



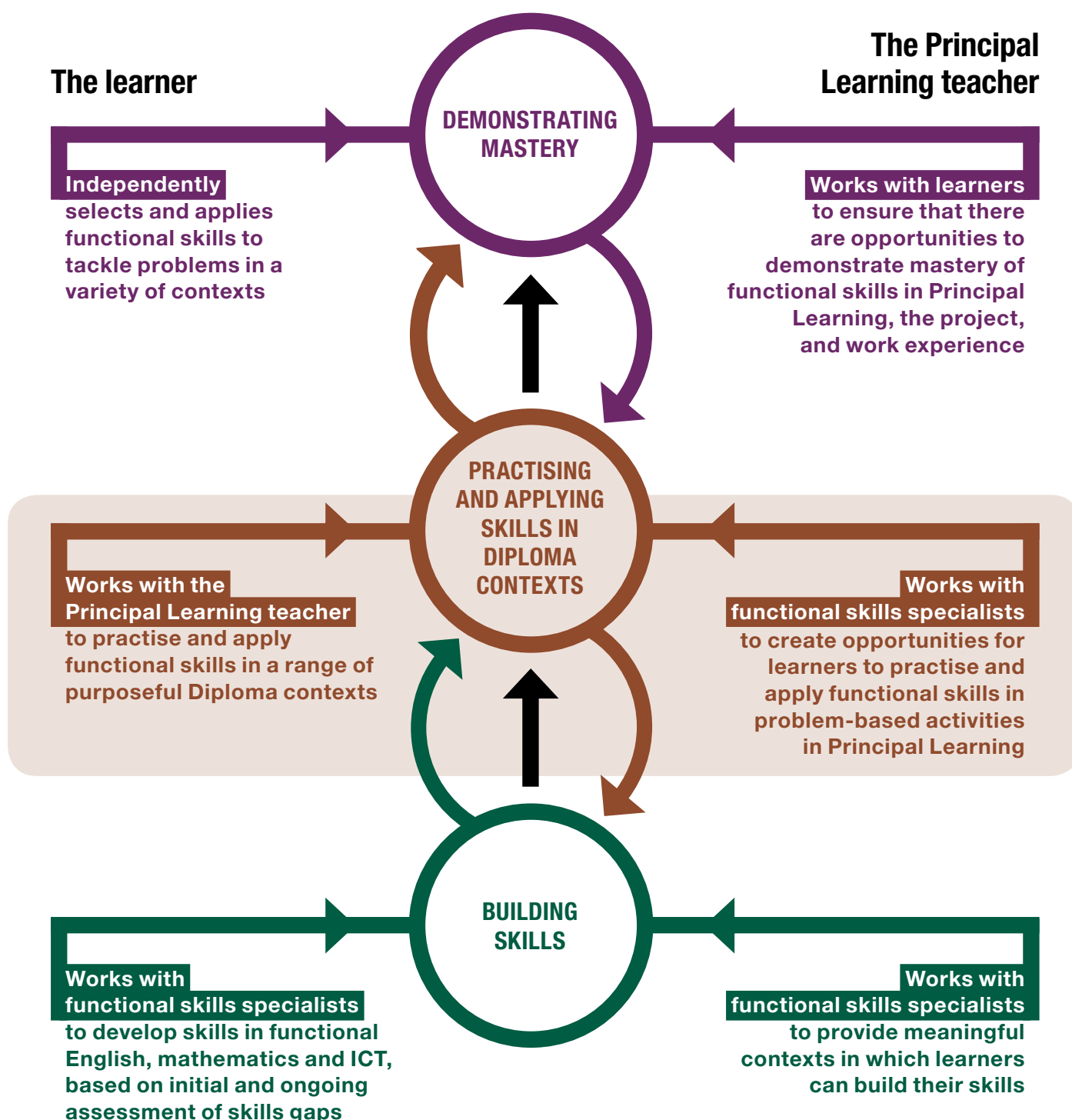
Functional skills in Diplomas

Construction and the Built Environment

This booklet has been produced for teachers of Principal Learning in the Diploma in Construction and the Built Environment, at any level. It assumes that, while you are not a functional skills specialist, you have a basic knowledge and understanding of functional skills and their central role in the Diploma.

The role of the Principal Learning teacher: developing learners' functional skills in the Diploma in CBE

The diagram below aims to show how the learner, the Principal Learning teacher, and the functional skills specialists should work as a team to enable the learner to achieve mastery in functional skills. The diagram is of course a model rather than a description of what happens in the real world of learning. In practice, each learner will start from a different level of competence in each functional skill or sub-skill and will develop and master the skills in different ways and at different speeds, often returning to an earlier stage to reinforce learning. Similarly, learners will continue to build their skills as they practise and apply them. When they have achieved mastery, learners will continue to develop and transfer their skills in other contexts.



Approaches to the delivery of functional skills

‘These are exciting times for the Construction and Built Environment industry, with a huge range of high-profile projects taking place now and in the future. It is essential that the industry attracts the right people with the right skills to meet this challenge.

The new functional skills will ensure that young people are able to apply the theory of mathematics, English and ICT to real working situations. Their introduction into the 14–19 curriculum will be key to ensuring a larger, better prepared pool of recruits for employers like ourselves to build Britain’s future.’

Chris Simpson, Training Manager, Wates Group

Research and experience have shown that the most effective approaches to teaching and learning these skills involve some degree of embedding or integration into wider programmes of learning. Learners are motivated when they find that improving their functional skills helps them to do better in the rest of their programme. They learn that these skills are transferable and relevant in many situations.

When considering the delivery of functional skills in the Diploma in CBE, it is helpful to think in terms of four possible approaches:*

*To find out more about these approaches and how they might work in your context, look at *Managing delivery of functional skills* (LSIS, 2008).

Discrete

Functional skills are taught by specialists separately from other areas of the Diploma.

Partly embedded

Functional skills are taught by specialists and are flexibly applied in a range of Diploma contexts.

Mostly embedded

Functional skills are taught by specialists, and are reinforced and applied in a range of purposeful contexts within and across the Diploma programme.

Fully embedded

Functional skills are taught, developed and applied by all teachers across the Diploma programme. Learners use naturally occurring opportunities for functional skills development.

Discrete delivery of functional skills defeats the object of developing learners’ ability to apply functional skills in purposeful contexts. It is therefore likely that, in the early stages of delivering the Diploma in CBE, your approach will be in the range from ‘Partly embedded’ to ‘Mostly embedded’. The aim is to move towards ‘Fully embedded’, while retaining the emphasis on learners being able to transfer their skills to a wide range of contexts in education, work, and life in general.

Crucially, whatever approach is taken in your centre or consortium, you will need to plan how the functional skills will be integrated into CBE Principal Learning. This will mean working in a team with other teachers, especially functional skills teachers, as shown in the diagram opposite, and will require the full support of your senior management or leadership team.

The activities that follow demonstrate how you can provide opportunities for learners to practise and apply functional skills in the Diploma in CBE and to help them reflect on how they can use the skills independently in other contexts. On page 10, there is a planning tool designed to help you plan your delivery of an activity that develops learners’ functional skills in the context of the Diploma.

Activity 1

Suitable for:
**Foundation
Diploma;
all units.**

Level 1
functional
English,
mathematics,
ICT.

Induction activity: Numbers count in Construction and the Built Environment

Aims

This activity will familiarise learners with functional skills; in particular, it will help them to identify what mathematics is needed to tackle a particular problem in a construction context. The ability to make sense of situations and represent them mathematically is an important process skill that underpins functional mathematics. This problem-solving ability is required throughout the Diploma in Construction and the Built Environment and in the workplace.

The intention is not that learners will 'do maths', but that they will learn to represent and analyse situations by asking and discussing questions that encourage them to think about the mathematics involved.

Learners will:

- become aware of and use functional skills in the context of the Diploma in CBE
- understand a situation and choose a mathematical approach to tackle the problem.

The coloured text shows some of the opportunities to develop functional skills and PLTS, and draws attention to the teaching and learning approaches that are being used in this activity.

FE
Functional English

FM
Functional
mathematics

FICT
Functional ICT

PLTS
Personal, learning
and thinking skills

FM L1 Recognise that a situation has aspects that can be represented using mathematics

FE L1 Explore, using effective questions

Differentiation

Cooperative learning

PLTS teamworkers

FICT L1 Use ICT to present ideas and to communicate and exchange information

FE L1 Write a concise report with appropriate level of detail

PLTS creative thinkers

FM L1 Identify and obtain mathematical information

Using e-learning and technology

FICT L1 Select and use ICT to present ideas and to communicate and exchange information

FE L1 Take full part in formal and informal discussions/exchanges

FM L1 Draw simple conclusions and give explanations

PLTS reflective learners

1

- Present learners with an image of a local iconic building. Ask small groups to discuss: ‘What mathematical questions could be asked about the structure of this building?’ (eg What is the area of floor space? What is the volume of the building?). Groups summarise their questions on a flipchart, PowerPoint slide or interactive whiteboard (IWB), and explain and justify their ideas. Use discussion to encourage more complex questions, asking: Who? What? When? Where? How? Why?
- Note language used and complexity of mathematical ideas. Consider how to use this information to differentiate the session, eg how to group learners, provide support for mathematical concepts, language or question construction.

2

- ‘Do it yourself.’ In small groups, learners photograph a building or structure of their choice. You will need to manage the context, as the building might be on or off site. Enable groups to transfer images from camera or phone to a computer (and/or to print copies). Ask groups to produce a draft 100-word description of their building, noting eg age, size, function, condition, construction method, and materials used.

3

- Groups generate questions or scenarios about their building which, in part, need mathematical answers. Focus on open questions, asking: Who? What? When? Where? How? Why? Scenarios may range from the age of the building to its overall floor area. Encourage learners at Higher and Advanced Level to create more complex questions or scenarios.

4

- Groups exchange their images, text and questions with others, who respond by deciding the sort of information needed to answer the questions and how they would get it. Questions and answers can be exchanged on paper or using ICT (eg PowerPoint, IWB, email, Moodle, instant messaging or Google group). It may be possible to extract the building from Google Maps and create a 3D representation. This is an opportunity for you to observe their ICT capabilities. You may need to manage available options.

5

- Groups take turns to lead a plenary discussion, deciding if enough ideas have been generated to answer their questions adequately and inviting improvements where necessary.

6

- To conclude, ask learners to:
 - consider the functional skills and personal, learning and thinking skills they have used and identify how these supported their learning
 - reflect on what they have learned, how they learned it, where they might use the skills and knowledge again, and how they need to improve.

Extension ideas

- Working individually, learners produce a concise, illustrated description of their building that includes answers to the questions and possible mathematical solutions.
- To cover all the process skills in functional mathematics (represent, analyse, interpret), learners could, working individually or in groups, follow up some of their questions and test the answers. This will involve selecting the mathematics to use, finding results and solutions, and interpreting and communicating the results. This part of the activity will need to be differentiated by level of functional skill.

Activity 2

Suitable for:
Higher Diploma;
units 1, 3, 5:
adaptable for
Foundation
or Advanced.

Level 2
functional
English,
mathematics,
ICT.

Understanding job roles and responsibilities in Construction and the Built Environment

Aims

This activity will give learners some insight into the design of a large sports complex and the team responsible for its development. Co-operative learning is most effective when learners take on particular roles and responsibilities in their group and contribute to the overall aims of the group. This activity models effective teamwork in the workplace.

Learners will:

- understand the roles and responsibilities of the members of a design team
- identify career and qualification pathways in Construction and the Built Environment.

The coloured text shows some of the opportunities to develop functional skills and PLTS, and draws attention to the teaching and learning approaches that are being used in this activity.

FE
Functional English

FM
Functional
mathematics

FICT
Functional ICT

PLTS
Personal, learning
and thinking skills

Co-operative learning

PLTS teamworkers

FM L2 Understand routine and non-routine problems...

PLTS independent enquirers

ICT L2 Access, search for, select and use ICT-based information

PLTS creative thinkers

FE L2 ...make significant contributions to discussions, taking a range of roles...

ICT L2 Access, search for, select and use ICT-based information and evaluate its fitness for purpose

FE L2 Compare, select, read and understand texts and use them to gather information...

ICT L2 Present information in ways that are fit for purpose and audience

FE L2 ...make effective presentations

PLTS effective participators

ICT L2 Bring together information to suit content and purpose

Experiential learning

PLTS reflective learners

1

- Ask learners, working in small groups, to list the facilities they would like in a sports complex, and to identify the information that would be needed about each facility to inform a design brief. For example, a pool needs a water supply, waste management facilities, heating and ventilation, and maintenance. This part of the task could include:
 - a survey to find out the most popular facilities
 - research, with each learner (or pair of learners) taking responsibility for finding information about a particular facility on behalf of their group.

2

- Take feedback and prompt further thought on the design and development process by asking questions such as: ‘What do we need to find out next?’; ‘Who do we need to speak to?’; ‘What will be the key stages in the design and construction of the complex?’. Use the activity ‘Wheel of design and development’ (from <http://teachingandlearning.qia.org.uk/tlp/cbe/resource/index.html>) to develop learners’ understanding of the design and construction process. You will need to download and prepare cards in advance.

3

- Next, help learners to identify and consider the professionals involved in the design and development process. Ask each learner (or pair of learners) to research a particular role, such as architect, structural engineer, building services engineer, project manager (on-site), civil engineer, landscape architect, quantity surveyor, planning officer, building control officer. Learners should decide which roles they will research and identify for each:
 - their responsibilities in the design and construction process and what they do
 - the stages in the design and construction process at which they are most important
 - the skills and qualifications required to carry out their role
 - which other professionals they need to talk to.

4

- Learners could present their findings as:
 - posters to form a semi-permanent display, possibly using basic desktop publishing
 - role-plays that describe the responsibilities, skills and qualifications of professionals
 - PowerPoint presentations with embedded voice recordings made on mobile phones.
- At Advanced Level, learners might develop dialogues between professionals and explain why this communication is important.

5

- To conclude, ask learners to:
 - consider the functional skills and personal, learning and thinking skills they have used and identify how these supported their learning
 - reflect on what they have learned, how they learned it, where they might use the skills and knowledge again, and how they need to improve.

Useful internet resources

ConstructionSkills Bconstructive
www.bconstructive.co.uk

Energy & Utility Skills
www.euskills.co.uk

Asset Skills
www.assetskills.org

Connexions
www.connexions-direct.com/jobs4u

Teaching and Learning Programme: The personnel in CBE
<http://teachingandlearning.qia.org.uk/tlp/cbe/resource/index.html>

Extension ideas

- Explore the Teaching and Learning Programme activity: **Roles and responsibilities** <http://teachingandlearning.qia.org.uk/tlp/cbe/resource/index.html> Plan a visit to a sports complex to test out design ideas.
- Continue to develop a design brief for the sports complex, for example by creating outline and scale drawings and researching construction methods and materials.
- At Advanced level, learners might research career paths in major companies, other job roles involved, and the role and range of professional institutions.

Activity 3

Suitable for:
Foundation Diploma; units 1 to 7: adaptable for Higher or Advanced.

Level 1
functional
English, ICT.

Spotlight on employability in Construction and the Built Environment

Aims

This activity will help learners prepare to get the most out of work experience or work-related learning. It helps to build learners' expectations of the workplace and their place in it. In order to help learners to make links in their learning, the activity might be integrated in project work or in projects linked to work experience.

Learners will:

- identify and prioritise the essential attributes of employability
- create personalised learning targets for employability skills during work experience.

The coloured text shows some of the opportunities to develop functional skills and PLTS, and draws attention to the teaching and learning approaches that are being used in this activity.

FE
Functional English

FM
Functional mathematics

FICT
Functional ICT

PLTS
Personal, learning and thinking skills

FE L1 Take full part in formal and informal discussions/ exchanges

PLTS creative thinkers

Differentiation

FE L2 listen to complex information and give a relevant cogent response...

FE L1 Present information/ points of view clearly and in appropriate language

FE L1 make relevant contributions to discussions, responding appropriately to others

Co-operative learning

PLTS using e-learning and technology

ICT L1 present information in ways that are fit for purpose and audience

ICT L1 Access, search for, select and use ICT-based information and evaluate its fitness for purpose

FE L1 Read and understand a range of texts

PLTS reflective learners

Relating theory to practice

PLTS reflective learners

1

- Ask learners, working in small groups, to take the role of employers and brainstorm at least ten important attributes or characteristics that employees should have. Encourage learners to draw on their own and others' experiences.
- At Higher or Advanced levels, learners might group the attributes under the headings 'skills', 'knowledge' and 'attitudes'. In discussion, develop learners' understanding of these concepts and agree definitions, such as:
 - **skill:** the ability to do something
 - **knowledge:** information and skill acquired
 - **attitude:** a way of thinking or feeling.

2

- Combine the lists from each group and, in discussion, agree a shortlist of the 11 or 12 attributes that learners consider the most important, and agree the wording for each. Learners must make a good case for their shortlist. Make a card for each of the shortlisted attributes.

3

- Ask learners, working in pairs, to arrange nine of the attributes as a 'Diamond nine' * with the most important at the top, the least important at the bottom. It cannot be completed unless learners are confident of their own understanding and the rationale for their decisions.

4

- Learners can use ICT to create a self-assessment checklist of these attributes as they prepare for work experience. Using a scale of 1 to 5 for each attribute, ask: 'How confident am I now?'; 'How do I know?'; 'What is the evidence?'

This helps learners to identify the attributes they need to work on during work experience.

5

- Next, learners can develop learning targets in their individual education/learning plan, including clear strategies for reaching them. This might require some research, eg about employment legislation and employees' responsibilities and rights in the workplace. The Teaching and Learning Programme posters: **Employment responsibilities and rights** may be helpful: <http://teachingandlearning.qia.org.uk/teachingandlearning>

6

- On their return from work experience, learners can use their self-assessment checklist as a formative assessment tool and as a measure of increasing confidence and competence.

7

To conclude, ask learners to:

- ● consider the functional skills and personal, learning and thinking skills they have used, and identify how these supported their learning
- ● reflect on what they have learned, how they learned it, where they might use the skills and knowledge again, and how they need to improve.

* A 'Diamond nine' looks like this:



Extension ideas

When preparing for work experience, learners might invite an employer to visit their centre. They could use their employability checklist to:

- check employers' expectations
- think of questions that they want to ask about the workplace and the skills, knowledge and attitudes that employers will expect of them.

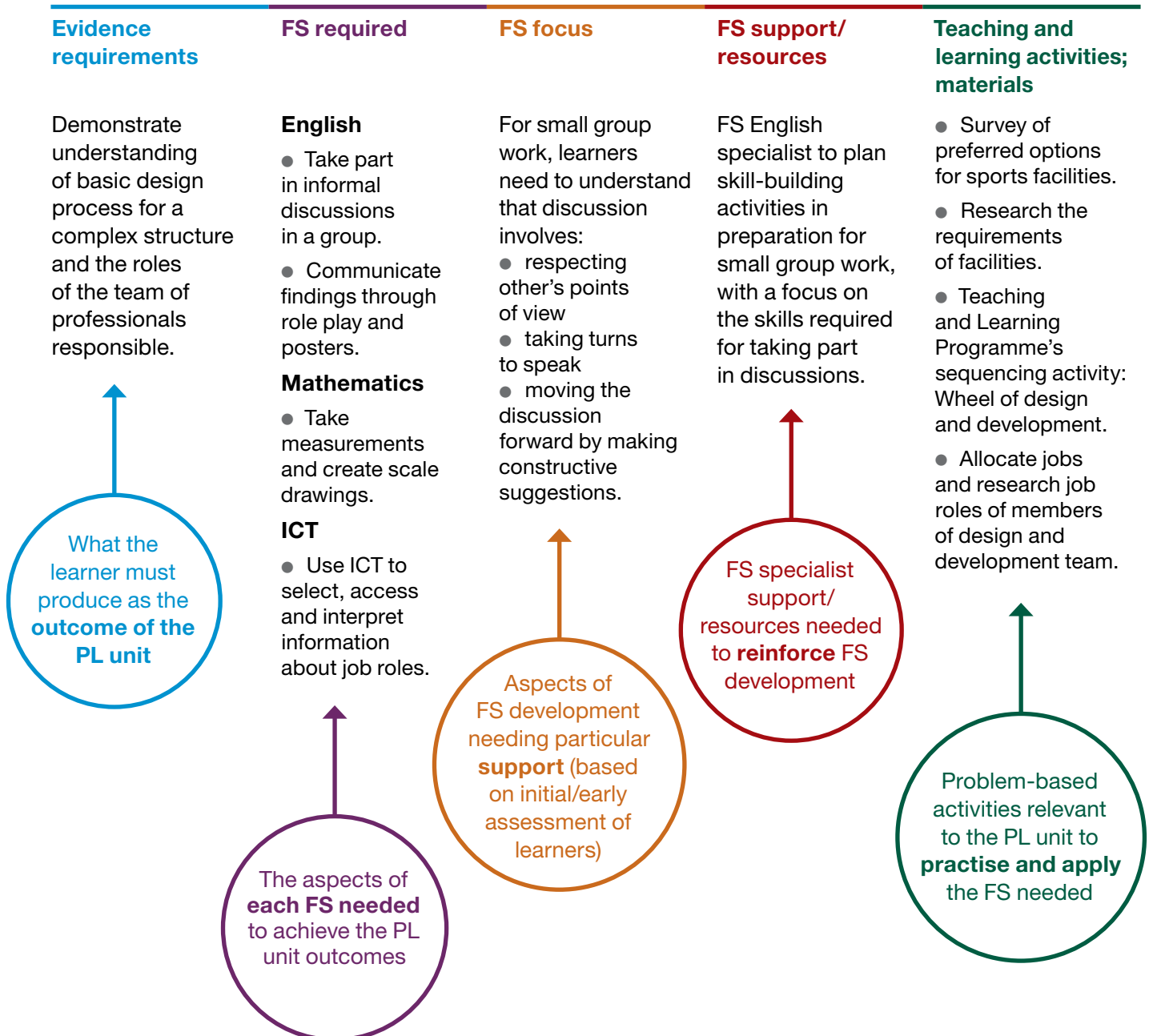
Functional skills in the Diploma in CBE sample planning tool

The planning tool below provides a structure for planning a Diploma activity that integrates functional skills (FS). Note that it starts from the Diploma activity and that the functional skills are naturally required to complete the activity. It is a mistake to distort a Diploma activity simply to ensure that it includes functional skills. As shown in the example completed below, the tool enables you to:

- specify the Diploma activity and evidence requirements
- identify the functional skills needed to carry out the activity
- decide which aspects of functional skills you will focus on
- identify the resources, including support from colleagues, that you will need
- identify the teaching and learning activities and any materials that you will need.

Activity:
Understanding job roles and responsibilities in Construction and the Built Environment

Diploma: Construction and the Built Environment
Level: Higher **PL units:** 1, 3 and 5
Functional skill level: Level 2



Resources to support functional skills

Managing delivery of functional skills (LSIS, 2008)

<http://excellence.qia.org.uk/169938>

Teaching and learning functional mathematics (LSIS, 2008)

<http://excellence.qia.org.uk/169932>

Teaching and learning functional English (LSIS, 2008)

<http://excellence.qia.org.uk/169929>

Teaching and learning functional ICT (LSIS, 2008)

<http://excellence.qia.org.uk/169935>

Good practice guide: Leading from the middle (LSN, 2007)

www.lseducation.org.uk/user/order.aspx?code=072785

Resources to support the Diploma in Construction and the Built Environment

Teaching and Learning Programme resources for Construction and the Built Environment

<http://teachingandlearning.qia.org.uk/tlp/subject-resources.html>

Architecture Week Great Buildings Collection

www.greatbuildings.com

Information for Built Environment students and practitioners

www.info4study.co.uk/index.htm

Links

Diploma Support Programme

www.diploma-support.org

Functional Skills Support Programme

<http://excellence.qia.org.uk/159670>

Helpline: functionalskills@lseducation.org.uk or 0870 872 8081

QCA functional skills

www.qca.org.uk/qca_6062.aspx

FAQs

Does every activity have to cover all three functional skills?

No. Learners should be given as many opportunities to practise their functional skills as possible in realistic CBE contexts. These may include one, two or all three of the functional skills.

Why is the assessment of functional skills not related to the line of learning?

Functional skills are about being able to use English, mathematics and ICT in a range of contexts. It is important that learners see how functional skills are relevant to their everyday lives and other vocational contexts as well as to CBE.

Do learners have to produce a functional skills portfolio?

Assessment of functional skills will be the responsibility of the awarding bodies, within parameters set by QCA. At Levels 1 and 2 assessment will usually be through timed tasks. There will be no portfolio. However, centres/consortia must contact their awarding bodies in all matters relating to assessment.

Can a learner take each functional skill at a different level?

Yes. However, to achieve the Diploma in CBE, the learner must pass all three functional skills at the prescribed level (Level 1 for Foundation; Level 2 for Higher and Advanced).

How can employers support learners in functional skills?

It is very helpful to obtain statements or quotes from local employers that confirm the importance of functional skills. Functional skills should always be highlighted in work experience.

See also www.qca.org.uk/qca_19077.aspx



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Department for Children,
Schools and Families
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The Learning and Skills Improvement Service (LSIS) and the National Strategies (Secondary) are jointly managing the Functional Skills Support Programme (FSSP), on behalf of the Department for Children, Schools and Families. The Programme provides materials, training and advice for staff in centres involved in the functional skills pilot. For further information, please contact the functional skills helpline on functionalskills@lsneducation.org.uk or 0870 872 8081.