



The Numeracy Learning Project

A structured Numeracy learning and behaviour intervention program

Overview of The Numeracy Learning Project (TNLP)

Using our multidisciplinary approach to therapy, TNLP will assist children in primary school to overcome challenges to their understanding, reasoning, fluency and expressing of mathematical ideas. This intervention supports executive functioning and motor planning skills by using a specifically designed numeracy program using explicit teaching and collaborative learning to develop number sense in accordance with the Australian Curriculum.

Number sense develops over time through opportunities to explore and play with numbers. Visualising numbers in different contexts, spotting relationships between numbers and predicting the patterns all contribute to good number sense. Number sense is important for learners because it promotes confidence, encourages flexible thinking and allows children to create a strong conceptual understanding of numbers.

During the 60 minute workshops, children will be provided with a range of learning sequences which will include exploring concepts through the use of concrete materials, games and interactive activities

Children will be given the opportunity to develop and consolidate mathematical ideas such as:

- Recognising, reading and interpreting numbers
- Identifying the relationship between single items and groups
- Demonstrating an understanding of quantities and making number comparisons
- Illustrating an understanding of the numerical significance of place value
- Displaying mathematical symbols and its related vocabulary
- Develop strategies to make predictions about and evaluate their answers
- Visualise and talk comfortably about numbers

All workshops will cover the overarching frameworks whilst allowing for enough flexibility to accommodate the needs of individuals and their learning progression. The workshops will run accordingly: Prep to Year 1, Year 2 to 4 and Year 5 to 7.

What is Executive Functioning and how does this affect learning?

Executive Function is described as 'the CEO of the brain', where mental skills consolidate to help us get things done. When children struggle with these executive functioning skills, it has a direct impact on their learning. Many children have issues with processing information and executive functioning.

The three main areas of executive function are:

- Working memory
- Cognitive flexibility (also called flexible thinking)
- Inhibitory control (which includes self-control)

Executive function is responsible for a number of skills, including:

- Paying attention
- Organising, planning and prioritising
- Starting tasks and staying focused on them to completion
- Understanding different points of view
- Regulating emotions
- Self-monitoring (keeping track of what you're doing)

Executive function develops over time so children may struggle in different ways and at different stages. In younger children, preschool to Year 2, executive function difficulties may be present as:

- frustration
- an inability to ask for help
- difficulty following directions
- frequent tantrums over minor things
- insistence on doing things in a particular way
- inattentiveness

For older children, executive functioning challenges may present as:

- difficulty to start a task and/ once started, a difficulty to complete the task
- easily distracted
- mixing up school assignments
- disorganisation such as bringing home the wrong books or resources
- messy desk and/or schoolbag
- An inability to focus on the main idea of a discussion.

Will The Numeracy Learning Project support my child's executive functioning challenges?

The program recognises and acknowledges the impact that an executive functioning deficit has on a student's ability to learn. Many of the strategies in TNLP assist children to improve their executive functioning ability so they can participate in learning at the same level as their peers.

TNLP assists with your child's attention and concentration through a structured approach, which includes:

- tailored lessons, incorporating many opportunities for students to experience immediate success
- clear and explicit weekly routines and procedures the use of specific strategies to ensure students learn to refocus their attention The gradual introduction of new concepts, ensuring that the working memory is not overloaded

How will this be achieved and measured?

Our learning intervention specialists are practicing teachers who use evidenced based pedagogy including, explicit teaching, collaborative learning, gradual exposure, repetition, modelling. In addition, their combined experiences working with students with learning difficulties and disabilities, will ensure that they can make appropriate adjustments to support learning as required.

Sessions are also supported and attended by a psychologist to assist with executive functioning, anxiety and behavioural support as required. The lessons will be in a small group setting, running for 60 minutes and will comprise of fast-paced, sequential, integrated learning activities and games.

The Use of Non-Cognitive Factors to Support Learning

As well as developing the skills required for academic study, we aim to integrate behaviours, skills and attitudes that are essential for learning success. This program encompasses the following:

1. Academic behaviours	2. Academic Perseverance	3. Academic Mindset	4. Learning Strategies	5. Social Skills
Attending every lesson	Grit	Understanding that I belong to an academic community	Study Skills	Developing interpersonal skills
Participating	Tenacity	My ability and competence grow with my effort	Metacognitive	Empathy
Completing set homework	Delayed gratification	I can succeed at this	Strategies	Cooperation
Being organised	Self-discipline	This work has value for me	Self-Regulated	Assertion
	Self-control		Learning	Responsibility
			Goal-Setting	

Table 1. Adapted from: Teaching adolescents to become learners: The role of non-cognitive factors in shaping school performance: A critical Literature Review (2012, Farrington et. al) Farrington, C.A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T.S., Johnson, D.W., & Beechum, N.O. (2012). Teaching adolescents to become learners. The role of noncognitive factors in shaping school performance: A critical literature review. Chicago: University of Chicago Consortium on Chicago School Research.