# Chapter 11 Activities

Web activity WA11.1

Preparing for the lesson

Have a look at the list below. How useful do you think this would be as a framework for thinking about how to prepare for mathematics lessons for mixed-attainment classes?

* Create separate worksheets for word problems and number problems.
* Highlight or circle key words and numbers on word problems.
* Allow extra time on tests.
* Give step-by-step instructions and have the student repeat them.
* Provide charts of math facts or multiplication tables.
* Use visual aids or manipulatives when solving problems.
* Let the student use a calculator when computation is not what is being assessed
* Give a rubric that describes the elements of an assignment.
* Use an extra piece of paper to cover up most of what is on a math sheet or test to make it easier to focus on one problem at a time.
* Give more space to write problems and solutions.
* Break down worksheets into sections.

Web activity WA11.2

Negative numbers

Counting backwards can be quite challenging for some learners (Chinn, 2012), so understanding and dealing with the concept of negative numbers can be even more so.

Below are suggestions about activities that may support learners who experience difficulties in this area. You should try them out.

Talking to students about going up and down in a lift can help:

‘If you get into a lift two floors below ground level, at floor -2, how many floors will you have to go up to get to ground level at floor 0?’ Or

‘If you get into a lift two floors below ground level (floor -2) and want to go to the floor two levels above ground level (floor 2) how many floors will you go up?’

These problems can be represented on a vertical line:

Temperatures can be represented in the same way above and below freezing point.

When the learners fully understand the concept of a negative number, the number line can be presented in the conventional way as a horizontal line.

Web activity WA11.3

Activities addressing difficulties in information-processing

Below you will see activities designed to address the following difficulties:

* left-right orientation difficulties;
* sequencing problems;
* memory weakness;
* poor spatial awareness and skills of perception;
* slow speed in information processing.

You might wish to try them out.

**Orientation**

In mathematics lessons, learners are often expected to work in columns down the page, and from right to left. Differentiating between words indicating direction generally may be problematic: up and down, in and out, and so on. It is important to ensure that learners have knowledge of left and right at automatic level. It may be a question of teaching one side only to start with, for example the right-hand side for a right-handed learner, in a multi-sensory way, using verbal cues, mnemonics, motor movement, and so on. Once knowledge of one side is automatic, then learning the other side is more straightforward. It is important not to rush this.

There may be little consistency in writing letters and figures the correct way round. Writing letters and numbers the right way round might be encouraged using multi-sensory strategies, for example by tracing over large letters or numerals or drawing them in sand, with clearly marked beginnings and ends, simultaneously saying the name of the letter or number aloud.

**Sequencing problems**

Sequencing may prove problematic, for example days of the week, months of the year, and logical progression in setting out work clearly. It often helps to shorten the length of a sequence and teach learners to repeat it out loud, and then practise gradually lengthening it.

**Poor spatial awareness**

Poor spatial awareness may affect the construction and/or interpretation of diagrams and charts, and the copying of data from the board or from a text. Not all dyscalculic students have poor visual perception skills, but a considerable number do. Learners might, for example, draw bar charts of any height or width seemingly at random or might be unable to understand what is meant by a term such as ‘right angle’ because they cannot easily recognise the shape at sight or when drawn in perspective. Some students find it difficult to interpret maps, outlines, block graphs, the representation of three-dimensional shapes on two dimensional paper, and so on. Sometimes it helps to use squared or graph paper, or transparent coloured overlays to reduce the overall glare of white paper and black ink. Quite often it helps to enable access to building bricks and blocks of all sizes for much longer than for other learners.

**Slow speed in information processing**

Many dyscalculic learners take a long time to process information thoroughly. Lack of ability to recall information instantly and difficulty in learning number bonds and tables by rote may create problems of cognitive overload and put them at a considerable disadvantage. Pressure to complete work to time may cause undue stress, anxiety, and further mistakes in the effort to finish. It is very important that dyscalculic learners are enabled to complete what they start, take pride in their achievements and not become discouraged.

Web activity WA11.4

Considering home–school numeracy partnerships

Think about a young person with difficulties in numeracy acquisition whom you know well. Note down:

Which aspect(s) of his/her numeracy might you address through a home–school partnership?

Which might you prioritise?

How might you introduce the idea of supporting him/her at home to his/her parents or carers?

What kinds of activities would you ask the family to carry out?

What support do you think the family might need? How, in practice, might you, or a trusted peer, provide this?

How will you monitor the learner’s progress?

What might your success criteria be? (What would success ‘look like’?)

How might you celebrate the learner’s progress?

What other issues might you need to take into account to make this initiative a success?