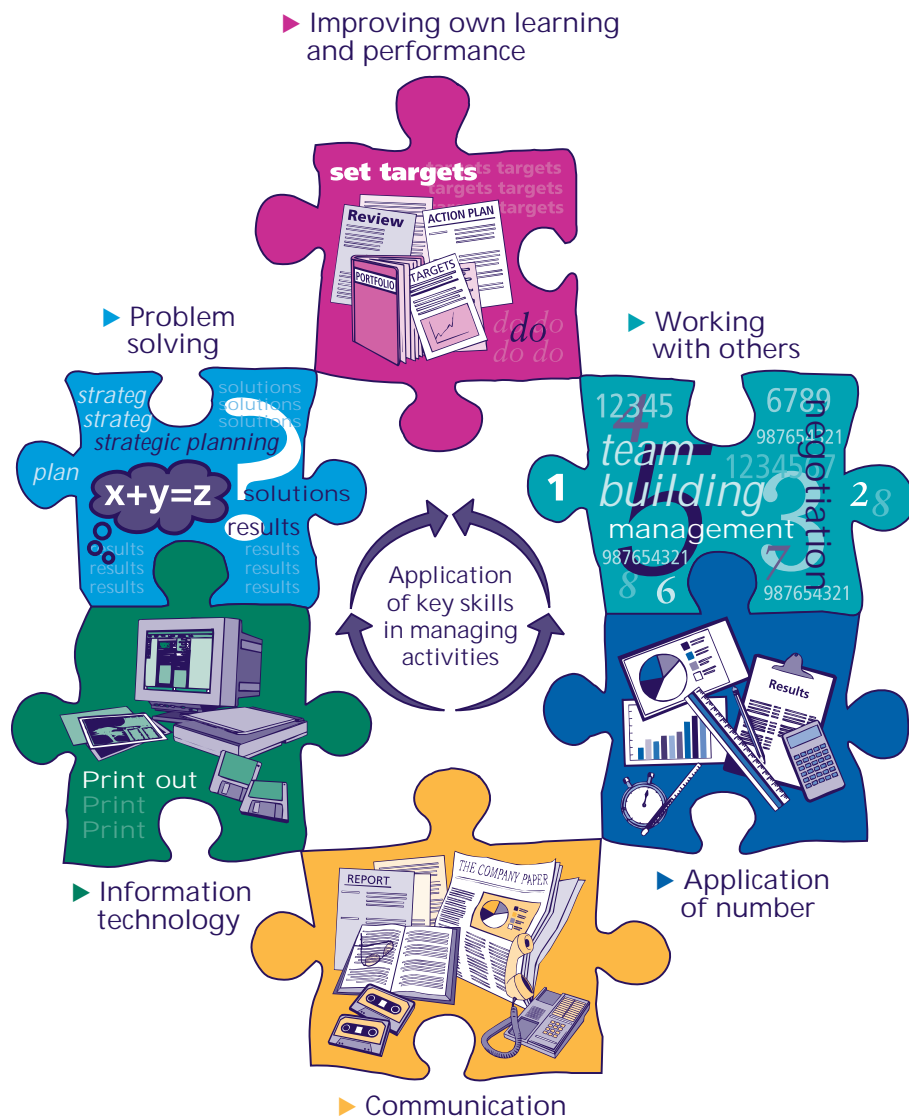# Guidance on the higher level key skills units:

Please note that this is a working document. Sections to be added for level 4 in working with others, improving own learning and performance and problem solving, and for level 5.

LEVELS 4–5

▶ Improving own learning and performance

set targets targets targets targets targets targets

Review ACTION PLAN

PORTFOLIO TARGETS

do do do do

▶ Problem solving

strateg strateg strategic planning

solutions solutions solutions

plan

x+y=z solutions

results

results results results results results results results results

▶ Working with others

12345 6789
987654321
team building
management
987654321

negotiation
1234567
1 2 8
8 6 987654321

Results

Application of key skills in managing activities

Print out
Print
Print

▶ Information technology

REPORT THE COMPANY PAPER

▶ Application of number

▶ Communication

QCA

CCEA
NI

AWDURDOD CYMWYSTERAU, CWRICWLWM AC ASESU CYMRU

QUALIFICATIONS CURRICULUM & ASSESSMENT AUTHORITY FOR WALES

accac

Contents

Introduction to the key skills units

The purpose of this publication

This booklet is written for people wishing to develop higher level key skills and prepare for assessment. It will help you use and interpret the key skills units developed by the Qualifications and Curriculum Authority (QCA) in England, ACCAC in Wales and CCEA in Northern Ireland.

The sections that follow provide general information about key skills, and in particular key skills at levels 4 and 5. If you are familiar with the key skills units you may wish to read quickly through these sections. Later you can use specific sections as a reference to support each stage of your work. Amplification Section One provides detailed guidance on each of three key skills units of communication, application of number and information technology at level 4. Subsequent sections focus on the wider key skills at level 4 and the single level 5, personal skills development unit.

About key skills

This section includes general information about key skills and progression through the levels from 1–5.

Key skills are all about improving the quality of performance. The quotes are from people already using skills as part of their work and study. But they are also aware that they want to further develop specific skills and make changes to improve the quality of what they do. The skills they are talking about are those more general skills we all use at work, when studying and elsewhere in our lives – key skills.

QCA, ACCAC and CCEA have defined key skills in units for each of the following areas:

- Communication
- Application of number
- Information technology
- Working with others
- Improving own learning and performance
- Problem solving.

You may have used, or your organisation may use, different terms to describe the skills, but they broadly cover similar areas.

The first three key skills of communication, application of number and information technology form the Key Skills Qualification. This new qualification certificates the achievement of all three key skills at levels 1 to 4. Candidates can achieve units at different levels, but must pass both an internal assessment and an external assessment for each unit to ensure the required standards have been met.

Working with others, improving own learning and performance and problem solving, are known as the 'wider key skills'. They are not included in the Key Skills Qualification, but their achievement can form part of other qualifications and programmes.

'Key skills get people jobs. Qualifications only get you to the interview.'

An employer

'Two years ago I did communication at level 3 alongside my course. I gained so much from doing this that when I was asked if I wanted to work on the higher skills levels I immediately said yes.'

Student in HE

'I knew I was able to achieve a high level of skills but I also knew I needed to apply my skills to really make a difference.'

Project Management Consultant

'The thing that really struck me was the fact that what I knew I was good at earlier in my career was no longer being used. I knew I had to update my skills. It was interesting to get an understanding of what skills I needed now and in the future. It made me aware of how I instinctively deal with situations and how I could do things differently to avoid friction.'

A Research Scientist

Understanding the key skills units

The key skills units clearly set out what you need to know and what you must do to meet national standards of performance. They can be used in a number of ways, for example:

■ to help you focus attention on what you are learning, how you are learning and what you can do to improve;

■ to measure performance against national standards;

■ for assessment purposes alongside, or as part of qualifications.

The structure of the units

There is a unit for each of the key skills at each of the levels 1 to 4. At level 5 there is a single unit. Each unit has four parts:

1. a short overview of what the unit is about;

2. a description of what you need to know (Part A);

3. an outline of what you must do (Part B);

4. brief guidance on activities and examples of evidence (Part C).

An example of the level 4 communication unit is given on page 5.

Progression through the key skills levels

Key skills units are available at five levels of attainment, ranging from level 1 to level 5. The higher levels, levels 4 and 5, describe those skills relevant to technical and professional situations and higher level study.

The key skills units are designed to enable you to progress in selected skills at your own pace, taking into account your developmental needs and the opportunities available to you. Each level of the units incorporates and builds on the previous ones so the higher levels are challenging and demanding both to those who have previously worked on levels 1 to 3 and to those who are new to key skills at this level.

Progression to a higher level is characterised by:

■ greater autonomy from the individual in deciding how they will apply their skills to suit different tasks and problems;

■ greater demands made by the situation in which the skills are applied;

■ use of more complex and a wider range of techniques.

The key skills units do not only recognise your current capabilities, at the higher levels they also require you to look forward and identify how you can further improve your skills to meet new demands.

The main differences between the levels are highlighted in the chart on page 6.

Structure of the units

Introduction to the unit

This part of the unit provides a brief summary of what the unit is about and how it is structured.
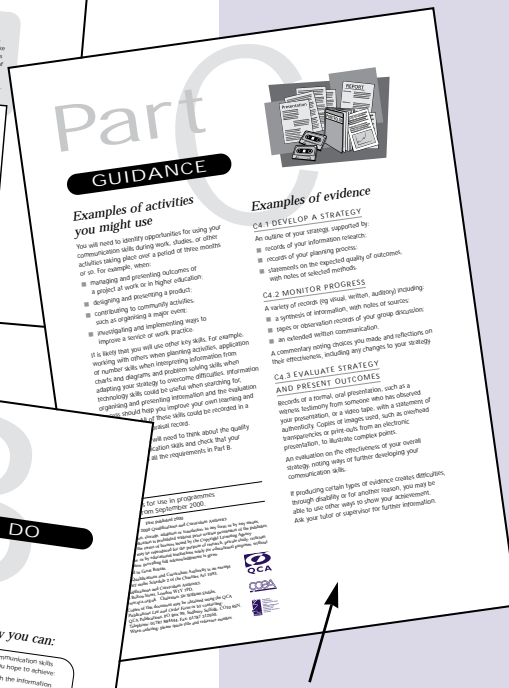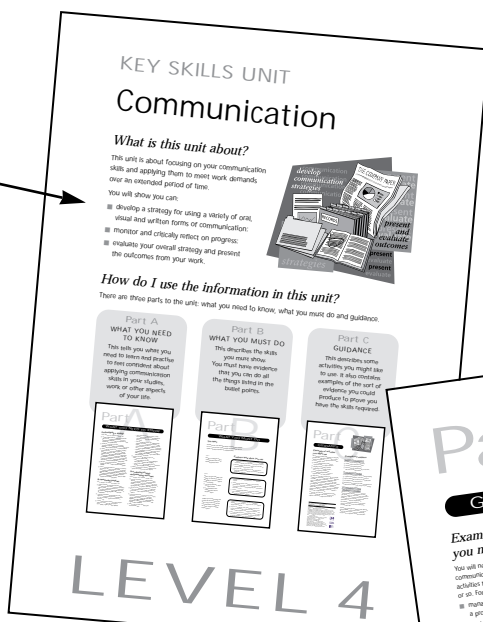
Part A

This part of the unit describes what you need to know how to do, at the relevant level, in order to have the confidence to apply your skills appropriately. It can be used to assess your prior learning, as well as your current capabilities, and to identify learning needs.

Part C

This part of the unit describes briefly some general activities that you might use to develop and demonstrate your skills.

It also provides examples of evidence that you could produce to show you have the skills required. Evidence can take a variety of written, oral, visual, physical and electronic forms.

Part B

This part of the unit tells you what you must do. The left-hand column describes, for each *component* of the unit, the type and amount of activity in which you should produce evidence of your skills. For example, for communication component (C4.2) you must show your skills in work involving one group discussion and one extended written communication.

The bullet points, in the boxes in the right-hand column, are the criteria for assessing the quality of your work, ie your ability to 'bring together' and apply your skills. For example, you must show that you have met all the assessment criteria in the box for that component (C4.2). The criteria must be used together, as a set, for each component of the unit.
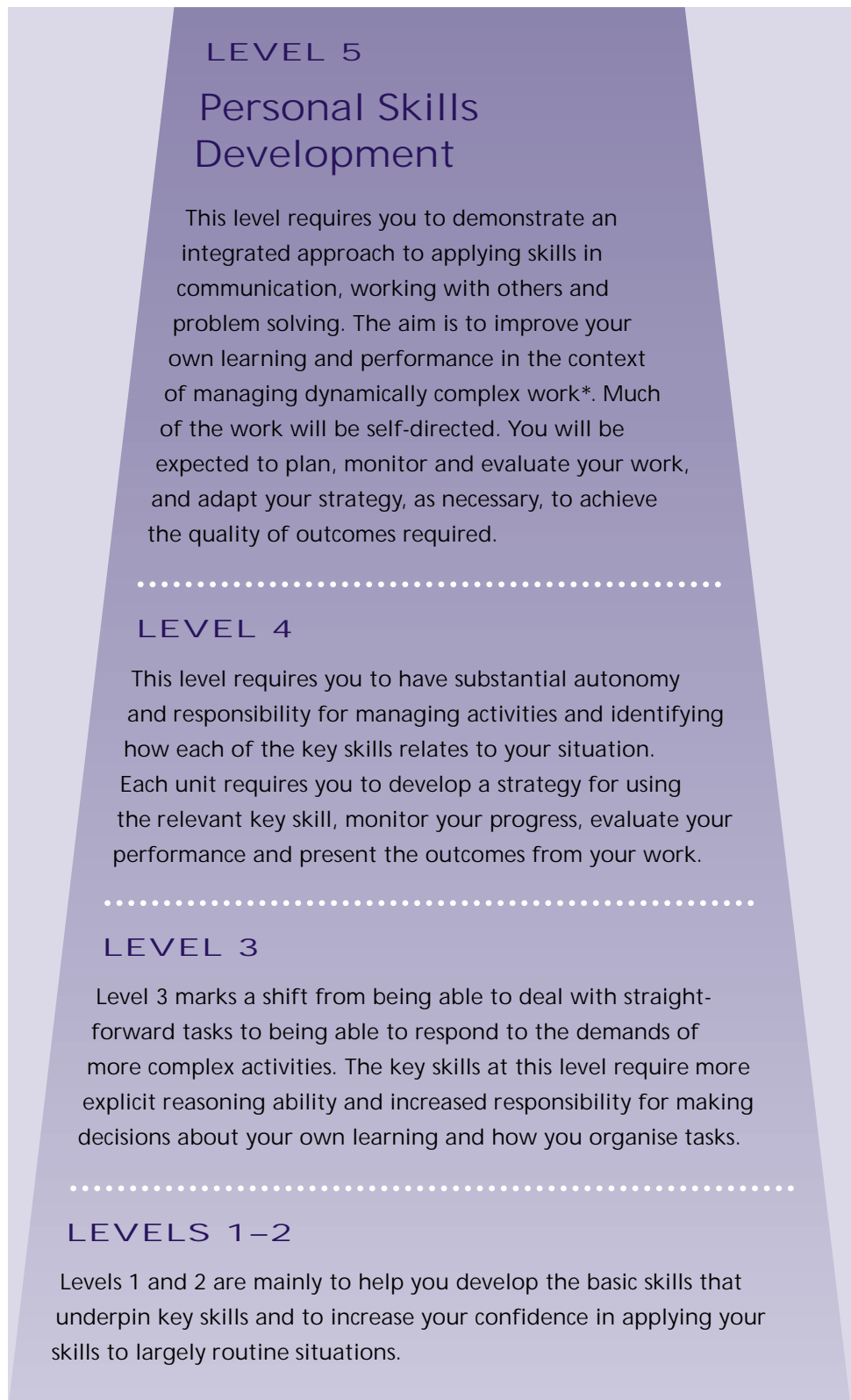
This chart shows the main differences between the key skills levels

LEVEL 5

Personal Skills Development

This level requires you to demonstrate an integrated approach to applying skills in communication, working with others and problem solving. The aim is to improve your own learning and performance in the context of managing dynamically complex work*. Much of the work will be self-directed. You will be expected to plan, monitor and evaluate your work, and adapt your strategy, as necessary, to achieve the quality of outcomes required.

LEVEL 4

This level requires you to have substantial autonomy and responsibility for managing activities and identifying how each of the key skills relates to your situation. Each unit requires you to develop a strategy for using the relevant key skill, monitor your progress, evaluate your performance and present the outcomes from your work.

LEVEL 3

Level 3 marks a shift from being able to deal with straight-forward tasks to being able to respond to the demands of more complex activities. The key skills at this level require more explicit reasoning ability and increased responsibility for making decisions about your own learning and how you organise tasks.

LEVELS 1–2

Levels 1 and 2 are mainly to help you develop the basic skills that underpin key skills and to increase your confidence in applying your skills to largely routine situations.

* Dynamically complex work: *work that includes activities that are inter-related, where it is likely that action in one activity will effect changes in other aspects of the work in ways that may be difficult to predict or control.*

Introduction to the level 4 key skills units

This section introduces the key skills standards at level 4, looks at the approach of the units and outlines the assessment.

In looking at the key skills units, you may be concerned about how you will integrate the demands of the unit into your main area of work. Like most learning processes, developing and improving skills takes time and effort, and often you don't immediately see the benefits. One of the main factors in improving performance is self-awareness – the ability to be consciously aware of what you are doing, and how well you are doing it. Development of this sort of self-awareness is a main feature of the higher level key skills.

All six units at level 4 share a common structure and approach. This makes it easier for a substantial activity or phase of work to be the focus of developing different key skills. Typically, such activity could include key skills at different levels – some aspects will be at level 4 and others at lower levels. You may need to obtain advice on the levels of key skills that are appropriate for you and your particular circumstances.

Each unit at level 4 has three stages:

- developing a strategy;
- monitoring progress;
- evaluating strategy and presenting the outcomes.

The processes outlined in Part A for each of the above stages, correspond to the three components in Part B for which you need to provide evidence.

Developing a strategy

A strategy is a plan, for an extended period of time, that builds on what you know from past experiences and includes the development of logical steps towards achieving a specific purpose. It should also provide you with scope to adapt your approach in response to feedback from others and demands resulting from changes in the wider context of your work.

Developing a strategy requires you to identify where and how you can use key skills as part of your work activities over a number of months. A flexible approach is the key here. You are likely to have to move backwards and forwards between the stages to modify your targets, plans and approaches as the work progresses. Working effectively on your skills means:

- identifying what you need to learn and practise;
- keeping an eye on your targets;
- modifying your strategy for achieving targets, if your situation changes;
- thinking about how you can further develop your skills.

As you work through this stage you need to ask yourself questions about what is involved in the work. To do this, you will need to break down the activity into manageable tasks to help you establish targets, define hypotheses, identify who the work is for, and relate the activity to your previous work and experience. Developing a strategic approach is all about planning, deciding on targets and timetables, looking at the components of the activity and sorting out the different skills and resources that are needed.

Monitoring progress

Keeping track of how you are managing the work is essential. As you are doing the work you should be drawing the threads together and following your plan, using a variety of methods and approaches to meet your targets. You will also be taking the initiative to make changes where necessary and make use of the resources available.

But keeping on track is only one aspect of this stage. The other important aspect involves moving things forward, applying your skills in different situations, learning new skills and being critically reflective.

Critical reflection is taken to mean a deliberate process when you take time, within the course of your work, to focus on your performance and think carefully about the thinking that led to particular actions, what happened and what you are learning from the experience, in order to inform what you might do in the future.

Critical reflection involves asking questions about this problem or that opportunity and, as a result, may prompt you to restructure your strategy, actions or ways of framing a problem. Using reflection critically to help you develop and improve your skills also means you bring to an activity your knowledge and experience to challenge, modify and form new ideas.

Keeping an on-going progress file including, for example, a work-log or diary, can help you to be reflective by focusing your attention on what you are doing, and how and why you are doing it. It can also help you to begin to assess your achievements against the intended outcomes for the work.

Evaluating your strategy and presenting outcomes

This stage is about presenting your work, and assessing what you have achieved and how well you achieved it.

Evaluating a strategy is not the same as describing it, nor is it the same as agreeing or disagreeing with it. An evaluation should not include personal attacks (on yourself or others). An evaluation requires you to assess the strategy and work overall in terms of its strengths and weaknesses. You will need to consider whether aspects could be done differently and the success of any methods/techniques used. Evaluation requires you to give adequate reasons to support your assessment. Be imaginative and try to 'stand outside' the situation to see it in a new light, as if you were an independent reviewer.

Within this stage there is also an expectation that you identify skills you want to further develop. To help you do this you may need to review how effective you were in carrying out the task by making use of feedback from different sources.

Developing skills is not one-off process. It takes time and an awareness of what you are doing and how you are doing it – in other words thinking about, and reflecting on your learning and the processes you engage in. Remember to give yourself opportunities to develop and practise the skills in the context of your work or study.

Assessment

All six key skills units can lead to formal recognition of achievement through, for example, by being built into other qualifications and programmes, or inclusion in a progress file.

Nationally-endorsed certificates can be awarded for the achievement of the key skills units of communication, application of number and information technology, either individually or as part of the Key Skills Qualification (all three units at any level).

To gain these certificates you will need to pass an externally-set and marked test taken in supervised sessions, as well as an internal assessment (usually in the form of a portfolio of work). At level 4, the test will be 90 minutes for each unit. The test samples items from across the unit as a whole and is task-orientated. You may be exempt from the external assessment if you already hold a named qualification that is deemed to cover aspects of the relevant key skill at the specified level. Further details can be obtained from awarding bodies approved to offer key skills (see QCA website for the full list: www.qca.org.uk/keyskill).

Work presented in a portfolio for internal assessment must meet all the assessment criteria for each component of Part B of the unit. Evidence does not have to cover all of the items in Part A, only those that are relevant.

The evidence for the key skills units should be drawn from an *'extended example'*. An extended example refers to work that is both multi-task and multi-stage and, at this level, is likely to involve aspects that are unfamiliar. The following features characterise an *'extended example'* at level 4:

- the work involves a variety of complex tasks, some of which are unfamiliar;
- the work is carried out in stages over a number of months (at least 3);
- other people are likely to be involved, especially as a source of feedback and support;
- the focus is on your development of particular key skills;
- at least part of the work involves you in working autonomously.

To be successful you will need to plan carefully what you want to achieve, as well as what you need to do. For each of the key skills units the evidence you need to provide *must* include both evidence relating to the performance of the particular key skill unit and evidence that clearly shows the processes in which you have engaged to achieve the quality of outcomes required.

Communication: holding meetings; writing reports.

Application of number: handling and comparing data.

Information Technology: using e-conferencing facilities; managing records.

Working with others: developing training sessions for one-to-one and small groups.

Improving own learning and performance: improving negotiating skills.

Problem solving: applying safe and methodical procedures to monitor and test results.

Clinical scientist

8

To show you can meet the requirements of Part B you need to consider the different types of evidence you can include. Examples of evidence include:

A project proposal:
this may provide evidence of developing a strategy for any of the key skills units, but particularly the communication and IT units.

Course notes/assignments:
these may provide evidence for any of the key skills units.

Work log/diary:
this may help you monitor and keep track of your work/progress and support your review/reflections on performance.

Records of meetings/ presentations:
these may provide you with evidence for any of the key skills units, but particularly communication and working with others.

Appraisal report and interview:
these may help you to make decisions relating to your own development and provide evidence towards improving own learning and performance.

Personal development plan:
this can be useful for recording your own development/training needs, taking into account the company plans as well as your personal goals. Such a plan should be discussed regularly with a senior manager. The plan and your discussion can provide evidence for the key skill of improving own learning and performance.

Introduction to the Amplification Sections

The aim of the guidance that follows is to help you to become familiar with the requirements of the key skills units. Part A and Part B of each unit are reproduced. But you should also refer to the units for additional examples of activities and guidance on evidence (Part C).

Part A guidance

The notes do not amplify all items in Part A, but highlight some aspects that are particularly important. For internal assessment purposes (your portfolio work), evidence does not need to cover all of the items in Part A (only those items that are relevant to the particular activities you undertake for Part B). But, if you wish to gain certification of the units in communication, application of number and/or information technology, you will need to know how to do everything in Part A as the external test samples items from across the whole unit.

Part B guidance

Guidance on Part B relates to internal assessment. To count as evidence, each piece of work must fully meet all the assessment criteria for the relevant component of Part B. All components must be covered.

You will need to organise and present evidence of how you have met the requirements of the units, usually in a portfolio with an index to show where evidence can be found. A portfolio may be a file or an electronically-based storage and retrieval system.

Portfolio building is an important skill in managing learning and the assessment process. The key skill of improving own learning and performance can provide a useful 'plan', 'do' and 'review' structure to help you develop skills for managing the portfolio, particularly when used with progress file materials.

Key skills unit communication, level 4

The aim of this section is to help you interpret the level 4 key skill unit of communication and give you examples of how you can evidence your communication skills as part of your work, study or other activities.

A main aim of the communication unit at level 4, is for you to apply your communication skills effectively in different contexts. You will be developing and consciously adapting your skills for different purposes and situations. This may involve you in addressing a variety of audiences and using the criteria to help you monitor and reflect on the effectiveness of your communication.

At this level, there is a move from level 3 (with its focus on a single discussion and presentation and two written documents) to effective facilitation of a communication situation whether oral, written or technological. That is, you will need to show that you can strategically plan your use of communication skills, independently apply these skills, monitor and review your work and critically reflect on your progress.

You may find it useful to keep a record in a diary or logbook of how you tackle each task and ways in which you adapt your communication skills. A progress file, that includes a plan and records of review, is helpful in skill-development and for recording your achievements.

Amplification of communication unit, level 4, Part A

Part A

WHAT YOU NEED TO KNOW

In developing a strategy,
YOU NEED TO KNOW HOW TO:

- establish opportunities for using communication skills over an extended period of time *(eg in a programme of study, project or work to be carried out over three months or so)*;

- identify the outcomes you hope to achieve *(eg improved presentation of research findings, use of information to inform a project, customer service)*;

- identify relevant sources of information, including people and reference material *(eg line manager, specialists, customers, colleagues; reference texts, manuals, academic abstracts, executive summaries, material from the internet or intranet, audio, video or television)* and research information for planning purposes *(eg formulate and ask questions, skim read and scan material to find specific information)*;

- plan your use of communication skills *(eg options, sequence of work, resources and level of expertise needed)*;

- make a reasoned selection of methods for achieving the quality of outcomes required, including collating and recording information *(eg cross-referencing facts, opinions and lines of reasoning from different sources; using photographs, mind maps, structured notes, index cards, database records, flow charts, or audio summaries for recording purposes)*.

In monitoring progress,
YOU NEED TO KNOW HOW TO:

- evaluate information obtained from discussions with others and from reference material, identifying opinion, possible bias and distortion of information when making judgements *(eg recognise how effects are achieved through linguistics, structure and presentation)*;

- synthesise information by identifying the various arguments and presenting your own interpretation in a way that brings together information in a coherent way;

- communicate relevant information about complex subjects in a form that suits your purpose *(eg to inform, explore, persuade, theorise)*:

– take a lead role in group discussions, clearly structuring what you say and using appropriate vocabulary, intonation and emphasis to make your points;

– write extended documents *(eg extended essays, reports)*, structuring the material and presenting arguments and information in a logical sequence, and ensure that spelling, punctuation and grammar are accurate *(proof-read and re-draft, as necessary)*;

– respond perceptively to contributions from others *(eg distinguish tone and undertone of what is said or written, show sensitivity to status, ethical, cultural and gender issues)*;

- monitor and critically reflect on your use of communication skills including:

– obtaining feedback from others *(eg colleagues, tutor, project supervisor, line manager)*;

– noting choices made and judging their effectiveness *(eg impact on quality of communication)*;

- adapt your strategy to overcome difficulties and produce the quality of outcomes required.

In evaluating strategy and presenting outcomes,
YOU NEED TO KNOW HOW TO:

- organise and clearly present relevant information, illustrating what you say by drawing comparisons, providing examples that relate to the interests of the audience and using images to illustrate complex points *(eg diagrams, charts, pictures, video clips, models)*;

- vary use of vocabulary and grammatical expression to convey particular effects, enable fine distinctions to be made, achieve emphasis and engage your audience;

- assess the effectiveness of your strategy, identifying factors that had an impact on the outcomes *(eg how choice of language and style affected implied and explicit meanings, characteristics of the audience, formality of context, level of own expertise and confidence)*;

- identify ways of further developing your communication skills.

What you need to know – *In developing a strategy*

- *Establish opportunities for using communication skills* You will need to spend some time researching, finding out and exploring work activities in order to identify where and how you can use oral, written and visual communication skills over the next three months or so.

- *Identify the outcomes* An intended outcome is a statement of what you want/ need to achieve eg better documentation for laboratory audit work. You may need to negotiate these outcomes with others involved in the work. Practise writing outcomes that are specific, so you will be able to tell if they have been achieved. This will help later in monitoring and evaluating the work.

- *Identify relevant sources of information* Check out different resources, including people who may be able to support you in developing your skills and completing the work. Make sure you know how to use appropriate referencing and filing systems, and keep records of sources used.

- *Plan your use of communication skills* Plan your use of communication skills so you can make the most of your work activities. Allow time to read, draft and proof read documents, prepare presentations and set up discussions.

- *Make a reasoned selection of methods* You will need to be familiar with the strengths and weaknesses of different forms of presenting information, including recording methods that may be used to aid planning, monitoring and review processes eg a Gantt chart/timeline.

What you need to know – *In monitoring progress*

- *Evaluate information* You need to have a 'critical eye' for assessing the quality and reliability of information from different sources. You may need to check facts, research other sources and question further.

- *Synthesise information* You need to know how to look for logical relationships in the material, identify the important ideas and take a critical attitude towards the material by relating it to your own views and experience.

- *Communicate relevant information* Complex subjects include a number of ideas, some of which may be abstract, very detailed, difficult to follow or require you to deal with sensitive issues. Technical vocabulary may be used.

- *Monitor and critically reflect* You should know how to track and record your progress (checklists can be helpful in self-assessment). You also need to identify reliable sources of feedback and be able to use feedback constructively to help you monitor your performance and make decisions eg on whether you need to adapt your overall strategy.

What you need to know – *In evaluating strategy/presenting*

- *Organise and clearly present relevant information* You need to know how to present information in ways that best suit your purpose, subject and audience eg how to structure what you say coherently so that sequences of ideas and information may be followed easily, use a range of techniques to support your argument such as diagrams or models, when to use technical vocabulary and conventions.

- *Assess the effectiveness of your strategy* This means being able to identify how your decisions, and the resources and people involved in your work, have influenced the way you have tackled the activity. It also includes taking into account the effect on the outcomes of your work of your own communication strengths and weaknesses.

- *Identify ways of further developing your communication skills* Think about your overall level of communication skills and suggest areas where you feel you need to improve, based on the experience you have gained in this activity. You should know how to identify opportunities that are available to you eg for training, for changing working practices, for tackling new kinds of tasks. Discuss with a line manager, colleague or mentor how you might improve working methods, take advantage of new opportunities and ways of improving your own performance.

Guidance on internal assessment for communication, level 4, Part B

Part B

WHAT YOU MUST DO

You must:

Provide at least one extended example of meeting the standard for C4.1, C4.2 and C4.3 (your example must show you can use written, oral and visual forms of communication).

Evidence must show you can:

C4.1

Develop a strategy for using communication skills over an extended period of time.

- establish opportunities for using communication skills and clearly identify the outcomes you hope to achieve;
- identify relevant sources and research the information needed for planning purposes; and
- plan your use of communication skills, and make a reasoned selection of methods for achieving the quality of outcomes required.

C4.2

Monitor progress and adapt your strategy, as necessary, to achieve the quality of outcomes required in work involving:
- one group discussion about a complex subject;
- one extended written communication about a complex subject.

- evaluate and synthesise information from different sources;
- communicate relevant information with accuracy, effectively using a form, structure and style that suits your purpose, and respond perceptively to contributions from others; and
- monitor and critically reflect on your use of communication skills, adapting your strategy as necessary to produce the quality of outcomes required.

C4.3

Evaluate your overall strategy and present the outcomes from your work, using at least one formal oral presentation, including the use of two images to illustrate complex points.

- organise and clearly present relevant information, illustrating what you say in ways that suit your purpose, subject and audience;
- vary use of vocabulary and grammatical expression to convey particular effects, enable fine distinctions to be made, achieve emphasis and engage the audience; and
- assess the effectiveness of your strategy, including factors that had an impact on the outcomes, and identify ways of further developing your communication skills.

For internal assessment purposes, you must provide at least one extended example of meeting the standard for C4.1, C4.2 and C4.3. Evidence does not have to cover all the items in Part A, but must meet all assessment criteria (in the relevant box) for each component of Part B, and include evidence from:

- one group discussion about a complex subject;
- one extended written communication about a complex subject;
- one formal oral presentation that includes two images to illustrate complex points.

C4.1   Evidence that you can develop a strategy for using communication skills might include entries in a personal development plan in a progress file, a project proposal, with annotated references or list of information and other records to show the processes you went through, and notes on methods for achieving the quality of outcomes required. The strategy must be for an extended period of time (at least 3 months). You will need to plan and manage evidence of your achievements from the outset.

C4.2   You must show that you can evaluate and synthesise information from different sources and can communicate relevant information, with accuracy, in both a group discussion and an extended written communication (more than 3 pages). Assessors will look for evidence that you can use effectively a form, structure and style that suits your purpose (eg to inform, explore, persuade, theorise). You must also show that you can respond perceptively to contributions from others in discussions (eg respond with sensitivity to signs that indicate how others may be feeling, and take into account hidden agendas), and in written work (eg through noting feedback comments and incorporating them where appropriate).

Evidence of the discussion could include minutes of meetings and edited audio/video clips or records of observation by an assessor. Witness statements can be useful as supporting evidence. They should include the date, name, signature and contact details of the witness, and details of the context in which the discussion took place. Assessors are responsible for judging the validity of statements and may need to confirm with the witness that it is genuine and clarify points regarding the assessment criteria.

Monitoring progress is about reviewing the quality of your use of communication skills, not only reporting that the work is going well or not so well. Monitoring accurately your own performance is difficult – you need to 'stand outside' yourself – so it is important that you obtain feedback on your performance from others. Presenting evidence relating to monitoring may be through discussion (eg with your line manager or tutor) and/or written records of your reflections on the work, outcomes, time-scales, use of resources, etc. Keep notes, a diary/log or a more formal document detailing how you have adapted your strategy in response to changes in your work or circumstances.

C4.3   You are required to make a formal oral presentation that presents the outcomes of your work, using at least two images to illustrate complex points (eg charts, graphs, diagrams, photographs, video/film clips, models). You must show that you can organise and clearly present relevant information, illustrating what you say by drawing comparisons and providing examples that relate to the interest of your audience. Your assessor will look for how you use vocabulary and grammatical expression to convey effects, make fine distinctions and achieve emphasis, and should check audience reaction.

The evaluation of the overall strategy could be included in your presentation, a recorded discussion with your line manager, tutor or mentor, or a written report. It must include an in-depth consideration of the factors that affected the outcomes of your work, and include ways of further developing your communication skills.

Key skills unit application of number, level 4

The aim of this section is to help you interpret the level 4 key skill unit of application of number and give you examples of how you can evidence your number skills as part of your work, study or other activities.

The focus of this key skills unit is on you improving your number skills by applying them to your work, study or other activities over a period of at least three months. During this time you will need to plan the activities you intend to carry out, develop a strategy for tackling the work, actively monitor your progress in using and applying number effectively, and review how successful you were in achieving what you set out to do.

As you use and apply number it may be useful to record in a diary or logbook how you tackled each task. Include plans, targets, ways of working and comments about the choices you made and how effective they were. Evidence of application and development can include annotated working drafts, documents or print-outs, or comments on your work from a colleague or line manager. A progress file, that includes a plan and records of review, is helpful in skill-development and for recording your achievements.

Some activities at level 4 may have a clear path from start to finish. In most cases, however, you will not have such a clear path. Typically you will be likely to:

■ call on similar skills at several points in your work;

■ change and adapt your original plans in the light of new demands;

■ use calculations at several stages of the work;

■ find that there are several smaller cycles of work within the main activity, each one requiring you to monitor, present, evaluate and adapt your skills.

It is important to establish good foundations for your work – planning and researching, being clear what you hope to achieve, establishing that you have considered all realistic sources of information. The temptation may be to go for the first workable plan, rather than to consider alternatives. But time taken to seek out alternative methods and information and an open-minded approach can often pay dividends in completing the work and achieving high quality outcomes. Take time to consider that you may need to learn new ways of researching and new mathematical techniques.

Amplification of application of number unit, level 4, Part A

Part **A**

WHAT YOU NEED TO KNOW

In developing a strategy,

YOU NEED TO KNOW HOW TO:

- establish opportunities for using application of number skills over an extended period of time *(eg in a programme of study, project or work to be carried out over three months or so)*;

- identify the outcomes you hope to achieve *(eg an accurate analysis of research data, best use of limited finance for a project, an improved product design or production method)*;

- identify relevant sources of information, including people and reference material *(eg line manager, specialists, customers, colleagues; reports, manuals, databases, the internet; sites for direct observations or measurements)* and research the information needed for planning purposes;

- plan your use of application of number skills *(eg options, sequence of work, resources, level of expertise needed)* and make a reasoned selection of methods for achieving the quality of outcomes required, including:
  - formulating hypotheses, using models and other techniques to explore them *(eg Gantt charts, network analyses)*;
  - establishing methods for testing hypotheses *(eg using statistical techniques)*.

In monitoring progress,

YOU NEED TO KNOW HOW TO:

- evaluate information from different sources, developing alternative lines of enquiry where appropriate;

- carry out calculations to appropriate levels of accuracy, drawing on a range of numerical, graphical and other mathematical techniques involved in:
  - making measurements or observations, including use of compound units;
  - reading and interpreting scale drawings, graphs, complex tables and charts;
  - organising and classifying data *(eg grouping data, using appropriate software packages)*;
  - making inferences from sets of data *(eg from standard deviations, interquartile range)*;
  - using numerical, graphical and algebraic methods to develop models *(eg spreadsheet simulations, formulae and graphical representations)*;

- using ideas of proportion, variation and scaling, including inverse proportion and other non-linear variation *(eg in numerical and spatial calculations, in estimating and forecasting)*;
- working with expressions, formulae and equations, including powers and roots;
- working with probability *(eg calculating the probability of a compound event)*;
- making deductions in algebraic and spatial reasoning and applying these to your work;

- monitor and critically reflect on your use of application of number skills, including:
  - obtaining feedback from others *(eg colleagues, tutor, project supervisor, line manager)*;
  - noting choices made and judging their effectiveness *(eg impact on the quality of work)*;

- adapt your strategy to overcome difficulties and produce the quality of outcomes required.

In evaluating strategy and presenting outcomes,

YOU NEED TO KNOW HOW TO:

- interpret results and identify the main findings from your work, including evidence to support your conclusions *(eg examine generalisations and solutions, identifying the reasoning underlying the acceptance or rejection of original hypotheses)*;

- present information effectively, selecting appropriate methods to illustrate findings, including diagrams, charts and graphs *(eg use of non-linear scales to bring out relationships)*;

- explain results in relation to your work and hypotheses *(eg explain patterns of relationship, trends and possible consequences, explain why particular lines of enquiry were followed and others rejected)*;

- assess the effectiveness of your strategy, identifying factors that had an impact on the outcomes *(eg availability of resources, level of own expertise, precision)*;

- identify ways of further developing your application of number skills.

What you need to know – *In developing a strategy*

- *Establish opportunities for using application of number skills* You will need to spend some time researching and exploring work activities in order to identify where and how you can use number skills. Activities will need to involve obtaining numerical information from different sources and working on data eg in measuring environmental changes or making financial forecasts.

- *Identify the outcomes* An intended outcome is a statement of what you want/ need to achieve eg a better financial management system. You may need to negotiate these outcomes with others involved in the work. Practise writing outcomes that are specific so you will be able to tell if they have been achieved. This will help later in monitoring and evaluating the work.

- *Identify relevant sources of information* Check out different resources, including people who may be able to support you in developing your skills and in completing the work. You may need to arrange access to specialist training, on-line resources, a library or specialist publications.

- *Plan your use of application of number skills* Take stock of the skills needed to achieve your intended outcomes. Identify opportunities and constraints eg level of personal expertise, resources, work patterns, health and social issues, social and ethical concerns. Set realistic targets and deadlines.

- *Make a reasoned selection of methods* You will need to know how to select methods that are valid and effective for exploring and testing hypotheses (eg to test whether or not the number of accidents at work indicate a breach of health and safety protocols). You need to know how to use a mathematical model to represent an existing situation, select methods of collecting and recording data for the purpose of refining the model, and use statistical techniques for testing the possible consequences of changed circumstances.

What you need to know – *In monitoring progress*

- *Evaluate information* You need to know how to check, for example, the sufficiency of sample size and how to detect possible bias in the selection of samples. You may need to refer to other data sources and question further.

- *Carry out calculations* You need to know how to choose levels of accuracy appropriate to the task and when working with approximate numbers, or rounding to significant figures, evaluate the scale of any accumulating errors and their effect on the overall results of calculations.

- *Monitor and critically reflect* You need to know how to track and record your progress (use of IT may be useful). Identify reliable sources of feedback and know how to use feedback constructively to help monitor your performance and make decisions eg on adapting your overall strategy.

What you need to know – *In evaluating strategy/presenting*

- *Interpret results and identify main findings* You need to interpret the results of your calculations and be able to identify the key features of a set of data, and then use the data as a basis for drawing appropriate conclusions.

- *Present information effectively* You need to know how to express relationships, patterns, trends and possible consequences in words, graphs, diagrams, rates, tables and/or formulas so as best to clarify complex situations, and use appropriate terms to describe relationships and trends (eg linear, exponential). You need to know how to select appropriate levels of accuracy for presenting data and how to choose appropriate styles, scales and axes for statistical and other diagrams, and appropriate class intervals for grouped data. Charts, diagrams and graphs need to be labelled correctly.

- *Explain results* You need to show that you understand how the information or data relates to the original hypothesis and give reasons, supported by evidence, to justify your results.

- *Assess the effectiveness of your strategy* Identify how your decisions, level of precision and resources have influenced the way you have tackled the activity. Also take into account the effect on the outcomes of your work of your own strengths and weaknesses in application of number.

- *Identify ways of further developing your number skills* Suggest areas where you feel you need to improve. Discuss with your line manager or training development manager, facilities and resources that are available to you eg for tackling new kinds of tasks, for training in a specific area.

Guidance on internal assessment for application of number, level 4, Part B

Part B

WHAT YOU MUST DO

You must:

Provide at least one extended example of meeting the standard for N4.1, N4.2 and N4.3 (your example must show you can formulate and test hypotheses, and draw conclusions).

Evidence must show you can:

N4.1

Develop a strategy for using application of number skills over an extended period of time.

- establish opportunities for using application of number skills and clearly identify the outcomes you hope to achieve;
- identify relevant sources and research the information needed for planning purposes; and
- plan your use of application of number skills, and make a reasoned selection of methods for achieving the quality of outcomes required.

N4.2

Monitor progress and adapt your strategy, as necessary, to achieve the quality of outcomes required in work involving:
- deductive and inferential reasoning;
- algebraic manipulation.

- evaluate information from different sources, developing alternative lines of enquiry where appropriate;
- carry out calculations to appropriate levels of accuracy, drawing on a range of techniques to suit your purpose; and
- monitor and critically reflect on your use of application of number skills, adapting your strategy as necessary to produce the quality of outcomes required.

N4.3

Evaluate your overall strategy and present the outcomes from your work, including use of charts, diagrams and graphs to illustrate complex data.

- interpret results and identify the main findings from your work, including evidence to support your conclusions;
- present information effectively, selecting appropriate methods to clearly illustrate findings, and explain results in relation to your hypotheses; and
- assess the effectiveness of your strategy, including factors that had an impact on the outcomes, and identify ways of further developing your application of number skills.

For internal assessment purposes, you must provide at least one extended example of meeting the standard for N4.1, N4.2 and N4.3. Evidence does not have to cover all the items in Part A, but must meet all assessment criteria (in the relevant box) for each component of Part B. You must include evidence of your skills in deductive and inferential reasoning and algebraic manipulation, in the context of formulating and testing hypotheses, and drawing conclusions.

N4.1   Evidence that you can develop a strategy for using application of number skills might include entries in a personal development plan in a progress file, or a project proposal with annotated references or a list of information and other records to show the processes you went through, and notes on methods for achieving the quality of outcomes required. Assessors will look for evidence that you have formulated hypotheses (at least two) and established methods for testing these. The strategy must be for an extended period of time (at least 3 months). You will need to plan and manage evidence of your achievements from the outset.

N4.2   Your evidence must show that you can evaluate information from different sources and develop, where appropriate, alternative lines of enquiry. Calculations must be carried out to appropriate levels of accuracy, drawing on a range of techniques. Assessors will look for specific evidence that you have engaged in deductive and inferential reasoning (eg made deductions in spatial reasoning and applied these to your work; made inferences from sets of data using standard deviations or interquartile range) and algebraic manipulation (eg worked with algebraic methods to develop models). It may be helpful to annotate records of your work to indicate where these skills have been used.

You must also be able to show that you have monitored and critically reflected on your use of application of number skills. This means keeping records, such as a diary or log, of the feedback you have received from others, the decisions you have made and how you have adapted your strategy to take account of problems and produce the quality of work required.

N4.3   You can present the outcomes of your work (eg to your line manager, tutor, colleagues, customers/client) in an illustrated written report or through an oral presentation, with use of visual aids. Evidence must show that you can interpret results of your calculations and identify the main findings from your work, including evidence to support your conclusions, and can explain results in relation to your hypotheses. Assessors will look for the effective use of charts, diagrams and graphs (at least one example of each) in illustrating findings.

You must also show that you can evaluate the effectiveness of your overall strategy and comment on those factors that have influenced the outcomes. You should identify ways of further developing your application of number skills, for example as part of a new project or a training course.

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Key skills unit information technology, level 4

The aim of this section is to help you interpret the level 4 key skill unit of Information Technology and give you examples of how you can evidence your Information Technology skills as part of your work, study or other activities.

The focus of this key skills unit is on you improving your IT skills by applying them to your work, study or other activities over a period of at least three months. During this time you will need to plan the activities you intend to carry out, develop a strategy for tackling the work, actively monitor your progress in using IT effectively, and review how successful you were in achieving what you set out to do.

As you use and apply IT skills it may be useful to record in a diary or logbook how you tackled each task (this can be done electronically). Include plans, targets, ways of working and comments about the choices you made and how effective they were. Evidence of application and development can include annotated working drafts, documents or print-outs, or recorded comments on your screen displays by your assessor. A progress file, that includes a plan and records of review, is helpful in skill-development and for recording your achievements.

Amplification of information technology unit, level 4, Part A

Part A

WHAT YOU NEED TO KNOW

In developing a strategy,

YOU NEED TO KNOW HOW TO:

- establish opportunities for using IT skills over an extended period of time *(eg in a programme of study, project or work to be carried out over three months or so)*;

- identify the outcomes you hope to achieve *(eg improved access to information, faster communication, more efficient design or problem solving capability)*;

- identify relevant sources of information, including people and reference material *(eg line manager, specialists, customers, colleagues; manuals, CD-ROMs, databases, the internet, on-line help)* and research the information needed for planning purposes;

- plan your use of IT skills *(eg options, sequence of work, resources, level of expertise needed)*, taking into account factors that may affect your plans *(eg patterns of work, health and safety, social, economic, ethical and moral issues raised by the use of IT)*;

- make a reasoned selection of methods for achieving the quality of outcomes required *(eg internet search engines, e-conferencing, CAD/CAM techniques)*.

In monitoring progress,

YOU NEED TO KNOW HOW TO:

- prepare IT *(eg create macros, link spreadsheets, define styles, create database structures, customised query routines, set up control equipment to monitor experiment results and generate readings for a report, organise e-conferencing)* and use IT to aid:
  - efficient searching, evaluation and selection of information *(eg to assist in finding, organising and comparing information, consulting others on its reliability and quality)*;
  - exploration of alternative lines of enquiry *(eg varying rules within models to make predictions and test hypotheses)*;

- develop and exchange relevant information to meet your purpose *(eg use e-mail, shared access to documents, video conferences)*;

- derive new information *(eg make calculations, synthesise information from a variety of sources to reach own conclusions, predict trends, create a new design)*;

- monitor and critically reflect on your use of IT skills, including:
  - obtaining feedback from others *(eg colleagues, tutor, project supervisor, line manager)*;
  - noting choices made and judging their effectiveness *(eg impact on quality of work)*;

- adapt your strategy to overcome difficulties and produce the quality of outcomes required.

In evaluating strategy and presenting outcomes,

YOU NEED TO KNOW HOW TO:

- develop the structure for presenting your work, integrating different types of information to ensure consistency in changes to the display of text, numbers and images;

- use the views of others to guide refinements to content and design;

- present information effectively, using a format and style *(eg a single form or multi-media)* to suit your purpose, subject and audience, and ensure that:
  - it is accurate in terms of content and conventions *(eg spelling, punctuation and grammar, labelling of charts, diagrams and graphs, house style for design features)*;
  - it makes sense *(eg proof-read and amend where necessary)*;

- assess the effectiveness of your strategy, identifying factors that had an impact on the outcomes *(eg availability and quality of resources, features of the working environment, level of own expertise)*;

- identify ways of further developing your IT skills.

What you need to know – *In developing a strategy*

- *Establish opportunities for using IT skills* You will need to spend some time researching and exploring work activities in order to identify where and how you can use IT to aid efficient searching, development, exchange and presentation of information, including text, images and numbers.

- *Identify the outcomes* An intended outcome is a statement of what you want/ need to achieve eg a computer-based conferencing system to support team working. You may need to negotiate these outcomes with others involved in the work. Practise writing outcomes that are specific, so you will be able to tell if they have been achieved. This will help later in monitoring and evaluating the work.

- *Identify relevant sources of information* You should know how to access help and gain access to the Internet, databases on CD-ROM or on-line, a library or specialist publications. In using a web browser, make sure you know how to bookmark relevant web pages, download and save information.

- *Plan your use of IT skills* Take stock of the skills needed to achieve your intended outcomes. Identify opportunities and constraints eg to do with level of personal expertise, resources, work patterns, health and safety issues, social, ethical and moral concerns. Set realistic targets and deadlines.

- *Make a reasoned selection of methods* You will need to be familiar with the strengths and weaknesses of IT methods for handling, processing and presenting different types of information (eg specific software facilities).

What you need to know – *In monitoring progress*

- *Prepare IT* You may need to learn about style sheets, templates, macros to handle repeated operations, database structures, how to set up queries using search engines, and refine your search. Establish criteria (eg by date, author, subject, organisation, type and format) to help select required information. Set up different search strategies and criteria to explore alternative lines of enquiry eg use a financial model on a spreadsheet to explore and predict possible consequences of cost and pricing changes on sales and profits. Be critical of the reliability and quality of information from different sources, taking into account commercial, political, academic or personal interests that may influence content and presentation.

- *Develop and exchange relevant information* Identify methods of exchange (eg email, computer conferencing, video conferencing, web pages, sharing documents) and how they affect the development of information and ways of working. Recognise organisational factors such as version control, document retrieval, transaction monitoring, security, archiving and back-up.

- *Derive new information* Identify and note information generated as your work progresses (eg different ideas, interpretations, improvisations, plans).

- *Monitor and critically reflect* You should know how to track and record progress, including any IT problems and what you did about them. Identify reliable sources of feedback and use this constructively to help monitor your performance and make decisions eg on adaptations to your overall strategy.

What you need to know – *In evaluating strategy/presenting*

- *Present information* Develop appropriate structures for integrating different types of information eg to ensure that fonts, layout, number formats, sizes and shapes of graphs, images and tables are consistent. Ensure that conventions of format, language and style are used, as agreed. Obtain feedback from others. Check spelling, punctuation and grammar, and check that graphs, diagrams and charts are correctly labelled and any specific requirements (eg word length, types of binding, paper size) have been met.

- *Assess the effectiveness of your strategy* Identify how your decisions, and the resources and people involved in your work, have influenced the way you have tackled the activity. Take into account the effect on the outcomes of your work of your strengths and weaknesses in using IT.

- *Identify ways of further developing your IT skills* Think about your overall level of IT skills and suggest areas where you feel you need to improve. Discuss with a line manager, colleague or mentor how you might do this eg opportunities for training, changing working practices, tackling new tasks.

Guidance on internal assessment for information technology, level 4, Part B

Part B

WHAT YOU MUST DO

You must:

Provide at least one extended example of meeting the standard for IT4.1, IT4.2 and IT4.3 (your example must show you can use IT to handle text, images and numbers).

IT4.1

Develop a strategy for using IT skills over an extended period of time.

Evidence must show you can:

- establish opportunities for using IT skills and clearly identify the outcomes you hope to achieve;
- identify relevant sources and research the information needed for planning purposes; and
- plan your use of IT skills, making a reasoned selection of methods for achieving the quality of outcomes required.

IT4.2

Monitor progress and adapt your strategy, as necessary, to achieve the quality of outcomes required in work involving the use of IT for two different, complex purposes.

- prepare, and use, IT to aid efficient searching, evaluation and selection of information, exploring alternative lines of enquiry where appropriate;
- develop and exchange relevant information, and derive new information, to meet your purpose; and
- monitor and critically reflect on your use of IT skills, adapting your strategy as necessary to produce the quality of outcomes required.

IT4.3

Evaluate your overall strategy and present the outcomes from your work using at least one presentation, showing integration of text, images and number.

- develop the structure for presenting your work, integrating different types of information and using the views of others, where appropriate, to guide refinements;
- present information effectively, using a format and style to suit your purpose, subject and audience, and ensure it is accurate and makes sense; and
- assess the effectiveness of your strategy, including factors that had an impact on the outcomes, and identify ways of further developing your IT skills.

For internal assessment purposes, you must provide at least one extended example of meeting the standard for IT4.1, IT4.2 and IT4.3. Evidence does not have to cover all the items in Part A, but must meet all assessment criteria (in the relevant box) for each component of Part B, and include evidence from:

- use of IT for two different complex purposes;

- at least one presentation showing integration of text, images and number.

IT4.1   Evidence that you can develop a strategy for using a variety of IT skills might include entries in a personal development plan in a progress file, or a project proposal with an annotated references or information list and other records to show the processes you went through, and notes on methods for achieving the quality of outcomes required. Assessors will look for evidence that you have taken into account the need to plan and use IT for meeting two different complex purposes, and work with different forms of information (text, images and numbers). The strategy must be for an extended period of time (at least 3 months). You will need to plan and manage evidence of your achievements from the outset.

IT4.2   Evidence must show that, in the course of your work, you have used IT for two different complex purposes (eg to speed up the design process of a product and to aid financial management when producing the product).

You must show that you can prepare and use IT to aid efficient searches, evaluation and selection information, and explore different lines of enquiry were appropriate. You must also show that you are able to develop and exchange relevant information, and derive new information to meet your purpose. Sources should be named and records made of the scope and nature of your searches. Examples of evidence may include copies of source material, annotated print-outs and copies of earlier versions, records of exchanged information and recorded answers to questions by your assessor when observing your screen displays.

In monitoring your use of IT skills, you will need to keep a log/diary or other record of your reflections, the decisions you make and how you use feedback from others in adapting your strategy to help you produce the quality of work required.

IT4.3   Your presentation can be a printed report, or static or dynamic screen displays of your final work. But, it must show that you can integrate different types of information in a format and style that suits your purpose, subject and audience. Images include diagrams, photographs, charts and graphs. Number includes tables or spreadsheets containing numerical data, and financial accounts. Your information must be accurate and make sense.

You must also evaluate the effectiveness of your overall strategy in achieving your intended outcomes and comment on those factors that influenced the outcomes. You should identify ways of further developing your IT skills, for example as part of a new project or a training course.

Relevant sources of information

England

The Qualifications and
Curriculum Authority (QCA)
Tel. 020 709 5555; Internet:
http://www.qca.org.uk/keyskills

Department for Education
and Employment (DfEE)
Tel. 0114 259 3533; Internet:
http://www.open.gov.uk/dfee/key

Information about Progress File
can be obtained from: *http://www.
dfee.gov.uk/progfile/index.htm*

The Key Skills Support Programme
(funded by DfEE and co-ordinated by
FEDA and Learning for Work) aims to:

- raise awareness and understanding
  of key skills;
- provide advice and models of how
  to organise key skills delivery;
- provide materials on how to
  develop and assess key skills;
- provide training through conferences,
  workshops and courses.

FEDA website:
http://www.feda.ac.uk

Helpline (for schools and colleges):
Tel. 0207 9621066

Learning for Work website:
http://www.kssp.net

Helpline (for employers and training
providers): Tel. 01189 316 326

Wales

The Qualifications, Curriculum and
Assessment Authority for Wales
(ACCAC) Tel. 02920 375400;
Internet: *http://www.accac.org.uk*

The National Assembly Education
Department (NAED)
Tel. 02920 826018

Northern Ireland

Northern Ireland Council for
the Curriculum, Examinations
and Assessment (NICCEA)
Tel. 028 9026 1200
Internet: *http://www.ccea.org.uk*

Department of Education (DE)
Tel. 028 9127 9734

Key Skills Resource Centres:
Belfast: Tel. 028 9026 5223;
Dungannon: Tel. 028 8772 6035;
Londonderry: Tel. 028 7134 7493

Department of Higher and Further
Education, Training and Employment
(DHFETE). Tel. 028 9025 7438

QCA Northern Ireland Office
Tel. 01232 330706

KEY SKILLS AWARDING BODIES

List available on QCA website
http://www.qca.org.uk/keyskills

OTHER RELEVANT PUBLICATIONS

Key Skills explained, DfEE Publications,
Tel. 0845 60 222 60 (ref. KS13)

Guidance in using the key skills units
from QCA Publications,
Tel. 01787 884444:

*Levels 1–3, communication,
application of number and information
technology* (QCA/99/481)

Key skills units from QCA Publications,
Tel. 01787 884444
(and on QCA website):

*Levels 1–3, communication,
application of number and information
technology* (QCA/99/342)

*Levels 1–3, working with others,
improving own learning and
performance and problem solving*
(QCA/99/437)

Levels 4 and 5 (QCA/99/455).

The units are for use in programmes starting from September 2000.