs Assessment to Be Congruent with Learning**

Assessment should help to advance learning as well as to determine whether learning has taken place. It should be designed and carried out so that it measures learning outcomes in a dependable way and also provides feedback for future learning.

6. **Promotes the Active Engagement of the Learner**

A chief goal of teaching and learning should be the promotion of learners' independence and autonomy. This involves acquiring a repertoire of learning strategies and practices, developing a positive attitude towards learning, and confidence in oneself as a good learner.

7. **Fosters Both Individual and Social Processes and Outcomes**

Learning is a social activity. Learners should be encouraged to work with others, to share ideas and to build knowledge together. Consulting learners and giving them a voice is both an expectation and a right.

8. **Recognises the Significance of Informal Learning**

Informal learning, such as learning out of school, should be recognised as being at least as significant as formal learning and should be valued and used appropriately in formal education.

9. **Depends on Teacher Learning**


The importance of teachers learning continuously in order to develop their knowledge and skill, and adapt and develop their roles, especially through classroom inquiry, should be recognised and supported


10. **Demands Consistent Policy Frameworks with Support for Teaching and Learning as their Primary Focus**

Policies at national, local and institutional levels need to recognise the fundamental importance of teaching and learning. They should be designed to make sure everyone has access to learning environments in which they can thrive.


Appendix 3


Thinking Skills and Personal Capabilities Progression Maps

Progression 	
Problem Solving	Seeing relationships and patterns
<p>Pupils develop their ability to identify and analyse relationships and patterns and propose justified explanations.</p>	<p>Across a range of subjects, pupils demonstrate ability to:</p> <ul style="list-style-type: none"> • recognise patterns when matching or separating information; • relate existing knowledge and experience to novel examples that are similar; • identify and make links between topic/subject concepts; • make generalisations and predictions to explain how different parts of a process, cycle or event are linked; and • use their observations and apply reasoning to explain relationships.
	<ul style="list-style-type: none"> • analyse familiar and new variations of phenomena and explain what they have in common; • apply their understanding to explain trends, patterns and relationships; • explain relationships and patterns in terms of similarities and differences in their nature and function. • relate concepts within their subject learning to demonstrate how they are connected; and • understand how parts of a system or process are related to the whole.
	<ul style="list-style-type: none"> • analyse and interpret issues, information or concepts and explain underlying interrelationships and patterns; • assess the relative significance of the variables or factors that contribute to complex interrelationships and patterns; • evaluate complex webs of interrelationships, recognise and explain connections and patterns and elaborate on their reasoning; • weigh up the impact of how changing one piece of information/issue affects the whole; and • seek out novel instances and examples to explore further.


Progression 	
<p>Problem Solving</p> <p>Pupils develop their ability to reason, form opinions and justify a view or argument.</p>	<p>Developing a line of reasoning</p> <p>Across a range of subjects, pupils demonstrate ability to:</p> <ul style="list-style-type: none"> • examine information/evidence and explain why something is happening, linking cause and effect; • use evidence to support a reasoned and justified argument; and • construct arguments to defend their position and meet challenges with relevant information.
	<ul style="list-style-type: none"> • consider causal relationships; and predict the consequences/impact of change; • discern the strengths and weaknesses of a proposal or argument, and suggest useful ways to test or check the best way to proceed; • explain and justify their thinking/position/conclusion with a well-reasoned rationale; and • make reasoned propositions when confronted with novel problems and explain their thinking.
	<ul style="list-style-type: none"> • evaluate how one set of actions can affect/are affected by another; • challenge their own assumptions and those of others; • make judgements about the most likely reasons to explain an issue/event/view; • compile a range of relevant information on a specific topic to create a coherent account of key issues; and • advance an argument, anticipating possible objections and counter-arguments.

Appendix 3: Thinking Skills and Personal Capabilities Progression Maps

Progression 	
Problem Solving	Examining evidence
<p>Pupils develop their ability to analyse critically and assess evidence and develop a deeper understanding of how information/evidence is used to serve different purposes and agendas.</p>	<p>Across a range of subjects, pupils demonstrate ability to:</p> <ul style="list-style-type: none"> • appreciate that different standards for judging evidence are contextual; • use appropriate approaches for researching and examining evidence; • recognise that information/evidence can be interpreted in different ways; and • distinguish between fact and opinion and identify bias, propaganda and stereotyping in evidence from source material and the media.
<ul style="list-style-type: none"> • know when to apply the established standards of a particular practice or discipline; • scrutinise evidence to determine its accuracy and relevance; • make informed judgements about what can be concluded from available evidence; • understand how and why information may be presented and manipulated to serve certain agendas; and • form opinions, giving due consideration to evidence. 	<ul style="list-style-type: none"> • devise and apply criteria to assess validity, reliability and bias in evidence; • construct and deconstruct evidence showing how pieces of evidence relate and combine to give a view of the whole issue/argument; • research and propose ways to check and challenge evidence; • evaluate evidence, assess why certain evidence is more credible/dependable than others; and • critically analyse evidence supporting issues/theories or media news coverage and its dependability, propose reasons why evidence is presented in this way.

Progression 	Analysing multiple perspectives		
<p>Problem Solving</p> <p>Pupils develop their ability to analyse and evaluate multiple perspectives and to explore unfamiliar views without prejudice.</p>	<p>Across a range of subjects, pupils demonstrate ability to:</p> <ul style="list-style-type: none"> • identify and explain a range of different viewpoints; • examine several contrasting pieces of information and delay arriving at a judgement until they have reviewed all the information; • analyse contrasting pieces of information/evidence to determine different perspectives; and • view information/evidence from a different position/ perspective that enables them to challenge their own pre-dispositions and assumptions. 	<ul style="list-style-type: none"> • evaluate information/ evidence/issue from a range of viewpoints and explain the reasons for different perspectives; • interrogate material rigorously for deeper meaning to discover and interpret inconsistencies, conflicting information, evidence or views; • appraise and scrutinise their own assumptions or point of view, question their objectivity/bias, and acknowledge uncertainty; and • seek out new and unfamiliar examples to enrich and expand the range of their vision, actively pursuing deeper understanding. 	<ul style="list-style-type: none"> • select an issue/topic and create and justify an argument that demonstrates different perspectives; • propose ways to make a judgement about which perspective(s) are more influential than others; • assess objectively the relative worth of different perspectives, taking account of others' sensibilities and justify their conclusion; • seek out and explore conflicting interpretations and unusual perspectives; and • show willingness to make meaning from and give order to inconsistent and contradictory information.

Appendix 3: Thinking Skills and Personal Capabilities Progression Maps

Progression 	
<p>Problem Solving</p> <p>Pupils develop their ability to weigh up options, justify decisions and to apply and evaluate a range of approaches to solve problems in familiar and novel contexts.</p>	<p>Making decisions/Solving problems</p> <p>Across a range of subjects, pupils demonstrate ability to:</p> <ul style="list-style-type: none"> • explore a range of options, identifying the pros and cons for each and justifying choice; • vary their approach to meet new challenges, sometimes using the tried and tested methods, and sometimes being more experimental; and • reflect on their approaches to problem solving. Identify their strengths, weaknesses and suggest ways to improve on their problem solving skills.
<p>• apply different strategies to making decisions and problem solving in different contexts;</p> <p>• demonstrate self-reliance and ingenuity when approaching novel situations, drawing on previous experiences to inform ideas, and experimenting to overcome obstacles;</p> <p>• compare and evaluate some different approaches they have used to solve problems;</p> <p>• draw conclusions about their learning and consider what they might do differently when faced with a similar problem(s).</p>	<ul style="list-style-type: none"> • work through systematically and evaluate a range of options and justify final decisions; • assess intended and unintended consequences of their decisions; • seek new challenges independently and show imagination when exploring solutions; • show persistence, pursue excellence and turn mistakes and setbacks into new approaches; • be critical in refining ideas and methods; and • recognise the limitations of their approach and where appropriate draw on other sources and support, seek and use others' expertise and work collaboratively.


Appendix 3: Thinking Skills and Personal Capabilities Progression Maps

Progression	Goals and Targets		
<p>Self Management</p> <p>Pupils will develop their ability to plan work and set personal learning goals and targets to meet deadlines and review, monitor and evaluate their progress.</p>	<p>Across a range of subjects, pupils demonstrate ability to:</p> <ul style="list-style-type: none"> • use information about their learning to prioritise individual learning needs and follow steps for improvements; • produce an action plan with assistance; • choose and set time-bound targets for improvement; • outline action points to achieve targets; • identify any support required; and • identify ways to monitor and review progress. 	<ul style="list-style-type: none"> • select information about their learning to create an action plan; • determine and set realistic targets for improvement and deadlines for completion of work; • identify, organise and manage the activities/actions required to achieve targets to meet deadlines; • decide what support is required and how to access it; and • select appropriate ways to monitor, review and evaluate progress. 	<ul style="list-style-type: none"> • show independence in setting and following through actions for improvement; • link and use information from their review of learning to propose realistic targets and actions for improvement to meet deadlines; • plan the use of support; • assess factors that might impact on their plan; and • plan and develop ways to overcome possible challenges.


Appendix 3: Thinking Skills and Personal Capabilities Progression Maps

Progression	
Self Management	Review and Improve
<p>Pupils will develop their ability to monitor, review, evaluate and improve their learning.</p>	<p>Across a range of subjects, pupils demonstrate ability to:</p> <ul style="list-style-type: none"> • reflect on their approaches to thinking and learning; • identify and show how they met targets; • identify challenges and show how they overcame them; • compare different approaches with a view to improvement; • monitor and review work and identify strengths and areas for improvements in their learning; and; • respond positively to feedback.
<ul style="list-style-type: none"> • readily and independently assess approaches to thinking and learning; • assess how effective they are in meeting targets and deadlines; • provide selected evidence to demonstrate their achievements and progress; • seek information on how to achieve improvements in selected aspects of learning; • connect different learning approaches and apply in new contexts; • appraise how they have used their learning to meet new challenges; and • seek out and act on advice. 	<ul style="list-style-type: none"> • evaluate their approaches to thinking and learning; • evaluate their progress; • illustrate evidence of achievements and progress; • explore alternative approaches to thinking and learning; • choose and justify ways of learning to improve performance; • explain/discuss their learning and how they have applied it to another activity/task; and • use and act on feedback to improve their learning.

Appendix 3: Thinking Skills and Personal Capabilities Progression Maps

Progression 	
Self-Management	Time Management
<p>Pupils will develop their ability to manage their time effectively.</p>	<p>Across a range of subjects, pupils demonstrate ability to:</p> <ul style="list-style-type: none"> • focus on completing activities/tasks on time; • complete a sequence of activities/action points to meet deadlines; • show persistence in the face of difficulty and setback; and • monitor and review their progress and modify their plans if necessary.
	<ul style="list-style-type: none"> • decide how to make the best use of their time to complete activities/tasks; • use action points to manage time effectively, assess progress; • learn from mistakes; and • monitor and evaluate their progress and review their plans if necessary.
	<ul style="list-style-type: none"> • work systematically in an organised way to complete a series of activities/tasks; • manage time effectively to meet deadlines, revising their plans if necessary; • turn mistakes and setbacks into new approaches; and • evaluate progress and be flexible to adapt their approach to overcome unexpected challenges.

Appendix 3: Thinking Skills and Personal Capabilities Progression Maps

Progression 	
Working with Others	Learning with and from Others
<p>Pupils will develop their ability to learn with and from others through co-operation.</p>	<p>Across a range of subjects, pupils demonstrate the ability to:</p> <ul style="list-style-type: none"> ask questions to clarify, explore and develop ideas; help others to learn by sharing ideas and opinions; ask for help and support others when appropriate; monitor and review work with peers to identify strengths and areas for improvements in their learning; respond to each other in constructive and respectful ways; and manage their emotions, use appropriate language and respect the views of others.
	<ul style="list-style-type: none"> ask questions to challenge others' ideas, showing sensitivity; help others to learn by giving constructive guidance to help improve their work; support co-operative ways of working; work with peers to evaluate and improve their performance; listen to and accept constructive criticism of others; and manage their emotions, show interest in others' views and sensitivity for their feelings.
	<ul style="list-style-type: none"> pose and work through key questions to synthesise views, evaluate and validate options; demonstrate and share expertise with a genuine desire to help others to learn; seek effective ways to develop co-operation, including resolving conflict; work with peers to devise ways to evaluate and improve their performance; respond constructively and respectfully to others; and manage their emotions, demonstrating empathy and sensitivity to others.

Appendix 3: Thinking Skills and Personal Capabilities Progression Maps

Progression	Roles and Responsibilities		
<p>Working with Others</p> <p>Pupils will develop their ability to participate in effective teams and accept responsibility for achieving collective goals.</p>	<p>Across a range of subjects, pupils demonstrate the ability to:</p> <ul style="list-style-type: none"> • identify what the team need to do and ways of working; • contribute constructively to setting team goals and time-bound targets; • show initiative and contribute constructively to assigning work within a team; • negotiate roles with others; • show independence in organising themselves and others; • take responsibility to complete tasks/activities; and • take on different, more challenging roles and carry them out efficiently with growing self-reliance; and • identify advantages and disadvantages of teamwork. 	<ul style="list-style-type: none"> • break down work into manageable activities/tasks; • negotiate and contribute to decisions to agree collective goals and realistic time-bound targets; • propose ways of working together; • appraise and consider individuals' qualities/skills when assigning roles and responsibilities; • take responsibility to organise the completion of work; • play a leading role in some activities/tasks; and • evaluate the characteristics of effective team work. 	<ul style="list-style-type: none"> • devise, negotiate and agree collective goals and realistic time-bound targets; • compare different ways of working and justify an approach; • appraise the structure and function of the group when determining how to proceed; • play a leading role and take responsibility for organising roles and responsibilities and ensuring the completion of work; and • assess what they could do differently to improve team performance.

Appendix 3: Thinking Skills and Personal Capabilities Progression Maps

Progression	
<p>Working with Others</p> <p>Pupils will develop the ability to listen actively to others and influence group thinking and decision-making, taking account of others' opinions.</p>	<p>Influencing and Negotiating</p> <p>Across a range of subjects, pupils demonstrate the ability to:</p> <ul style="list-style-type: none"> • express their opinion using appropriate language; • explore differences of opinion to reach an outcome; • listen closely to the views of others and ask questions to probe others' views with a view to influencing their thinking; • identify weaknesses in an argument, seek clarification, and reiterate their thinking with a view to altering their view; and • use non-verbal methods to engage the listener.
<p>Working with Others</p> <p>Pupils will develop the ability to listen actively to others and influence group thinking and decision-making, taking account of others' opinions.</p>	<p>Influencing and Negotiating</p> <p>Across a range of subjects, pupils demonstrate the ability to:</p> <ul style="list-style-type: none"> • put forward a justified argument to support their views; • summarise and compare different views to reach agreement; • ask questions to challenge ideas and influence their thinking; • discriminate between fact and opinion in an argument and consider the validity of others' views; and • use non-verbal methods to influence and persuade others.
<p>Working with Others</p> <p>Pupils will develop the ability to listen actively to others and influence group thinking and decision-making, taking account of others' opinions.</p>	<p>Influencing and Negotiating</p> <p>Across a range of subjects, pupils demonstrate the ability to:</p> <ul style="list-style-type: none"> • use explanation and reasoning to reach an acceptable outcome; • challenge, question and knowingly articulate the complexities of an issue with a view to changing the thinking of others; • synthesise others' views and perceptively and knowingly build consensus; • influence others through a knowing use of persuasive techniques.

Appendix 4

Formulating Effective Questions

The table shows the hierarchy of thinking skills. For each of the six categories, there are key verbs that you can use as question stems. Some verbs occur in more than one category as questions are set in different contexts with different levels of challenge. This is not an exhaustive list.

Lower Order Thinking Skills			Higher Order Thinking Skills		
Remembering	Understanding	Applying	Analysing	Evaluating	Creating
Use questions to help pupils to remember information, for example key facts and basic concepts.	Use questions to support pupils to explore and improve their understanding.	Use questions to support pupils to apply their learning in new situations to solve problems or issues.	Use questions to help pupils analyse and interpret information.	Use questions to support pupils to interpret and evaluate information.	Use questions to enable pupils to think creatively and generate new ideas.
Think about which key words to use when formulating questions. Examples of key words to stimulate thinking and learning:					
who what when where how which why describe name label list choose select define find recall relate show	explain classify demonstrate illustrate compare contrast extend infer interpret outline relate rephrase summarise translate	apply build choose construct develop experiment with identify interview make use of model test consider organise plan select solve hypothesise predict	analyse investigate examine categorise classify compare contrast distinguish discriminate discover inspect list motive relate simplify survey	evaluate appraise assess judge justify rate verify deduce determine conclude monitor interpret prioritise measure prove defend disprove recommend criticise dispute	create adapt build change combine compile compose construct design develop elaborate formulate imagine improve invent make up modify propose solve test

Appendix 5

Examples of Question Stems

Lower Order Thinking Skills			Higher Order Thinking Skills		
Remembering	Understanding	Applying	Analysing	Evaluating	Creating
Who were the main ...?	How would you explain and interpret your answer ...?	What approach would you use ...?	How did you analyse ...?	What are the advantages and disadvantages ...?	How would you create ...?
Who was ...?	How would you classify ...?	How does this apply to ...?	What factors did you investigate?	How would you assess/measure the impact of ...?	How would you adapt/change/modify ... to ...?
What is ...?	How would you demonstrate ...?	How does this build on what you know ...?	How would you classify ...?	What do you judge the value of ...?	What ideas can you build on to ...?
When did ...?	How can you illustrate what ... means?	How will you construct an experiment to ...?	Can you distinguish between ...?	What reasons do you have to justify ...?	How many ways can you combine ...?
Where is ...?	How would you compare and contrast ...?	How could you develop these ideas?	What conclusion did you arrive at?	How do you rate ...?	What information can you compile about ...?
How did ... happen?	What would happen if ...?	What do you identify as the main ...?	What evidence did you find?	What evidence do you have to verify your answer?	Can you design/construct ...?
Why did ...?	Can you outline the main ideas?	What questions will you ask in your interview?	What was the motive behind ...?	What did you conclude?	What could you invent to ...?
How would you describe ...?	What does ... imply?	How will you test ...?	Why do you think ... happened?	Was the interpretation valid?	Imagine you have ... what would you do?
Which one ...?	How could you rephrase the meaning of ...?	Have you considered ...?	What ideas justify ...?	How would you prove/disprove ...?	What can you do to improve ...?
Can you recall ...?	How would you summarise key points?	What is your hypothesis?	What is the relationship between ...?	What would you recommend?	What alternatives do you propose?
Can you select ...?		What is your prediction?	How would you simplify ...?	What was the main criticism ...?	How would you test/solve ...?
Can you list three ...?		Predict what will happen if ...?			Can you formulate a theory for ...?
					Can you make up an original way to ...?

Appendix 6

Effective Questioning in the Classroom

Teachers may find the following questions helpful when reflecting on their use of effective questioning to improve teaching and learning.

- Have you ever consciously thought about how you ask questions?
- Do you plan questions in your lesson?
- How well do your questions link to your intended learning outcomes?
- Do you involve all pupils in questioning?
- Do you think about bias in questions?
- What types of questions do you use?
- Do you use a range of lower and higher order questions?
- Do your questions meet the ability range of your pupils?
- Are your questions challenging?
- Do your questions stimulate thinking and learning?
- What questioning techniques do you use?
- Do you allow pupils enough time to respond to questions?
- How often do you ask further questions that really probe understanding?
- Do you provide model answers?
- How do you respond to pupils answers?
- How often do pupils ask questions?
- To what extent do pupils ask insightful and probing questions?
- How many questions do you ask to which you don't know the answer?
- To what extent does your approach to questioning support improvements in learning for all pupils?
- What could you do to improve your questioning technique?

Appendix 7

Glossary

Achievement	The progress and success of a pupil in their learning over a given time
Applied qualification	Where pupils develop knowledge, understanding and skills through practical demonstration and/or within a context related to employability. Assessment arrangements for an applied qualification enable pupils to demonstrate their knowledge, understanding and skills through practical demonstration and/or within a context related to employability.
Assessment	The systematic collection, interpretation and use of information to provide a deeper understanding of what pupils know and understand, their skills and personal capabilities and what they can do as a result of their learning experiences
Assessment criteria	Define what the pupil is being measured against by the assessment and specify what the pupil should be able to demonstrate as a result of their learning experiences
Assessment for Learning (formative assessment)	The process of seeking and interpreting evidence for pupils and their teachers to use to decide where they are in their learning, where they need to go and how best to get there
Assessment literacy	The knowledge, understanding and skills required for quality assessment practice. Knowledge about how to: <ul style="list-style-type: none"> • assess what pupils know and can do; • interpret the results of these assessments; and • apply these results to improve student learning and programme effectiveness.
Assessment method	A technique used to collect data generated from an assessment
Assessment task	A task that enables pupils to demonstrate specific aspects of their knowledge, understanding, skills and capabilities
Attainment	The standard of a pupil's work shown by test and examination results
Benchmark	A minimum standard that can be used at the levels of the individual, class, school and system to compare performance and progress
Continuous assessment	The ongoing process of gathering assessment evidence over a set period
Criteria referenced assessment	Assessment against agreed, fixed criteria that describe the knowledge, understanding and skills that pupils need to demonstrate in order to achieve a particular level. Pupils are not assessed against the performance others.
Cross-Curricular Skills	The skills of Communication, Using Mathematics and Using ICT
Deep learning	Involves the critical analysis of new ideas, making connections with prior learning and known concepts and principles. It leads to a better understanding and long-term retention of concepts and supports problem solving in unfamiliar contexts and applies to learning, life and work.
Dependability	The level of confidence in the results generated by an assessment. Maximum validity and optimal reliability contribute to the dependability of an assessment.
Diagnostic assessment	Used to identify the pupils' strengths and weaknesses and to highlight the specific nature of difficulties that the learner might have. The information from the assessment is used to inform future teaching and learning and implement intervention strategies to support improvements in the pupils' learning.

Differentiation	Setting work to support and challenge all pupils regardless of their ability. Teachers plan lessons to meet the abilities and learning needs of individual pupils.
Disaffection	When a pupil no longer sees any purpose in school or learning. Pupils may appear engaged in their learning but tend to use this as a strategy to prevent the teacher noticing their lack of interest and pass time.
Disengagement	When a pupil loses connection with the learning process. Disengaged pupils may value learning but lack the motivation to engage in the learning process.
Effective questioning	Questions that encourage pupils to think critically, to reflect and to learn
Extended and Full Service School Programmes	These programmes support greater collaboration between schools and their local communities. They encourage greater parental engagement and connect people with local services. They aim to improve levels of educational achievement and the longer term life chances of disadvantaged children and young people by providing the necessary additional support that can enable those children to reach their full potential.
Entitlement Framework	A Key Stage 4 framework designed to ensure all pupils have access to a broad and balanced curriculum. By 2015, all schools must give learners access to at least 24 courses. At least one third must be general, one third applied and one third optional.
Enquiry-based learning	A pedagogic approach that is pupil led and where the teacher facilitates learning. It involves the pupils seeking answers to questions and finding solutions to problems.
Evaluative assessment	Used to inform curriculum planning and for monitoring and accountability purposes
Equity and fairness	A system or assessment that is inclusive and free from bias
Fitness for purpose	An assessment that is fit for purpose provides a measure of what it was intended to assess. An assessment designed for one purpose may not be suitable for another.
Formative assessment	see Assessment for Learning
General (Academic) qualification	A qualification where knowledge, understanding and skills are developed within a subject context. The assessment arrangements for a general qualification enable learners to demonstrate the level of their knowledge, understanding and skills mainly through written tasks. The learning and assessment focus is set within a subject specific context.
Levels of Progression	Used at Key Stage 3 to assess pupil performance in the Cross-Curricular Skills of Communication, Using Mathematics and Using ICT. The Levels of Progression for each skill range from one to seven. Pupil performance is judged against the assessment criteria that define each level.
Literacy	The pupils' ability to read and use written information and to write appropriately and legibly, taking account of different purposes, contexts, conventions and audiences (DENI, 2011)
Low achievement	When a pupil is achieving to the full extent of her or his ability, but is well below average compared to her or his peers

Appendix 7: Glossary

Norm-referenced assessment	When pupil performance is scored and judged against the performance of others
Moderation	Teachers compare judgements about pupil performance against assessment criteria and standards. This involves teachers working collaboratively to establish a shared understanding of assessment standards to ensure that there is a consistent application of standards
Numeracy	The pupils' ability to apply appropriate mathematical skills and knowledge in familiar and unfamiliar contexts and in a range of settings throughout life, including the workplace (DENI, 2011)
Peer assessment	A group of pupils make judgements about each other's performance and learning and suggest ways to improve their learning.
Progression in learning	Where learning builds on previous learning and is increasingly challenging in demand as pupils move from year to year
Progression Maps	Illustrate what pupils' progression might look like as they develop their skills and capabilities. At Key Stage 4 there are progression maps for Problem Solving, Working With Others and Self-Management.
Pupil Progression	A pupil shows progression in terms of the breadth and depth of their learning if they are acquiring, developing and consolidating knowledge, understanding and skills at a rate that is typical of pupils of similar ability working at the same level within the Key Stage.
Reliability	The extent to which an assessment can be trusted to give consistent information on a pupil's progress
Scaffolding reflection	Supporting pupils to reflect on their learning by giving them time to recognise what and how they are learning, enabling them to make progress
Self-assessment	Pupils reflect on their learning, make judgements about their performance and identify ways to improve their learning.
Shallow or Surface learning	The uncritical memorisation and acceptance of information as isolated and unlinked facts. It leads to superficial retention of material usually for examinations. It does not promote long-term retention of knowledge and understanding.
Shared Education	Two or more schools or other educational institutions from different sectors working in collaboration with the aim of delivering educational benefits to pupils, promoting the efficient and effective use of resources, equality of opportunity, good relations, equality of identity, respect for diversity and community cohesion.
Standard (Assessment)	Provides a measure of what a pupil can do in relation to their knowledge, understanding, skills and capabilities. Assessment standards refer to the assessment's level of demand and state the degree of quality that pupils can attain in an assessment.
Standard (Content)	Defines the content in the learning programme, unit of work or specification that pupils need to learn. This can include subject knowledge, understanding, skills and capabilities. This refers to the level of demand of the learning programme, unit of work or specification.
Standard (Performance)	Refers to the quality of the outcome. In GCSEs, performance standards are defined for grades A, C and F.

Success criteria	Statements that clearly define what the pupil is being assessed against and can be thought of as the pupil-friendly version of assessment criteria
Summative assessment	Used to determine a pupil's learning at a particular point
Thinking Skills and Personal Capabilities (Other Skills)	Problem Solving, Working With Others and Self-Management
Underachievement	When a pupil's performance is below what is expected, based on their ability
Validity	The extent to which an assessment provides a measure of what it was intended to assess