STRATEGIES TO SUPPORT BASIC NUMERACY DIFFICULTIES (INC. DYSCALCULIA-TYPE TENDENCIES)

1. Link maths to relevant and practical contexts – shopping, eating out etc.

2. Use a 'scaffolding' approach – avoid rushing the student through a task. Break it down into steps. Provide time for recap & consolidation at each stage and revisit the basic skills often.

3. Allow students as much thinking time as they need to complete a task or calculation, including oral / mental work. Avoid putting them on the spot by asking a question in front on an audience of peers.

4. Minimise the amount of information that students have to hold in their mind at any one time. For example, if they are performing long division problems, they should write down every step including carrying numbers. When solving word problems, they should always have a scrap piece of paper handy and write down the steps in their calculations. This will help prevent them from losing their place and forgetting what they are doing.

5. Use a variety of visual and kinaesthetic resources – objects, images and models. Allow the students to manipulate the resources.

6. Use a variety of methods and try to adapt teaching to the student's natural way of working out rather than simply imposing the method you have learnt / use frequently etc.

7. Provide a list of maths symbols – as you would with punctuation – to remind students.

8. Provide number squares and prepared formats for recording calculations / answers – with shaded alternate rows.

9. Provide help/cue cards for different operations – colour code for categories i.e. blue for subtraction, red for addition. Vary the vocabulary, for example, colour code blue 'minus', take away' etc.

10. Use small numbers when introducing new concepts. Gradually work up to higher numbers via short, small step tasks.

11. Take time to explain /recap on maths vocabulary. Check for understanding.

12. Play games with students to teach the points you want the students to learn.

13. Ask lots of questions, rephrasing your sentences and varying your vocabulary.

14. Encourage students to talk about what they are doing and why.

15. Establish a routine of 'estimate – calculate – check'.

GENERAL TEACHING APPROACHES

Visual approaches, such as encouraging the student to draw diagrams, pictures, or use a physical object, can help the student visualise numbers more easily. The key is to teach the student how to conceptualize a real-life situation and associate it to the numeral problem, in turn, making it mentally "real" to them. The student can pick a favourite theme or idea, associate numbers to these concepts and apply it to a drawing. Or a student can arrange objects that represent the numbers and create calculations with them; the abacus was once used for this same strategy.

Organisation is a key concept when developing classroom strategies for students with persistent numeracy difficulties. For instance, horizontal mathematical calculations may be difficult for a student, because the sequence of numbers are calculated vertically from top to bottom, whereas reading sentences are done horizontally, from left to right. It may help a student if math problems were written in a linear sequence. Another strategy is for the students to perform mathematical problems on graph paper, in order to keep the numbers in the correct sequences. Confusion can create a mental shut down in a student who has persistent difficulties with Maths, and keeping an organised and clutter free math worksheet or homework paper, can help the student avoid these pitfalls. Often when problems are written too closely together, the student may become confused and frustrated.

Mnemonics are strategies normally used as a memory aide in spelling, like the mnemonic, "i before e, except after c; however, a student can also use mnemonics to memorize numbers and number sequences. By relating numbers to words, for example, the student can associate the number 1 with the letters t or d, because they each are created by using one down stroke, the student can create a number-word picture. With letter number association, students can create stories, tunes, or sayings to memorize number tables. An example would be: 2+2=4, Nancy and Nelly like Rod. The number 2 is associated with the letter n, because it is created using two strokes, and the number 4 represents the letter r, because the word "four" ends in an r.