



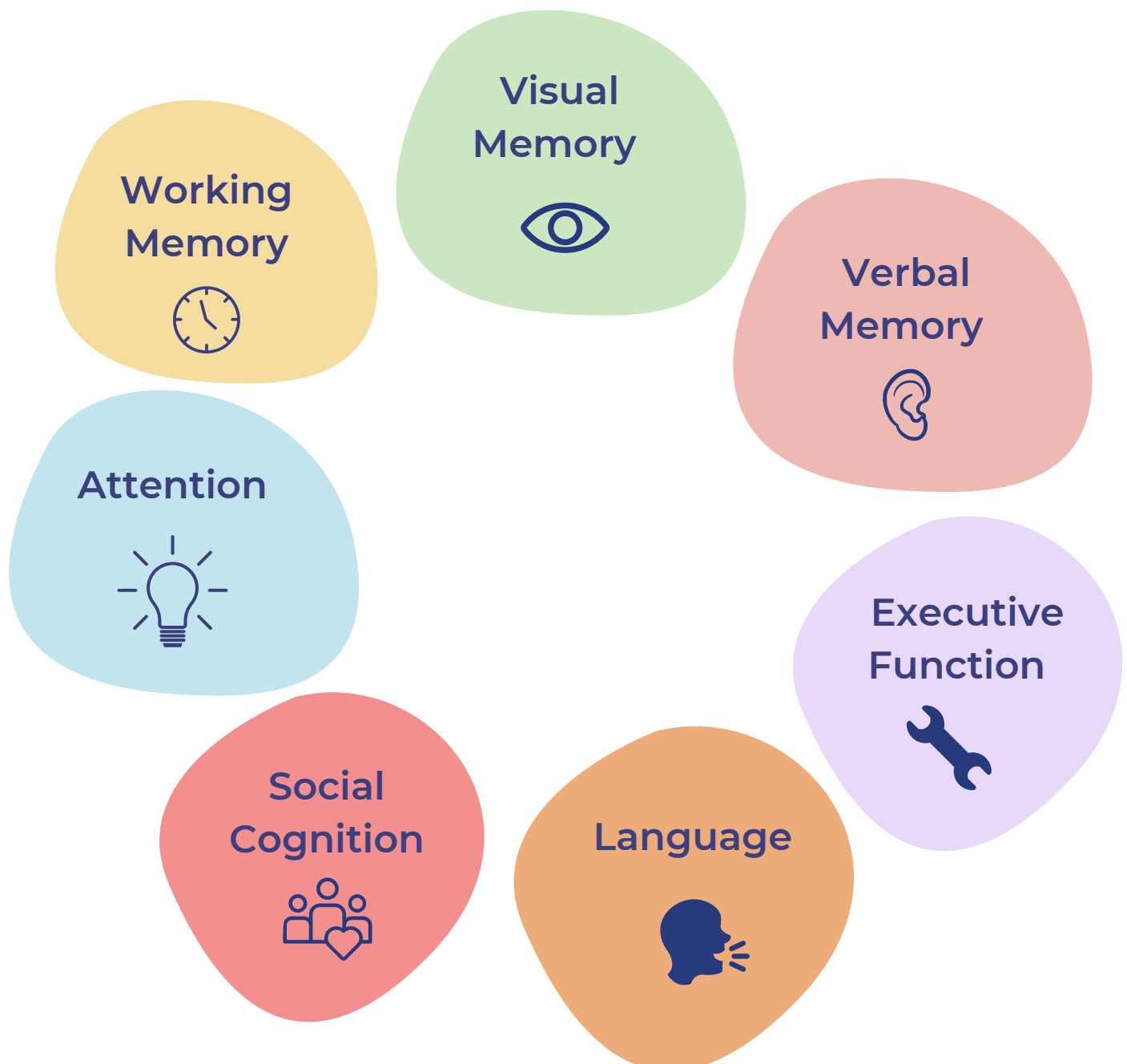
# **Cognitive Skills Toolkit**

# Understanding Cognition

Cognition refers to the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses.

Cognition is made up of different cognitive functions, or "cognitive domains". Each domain relates to a specific cognitive function and can be associated with different areas of the brain. The domains also work together and there is a lot of overlap between the brain regions associated with the different domains.

## Cognitive Domains



# Attention



## What is it?

Attention is the ability to actively analyse certain information in the environment while shutting out other information. As attention is limited in both capacity and duration, it is critical to have strategies for efficiently managing the attentional resources we have to make sense of the world.

Tips	Explanation and Example
Use checklists	Write on the agenda what you need to do for the day, your meetings, etc., and highlight what you have completed.
Reduce multitasking	Focus on one thing at a time, try to avoid switching between different contexts. Do not reply to emails while eating, allocate separate time for both.
Eliminate distractions	Identify and minimise distractions in your environment. Turn off your phone internet or notifications while you are working/studying.
Quality sleep	Aim for at least 7 hours a night. For better quality sleep, stay away from digital screens (read a book or meditate instead) 30 minutes before sleep.
Mindfulness training	Practice the ability to be fully present and aware of where you are and what you're doing. Daily meditation can increase mindfulness and sharpen attention.
Turn off music	Lyrics or rhythm can be distracting. If you want to listen to music while working/studying, choose music without lyrics or turn it off completely.

# Attention Resources



Resource	Focus	Evidence	Cost
<a href="#"><u>Lumosity</u></a>	Brain training exercises. Training can be tailored and available daily.	Partially supported by research.	\$15 per month.
<a href="#"><u>Insight Timer</u></a>	Meditation, sleep and mindfulness.	Partially supported by professionals.	Free.
<a href="#"><u>Headspace</u></a>	Meditation and mindfulness.	Supported by research.	\$20 per month.
<a href="#"><u>Online activities</u></a>	Try online games focused on attention.	Lacking evidence.	Free.
<a href="#"><u>Maze Challenge</u></a>	Online maze challenges that target attentional abilities.	Lacking evidence.	Free.

# Working Memory



## What is it?

Working memory is a cognitive system with a limited capacity for temporarily storing information. Working memory is critical for reasoning, decision-making, and behaviour guiding.

Tips	Explanation and Example
Develop routines	Try to do some things in the same order or put them in the same place. Put your keys in the same place everyday.
Visualisation skills	Create mental images of the information you need to remember. Visualise a book you read; try to imagine every detail and create a picture of the information.
Brain training	Brain training games or applications can help challenge your working memory. Some examples include jigsaw puzzles, sudoku, and apps like Lumosity.
Study breaks	Give yourself short breaks between tasks and don't study/work too long without a break. Try Pomodoro Technique: 25 minutes work and 5 minutes break.
Break up information	Break big chains of information into small pieces. If you need to read a whole article or chapter, break it into subheadings.
Exercise daily	Exercise may help improve working memory. Try to exercise 30-45 minutes at least 3 days of the week: walk, ride a bicycle, go to the gym, play social sport.

# Verbal Memory

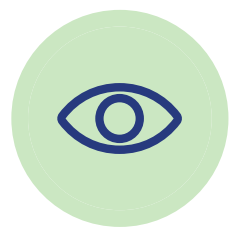


## What is it?

Verbal memory refers to memory for verbally presented information. This includes the ability to recall sounds, words and language. Verbal memory is an important component of language comprehension.

Tips	Explanation and Example
Mnemonic devices	A mnemonic is a learning technique to help retain information. ' <i>Roy G. Biv</i> ' for the colours of the rainbow: red, orange, yellow, green, blue, indigo, violet.
Keep a memory book	Write down old memories (first-day of school, vacations, etc.) using as many details as possible. You can also add photos related to that memory.
Verbal summaries	Tell or pretend to tell someone something you read (book, story, magazine). Try to use as many details as possible.
Write stories	Writing a short story will improve fluency in writing and aid verbal memory. Try to use as many different and varied words as possible.
Name objects	Choose a room and list the objects/items aloud. Use as much detail as possible. For example, try saying "a thick blue ballpoint pen" instead of "pen".
Crossword Puzzles	Solving cross-word puzzles involves an active recall process related to verbal memory. Try to do a daily crossword.

# Visual Memory



## What is it?

Visual memory refers to memory of visual information. This includes the ability to recall information that has been seen or read.

Tips	Explanation and Example
Memory Palace	Choose a location (e.g., house) and identify the items in each room. Choose your route (e.g., front door to kitchen) and add information to each spot along the route. To remember the items, walk through your memory palace.
Remembering faces	If you struggle to remember names, you can make a visual connection and a special characteristic. For example, Susan is the woman with the crazy shoes.
Remembering names	Brain training games or applications can help challenge your visual memory. Some examples include jigsaw puzzles, sudoku, and apps like Lumosity.
Visualise out loud	If there is an image that you need to remember (map, photo, etc.), say what you see aloud. If you are looking at a map you could say, "if I turn left, there is a coffee shop".
Teach visual information	Teaching information or skills often requires us to use our visual memory. For example, try to teach a child how to tie their shoes or how to write a new word.
Draw a story	Choose a story and describe what happened by drawing a picture of the story.

# Memory Resources

	Resource	Focus	Evidence	Cost
	<a href="#"><u>Memory_games</u></a>	Memory games that challenge your working memory.	Lacking evidence.	Free.
	<a href="#"><u>Mentem Brain Training</u></a>	Online memory training exercises.	Partially supported by research.	\$14 per month.
	<a href="#"><u>Sudoku</u></a>	Online sudoku games.	Lacking evidence.	Free.
	<a href="#"><u>Chess</u></a>	Online chess games.	Lacking evidence.	Free.
	<a href="#"><u>Crossword</u></a>	Online crossword exercises.	Lacking evidence.	Free
	<a href="#"><u>Memory_Palace</u></a>	An app for personal memory palaces.	Lacking evidence.	Free
	<a href="#"><u>Udemy</u></a>	Online course for visual memory skills.	Lacking evidence.	\$22+



# Language



## What is it?

Language refers to the systems of communication used to interact with others and express thoughts and feelings. This includes word generativity, language production and comprehension.

### Tips

### Explanation and Example

Summarise information	Read something (newspaper, book etc.) out loud and then summarise the main points into a few words. Start with short pieces of information, like a single paragraph.
Categories game	Write different categories on paper (vegetables, fruits, cars, animals) and choose one. Then count as many words as you can find in that category.
Random speech exercise	Pick a random topic and give a speech for 2-3 minutes on the topic. Try to make as long sentences as possible and use different words.
Related word pairs	Ask someone to write down random nouns or verbs. Then write at least one word related to these words. For example, Bed... sleep, night, pillow, etc.
Matching game	Find a magazine or picture book. Get someone to write sentences based on the pictures in the storybook. Then, match the sentences with the pictures.
Anagrams	Anagrams are words that you make by rearranging the letters of another word e.g., Night = Thing. Look at a word list and see if you can create any anagrams.
Name objects	Choose a room and say the names of the object using as much detail as possible. For example, describe "a thick blue ballpoint pen" instead of "pen".

# Language Resources



Resource	Focus	Evidence	Cost
<a href="#"><u>Language 4-in-1 Therapy</u></a>	An application that helps improve language skills.	Lacking evidence.	Paid version ~\$120.
<a href="#"><u>Reading therapy</u></a>	An application that helps improve reading comprehension.	Evidence based.	Paid version ~\$40.
<a href="#"><u>Quia Speech and Language Therapy</u></a>	A database of online language exercises.	Lacking evidence.	Free.
<a href="#"><u>Word scramble</u></a>	An online game that challenges you to find words	Lacking evidence.	Free.
<a href="#"><u>Wordle</u></a>	A daily word puzzle	Lacking evidence.	Free.
Board games	Try board games like scrabble to help build your vocabulary.	Lacking evidence.	Free.

# Executive Function



## What is it?

Executive function refers to high-level thinking and decision-making skills. This includes planning, mental flexibility, organisation, task completion and problem solving.

### Tips

### Explanation and Example

Make lists	Writing daily to-do lists can help you achieve all your tasks. Breaking the list into "urgent", "important" and "non-urgent" tasks can help you prioritise your time.
Set reminders	Setting reminders for tasks and appointments can be a good way to keep track. Try putting reminders for all your work tasks in your phone at the start of the week.
Create clear goals	Creating clear goals at the start of your week can help you plan your time and make sure you know what tasks you want to complete.
Use a calendar	Create a schedule for your week, month, and year that includes all important appointments. Check-in with your calendar daily and update this as things change.
Keep tasks simple	Make sure you set realistic goals and keep your tasks simple. Don't try to multi-task and aim to do one job at a time.
Take notes	Using sticky notes or online note-taking systems to write everything down can help you remember important information if you forget something.
Use Mind Maps	Creating visual mind-maps of a task or project you are working on can help you solve the problem as you are forced to think about the information in a new way.

# Executive Function Resources



Resource	Focus	Evidence	Cost
<a href="#"><u>Calendly</u></a>	Application for scheduling tasks and appointments.	Lacking evidence.	Free.
Rubix cube	A cube game that challenges your problem solving skills.	Lacking evidence.	~ \$20
<a href="#"><u>Todoist</u></a>	Application for making lists and setting reminders.	Lacking evidence.	Free/paid versions.
Games: chess, JENGA, sudoku	These games challenge your problem solving and planning skills.	Lacking evidence.	Free.

# Social Cognition



## What is it?

Social cognition refers to people's ability to process and interpret social signals. These signals can include emotional expressions, social cues and mental states.

### Tips

### Explanation and Example

Imagery exercises	Recall a peaceful memory and write down key details. Who were you with? What were you doing? What kind of emotions can you recall?
Emotion picture matching	Print pictures of people experiencing different emotions and match each picture with the right emotion (e.g., "sad girl"). Describe why the person is feeling that way.
Story questions	Read stories and ask yourself questions about the characters. Why do they act the way they do? How are they feeling? Why are they feeling that way?
Community activities	Search for group activities in your area and attend ones that you find interesting (e.g., cooking class). It will help you to meet new people and develop new social skills.
Call a friend	Call your friends, family or colleagues and talk about different topics. What did you do during the week? What is on the news? What did they do on holiday?
Social sport	Try to engage in some form of social sport. This could be walking with a friend, joining your community sports club, or meeting friends in the park to play sport.
<u>Online Interventions</u>	Try one of the many listed resources, including story books and social skills building tools to improve social cognition.

# Social Cognition Resources



Resource	Focus	Evidence	Cost
<a href="#"><u>Positive Education</u></a>	Online resources for social skills training.	Lacking evidence.	Free.
<a href="#"><u>Social Self</u></a>	Online tips to improve social skills.	Lacking evidence.	Free.
<a href="#"><u>Carers Ahead</u></a>	Program for carers and families to help people with brain injury.	Evolving evidence.	Free.
<a href="#"><u>Between the Lines Advanced</u></a>	App with social cognition tasks and games.	Lacking evidence.	Free and paid versions.
<a href="#"><u>Social Skills Program</u></a>	Psychologist run program that helps social training and skills.	Evidence based.	Enquire for cost.
<a href="#"><u>NeuronUp</u></a>	Practitioner led program that offers social cognition tasks.	Some evidence.	Discuss with practitioner.
<a href="#"><u>Brain HQ</u></a>	Online program that offers 'People Skills' course.	Some evidence.	\$17 per month



# Acknowledgements

This toolkit was designed and co-developed by Amira Skeggs and Fiona Kumfor in collaboration with researchers and clinicians at the Sydney Neuropsychology Clinic.

We also received valuable input from Ezgi Gizem Gürbüz on the acquisition of cognitive resources. We would also like to thank the researchers, neuropsychologists and clinical psychologists at the Brain and Mind Centre and the University of Sydney for their help in reviewing the toolkit.

## Contact us:

Associate Professor Fiona Kumfor  
School of Psychology and Brain & Mind Centre  
The University of Sydney  
Email: [fiona.kumfor@sydney.edu.au](mailto:fiona.kumfor@sydney.edu.au)  
Sydney Neuropsychology Clinic website:  
<https://www.sydney.edu.au/brain-mind/our-clinics/neuropsychology-clinic.html>

## References:

- <https://www.cambridgecognition.com/blog/entry/what-is-cognition>
- <https://memory.ucsf.edu/symptoms/executive-functions>
- <https://memory.ucsf.edu/symptoms/memory>
- Bolinger, D. (1968). Aspects of language.
- Frith, C. D. (2008). Social cognition. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 363(1499), 2033-2039. <https://doi.org/10.1098/rstb.2008.0005>
- Knudsen, E. I. (2007). Fundamental components of attention. *Annual review of neuroscience*, 30(1), 57-78.
- Penney, C. G. (1989). Modality effects and the structure of short-term verbal memory. *Memory & cognition*, 17(4), 398-422.
- Ribeiro, F., de Mendonça, A., & Guerreiro, M. (2006). Mild cognitive impairment: deficits in cognitive domains other than memory. *Dementia and Geriatric Cognitive Disorders*, 21(5-6), 284-290.