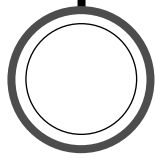


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# Introduction


## A guide to using Skills for Life: Numeracy teacher and learner materials

These teacher's notes and their associated learner materials form an integral whole. Teachers with widely differing levels of experience and expertise will use them in different ways to support their teaching. Learners are expected to use the learner materials but, depending on their individual skill profile, will need different levels of teacher support to access them in the way intended.



## Audio

Audio recordings are available on CD-ROM for the learner materials at all levels. This is to support learners with visual impairment, learners whose literacy skills may otherwise prevent them from accessing the materials, and other learners who may have audio as their preferred learning style.

Much of the content of each unit is recorded, together with 'Remember' and 'Tip' boxes. Activities have audio recordings where the level of language is high or where the text is dense. Only the recorded activities are marked on the learner materials with , although the other sections outlined above are also available on the audio CD-ROM.

## The structure of a unit of learner materials

### *Introduction*

The first page of each unit introduces the scenario/context. There are discussion points/questions, intended to make the topic inclusive, which draw on learners' experiences and relate the context to numeracy.

The curriculum elements are introduced, in user friendly language. Learners are invited to indicate which elements are most important for them and should be a focus for their Individual Learning Plan (ILP).

### *The skills pages*

These pages are prefaced by a description of learning, followed by teaching or modelling points. Activities follow which put into practice the skill(s) taught.


### *Review of learning*

At the end of each section there is a review of learning. This is where learners reflect on whether they are competent in the skills taught and assess their need for more practice. This will be discussed with the teacher either as a group or individually. Learners must be directed to complete this and reminded what the section requires.

## **Differentiation**

There are signposts to sections for *Help*, *Extension* and *Mini-projects*. *Help* provides more practice, at the same level, of the skills taught in a section. *Extension* provides harder questions applied in different contexts. *Mini-projects* are an opportunity for application of learning in a variety of settings, with practice of the skills taught.

The *Help*, *Extension* and *Mini-projects* pages follow the Skills pages.

In numeracy, some topics are inherently more difficult than others at the same level (e.g. subtraction is usually seen as more difficult than addition of the same order). Additionally, some processes involving a larger number of steps than usual at a given level may be more difficult for a significant proportion of learners. The activities in these categories, together with the extension activities, have been marked  in the teacher's notes.

## **Check it**

*Check it* is a section for assessment. It provides tests for a range of the skills covered.

## **How am I doing?**

At the end of unit learners should reflect on all of the elements covered in the unit and indicate their learning gains and areas where they still need to do further work. The teacher will need to lead learners through this.

## **The answers**

The answers, where appropriate, can be found at the end of this unit.

## **Generic approach of teaching embedded in the learner materials**

A model of teaching/learning has been adopted within these units that embodies the following points.

Points 1 to 8 are embedded in the teaching that takes place before learners attempt the exercises/activities. It is emphasised in the teacher's notes and is structured within the learner materials.

1. Description of learning.
2. Illustration/demonstration of principle.
3. Description of method.
4. Examples of method.
5. Part worked example (where appropriate).
6. Check of confidence/knows what they are doing.
7. Think about it, try it.
8. Summary/reinforcement.
9. Check of competence by questions matching principle, method and calculations.
10. Check learners have used the correct method (where appropriate).
11. Check whether or not the learners feel confident and are competent with the skills.

Complete the review of learning as a teacher-led activity to formalise this.

Use the links to *Help/Extension/Mini-projects* for differentiation, reinforcement or further study.

The materials provided are *not* intended to represent all the experiences learners receive.

Depending on learners' individual strengths and weaknesses, it will be necessary to supplement the learning materials with other resources.

## **The structure of the teacher's notes**

There is a set of teacher's notes for each unit. Each set of teacher's notes is structured in a similar way.

## **Coverage/skills**

The elements covered from the Adult Core Curriculum for Numeracy are described both in prose and in terms of the codes and statements used in the document. This should give a clear indication of exactly what is being taught by means of the unit.

## **Resources**

Resources are described under four headings: demonstration, group, pair and individual. This should help inform the teacher how many of each item will be required.

## ***Stimulus questions***

Some stimulus questions are provided. These are designed for use in a discussion about the context/scenario used in the unit. The questions aim to provide the basis of a discussion, which will enable all learners to participate from their own knowledge and experiences. This should also help the teacher to gauge the level of interest in the subject matter.

## ***Introduction to an activity***

The introduction to an activity is the background knowledge and skills teaching that should take place before the activity is attempted. This part of the teacher's notes is quite detailed, and is intended to offer support to less experienced teachers. More experienced numeracy teachers are likely to adapt these ideas to meet their own styles and the needs of their learners.

## ***Activity***

There is a description of how the activity should be completed by learners.

## ***Links***

At the end of each section of work there is a note on 'links'. This signposts teachers to sections on *Help*, *Extension* and *Mini-projects* sections, where appropriate.

## **Suggestions for teaching strategies**

Good direct teaching offers the learner a lively and stimulating experience. The teacher must take the lead in providing clear instruction, using effective questioning techniques and making good use of the learners' responses. High quality teaching is oral, interactive and animated.

- It is useful for both teacher and learner to keep a record of learning on a wall display. The display is made up of any new words, symbols, skills and processes that are recorded during the lesson. The teacher does not have to worry about making this display 'pretty'. Its function is to record the ideas and essence of the work

from day-to-day learning. A4 paper, 'Post-it' notes, paper speech bubbles, pictures and plans can all be included. This will allow learners to refer back to what has happened in earlier lessons and gives the teacher a focus for reviewing and linking work from session to session.

## ***The teacher's role***

The teacher's role involves the following tasks:

- directing and telling:
  - sharing teaching objectives with the class
  - ensuring that the group know what to do
  - drawing attention to points over which they should take particular care
- instructing:
  - giving information
  - structuring information and teaching points into a step-by-step framework for the learner to follow
- demonstrating and modelling:
  - showing the learning point
  - describing the rationale behind the objective
  - modelling – practical demonstrations on 'this is how to do it', using appropriate resources and visual displays
- explaining and illustrating:
  - giving accurate, well-paced explanations
  - referring to previous work or methods
  - basing sessions on real-life situations that are highly relative to the learning group
- questioning and discussing:
  - questioning in ways which match the direction and pace of the lesson and ensuring that all participate
  - listening carefully to responses and responding constructively in order to take learning forward
  - using open and closed questions, skilfully framed, adjusted and targeted to make sure that learners of all abilities are involved and contribute to discussions
  - allowing learners time to think through answers before inviting a response
- consolidating and embedding:
  - maximising opportunities to reinforce and develop what has been taught, through a variety of activities in class and well-focused tasks to do at home

- asking the learner either with a peer or as a group, to reflect on and talk through a process
- inviting groups to expand their ideas and reasoning, or to compare and then refine their methods and ways of recording their work
- encouraging learners to think of different ways of approaching a problem
- asking learners to generalise or give examples that match a general statement
- reflecting and evaluating learners' responses:
  - identifying mistakes, using them as positive teaching points by talking about them and discussing any misconceptions that led to them
  - discussing learners' responses
  - evaluating learners' presentation of their work to the class
  - giving oral feedback on their written work
  - setting targets
- summarising and reminding:
  - reviewing (during and towards the end each session and unit) what has been taught and what learners have learned
- identifying and correcting misunderstandings
- inviting learners to present their work
- picking out key points and ideas
- making links to other work
- giving an insight into the next stage of their learning.

### ***The role of calculators***

The calculator is a powerful and efficient tool when used correctly.

At Entry level, the calculator's main role in numeracy lessons is not as a calculating tool, since learners are still developing the mental calculation skills and written methods that they need in everyday life.

If learners are to use the basic facilities of a calculator constructively and efficiently, they must be taught the technical skills they require:

- understanding the signs and symbols on the calculator keys
- the order in which to use the keys
- how to enter numbers and interpret the display when the numbers represent money, metric measurements, units of time or fractions
- how to select the number of figures appropriate

to the context of the calculation from the display

- how to use facilities such as the memory, brackets, the sign change key, the fraction key, etc.
- the order in which to use the keys for calculations involving more than one step.

Learners must understand when it is, and when it is not, appropriate to use a calculator; their first-line strategy should involve mental calculations whenever possible. Learners should also have sufficient understanding of the calculation in front of them to be able to decide which method to use – mental, pen and paper, or calculator. When they use a calculator they should be able to draw on well established skills of rounding numbers and calculating mentally to gain a sense of the approximate size of the answer, and have strategies to check and repeat the calculation if they are not sure whether it is right.

### ***The value of ICT***

Information and communication technology (ICT) provides teachers with opportunities to cater more effectively for the needs, abilities and learning styles of all learners. Used effectively and appropriately, ICT has the potential to:

- increase motivation and engagement
- improve concentration for all learners including those with special needs
- raise learners' self-esteem because of the 'equality and quality of output'
- support independent learning
- develop skills to help the learner cope effectively in a technological environment and extend skills for employability.

Teachers can develop the learner's understanding by using all available senses and experiences, ICT, and visual materials to increase knowledge of the wider world.

The number of activities and resources is vast.

Teachers need to be able to make judgements about when and why learners should use ICT, as it is not always appropriate. ICT should only be used if it allows teachers or learners to do something they would not otherwise have been able to do, or if it improves teaching or learning.

## Coverage of the elements of the core curriculum

### Number

	E1	E2	E3	L1	L2
<b>N1</b>					
.1	A*	A*	U1	U2	U1
.2	U1	U1	U1	U1	B*
.3	U1	U1	C*	B*	U1
.4	U1	U1	U1	U1	U1
.5	U1	U1	C*	C*	
.6	U1/D*	U1	U1	B*	
.7	U1	U1/D*	U1	U1	
.8		U1	U1	U1	
.9			U1/D*	U1	

	E1	E2	E3	L1	L2
<b>N2</b>					
.1		U2	U3	B*	B*
.2		U2	U3	U1	U3
.3			U4/U2	U2	U1/U6
.4			U2	U2	U3
.5				B*	U2
.6				U2	B*
.7				U2	U1 (U2)
.8				U2	U1 (U2)
.9				U2	U2/U5
.10				U2	U1 (U2) (U3) D*
.11				U2/D*	

### Measure, shape and space

	E1	E2	E3	L1	L2
<b>MSS1</b>					
.1	U2	U2	U2	U2	U2
.2	U3	U2	U2	U3	U3
.3	U4	U3	U3	U3	U4
.4	U4	U3	U1	U4	U5
.5	U4	U4	U4	U2	U4
.6	U4	U4	U4	U3/U4	U4
.7		U4	U4	U3 (time) U4	U4
.8		U4	U4	U4	U4
.9		U4	U4	U4	U4
.10				U4	U4
<b>MSS2</b>					
.1	U4	U4	U1	U4	U4
.2	U4	U4		U4	U4
.3		E*			



## Handling data

	E1	E2	E3	L1	L2
<b>HD1</b>					
.1	U5	U3/U5	U5	U5	U5
.2	U5	U5	U5	U5	U5
.3	U5	U5	U5	U5	U5
.4		U5	U5	U5	U5
.5		U3/U5			
<b>HD2</b>					
.1				U6	U6
.2				U6	

## Core curriculum skills treated differently

	A*	B*	C*	D*	E*
E1	N1/E1.1			N1/E1.6	
E2	N1/E2.1			N1/E2.7	MSS2/E2.3
E3			N1/E3.3 N1/E3.5	N1/E3.9	
L1		N1/L1.3 N1/L1.6 N2/L1.1	N1/L1.5	N2/L1.11	
L2		N1/L2.2 N2/L2.1 N2/L2.6		N2/L2.10	

A\* These skills are fundamental to the level and are prerequisites for embarking on the level.

B\* These are elements which encompass a wide spread of basic skills linked to the four rules of number. There are many different ways of completing these calculations and learners may already have their own. It is essential that no SINGLE method is advocated to learners but discussion and refinement of their methods is central to further learning. There is a plethora of practice materials already available, so further extensive provision of the same is unnecessary, although questions using these skills may appear. This will be flagged to ensure the teacher is aware of this in advance and can provide these skills outside of these materials.

C\* These skills are 'recall' skills. They require practice not teaching. Where these skills can be practised in the materials it will be flagged.

D\* These skills involve using and interpreting mathematical signs and symbols or using a calculator effectively and efficiently. These skills should permeate across the units where they apply rather than being taught artificially as a whole.

E\* These skills need a practical setting rather than being paper-based.