

MANA

MĀORI ASSESSMENT OF NEUROPSYCHOLOGICAL ABILITIES

Instructions for Use

E mihi ana ki o tātou mate tārūrū nui, e hinga tonu nei. Tēnei rātou kua riro ki te kāpunipunitanga o ngā wairua, ki tua o te pae o maumahara. Heoi, waiho ake rātou ki a rātou, tātou te urupā o rātou mā, ngā waihotanga mai e hāpai nei i o rātou wawata, tūmanako hoki, tēnā koutou katoa. E ki ana te kōrero, Māku te rā e tō ana; kei a koe te urunga ake o te rā. He whakatauki tēnei e whakatinanahia te kaupapa hōu o MANA. He taputapu whakatau māuiui tēnei mo te mate wareware. No reira nau mai, haere mai, ki te tautoko te rōpu rangahau, e rapu ōranga mo ngā hunga wairangi i tēnei mauiuitanga ō mate wareware.

BACKGROUND

The Māori Assessment of Neuropsychological Ability (MANA) is a diagnostic tool for Māori used to assess for symptoms and signs that can be associated with cognitive impairment. The MANA assists in the diagnosis of mate wareware (dementia).

Culture is recognized as a critical factor in the assessment of cognition [1, 2, 3] but prior to the development of this tool, there was no cognitive assessment designed specifically for Māori. Tools that are not designed for Māori do not provide optimal assessment for Māori compared with the MANA.

The domains assessed in the MANA are guided by themes that are important to Māori [4] which include: mind (hinengaro), spirit (wairua), body (tinana), family (whānau), social connection (whanaungatanga), identity and role (tuakiri), place (wāhi), and ancestors (tūpuna).

Te Reo Māori (the Māori language) is important for cognitive health, and so the MANA promotes use of this in both the English language version, and the Māori language version. Some phonetic pronunciations are provided. The Te Aka Māori online dictionary (https://maoridictionary.co.nz/) also has voice pronunciation examples. The MANA also incorporates features of the Hui Process [5].

This tool was developed by Māori and non-Māori researchers and clinicians, with the assistance of kaumātua (older Māori) affected by mate wareware (dementia) and their whānau (family) or caregivers.

The research team:

Dr Makarena Dudley (Te Rarawa, Te Aupōuri and Ngāti Kahu), Clinical Neuropsychologist
Dr Oliver Menzies (Rongowhakaata and Aitanga a mahaki), Geriatrician and General Physician
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Matua Piripi Daniels (Te Rarawa), Kaumātua (deceased)
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Associate Professor Gary Cheung, Old Age Psychiatrist/Academic
Professor Lynette Tippett, Clinical Neuropsychologist/Academic
Professor Ngaire Kerse, GP and Professor of General Practice & Primary Health Care
Associate Professor Sarah Cullum, Old Age Psychiatrist/Academic

The MANA consists of the following components:

1. History taking
2. Wairua and Wellbeing
3. Functional - Whānau (Family) – scored
4. Cognitive – scored

USING THE TOOL

All components may take up to an hour to administer. Whānau should be involved in the assessment and can be given the Functional – Whānau (Family) component to work on while the assessor is conducting the Cognitive component. The subcomponents may be used individually but are intended for use as a complete package. Assessors are encouraged not to omit the Wairua component as this aspect is particularly important for Māori.

A suggested order is:

1. Greeting - a good format for this is it use the Hui Process [6] – Mihi (greeting), Whakawhanaungatanga (establishing connection), Kaupapa (purpose – taking the history & assessments), Poroporoaki (farewell)
2. History taking tool
3. Wairua tool before the examination and cognitive assessment
4. Cognitive component
5. Functional - Whānau component (to be completed by the whānau while the cognitive component is being administered).

For detailed guidance regarding administration of the cognitive component, see Appendix 1.

CULTURAL SAFETY AND CULTURAL COMPETENCE

The MANA was developed in response to our commitment to te Tiriti ō Waitangi for the attainment of equitable health outcomes for Māori.

Cultural safety is recognising and respecting the cultural identities of others, and safely meeting their needs, expectations, and rights, contributing to the achievement of positive health outcomes and experiences. Cultural competence is having the attitudes, skills and knowledge needed to achieve cultural safety.

WHAT THE RESULTS MEAN

The Functional - Whānau component has 32 questions with a maximum possible score of 64. HIGHER scores on this component indicate MORE SYMPTOMS suggestive of mate wareware. A score of 21 or higher indicates mate wareware (dementia) with a sensitivity of 74% and specificity of 76%.

The Cognitive component has a maximum possible score of 45. LOWER scores on this component indicate IMPAIRED COGNITION suggestive of mate wareware. A score of 36 or below indicates mate wareware (dementia) with a sensitivity of 73% and specificity of 78%.

EXPLAINING THE RESULTS TO MĀORI

In te ao Maori (the Māori world), the head and the brain are considered sacred [7] and the assessment should be sensitive to those cultural understandings.

It is always best to use non-medical language that is easily understood so that whānau have a clear understanding of what information is being conveyed. For example, “remembering” and “thinking” should be used rather than “cognitive functioning”.

Other examples of appropriate language are: “It looks like your mum is not performing as we would expect for someone her age” or “Your koro (grandfather) wasn’t able to do some of the tasks we thought he should at his age”.

How to respond to pātai (questions) like: Does my father have mate wareware?
If you have just used the cognitive tool by itself, you could reply that, "This is just a screening tool, and it gives a broad idea of what the problems are. We would like to send your father for a more detailed assessment that will take longer but will be able to identify and clarify some of the issues.

POST DIAGNOSIS SUPPORT FOR MĀORI

Information and support for Māori is available on https://www.matewareware.co.nz.

Alzheimers New Zealand, https://alzheimers.org.nz/ and Dementia New Zealand https://dementia.nz/ are other useful resources.

Haumanu Whakaohooho Whakaaro - Māori (Cognitive Stimulation Therapy – Māori) is an evidence-based non-pharmacological intervention for people with mild to moderate mate wareware. Enquires can be made to m.dudley@auckland.ac.nz

CONTACT AND FEEDBACK

Dr Makarena Dudley m.dudley@auckland.ac.nz

MANA KEY ARTICLES

Dudley, M., Menzies, O., Elder, H., Nathan, L., Garrett, N., & Wilson, D. (2019). Mate wareware: Understanding 'dementia' from a Māori perspective. The New Zealand medical journal, 132(1503), 66–74.

Menzies, O., Dudley, M., Garrett, N., Elder, H., Daniels, P., & Wilson, D. (2022). He Tūhononga Whaiaro: A Kaupapa Māori Approach to Mate Wareware (Dementia) and Cognitive Assessment of Older Māori. Journal of applied gerontology : the official journal of the Southern Gerontological Society, 41(4), 1066–1073.

REFERENCES

[1] American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). American Psychiatric Publishing.

[2] Australian & New Zealand Society for Geriatric Medicine. (2019). Australian and New Zealand society for geriatric medicine position statement abstract: Dementia in older people. Australasian Journal on Ageing, 292.

[3] The New Zealand Framework for Dementia Care (Ministry of Health, 2013)

[4] Durie, M. (1998). Whaiora: Māori Health Development (2nd Edition). Oxford University Press.

[5] Menzies, O., Dudley, M., Garrett, N., Elder, H., Daniels, P., & Wilson, D. (2022). He Tūhononga Whaiaro: A Kaupapa Māori Approach to Mate Wareware (Dementia) and Cognitive Assessment of Older Māori. Journal of applied gerontology : the official journal of the Southern Gerontological Society, 41(4), 1066–1073.

[6] Lacey, C., Huria, T., Beckert, L., Gilles, M., & Pitama, S. (2011). The Hui Process: a framework to enhance the doctor-patient relationship with Māori. The New Zealand medical journal, 124(1347), 72–78.

[7] Elder, H. (2013). Te Waka Oranga: An indigenous intervention for working with Māori children and adolescents with traumatic brain injury. Brain Impairment, 14(3), 415-424.

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COGNITIVE ASSESSMENT

ADMINISTRATION AND SCORING GUIDELINES

The MANA Cognitive Assessment tool is available in te reo Māori and te reo Pākehā (English).
It is recommended for use with Māori aged 55 years and above.
If the patient elects to have the MANA conducted in te reo Māori then a trained interpreter is recommended.

Materials required:
Pencil, Pictures for naming, Stopwatch/timer
Where Māori words are used, we have inserted the phonetic pronunciation immediately afterward.

QUESTION 1: ORIENTATION – SCORE 0 - 4

Administration: Ask the person whether it is pay/pension/benefit week; month/marama [mar-ra- ma]; season; year; as well as the name of the place right now; name of community/town/city.

Scoring: Score **1 point for each correct answer**.

Is it pay/pension/benefit week?
Answer: Yes/No (Check with whānau for the correct answer).
Prompt: If they don't say yes or no, and say "it is an automatic payment" or equivalent, follow-up question: Is that payment going to happen this week or not?

What month/marama (mar-rah-ma) is it?
Answer: January/Kohitātea [kor-hee-tar-tear]; February/Hui-tanguru [hoo-ee tung-oo-roo]; March/Poutū-te-rangi [poh-too teh rung-ee]; April/Paenga-whāwhā [pie-nga far-far]; May/Haratua [har-ra-too-a]; June/Piripi [pee-ree-pee]; July/Hōngongoi [hor-ngor-noy]; August/Here-turi-Kōkā [heh-reh-too-ree-kor-kar]; September/Mahuru [mar-hoo-roo]; October/Whiringa-ā-nuku [fee-ringer-ar-noo-koo]; November/Whiringa-ā-rangi [fee-ringer-a-rung-ee]; December/Hakihea [huk-ee-hear].
Prompt: If the person says "the 3rd month then prompt for the name of the month.

What season is it?
Answer: Summer/Raumati [Row-mar-tee], Winter/Hotoke [Hor-tor-keh], Autumn/Ngāhuru [Na-who-roo], Spring/Koanga [kor-ar-nger]
Prompt: If the season is changing (e.g., at the end of February) and the participant says, "Autumn" then ask, "could it be another season?" If the answer is "Summer", give 1 point since the two seasons are in transition. Do not give 1 point if the answer is "Winter" or "Spring".

Seasons: Spring – September, October, November; Summer – December, January, February; Autumn – March, April, May; Winter – June, July, August.

For aphasic patients: Allow patients to write down their answer, if unable to give verbal responses.

What year is it?

Answer: Must be correct year to get point.

QUESTION 2: ORIENTATION TO SPACE – SCORE 0 - 2

Administration: ask the person to name the place

What is the name of this place? (where are we right now)

Prompt: can be given (e.g., if in a hospital and the person says 'hospital' then ask "Do you know which hospital?"; if in a hauora/community centre or marae, use same kind of prompt). If at home, and their answer is "Home", ask "where is home"? (need to give some sort of specific answer to this – street name, road name)

If they say a family member's home, or friend's home – for example, "my daughter's home", that is an acceptable answer because it is locating a specific place that is not an automatic response prompted by being in own home.

What is the name of this community/town/city/rohe?

QUESTION 3: LANGUAGE: REPETITION – SCORE 0 – 2

Administration: Ask the person:

"Now I would like you to repeat, word-for-word, exactly what I say. Listen carefully because I will only say it once.: ***Neither here nor there."*** If incorrect, write down the person's response verbatim.

Following the response, say: *"Now I am going to say another sentence, and I would like you to repeat it, word-for-word, exactly as I say.* ***A tui can fly into a whare [far-reh; house] when it's wet and windy."*** If incorrect write down the person's response. verbatim.

Scoring: Score one point per correct answer. Do not accept partially correct repetitions. For example, "Neither there nor here"; "A tui can fly into a whare when it's wild and windy"; would both be scored "0".

Please note if hearing loss is a possible complicating factor affecting performance.

QUESTION 4: LANGUAGE: VERBAL COMPREHENSION / WORKING MEMORY – SCORE 0 – 2

Administration: Ask the person to carry out some actions. **The instructions can only be read once.** Read complete instruction in one go – do not give step-by-step.

"*Now I am going to ask you to carry out some actions. Please listen carefully because I will only tell you once."*

- ***Please nod your head***
- ***Before looking at the floor, please look at the ceiling.***

Scoring: Score one point for each command performed correctly.

Please note if hearing loss is a possible complicating factor affecting performance.

QUESTION 5: LANGUAGE: PICTURE NAMING – SCORE 0 - 5

Administration: Ask the person to name each picture.

Scoring: Only tick if exact response/word given – otherwise write response and check list of acceptable correct responses. Score 1-point for each correct answer.

Correct answers are penguin, marae [mah-rai], tiki [tee-kee], poaka [poor-arka]/pig, poi [poy].

Alternative correct answers:
Penguin: kororā [kaw-raw-raa], hoiho [hoy-hor], yellow-eyed penguin (1 point each)
Incorrect answers: pidgeon, bird (0 points)

Marae: wharenui [far-ree-noo-ee]; Māori whare [far-ray]; meeting house; whare tangata [tongue-ata]; whare tupuna [too-poo-na]; pa [pah]
Incorrect answers: Māori house (0 points)

Tiki: Hei tiki, taonga, tekoteko
Incorrect answers: tikitiki, whakahua, taniwha, statue (0 points)

Pig/poaka: kunikuni [koo-nee-koo-nee]
Incorrect answers: pet (0 points)

QUESTION 6: MEMORY: ANTEROGRADE – SCORE 0 – 5

Administration: Say to the person: *"Imagine that we are going to the shop. I am going to read to you a list of things to buy. I would like you to remember that list and tell me as many as you can. Are you ready?*
Read the list and ask the participant to repeat the items back.

Give instruction for second reading: *"I am going to read the same list a second time. Again, listen carefully and try and remember all the items on the list."*

Read the list and ask the participant to repeat the list. If the participant starts repeating along with you as you read the list, ask them to wait until you give the list in full.

Overall, the participant is only required to repeat the list twice.

Scoring: Record responses by ticking in boxes for each trial but **only score responses in the second trial** (0 -5 points).

Then say *"In about 5 minutes time I will ask you what the items are on the list."*

QUESTION 7A: ATTENTION – WORKING MEMORY – SCORE 0 – 5

Administration: Ask the person to spell the word *"kai"*. If they cannot spell *"kai"*, **do not proceed with the task.** Move to 7B and administer the alternative task, Digits Backwards instead.

If they spell "kai" correctly then say: *"Okay, if I asked you to spell the word 'kai' backwards, you would say "i, a, (k)"*
Pause to give them a chance to say the last letter "k".

If they understand proceed with the task. If not, repeat the practice trial. If they still do not understand do not proceed with the task. Administer Digits Backwards (7B) instead. If they do understand, proceed with the instruction:

"Now please spell the word "hongi" [horng-ee] backwards." Record each letter.

Scoring: Score one point for each letter given in the correct order.

QUESTION 7B: ONLY ADMINISTER IF UNABLE TO ATTEMPT 7A. DIGITS BACKWARD – SCORE 0 - 5

Administration: Say to the person: *I am going to say some numbers to you. When I stop, I want you to say those numbers back to me backwards. For example, if I say 8 - 2 what will you say?*

If they give a correct response (2 – 8) Say: *That's right.*

If they give an incorrect response: Say: *That's not quite right. I said 8 -2 so to say them in reverse order you should say 2 -8.*

Then say: *Now listen to these numbers and say them back to me backwards.*

7 – 3 – 1

Record numbers in the order in which the person gives them (so should be opposite to how they are written).

Scoring: Only score 1 point if all three are correct

8 – 2 – 7 – 9

Score 1 point for each number correct (total 4).

QUESTION 8: EXECUTIVE FUNCTION – ABSTRACTION – SCORE 0 – 2

Administration: The person is asked to explain how two things are similar, starting with an example and a practice item.

"Now I am going to name two things. I want you to tell me how they are similar or how they are alike. For example, if I say "How are a kiwi and kea similar?" you would say they are both birds, or you might say they are both animals. Now, we will have a practice. Tell me how kumara [koo-mah-rar] and puha [poo-haa] are similar."

If the person answers in a concrete manner (kumara grows below the ground and puha grows on top of the ground) or by naming a very general common property or function (e.g. they are both food/kai), then say only one additional time: *"Can you tell me another way in which those items are similar".* If the person does not give the appropriate response (vegetables), say, *"Yes, and they are also both vegetables."* Do not give any additional instructions or clarification. After the practice trial, say,

"Now tell me how shovel and rake are similar."

Do not give any additional instructions or prompts. Record their exact response.

Following the response administer the second item, saying:

"Now tell me how waiata [why-ata] and korero [kor-ree-ror] are similar."

Record their exact response.

Scoring: Only the last two item pairs are scored. Score 1 point for each item pair correctly answered. The following answers are acceptable:

Shovel-rake

1 point answer: Both garden tools; tools for gardening.

"0" point answers: Both have handles; both do digging; both used outside

Waiata/korero:

1 point answer: both forms of communication/expression; they both convey a message; both convey information; they both tell a story; expressions of Reo; both te Reo; both involve Māori language

0 points: one is singing/song, other is talking/speaking; both verbalised; they are both sound; both use voice; both come out of your mouth

QUESTION 9: EXECUTIVE FUNCTION – ANIMAL FLUENCY – SCORE 0 – 5

Administration: Give the person the following instruction: *"Now, I would like you to tell me the names of as many different animals as you can. Let's see how many different animals you can name in one minute. Are you ready? Go!"*

Scoring: Record each animal the person generates. Then, count the total number of *correct* words, which do not include repeated words, or higher order categories when specific exemplars are given (e.g., "fish" followed by "tarakihi" and "kahawai". In this example the score would be 2, with no mark for fish). All types of animals are accepted, including insects, humans, prehistoric, extinct as well as mythical creatures (e.g., taniwha).

Names that represent the genders of the same type of animal (e.g., cow, bull or hen, rooster) are both counted as correct.

Words that refer to the same animal at different developmental stages (kitten, cat or foal, colt, horse) are all counted as correct.

Scores are allocated as follows: 0 words = 0; 1-3 words = 1; 4-6 words = 2; 7-9 words = 3; 10-12 words = 4; 13+ words = 5.

QUESTION 10: MEMORY: DELAYED RECALL – SCORE 0 – 5

Administration: Say to the person: *"Remember the list of things we were going to buy at the shop? Can you tell me what is on that list?"*

Prompt: If the person cannot recall any of the items on the list, say "the first one was "soap", can you remember the others?" Do not provide any more prompts.

Scoring: Score 1 point for each item correctly recalled which was not prompted.

QUESTION 11: EXECUTIVE FUNCTION – LURIA TEST– SCORE 0 – 3

Administration: Give the person the following instruction:
"Look carefully at what I'm doing."

The interviewer, seated in front of the person, performs alone three times with his left hand the series of "fist–edge–palm."

Fist: 

Edge: Chopping/cutting motion with edge of hand - "Karate Chop"

Palm: Put palm down flat with fingers extended.

The person is then told:
"Now, with the hand you use most do the same actions with me. Ready, go."

The interviewer performs the series three times with the client. Interviewer takes note of correct/incorrect actions. Interviewer then says to him/her:
"Now, you do it on your own and stop when I tell you to."

Stop after they complete 6 on their own.

Scoring:
Person performs six correct consecutive series alone = 3
Person performs at least three correct consecutive series alone = 2
Person performs 2 or fewer consecutive series alone, but performs three correct consecutive series with the interviewer = 1
Person cannot perform three correct consecutive series even with the examiner = 0

QUESTION 12: VISUOSPATIAL FUNCTION
VISUOSPATIAL FUNCTION – COPYING KORU – SCORE 0 - 2

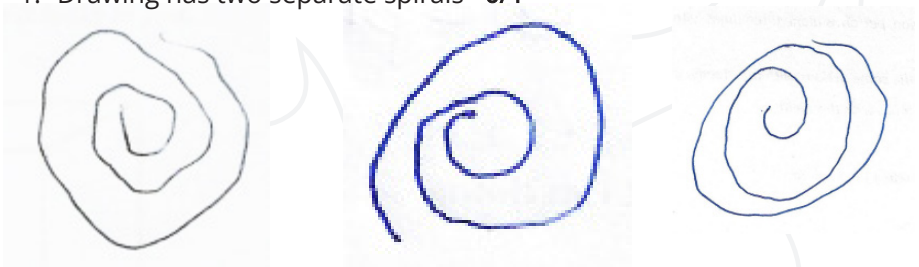
Administration: Ask the person to copy the koru drawing, exactly as it looks.

Scoring: We recommend highlighting one line that makes up the spiral to aid in scoring.

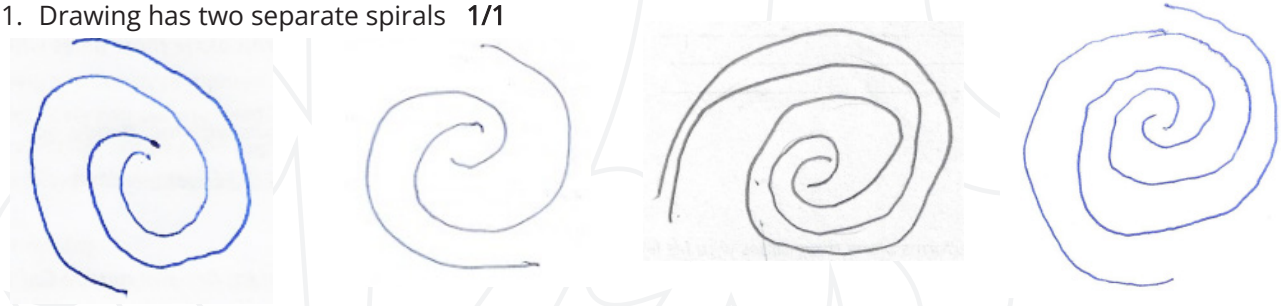
1. Drawing has two separate spirals. (1 point)
2. Line A begins in correct position. (1 point)
3. Line B begins in correct position. (1 point)
4. Line A ends in correct position. (1 point)
5. Line B ends in correct position. (1 point)
6. Line A is made up of 1.5 loops. (1 point)
7. Line B is made up of 1.5 loops (1 point)
8. If multiple attempts made, take 1 point off total score.



1. Drawing has two separate spirals **0/1**



1. Drawing has two separate spirals **1/1**

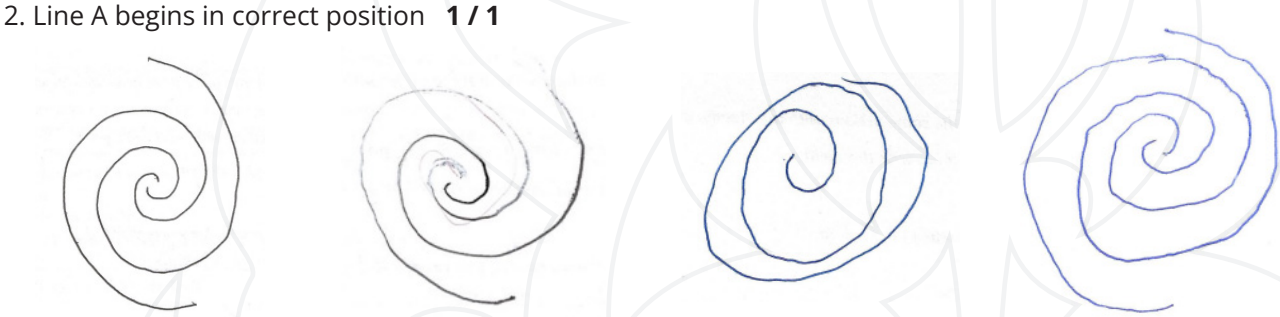


Detail 2: Line A begins in correct position. The start of line A should be below the start of line B and must be pointing in an upward direction.

2. Line A begins in correct position **0 / 1**



2. Line A begins in correct position **1 / 1**

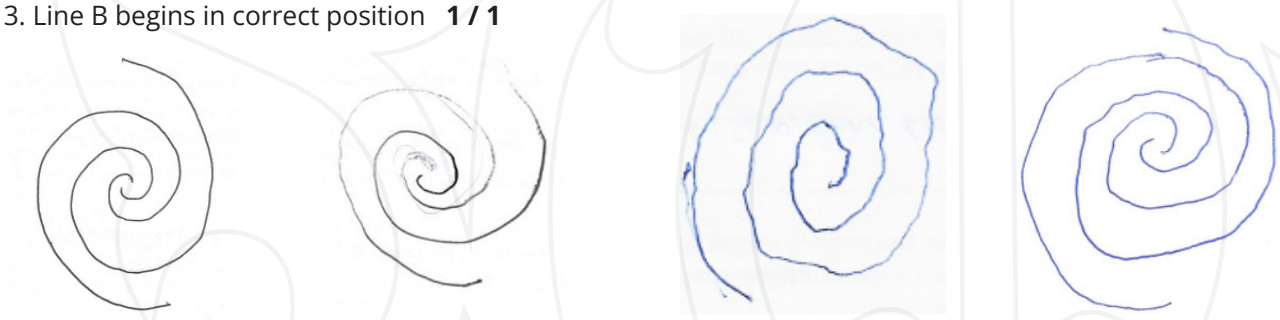


Detail 3: Line B begins in correct position. The start of line B should be above the start of line A and must be pointing in a downward direction

3. Line B begins in correct position **0 / 1**



3. Line B begins in correct position **1 / 1**



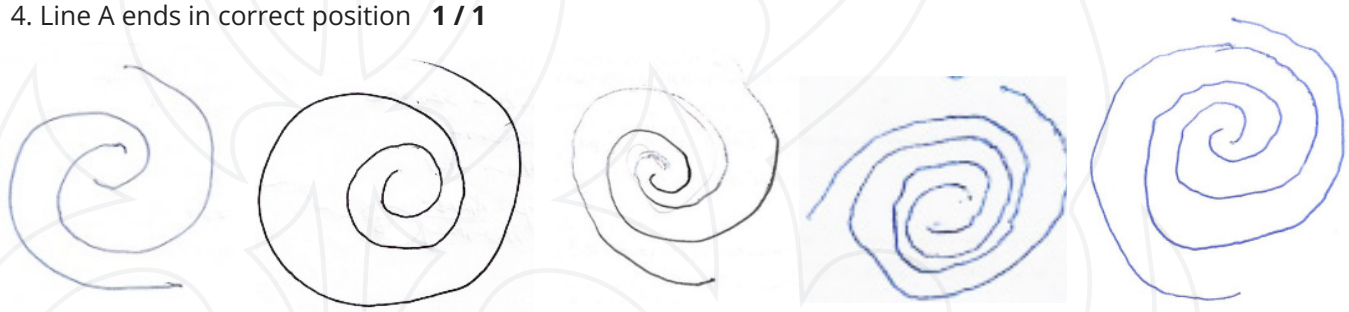
Detail 4: Line A ends in correct position. Line must end within upper midpoint of upper right quadrant or within upper midpoint of upper left quadrant



4. Line A ends in correct position **0 / 1**



4. Line A ends in correct position **1 / 1**

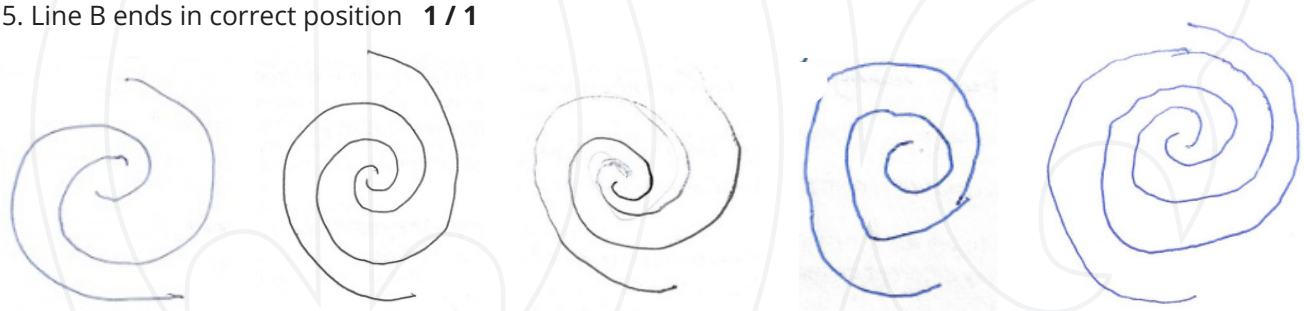


Detail 5: Line B ends in correct position. Line must end within lower midpoint of lower right quadrant or within lower midpoint of lower left quadrant.

5. Line B ends in correct position **0 / 1**



5. Line B ends in correct position **1 / 1**





6. Line A is made up of 1.5 loops. **0 / 1**



6. Line A is made up of 1.5 loops **1 / 1**



7. Line B is made up of 1.5 loops. **0 / 1**



7. Line B is made up of 1.5 loops **1 / 1**

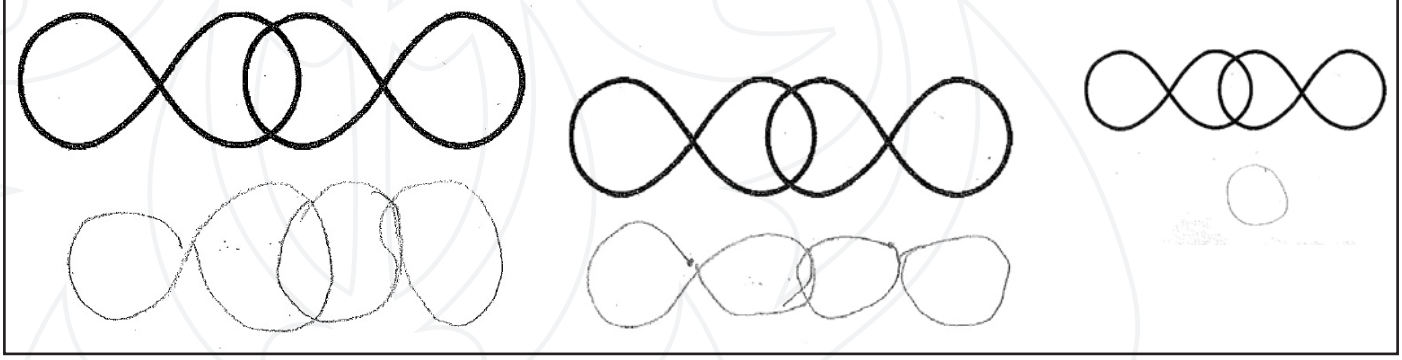


COPYING INTERSECTING INFINITY LOOPS – SCORE 0 OR 1

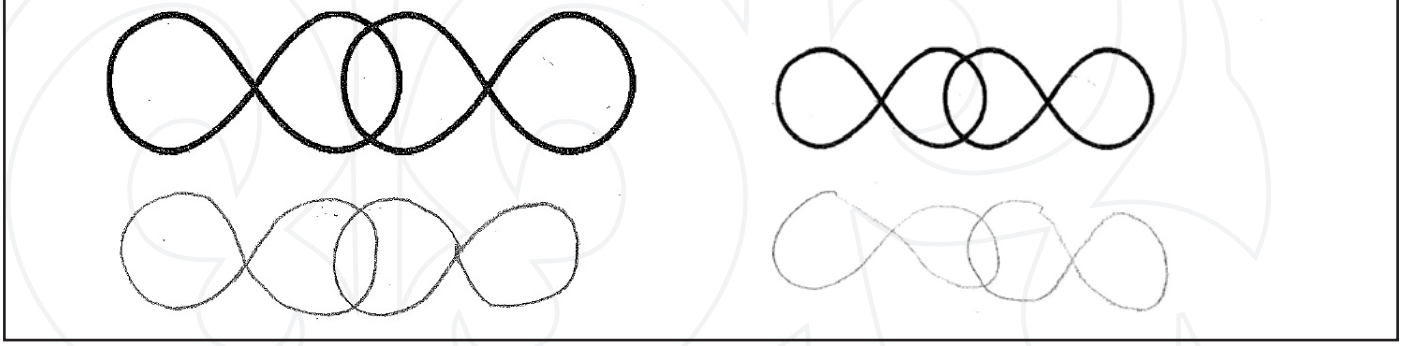
Administration: Ask the person to copy the intersecting infinity loops.

Scoring: A score of 1 is given if two infinity loops are drawn and overlap. Both infinity loops must come to a point/ cross and do not look like circles

Score = 0



Score = 1

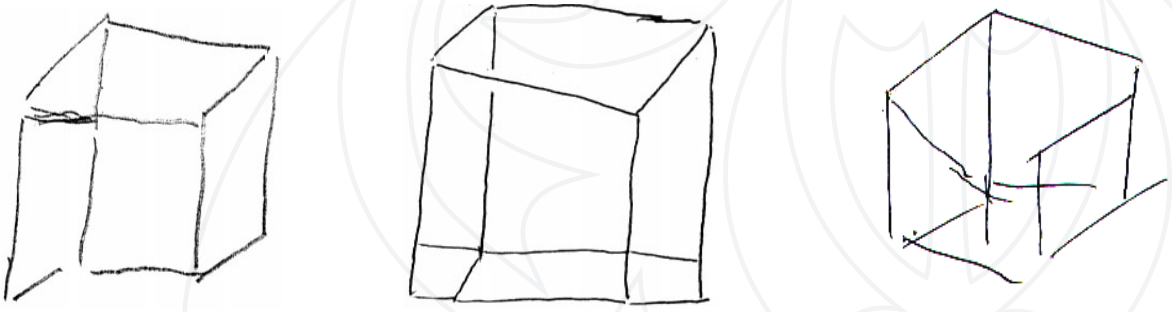


VISUOSPATIAL FUNCTION – COPYING A CUBE – SCORE 0 - 2

Administration: Ask the participant to *"Please copy this picture exactly as it looks to you."*

Scoring: The cube should have 12 lines to score 2 points, even if the proportions are not perfect. A score of 1 is given if the cube has fewer (or more) than 12 lines but a general cube shape is maintained.

Score = 1



Score = 2



We wish to acknowledge the developers of the Addenbrooke's Cognitive Examination-111 and FRONTIER, The University of Sydney, for granting us permission to include the Infinity Loop and cube and associated scoring criteria in the MANA.

