Further Reading

EAST Numeracy Support pack

The Dyscalculia Toolkit : Ronit Bird

The Trouble with Maths : Steve Chinn

More Trouble with Maths : Steve Chinn

The Dyscalculia Solution : Jane Emerson and Patricia Babtie

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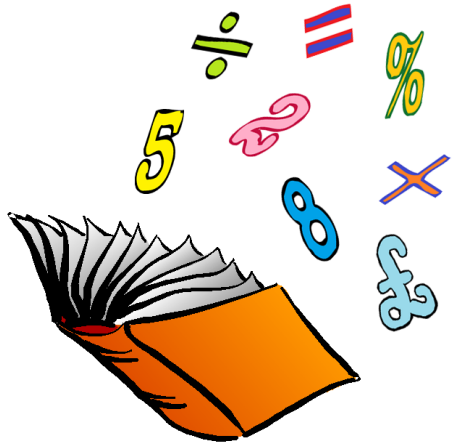
Comhairle Siorrachd Àir an Ear

Dyscalculia



Tips for Supporting Learners

Updated September 2024

Start from what they know

- Planning of learning, teaching and assessment must begin from where the learner is at.
- Therefore, make use of effective assessment to identify and work on gaps in learning.
- Take things back if required.
- Before a new concept is introduced check prior knowledge that may be required.

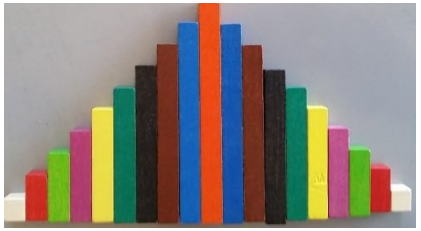
Be structured and teach in small, progressive steps

- Start with the easiest question.
- If the learner is confused stop the activity and go back a stage.
- Break down problems using structured questions.

Develop conceptual understanding before written algorithms

- The key to progression is building firm foundations rooted in understanding as opposed to memorising processes.
- Multiple representations of concepts, such as these for addition, can help learners develop a deeper understanding.

Cuisenaire rods



Board games

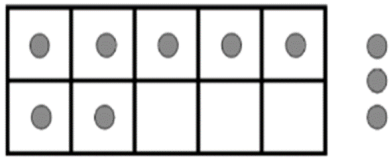
Maths games are much more than a change from pencil and paper work . They are designed to be fun. When playing games, learners may be less likely to worry about failing or making mistakes. This can reduce maths anxiety and can help pupils develop a more positive attitude toward maths.

Websites and apps

- http://www.ronitbird.com/
- https://mathsbot.com/
- https://www.mathplayground.com/thinking_blocks_modeling_tool/index.html
- https://www.cdmasterworks.co.uk/e-s-o-s/
- https://toytheater.com/category/teacher-tools/virtual-manipulatives/
- https://stevewyborney.com/2017/02/splat/
- http://www.ictgames.com/brilliant_beadstring_with_colour.html
- https://www.dyscalculianetwork.com/

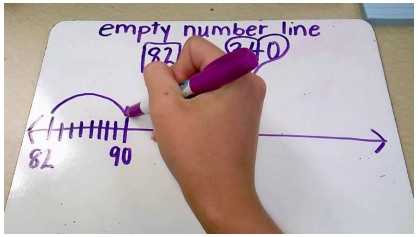
Possible resources

Five and ten frames



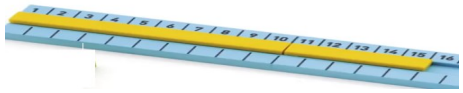
Rekenreks

Empty Number Line



Numicon

Number tracks



Concrete, Pictorial, Abstract Approach

- **At all stages** in the school, including secondary learners should be introduced to new concepts using or visual representations only moving on to abstract notation and purely written methods when the understanding is embedded.
- This will support learners develop conceptual understanding and prevent them from memorising procedures.

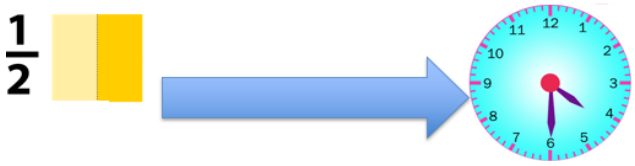
Link new concepts to familiar contexts

- Practical activities e.g. cooking, going to the shop
- Present problems in real life situations
- Outdoor learning

Make connections across concepts

The key to developing mathematical thinking and conceptual understanding is to be explicit as to how elements of numeracy and maths are linked together e.g.:

- Working with arrays for multiplication leads to work on division, area work, algebra, patterns.
- When working with fractions, visual representations of halves and quarters lead to representations of half past and quarter past on a clock, symmetry, angles.



Encourage lots of discussions

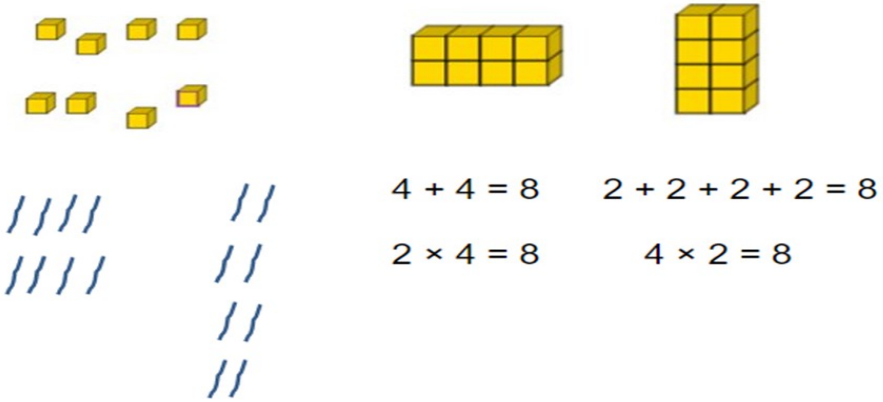
Talking about numeracy and mathematics with their peers can be a positive experience for learners.

This helps:

- Clarify thinking by talking through solutions out loud. Often learners can identify their own mistakes by doing this
- Develop mathematical behaviours of justifying their ideas and forming a reasoned argument.
- Develop the idea that sometimes there is more than one right answer.

Support and encourage learners to record their thinking in a variety of ways

- Allow learners to show their working in what ever way they find helps them. e.g. learners can show their working with concrete materials, mark making, formal notation, or a combination of these.



Lots of repetition and overlearning

- Promote the deliberate and repetitive practice of number bonds, times tables, visual representations and correct use of mathematical languages.
- This helps learners become automatic and free up the brain for more complex questions.

Explicitly teach key vocabulary

- Use Word Aware approaches when introducing new mathematical vocabulary and concepts
- Ensure that you use language that the learner understands.
- Make links with words which mean the same e.g. plus, add, and etc.

Make mistakes a positive experience add more

- Encourage a second try when something isn't quite right.
- Use mistakes as teaching opportunities.

Praise all efforts

- This really helps improve self confidence and reduce anxiety.