Neuropsychological Battery

Tests reported on Form C2, Uniform Data Set (UDS) v4.0

UDSv4.0, January 2025

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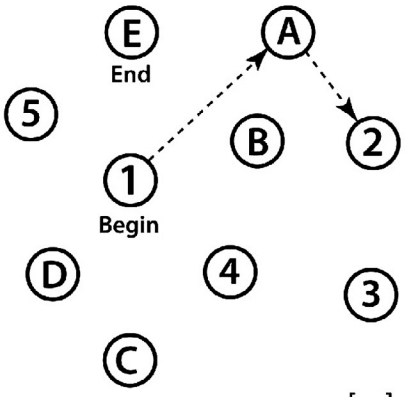
Revisions made to this Neuropsychological Battery since release (January 2025)

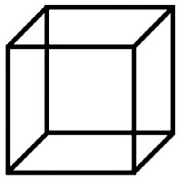
Date yyyy-mm-dd	Description	Test(s) affected
2025-02-03	Moved RAVLT test delay recording from after List B to after Trial 6.	Rey Auditory Verbal Learning Test (RAVLT)
2025-10-09	Changed "church" to "school" in CERAD J7 Word List Recognition to avoid interference with the MoCA	CERAD Verbal Learning - Delayed Recognition

Montreal Cognitive Assessment (MoCA)

VISUOSPATIAL / EXECUTIVE



Copy cube



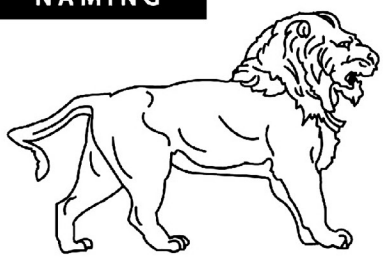
[ ] [ ]

Draw CLOCK (Ten past eleven) (3 points)

[ ] Contour [ ] Numbers [ ] Hands

POINTS ___/5

NAMING



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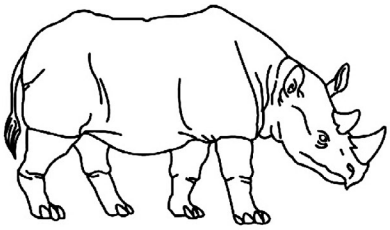

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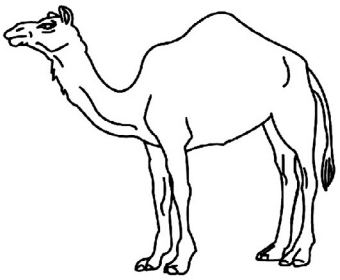

[ ] ___/3

MEMORY Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.

	FACE	VELVET	CHURCH	DAISY	RED
1st trial					
2nd trial					

No points

ATTENTION Read list of digits (1 digit/ sec.).

Subject has to repeat them in the forward order [ ] 2 1 8 5 4

Subject has to repeat them in the backward order [ ] 7 4 2 ___/2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors

[ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B ___/1

Serial 7 subtraction starting at 100 [ ] 93 [ ] 86 [ ] 79 [ ] 72 [ ] 65

4 or 5 correct subtractions: **3 pts**, 2 or 3 correct: **2 pts**, 1 correct: **1 pt**, 0 correct: **0 pt** ___/3

LANGUAGE Repeat : I only know that John is the one to help today. [ ]

The cat always hid under the couch when dogs were in the room. [ ] ___/2

Fluency / Name maximum number of words in one minute that begin with the letter F [ ] _____ (N ≥ 11 words) ___/1

ABSTRACTION Similarity between e.g. banana - orange = fruit [ ] train – bicycle [ ] watch - ruler ___/2

DELAYED RECALL

	Has to recall words **WITH NO CUE**	FACE [ ]	VELVET [ ]	CHURCH [ ]	DAISY [ ]	RED [ ]	Points for UNCUED recall only
Optional	Category cue						
	Multiple choice cue						

___/5

ORIENTATION [ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City ___/6

© Z.Nasreddine MD **www.mocatest.org** Normal ≥ 26 / 30 TOTAL ___/30

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Rules for single-item scoring and index score calculations for the MoCA*

			INDEX SCORES				
Items	Points towards total score	Memory***	Executive	Attention/ Concentration	Language	Visuospatial	Orientation
Trails	1	–	1	–	–	–	–
Cube	1	–	–	–	–	1	–
Clock Circle	1	–	1	–	–	1	–
Clock Hands	1	–	1	–	–	1	–
Clock Time	1	–	1	–	–	1	–
Language Naming	3	–	–	–	3	3	–
Memory: Registration (*2 learning trials, total possible = 10)*	0, not scored	–	–	Immediate recall, 2 trials total, max = 10	–	–	–
Attention: Digits	2	–	2	2	–	–	–
Attention: Letter A	1	–	1	1	–	–	–
Attention: Serial 7s	3	–	3	3	–	–	–
Language: Repetition	2	–	–	2	2	–	–
Language: Fluency	1	–	1	–	1	–	–
Abstraction	2	–	2	–	–	–	–
Delayed Recall with no cue	5	=3x number words recalled freely (max=15)	–	–	–	–	–
Delayed Recall with category cue	0**	=2x number of words retrieved with category cue (max = 10)	–	–	–	–	–
Delayed Recall, recognition	0**	=1x number of words recognized (max = 5)	–	–	–	–	–
Orientation: date	1	–	–	–	–	–	1
Orientation: month	1	–	–	–	–	–	1
Orientation: year	1	–	–	–	–	–	1
Orientation: day	1	–	–	–	–	–	1
Orientation: place (name)	1	–	–	–	–	–	1
Orientation: city	1	–	–	–	–	–	1
Totals	30	15	13	18	6	7	6

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**The standard administration of the MoCA does not score category and recognition responses, even if administered.

***If all five words are freely recalled, then cued and category recall are not administered and the total score would be 15 (3 points for each word recalled). After free recall, category cues are given only for items not recalled. Each word correct with category cue is awarded 2 points. After category cues, only words not correct are then tested with recognition. Award 1 point for each word correct on recognition (max=5). Here is an example: participant gets 2 free recall, 2 cued, and recognizes the fifth word; Memory Index Score: (2x3) + (2x2) + (1x1) = 11/15.

MoCA Notes Page

Craft Story 21 Recall (Immediate)

INSTRUCTIONS: Making sure you have the participant's attention, read the following instructions aloud. Then read the story slowly, articulating clearly and with normal inflection.

SAY: **"I am going to read you a story. Listen carefully, and when I am through, I want you to tell me everything you can remember. Try to use the same words I use but you may also use your own words. The story is..."**

Maria's / child / Ricky / played / soccer / every / Monday /

at 3:30. / He / liked / going / to the field / behind / their / house /

and joining / the game. / One / day, / he / kicked / the ball / so / hard /

that it / went / over / the neighbor's / fence / where three / large /

dogs / lived. / The dogs' / owner / heard / loud / barking, / came /

out, / and helped / them / retrieve / the ball.

Record time administration ended: ☐

Total story units recalled (VERBATIM SCORING): ___ ___ / 44

Total story units recalled (PARAPHRASE SCORING): ___ ___ / 25

As soon as the story is over, give the recall instruction:

SAY: "**Now tell me the story I just told you. Try to remember as much as you can**."

Record the participant's recall, writing between the lines of the story above. For rapid and accurate transcribing of the story, use abbreviations as needed, omit filler words and irrelevant verbiage, and if absolutely necessary, say "A little slower, please," rather than miss story elements. Make sure your transcription of the story is legible before proceeding.

After transcribing the story, you must give the delayed recall cue.

SAY: "**Later on, I will ask you to tell me this story again, so try not to forget it**." Note the time so that later you can calculate the time that has elapsed between Craft Story 21 Recall (Immediate) test and the Craft Story 21 Recall (delayed) test.

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Craft Story 21 Recall (Immediate): Verbatim Scoring

PERFECT VERBATIM RESPONSE (**1.0 POINT**): Give the participant 1 point for every bit for which content words are recalled exactly and completely. Allowances can be made for variations of verbs (e.g., "likes" for "liked," "join" for "joining") and minor omissions (e.g., "neighbor" for "neighbor's") or changes in number (e.g., "games" for "game"). The content words do not need to be recalled by the participant in the same order they were read to receive credit. The words can appear anywhere in the recall.

Maria's	
child	
Ricky	
played	
soccer	
every	
Monday	
three thirty	
he	
liked	
going	
field	
behind	
their	
house	
joining	
game	
one	
day	
he	
kicked	
ball	

so	
hard	
it	
went	
over	
neighbor's	
fence	
three	
large	
dogs	
lived	
dogs'	
owner	
heard	
loud	
barking	
came	
out	
helped	
them	
retrieve	
ball	
Total	

Scoring

Number of items recalled for verbatim scoring (IMMEDIATE RECALL SCORE): ___ ___ / 44

Guidelines for Paraphrase Scoring, Craft Story 21

Item	General Rule	Alternative 1-point responses	0-point responses	Points
Maria's	"Maria" or a variant of the name	Mary, Marie	Martha, Anna	
child	"child" or a phrase denoting it was a young person	son, kid, boy, teenager, young man	guy, children, daughter	
Ricky	"Ricky" or a variant of the name	Rick, Rich, Richie, Richard, Ricardo	Randy, Rusty, Robert	
played	"played" is required	to play, plays	did (soccer)	
soccer	"soccer" is required	futbol	baseball, volleyball, other sport	
every Monday	"Monday" or an indication that it occurred on a weekday	—	every day, another day of the week	
at 3:30	an indication that the activity took place in the afternoon	after school, every afternoon	after dinner, at night, in the morning	
He liked going to the field	an indication that he went to an outdoor area	went outside, went to the yard, going to the backyard	went to the school, gym	
behind their house	"house" or word denoting a house	home, residence, where they lived	any other building	
and joining	an indication that he participated in a game	played w/ other kids, became part of the team, playing w/the team	watching, played in the park	
the game.	"game" in any context	—	—	
One day	"One day" is required	—	—	
he kicked	indication that he performed the activity with his foot	booted, punted	threw, hit (with no mention of the foot)	
the ball	"Ball" is required	football, soccer ball	baseball, volleyball	
so hard	an indication that force was used	so much force, so strongly, (kicked it) so far	—	
that it went over	"Over" is required	—	—	
the neighbor's	an indication that the person lived in the same area	nearby resident	friend's	
fence	"fence" or a word denoting a fence of some kind	garden wall, wall	property line, street	
where three	"Three" is required	three (boys)	—	
large dogs lived.	an indication that there were dogs present	hounds, doggies	puppies, cats, kittens, other animals	
The dogs' owner	an indication that the person was responsible for the dogs	neighbor (if owner implied and "neighbor" mentioned twice)	a bystander, the police	
heard loud barking	an indication that the dogs were making noise	yelping, baying, yapping, heard the dogs	saw the dogs running around	
came out	a word or phrase indicating that the owner was present	(owner) saw the ball	his mother came out, the dogs came out	
and helped them	a word or phrase indicating that help was provided	assisted, aided, had to help	—	
retrieve the ball.	an indication that they got the ball back	gave him the ball, return the ball, (helped him) get the ball	—	

Number of items recalled for paraphrase scoring (IMMEDIATE RECALL SCORE): ___ ___ / 25 maximum

Benson Complex Figure Copy (Immediate)

Give participant a pen, place sheet with figure in front of participant.

SAY: **"Please copy this design as best you can."**

Please do not use colored pencils for each element because this can be disruptive and will not be consistent with other ADRCs. Instead, please write notes to track progress. Have participant make his or her copy in the lower half of the page below the figure. When design is completed, leave the figure in front of the participant for 5 seconds and say,

SAY: **"Be sure to remember this design, because I'll ask you to draw it again later from memory."**

A maximum of 4 minutes should be allowed for completing the drawing. Do not administer the other figure-copy tests during the delay, and do not administer the Rey-Osterrieth before the Benson on the same day.

Allow approximately 10–15 minutes before administering the delayed recall portion of the test.

	1. Four-sided, 90° angles, width > height, any gaps or overlaps < 8mm	☐ 0	☐ 1	☐ 2
	2. Reasonably straight lines; any gaps or overlaps < 8mm	☐ 0	☐ 1	☐ 2
	3. Connects at middle third, no overlap with diagonals	☐ 0	☐ 1	☐ 2
	4. Reasonably round, doesn't touch sides	☐ 0	☐ 1	☐ 2
	5. Vertical lines > 1/2 distance to diagonals, width > height, 90° angles	☐ 0	☐ 1	☐ 2
	6. Connects below #3, top of square above bottom	☐ 0	☐ 1	☐ 2
	7. Vertex corresponds to middle third; any gaps or overlaps <8mm	☐ 0	☐ 1	☐ 2
	8. Gap between #8 and #7 <5mm, angle at end of stem = 90°	☐ 0	☐ 1	☐ 2
	BONUS	☐ 0	☐ 1	

Time of day design completed: ___ ___ : ___ ___ ☐ AM ☐ PM

TOTAL SCORE (circle one): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

SCORING: For scoring guidelines, please see *NACC Uniform Data Set (UDS) Instructions for Neuropsychological Tests*. Each figural element is scored as 2 points if the element is drawn accurately and placed correctly in the figure (1 point for accuracy, 1 point for placement). Score 1 point if the element is poorly drawn but placed correctly or is correctly drawn but misplaced, and 0 points if the element is neither accurately drawn nor correctly placed.

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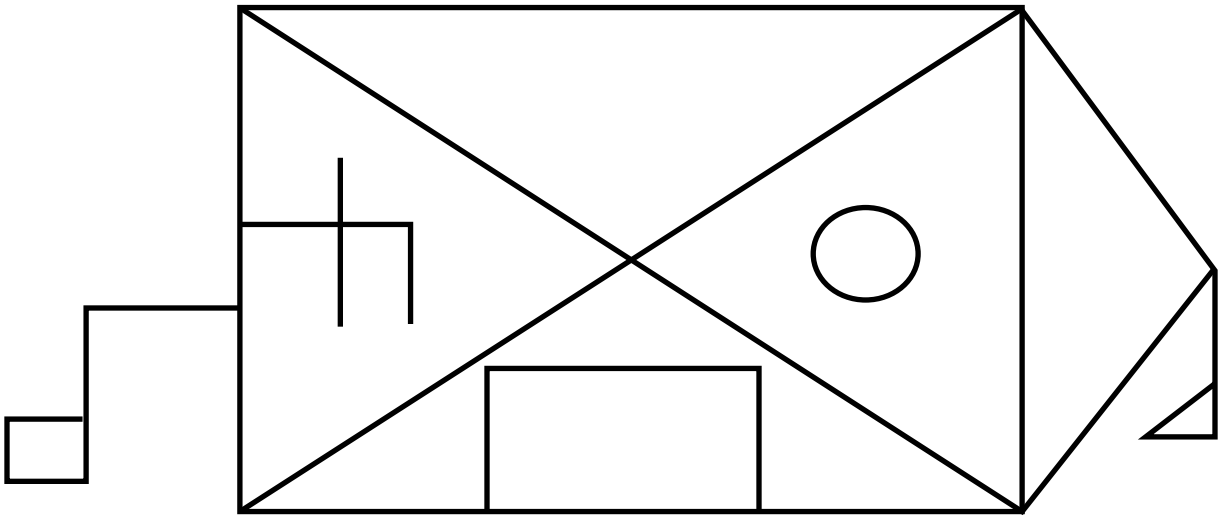

Number Span Test: Forward

SAY: **"I am going to ask you to repeat some numbers for me. Wait until I finish saying the numbers and then repeat them in the same order. For example, if I say 1–8–7, you would say 1–8–7. If I say 2–9–8, what would you say?"** If the participant gives the wrong answer, say, **"Actually, you would 2–9–8."**

SAY: **"Repeat only the numbers I say each time."** Then start with the test items. Before each item, say, **"Ready?"**

Stop testing after two consecutive failures of the same span length.

Span length		Response	Response code *incorrect = 0 correct = 1*
3	1-8-4		_____
	2-7-9		_____
4	4-1-6-2		_____
	8-1-9-5		_____
5	6-4-9-2-8		_____
	7-3-8-6-1		_____
6	3-9-2-4-7-5		_____
	6-2-8-3-1-9		_____
7	9-6-4-7-1-5-3		_____
	7-4-9-2-6-8-1		_____
8	4-7-2-5-8-1-3-9		_____
	2-9-5-7-3-6-1-8		_____
9	6-8-4-1-9-3-5-2-7		_____
	1-3-9-2-7-5-8-6-4		_____
		Total correct:	_____
		Length of longest correct series:	_____

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Number Span Test: Backward

SAY: **"I am going to ask you to repeat some numbers for me but to reverse them from the way I say them. Wait until I finish saying the numbers and then repeat them in reverse order, or backward. For example, if I say 3–7–4, you would say 4–7–3. If I say 7–3–6, what would you say?"** If the participant gives the wrong answer, say, **"Actually, you would 6–3–7."**

SAY: **"Repeat only the numbers I say each time, backward, in reverse order."** Then start with the test items. Before each item, say, **"Ready?"**

Stop testing after two consecutive failures of the same span length.

Span length		Response	Response code *incorrect = 0 correct = 1*
2	2 - 5		_____
	4 - 7		_____
3	2 - 9 - 6		_____
	3 - 7 - 4		_____
4	7 - 1 - 8 - 6		_____
	5 - 1 - 6 - 3		_____
5	5 - 2 - 4 - 9 - 1		_____
	9 - 1 - 7 - 3 - 6		_____
6	6 - 8 - 5 - 7 - 9 - 2		_____
	8 - 1 - 6 - 3 - 5 - 9		_____
7	1 - 5 - 2 - 9 - 7 - 3 - 8		_____
	7 - 3 - 1 - 6 - 8 - 5 - 2		_____
8	3 - 6 - 4 - 9 - 5 - 2 - 7 - 1		_____
	6 - 3 - 5 - 7 - 1 - 8 - 2 - 9		_____
		Total correct:	_____
		Length of longest correct series:	_____

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Category Fluency

INSTRUCTIONS:

SAY: **"I am going to give you a category and I want you to name, as fast as you can, all of the things that belong in that category. For example, if I say 'articles of clothing,' you could say 'shirt,' 'tie,' or 'hat.' Can you think of other articles of clothing?"**

Allow up to 20 seconds for the participant to produce two responses. Circle the number corresponding to the participant's responses, and read the associated instruction.

Response code		Instruction
0	(No response)	"You could have said 'shoes' or 'coat' since they are articles of clothing."
1	(One or more incorrect responses, no correct response)	"No, _____is (are) not an article(s) of clothing. You could have said 'shoes' or 'coat' since they are articles of clothing."
2	(One or more correct response, no incorrect responses)	"That's right. You also could have said 'shoes' or 'coat'."
3	(One or more correct responses, one or more incorrect responses)	"_____is (are) correct, but _____ is (are) not an article of clothing. You also could have said 'shoes' or 'coat'."
4	(Two or more correct responses)	"That's right."

Next, read the instructions for the Animals category (worksheet follows this instruction page):

SAY: **"Now I want you to name things that belong to another category: Animals. You will have one minute. I want you to tell me all the animals you can think of in one minute. Ready? Begin."**

Start timer as you say **"Begin."** Write actual responses as legibly as possible on the Worksheet for Category Fluency — Animals. Stop the procedure at 60 seconds. One prompt (**"Tell me all the animals you can think of"**) is permitted if the participant makes no response for 15 seconds or expresses incapacity (e.g., "I can't think of any more"). It is also permissible to repeat the instruction or category if the participant specifically requests it.

Next, read the instructions for the Vegetables category (worksheet follows this instruction page):

SAY: **"Now I want you to name things that belong to another category: Vegetables. You will have one minute. I want you to tell me all the vegetables you can think of in one minute. Ready? Begin."**

Start timer as you say **"Begin."** Write actual responses as legibly as possible on the Worksheet for Category Fluency — Vegetables. Stop the procedure at 60 seconds. One prompt (**"Tell me all the vegetables you can think of"**) is permitted if the participant makes no response for 15 seconds or expresses incapacity (e.g., "I can't think of any more"). It is also permissible to repeat the instruction or category if the participant specifically requests it.

Worksheet for Category Fluency — Animals

1.	27.	53.
2.	28.	54.
3.	29.	55.
4.	30.	56.
5.	31.	57.
6.	32.	58.
7.	33.	59.
8.	34.	60.
9.	35.	61.
10.	36.	62.
11.	37.	63.
12.	38.	64.
13.	39.	65.
14.	40.	66.
15.	41.	67.
16.	42.	68.
17.	43.	69.
18.	44.	70.
19.	45.	71.
20.	46.	72.
21.	47.	73.
22.	48.	74.
23.	49.	75.
24.	50.	76.
25.	51.	77.
26.	52.	

Worksheet for Category Fluency — Vegetables

1. _____	27. _____	53. _____
2. _____	28. _____	54. _____
3. _____	29. _____	55. _____
4. _____	30. _____	56. _____
5. _____	31. _____	57. _____
6. _____	32. _____	58. _____
7. _____	33. _____	59. _____
8. _____	34. _____	60. _____
9. _____	35. _____	61. _____
10. _____	36. _____	62. _____
11. _____	37. _____	63. _____
12. _____	38. _____	64. _____
13. _____	39. _____	65. _____
14. _____	40. _____	66. _____
15. _____	41. _____	67. _____
16. _____	42. _____	68. _____
17. _____	43. _____	69. _____
18. _____	44. _____	70. _____
19. _____	45. _____	71. _____
20. _____	46. _____	72. _____
21. _____	47. _____	73. _____
22. _____	48. _____	74. _____
23. _____	49. _____	75. _____
24. _____	50. _____	76. _____
25. _____	51. _____	77. _____
26. _____	52. _____	

Trail Making Test

PART A

Place the form for sample A in front of the participant. Read aloud the instructions.

SAY: **"There are numbers in circles on this page. Please take the pencil and draw a line from one number to the next, in order. Start at 1** [point to the number], **then go to 2** [point to the number], **then go to 3** [point to the number] **and so on. Please try not to lift the pencil as you move from one number to the next. Work as quickly as you can. Begin here** [point to "Begin" number] **and end here** [point to "End" number]."

If the participant makes an error, mark through the line and go back to the point at which the error was made and say, for example, **"You were at number 2. What is the next number?"** Wait for the participant's response. If the participant indicates 3, say **"Please start here** [point to the 2] **and continue."** If the participant indicates any other number, say **"The next number would be 3."** Then point to 2 and say **"Please start here and continue."** If the participant cannot complete the sample and clearly does not comprehend the task, do not administer Test A. In that event, on the recording form enter the appropriate code (996 = cognitive/behavioral problem).

If the participant completes the sample, go to TEST A.

SAY: **"On this page there are more numbers in circles. Please take the pencil and draw a line from one circle to the next, in order. Start at** 1 [point to "Begin" number] **and end here** [point to "End" number]. **Please try not to lift the pencil as you move from one circle to the next. Work as quickly as you can."** Start timing as soon as the instruction is given to begin.

Note: In giving the instructions for the test form (as opposed to the sample), the examiner tells the participant to move from one ***circle*** to the next and does not use the word "number."

If the participant makes an error, mark through the line and say **"That one was not correct."** Point to the last correct number and say **"Please start here and continue."** This is done for each error. The examiner should attempt to provide corrections as quickly as possible. Stop timing when the Trail is completed, or stop when the maximum time is reached. Allow a maximum of 150 seconds for the test.

Trail Making Test

PART B PRE-TEST

To ensure that the participant is familiar with the alphabet,

SAY: **"Please tell me the alphabet starting with the letter A."**

A B C D E F G H I J K L

- If the participant makes no errors in saying the alphabet from the letter "A" to "L," continue with the test.
- If the participant makes 3 or more errors in saying the alphabet from "A" to "L," discontinue the test and code as 997.
- If the participant makes 1 or 2 errors in saying the alphabet from "A" to "L," ask them to say the alphabet again. If they make at least one error, discontinue the test and code as 997.

PART B

Place the form for Sample B in front of the participant. Present the sample for Part B even if the participant failed the sample for Part A. Read aloud the instructions:

SAY: **"There are numbers and letters in circles on this page. Please take the pencil and draw a line, alternating in order between the numbers and letters. Start at number 1** [point to the number], **then go to the first letter, A** [point to the letter], **then go to the next number, 2** [point to the number], **and then the next letter, B** [point to the letter], **and so on. Please try not to lift the pencil as you move from one number or letter to the next. Work as quickly as you can."**

If the participant makes an error, mark through the line and go back to the point at which the error was made and say, for example, **"You were at number 2. What is the next letter?"** Wait for the participant's response. If it is correct, say **"Please start here** [point to the 2] **and continue."** If the participant picks the wrong item, say **"The next letter would be B** [point to the B]." Then point to the 2 and say **"Please start here and continue."** If the participant cannot complete the sample and clearly does not comprehend the task, do not administer the test. Enter the appropriate code (996 = cognitive/behavioral problem).

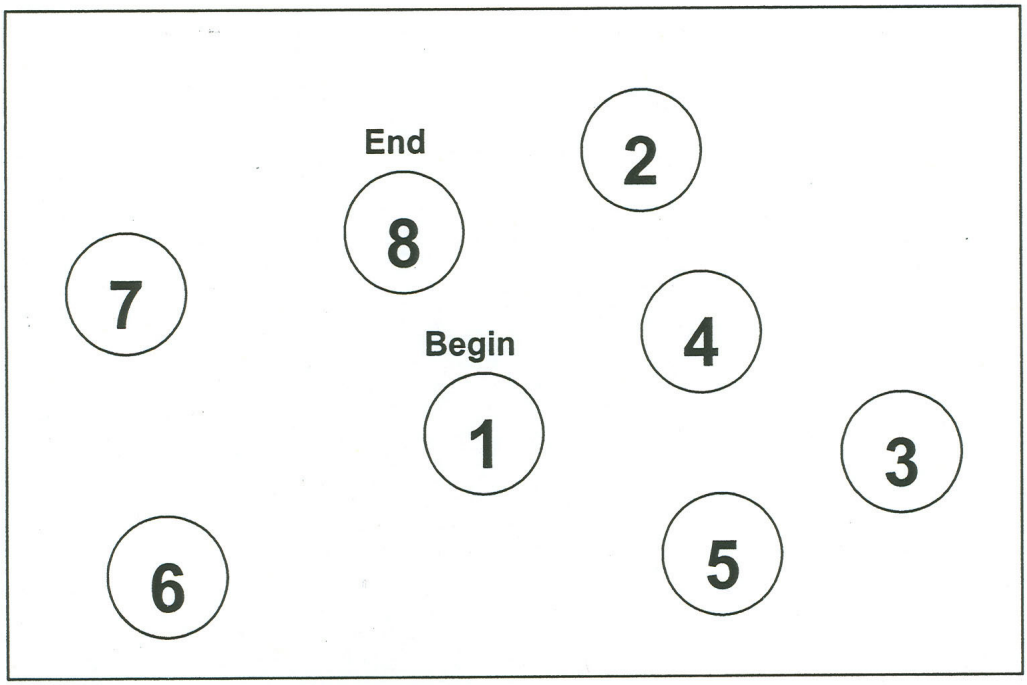
If the participant completes the sample correctly, go to TEST B.

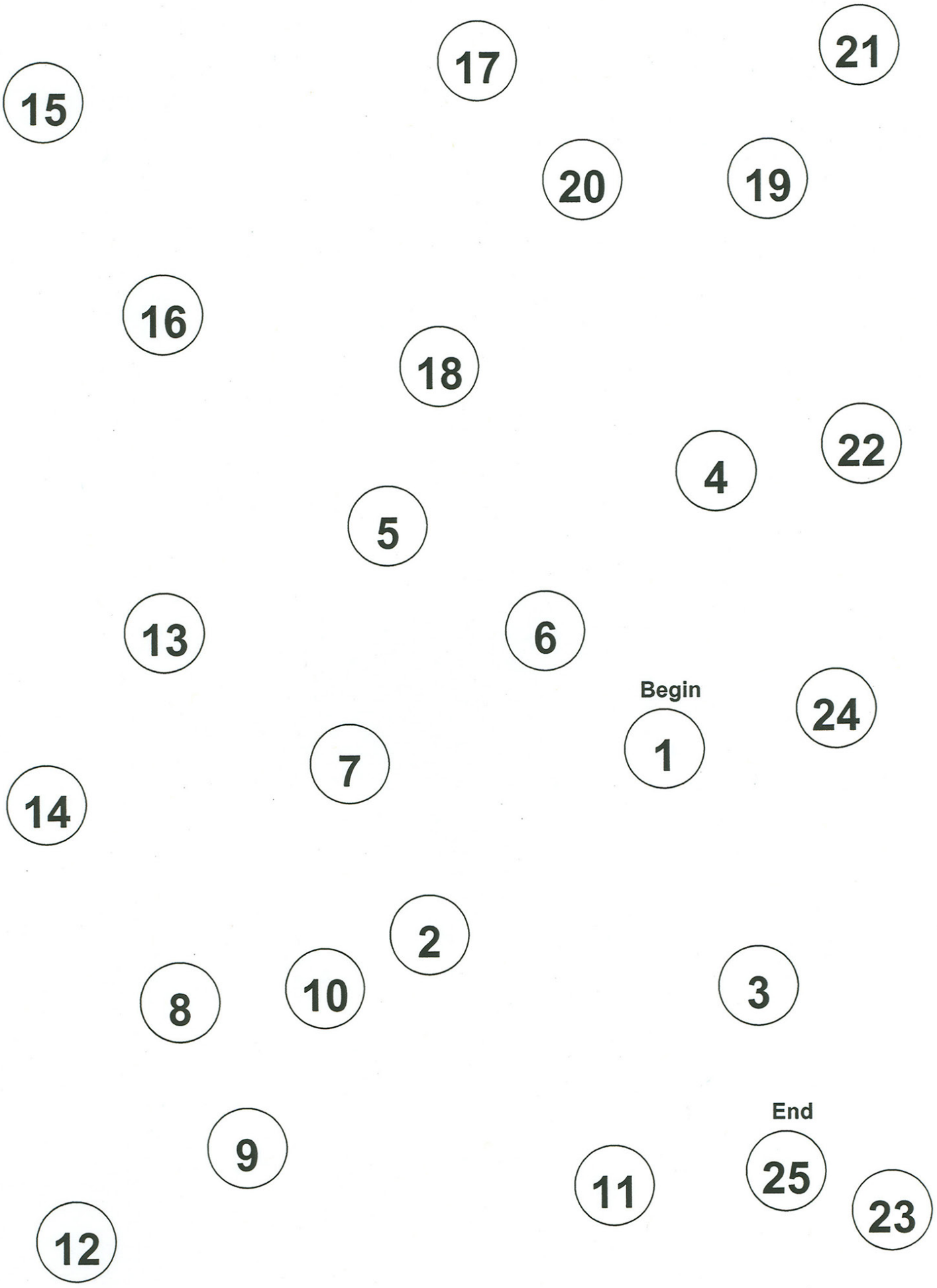
Say: **"On this page, there are more numbers and letters in circles. Please take the pencil and draw a line from one circle to the next, alternating in order between the numbers and letters. Start at 1** [point to the "Begin" number] **and end here** [point to the "End" number]. **Please try not to lift the pencil as you move from one circle to the next. Work as quickly as you can."** Start timing as soon as the instruction is given to begin.

Note: In giving the instructions for the test form (as opposed to the sample), the examiner tells the participant to move from one circle to the next and does not use the words "number" or "letter."

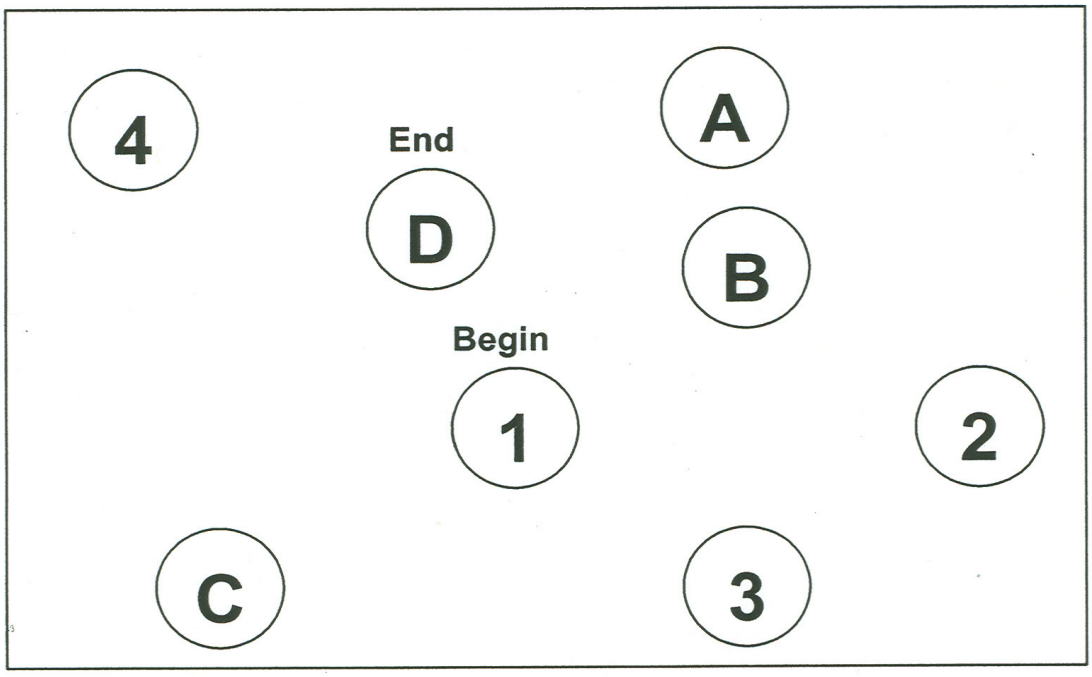
If the participant makes an error, mark through the line and say, **"That one was not correct."** Point to the last correct item and say, **"Please start here and continue."** This is done for each error. Do not indicate whether the next item should be a number or a letter. The examiner should attempt to provide corrections as quickly as possible. Stop timing when the Trail is completed, or stop participant when the maximum time is reached. Allow a maximum of 300 seconds for the test.

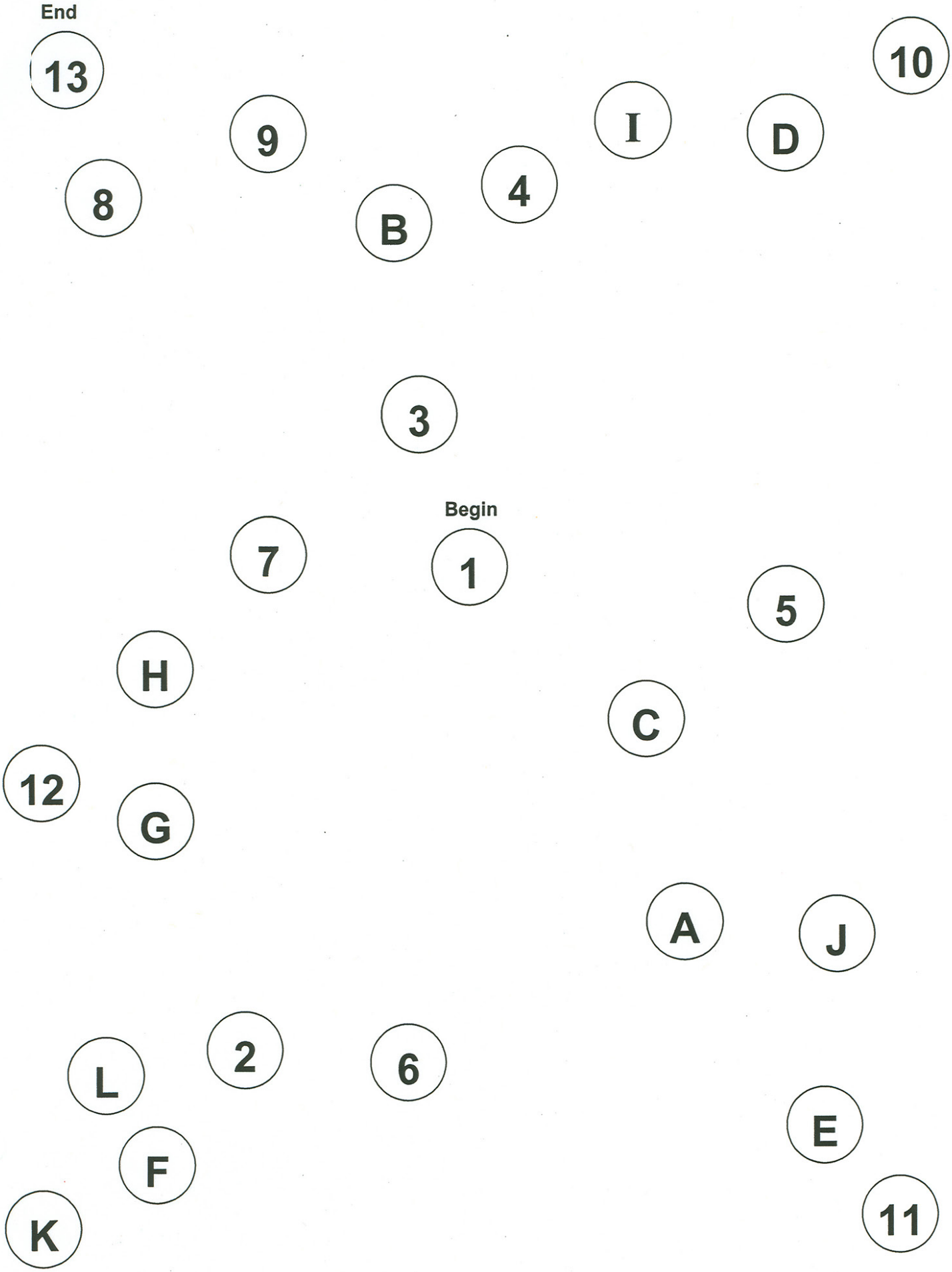
Sample A




15
17
21
20
19
16
18
22
4
5
13
6
Begin
24
1
7
14
2
8
10
3
End
9
11
25
23
12

Sample B




End
13
10
9
I
D
8
4
B
3
Begin
7
1
5
H
C
12
G
A
J
2
6
L
E
F
11
K

Benson Complex Figure Copy (Delayed)

The interval between copy and recall of the Benson figure should be 10–15 minutes.

SAY: **"Remember that figure that I asked you to copy a while ago? I want you to draw as much of it as you can remember."**

Note order of completion.

	1. Four-sided, 90° angles, width > height, any gaps or overlaps < 8mm	☐ 0	☐ 1	☐ 2
	2. Reasonably straight lines; any gaps or overlaps < 8mm	☐ 0	☐ 1	☐ 2
	3. Connects at middle third, no overlap with diagonals	☐ 0	☐ 1	☐ 2
	4. Reasonably round, doesn't touch sides	☐ 0	☐ 1	☐ 2
	5. Vertical lines > 1/2 distance to diagonals, width > height, 90° angles	☐ 0	☐ 1	☐ 2
	6. Connects below #3, top of square above bottom	☐ 0	☐ 1	☐ 2
	7. Vertex corresponds to middle third; any gaps or overlaps <8mm	☐ 0	☐ 1	☐ 2
	8. Gap between #8 and #7 <5mm, angle at end of stem = 90°	☐ 0	☐ 1	☐ 2
	BONUS	☐ 0	☐ 1	

Time of day design completed: ___ ___ : ___ ___ ☐ AM ☐ PM

TOTAL SCORE (circle one): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

RECOGNITION

SAY: **Which of the figures was the one you copied before?**

Did participant recognize original stimulus from among four options? ☐ 0 No ☐ 1 Yes

SCORING: For scoring guidelines, please see *NACC Uniform Data Set (UDS) Instructions for Neuropsychological Tests*. Each figural element is scored as 2 points if the element is drawn accurately and placed correctly in the figure (1 point for accuracy, 1 point for placement). Score 1 point if the element is poorly drawn but placed correctly or is correctly drawn but misplaced, and 0 points if the element is neither accurately drawn nor correctly placed.

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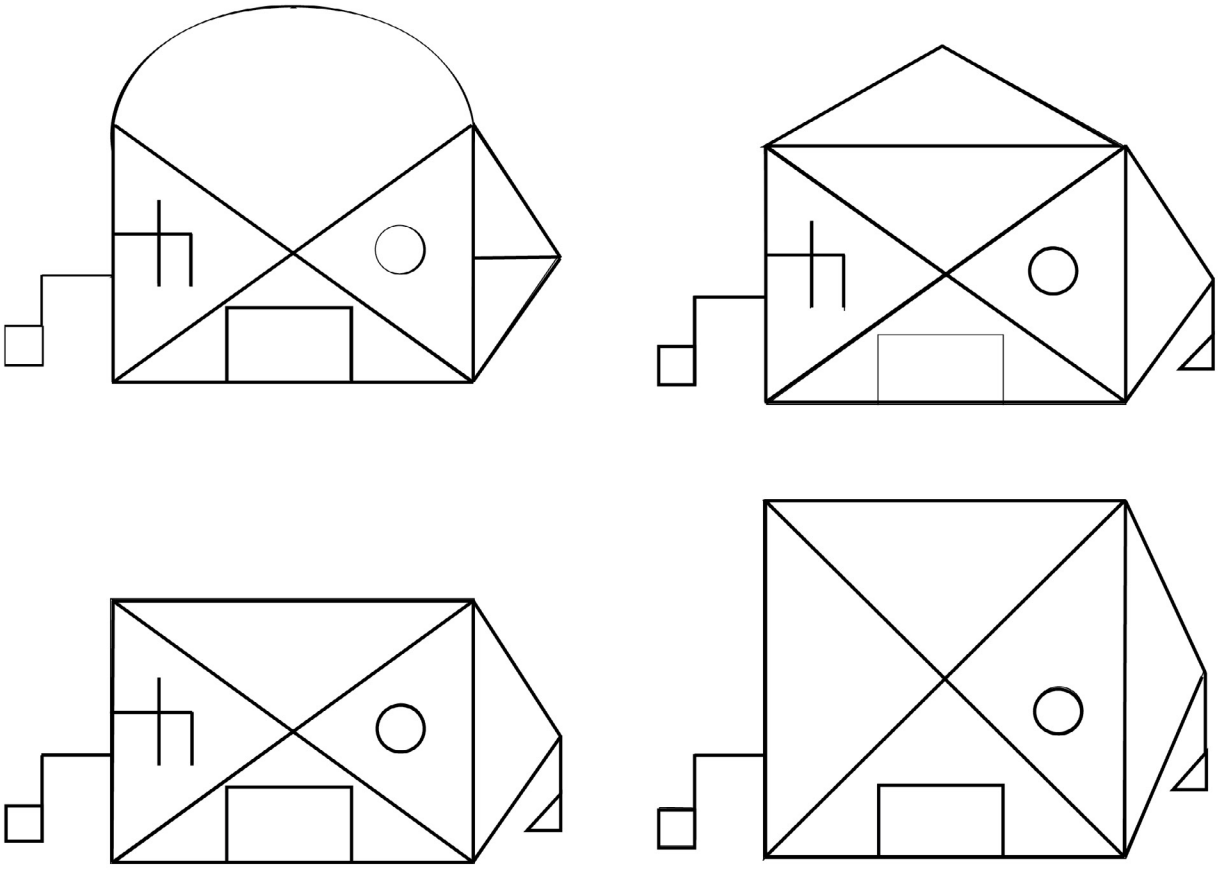

Craft Story 21 Recall (Delayed)

INSTRUCTIONS: Administer this test approximately 20 minutes after Craft Story 21 Recall (Immediate), making note of the time administration of Craft Story 21 Recall (Delayed) began. Note: If 20 minutes have not elapsed, do not add other tests to fill the interval. You may obtain other data, such as blood pressure, weight, etc. Administer Craft Story 21 Recall (Delayed) and record the actual time elapsed.

SAY: "**I read you a story a few minutes ago. Can you tell me what you remember about that story now?"**

If the participant does not recall the story or having been told a story, make a note as indicated below and SAY**: "It was a story about a boy. Can you tell it to me now?"**

Maria's / child / Ricky / played / soccer / every / Monday /

at 3:30. / He / liked / going / to the field / behind / their / house /

and joining / the game. / One / day, / he / kicked / the ball / so / hard /

that it / went / over / the neighbor's / fence / where three / large /

dogs / lived. / The dogs' / owner / heard / loud / barking, / came /

out, / and helped / them / retrieve / the ball.

Record time administration began: ☐

Total story units recalled (VERBATIM SCORING): ___ ___ / 44

Total story units recalled (PARAPHRASE SCORING): ___ ___ / 25

Time elapsed since Craft Story 21 Recall (IMMEDIATE): ___ ___ minutes

Cue ("boy") needed: ☐ No ☐ Yes

Craft Story 21 Recall (Delayed): Verbatim Scoring

PERFECT VERBATIM RESPONSE (**1.0 POINT**): Give the participant 1 point for every bit for which content words are recalled exactly and completely. Allowances can be made for variations of verbs (e.g., "likes" for "liked," "join" for "joining") and minor omissions (e.g., "neighbor" for "neighbor's") or changes in number (e.g., "games" for "game"). The content words do not need to be recalled by the participant in the same order they were read to receive credit. The words can appear anywhere in the recall.

Maria's	
child	
Ricky	
played	
soccer	
every	
Monday	
three thirty	
he	
liked	
going	
field	
behind	
their	
house	
joining	
game	
one	
day	
he	
kicked	
ball	

so	
hard	
it	
went	
over	
neighbor's	
fence	
three	
large	
dogs	
lived	
dogs'	
owner	
heard	
loud	
barking	
came	
out	
helped	
them	
retrieve	
ball	
Total	

Scoring

Number of items recalled for verbatim scoring (DELAYED RECALL SCORE): ___ ___ / 44

Guidelines for Paraphrase Scoring, Craft Story 21

Item	General Rule	Alternative 1-point responses	0-point responses	Points
Maria's	"Maria" or a variant of the name	Mary, Marie	Martha, Anna	
child	"child" or a phrase denoting it was a young person	son, kid, boy, teenager, young man	guy, children, daughter	
Ricky	"Ricky" or a variant of the name	Rick, Rich, Richie, Richard, Ricardo	Randy, Rusty, Robert	
played	"played" is required	to play, plays	did (soccer)	
soccer	"soccer" is required	futbol	baseball, volleyball, other sport	
every Monday	"Monday" or an indication that it occurred on a weekday	—	every day, another day of the week	
at 3:30	an indication that the activity took place in the afternoon	after school, every afternoon	after dinner, at night, in the morning	
He liked going to the field	an indication that he went to an outdoor area	went outside, went to the yard, going to the backyard	went to the school, gym	
behind their house	"house" or word denoting a house	home, residence, where they lived	any other building	
and joining	an indication that he participated in a game	played w/ other kids, became part of the team, playing w/the team	watching, played in the park	
the game.	"game" in any context	—	—	
One day	"One day" is required	—	—	
he kicked	indication that he performed the activity with his foot	booted, punted	threw, hit (with no mention of the foot)	
the ball	"Ball" is required	football, soccer ball	baseball, volleyball	
so hard	an indication that force was used	so much force, so strongly, (kicked it) so far	—	
that it went over	"Over" is required	—	—	
the neighbor's	an indication that the person lived in the same area	nearby resident	friend's	
fence	"fence" or a word denoting a fence of some kind	garden wall, wall	property line, street	
where three	"Three" is required	three (boys)	—	
large dogs lived.	an indication that there were dogs present	hounds, doggies	puppies, cats, kittens, other animals	
The dogs' owner	an indication that the person was responsible for the dogs	neighbor (if owner implied and "neighbor" mentioned twice)	a bystander, the police	
heard loud barking	an indication that the dogs were making noise	yelping, baying, yapping, heard the dogs	saw the dogs running around	
came out	a word or phrase indicating that the owner was present	(owner) saw the ball	his mother came out, the dogs came out	
and helped them	a word or phrase indicating that help was provided	assisted, aided, had to help	—	
retrieve the ball.	an indication that they got the ball back	gave him the ball, return the ball, (helped him) get the ball	—	

Number of items recalled for paraphrase scoring (DELAYED RECALL SCORE): ___ ___ / 25 maximum

Verbal Fluency: Phonemic Test

MATERIALS

1-Minute Timer

SAY: **"I'm going to say a letter of the alphabet. When I ask you to start, tell me as many words as you can that begin with that letter. You will have 1 minute before I tell you to stop. None of the words can be numbers, names of people, or places.**

"For example, if I gave you the letter B, you could say brown, bottle, or bake, but you wouldn't say Barbara, Boston, or billion. Also, please try not to give me the same word with different endings. So if you said bake, you wouldn't also say baked or bakes. And if you said big, you wouldn't also say bigger or biggest.

"Let's begin. Tell me all the words you can, as quickly as you can, that begin with the letter F. Ready? Begin."

ADMINISTRATION

Start timer after completing instructions. Write actual responses as legibly as possible. Stop the procedure at 60 seconds.

PROMPTS

1. If the participant pauses for 15 seconds:
   - **"Keep going."**
   - **"What other words beginning with F can you think of?"**
2. If the participant gives three consecutive words that do not start with the designated letter (*provide this prompt only once during this condition*):
   - **"We are now using the letter F."**

Record **F** responses:

1.	11.	21.	31.
2.	12.	22.	32.
3.	13.	23.	33.
4.	14.	24.	34.
5.	15.	25.	35.
6.	16.	26.	36.
7.	17.	27.	37.
8.	18.	28.	38.
9.	19.	29.	39.
10.	20.	30.	40.

SCORING Number of correct **F-words** generated in 1 minute (0–40) ____ ____

Number of **F-words** repeated in 1 minute (0–15) ____ ____

Number of **non-F-words** and rule violation errors in 1 minute (0–15) ____ ____

SAY: "**Now I want you to do the same for another letter. The next letter is L. Ready? Begin."**

Start timer after completing instructions. Write actual responses as legibly as possible. Stop the procedure at 60 seconds.

PROMPTS

1. If the participant pauses for 15 seconds:
   - **"Keep going."**
   - **"What other words beginning with L can you think of?"**
2. If the participant gives three consecutive words that do not start with the designated letter (*provide this prompt only once during this condition*):
   - **"We are now using the letter L."**

Record **L** responses:

1.	11.	21.	31.
2.	12.	22.	32.
3.	13.	23.	33.
4.	14.	24.	34.
5.	15.	25.	35.
6.	16.	26.	36.
7.	17.	27.	37.
8.	18.	28.	38.
9.	19.	29.	39.
10.	20.	30.	40.

SCORING

Number of correct **L-words** generated in 1 minute (0–40) ____ ____

Number of **L-words** repeated in 1 minute (0–15) ____ ____

Number of **non-L-words** and rule violation errors in 1 minute (0–15) ____ ____

TOTAL number of correct **F-words and L-words** (0–80) ____ ____

TOTAL number of **F-word and L-word** repetition errors (0–30) ____ ____

TOTAL number of **non-F/L words** and rule violation errors (0–30) ____ ____

Verbal Learning Tests

Please select either

☐ the Rey AVLT (beginning on page 29)

OR

☐ the CERAD Word Memory test (beginning on page 35)

Rey Auditory Verbal Learning Test – Immediate

INSTRUCTIONS:	
List A, Trial 1	**"I am going to read a list of words. Listen carefully, for when I stop, you are to say back as many as you can remember. It doesn't matter in what order you repeat them. Just try to remember as many as you can."** *Read List A, at a rate of 1 word every second, then record responses. Note the order of recall for correct responses (i.e., 1, 2, 3, ...); do not record repetitions or intrusions in the order of recall. Use another mark to note repetitions (e.g., "R" or a symbol), and track intrusions in the box at the foot of the table.*
List A, Trials 2-5	**"I am going to read the same list again, and once again when I stop, I want you to tell me as many of the words as you can remember, including words you have said before. It doesn't matter in what order you say them, just say as many words as you can remember, whether or not you said them before."** *Repeat,* **"Now I am going to read the same list again..."** *for Trials 2 through 5 with List A.*
List B	**"Now I am going to read a second list of words. This time, again you are to say back as many words of this second list as you can remember. Again, the order in which you say the words does not matter. Just try to remember as many as you can."** *Read List B at the rate of 1 word every second, record responses. Note the order of recall for correct responses; do not record order of recall for repetitions or intrusions.*
Trial 6	**"Now tell me all the words you remember from the first list."** *Record responses. Note the order of recall for correct responses; do not record order of recall for repetitions or intrusions.*

List A	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	List B	List B Recall	Trial 6 (List A)	Do Not Repeat
DRUM						DESK			DRUM
CURTAIN						RANGER			CURTAIN
BELL						BIRD			BELL
COFFEE						SHOE			COFFEE
SCHOOL						STOVE			SCHOOL
PARENT						MOUNTAIN			PARENT
MOON						GLASSES			MOON
GARDEN						TOWEL			GARDEN
HAT						CLOUD			HAT
FARMER						BOAT			FARMER
NOSE						LAMB			NOSE
TURKEY						NAIL			TURKEY
COLOR						PENCIL			COLOR
HOUSE						CHURCH			HOUSE
RIVER						FISH			RIVER
TOTAL RECALL						TOTAL RECALL			
INTRUSIONS						INTRUSIONS			

Record the time after recall of Trial 6 (delay begins): ___ ___ : ___ ___ ☐ AM ☐ PM

Administer Delayed Recall 20–30 minutes later.
Do not cue for the delayed recall.

Rey Auditory Verbal Learning Test — Delayed Recall and Recognition

INSTRUCTIONS:

Administer this test 20 to 30 minutes after the Rey Auditory Verbal Learning Test – Immediate, making note of the time the delayed recall began. **Fill the delay with additional tests or tasks that do not involve verbal encoding.** After the 20 to 30 minute delay, say: "**A short while ago, I read a list of words to you several times, and you were trying to learn these words. Tell me the words from this list again."** *Record responses. Note the order of recall for correct responses (i.e. 1, 2, 3,...); do not record repetitions or intrusions in the order of recall. Use another mark to note repetitions (e.g., "R" or a symbol), and track intrusions in the box at the foot of the table.*

Record the time when delayed recall was initiated (delay ends): ___ ___ : ___ ___ ☐ AM ☐ PM

List A *(Do Not Repeat)*	Delayed Recall
DRUM	
CURTAIN	
BELL	
COFFEE	
SCHOOL	
PARENT	
MOON	
GARDEN	
HAT	
FARMER	
NOSE	
TURKEY	
COLOR	
HOUSE	
RIVER	
TOTAL RECALL	
INTRUSIONS	

RAVLT Recognition

Administration format:

☐ Shown list with 30 words (circle targets) **(PRESENT NEXT PAGE TO PARTICIPANT)**
☐ Read aloud word-by-word (forced choice) **(USE THIS PAGE)**

INSTRUCTIONS FOR READING ALOUD:

Do not show this page directly to the participant.

SAY: **"I'm going to read to you a list that contains the words from the first list, the one I read several times. If the word was on the first list, say 'yes,' and if it was not on the first list, then say 'no.'"**

INSTRUCTIONS FOR SHOWING LIST:

Do not show this page directly to the participant.

Place list ***on next page*** in front of participant.

SAY: **"Please circle the words that were from the first list, the one I read several times."**

TEACHER	☐ Yes	☐ No	COFFEE	☐ Yes	☐ No
RIVER	☐ Yes	☐ No	ROAD	☐ Yes	☐ No
BRIDGE	☐ Yes	☐ No	HAT	☐ Yes	☐ No
FARMER	☐ Yes	☐ No	TURKEY	☐ Yes	☐ No
PEN	☐ Yes	☐ No	MINUTE	☐ Yes	☐ No
FOREHEAD	☐ Yes	☐ No	NOSE	☐ Yes	☐ No
KERCHIEF	☐ Yes	☐ No	SCHOOL	☐ Yes	☐ No
HOUSE	☐ Yes	☐ No	BELL	☐ Yes	☐ No
MOON	☐ Yes	☐ No	FACE	☐ Yes	☐ No
COLOR	☐ Yes	☐ No	GARDEN	☐ Yes	☐ No
BEET	☐ Yes	☐ No	CLASSROOM	☐ Yes	☐ No
CURTAIN	☐ Yes	☐ No	PARENT	☐ Yes	☐ No
FLOOR	☐ Yes	☐ No	CHILDREN	☐ Yes	☐ No
SOLDIER	☐ Yes	☐ No	BROOMSTICK	☐ Yes	☐ No
DRUM	☐ Yes	☐ No	NAIL	☐ Yes	☐ No

TOTAL CORRECT:	
TOTAL FALSE POSITIVES:	

RAVLT Recognition

Teacher	Coffee
River	Road
Bridge	Hat
Farmer	Turkey
Pen	Minute
Forehead	Nose
Kerchief	School
House	Bell
Moon	Face
Color	Garden
Beet	Classroom
Curtain	Parent
Floor	Children
Soldier	Broomstick
Drum	Nail

Cues for Rey AVLT Recognition

INSTRUCTIONS:

The participant may ask you to clarify the word on the recognition list, due to hearing challenges over the phone or video. If so, you may use the descriptions below to explain each word. Do not use these descriptions on the learning trials, or immediate and delayed recall.

TEACHER	A person who teaches, especially in a school
RIVER	A large natural stream of water flowing to a sea or lake
BRIDGE	A structure over a river or road
FARMER	A person who owns or manages a farm, raising animals or growing crops
PEN	A writing instrument
FOREHEAD	The part of the face above the eyebrows
KERCHIEF	A piece of fabric used to cover the head
HOUSE	The building people live in
MOON	In the sky at night
COLOR	Like the color blue or red
BEET	The plant that grows in the ground
CURTAIN	A piece of material that covers windows
FLOOR	What you walk on in a room
SOLDIER	A person who serves in an army
DRUM	An instrument
COFFEE	A hot drink made in the morning
ROAD	What cars drive on
HAT	What someone wears on their head
TURKEY	The bird
MINUTE	As in, 60 seconds
NOSE	The part of the face between the eyes
SCHOOL	Where children go to learn
BELL	An instrument that rings
FACE	The part of your head where your eyes and nose are
GARDEN	Where to grow vegetables, herbs, and flowers
CLASSROOM	A room in a school
PARENT	A mother or father
CHILDREN	Kids or a child
BROOMSTICK	What is used to sweep the floor
NAIL	A small piece of metal for holding wood together

CERAD Neuropsychological Assessment Battery — Word List Tasks

INSTRUCTIONS:

J4 Word List Memory Task

To assess participants' ability to remember newly learned information, we administer this free recall task, using 10 common nouns. To ensure that participants are familiar with and attend to each word, they are asked to read the words printed on separate cards in the CERAD "flip" book. The ten words on the flip cards are presented at a constant rate of 1 word every second, and then the participant is immediately asked to recall as many as possible. There are three trials, each of which presents the words in a different order.

The instructions for the first trial are:

SAY: "I am going to show you 10 printed words. Read each word out loud as I show it to you. Later I will ask you to recall all 10 words."

Show the words in the first set at the rate of one word every second. If the participant cannot read the word, say it for them and check the "can't read" column for that word. After the last word has been read, ask the participant to recall as many words as they can. Note the order of recall for correct responses (i.e., 1, 2, 3,...); do not record repetitions or intrusions in the order of recall. Allow a maximum of 90 seconds.

Continue with the second and third sets of words in the same way, changing your instructions slightly to encourage the participant. The participant's score for each trial is the number of words correctly recalled. Be sure also to record on each trial the number of words that the participant "recalls" that are not on the list (intrusions).

(Exposure time: 1 word every second; Recall time: 90 seconds per trial maximum)

CHECK EACH WORD AS IT IS RECALLED

Can't read	Trial 1		Can't read	Trial 2		Can't read	Trial 3	
☐	Butter	___	☐	Ticket	___	☐	Queen	___
☐	Arm	___	☐	Cabin	___	☐	Grass	___
☐	Shore	___	☐	Butter	___	☐	Arm	___
☐	Letter	___	☐	Shore	___	☐	Cabin	___
☐	Queen	___	☐	Engine	___	☐	Pole	___
☐	Cabin	___	☐	Arm	___	☐	Shore	___
☐	Pole	___	☐	Queen	___	☐	Butter	___
☐	Ticket	___	☐	Letter	___	☐	Engine	___
☐	Grass	___	☐	Pole	___	☐	Ticket	___
☐	Engine	___	☐	Grass	___	☐	Letter	___
Intrusions:			**Intrusions:**			**Intrusions:**		
_____			_____			_____		
_____			_____			_____		
_____			_____			_____		
_____			_____			_____		

Can't read Trial 1: ___ ___

Can't read Trial 2: ___ ___

Can't read Trial 3: ___ ___

Trial 1 Total: ___ ___

Trial 1 Intrusions: ___ ___

Trial 2 Total: ___ ___

Trial 2 Intrusions: ___ ___

Trial 3 Total: ___ ___

Trial 3 Intrusions: ___ ___

Record the time after recall of J4 Word List (delay begins): ___ ___ : ___ ___ ☐ AM ☐ PM

CERAD Neuropsychological Assessment Battery — Word List Recall

INSTRUCTIONS:

J6 Word List Recall

This task is to determine how well participants can remember the words presented in form J4 **after 5 minutes. Fill the delay with additional tests or tasks that do not involve verbal encoding.** The instructions for this recall task are:

SAY: "A few minutes ago I asked you to learn a list of ten words which you read one at a time from cards. Now I want you to try to recall as many of those 10 words as you can. OK, now tell me as many of those ten words as you can remember."

Allow the participant a maximum of 90 seconds. Number each word in its corresponding block on the response sheet in the order it is recalled. Score the number of words correctly recalled. Also record and score the number of words not on the list (intrusions) that the participant reports.

(Maximum time: 90 seconds)

Record the time when delayed recall was initiated (delay ends): ___ ___ : ___ ___ ☐ AM ☐ PM

CHECK EACH WORD AS IT IS RECALLED	
Butter	☐
Arm	☐
Shore	☐
Letter	☐
Queen	☐
Cabin	☐
Pole	☐
Ticket	☐
Grass	☐
Engine	☐
Intrusions:	
_____	
_____	
_____	
_____	
_____	
_____	
_____	

Total recalled: ___ ___

Intrusions: ___ ___

CERAD Neuropsychological Assessment Battery — Word List Recognition

INSTRUCTIONS:

J7 Word List Recognition

The instructions for this recognition test are:

SAY: "Now I am going to show you a set of words printed on cards. Some of the words are from the list you saw earlier and some are words I haven't shown you before. I want you to say YES if the word I show you is from the list you saw earlier (show the first word). Is this one of the words you saw earlier?"

Note: If participant is not able to read the words shown during the J4 Word List Memory Task, the administrator should read the J7 word list rather than showing it to the participant.

Repeat the question or say, **"How about this one?"** for each word. Record the participant's response. The scores for this test include the number correctly recognized words previously seen (correct **"Yes"** responses) and the number of correctly rejected new words (correct **"No"** responses).

Urge participants to give "yes" or "no" responses, since "don't knows" are unscorable.

(Only YES or NO responses are acceptable.)

	CORRECT YES RESPONSE	CORRECT NO RESPONSE
School		1
Coffee		1
Butter*	1	
Dollar		1
Arm*	1	
Shore*	1	
Five		1
Letter*	1	
Hotel		1
Mountain		1
Queen*	1	
Cabin*	1	
Slipper		1
Pole*	1	
Village		1
String		1
Ticket*	1	
Troops		1
Grass*	1	
Engine*	1	

Total YES correct: ___ ___

Total NO correct: ___ ___

*Original word from Word List Memory Task

Multilingual Naming Test (MiNT)

INSTRUCTIONS AND CUEING:

SAY: **"I am going to show you some pictures of objects, one at a time. Please tell me the name of the object, that is, tell me what it is called. If you cannot think of the name try to make your best guess. If you don't know what the object is, I will try to help you. Do you have any questions?**

Stop testing after six consecutive failures.

				Uncued	Semantic cue		Phonemic cue	
Item #	English	Semantic cue	Spontaneous Response(s)	correct	correct	incorrect	correct	incorrect
1	Butterfly	an insect						
2	Glove	an article of clothing						
3	Lightbulb	used to see better and is turned on electrically						
4	Watch	used to tell the time						
5	Candle	is used in the dark to make light						
6	Clown	found in a circus						
7	Kite	a toy that uses the wind to make it fly						
8	Rainbow	it's colorful and is found in the sky after it rains						
9	Witch	a woman with magical powers						
10	Seesaw	found on a playground						
11	Flashlight	used to see better and is battery-operated						
12	Peacock	a bird						
13	Snail	an animal						
14	Whale	an ocean animal						
15	Cage	an enclosure for animals						
16	Nest	it's where birds lay their eggs						
17	Plug	found on electronic devices						
18	Wig	it's worn on the head						
19	Screw	it's like a nail but it grooves into wood or a wall						
20	Scarf	clothing worn on the neck						
21	Well	used to obtain water						
22	Dustpan	used to remove dust and trash						

				Uncued	Semantic cue		Phonemic cue	
Item #	English	Semantic cue	Spontaneous Response(s)	correct	correct	incorrect	correct	incorrect
23	Parachute	used to jump from airplane						
24	Blind	used to block out light						
25	Hinge	part of a door						
26	Funnel	used for pouring liquid from one container to another						
27	Gauge	used to measure air pressure						
28	Porthole	found on a ship						
29	Anvil	used for shaping metal						
30	Mortar	used to grind different substances						
31	Pestle	used to grind different substances						
32	Axle	a supporting shaft on which wheels revolve						

SCORING:

(1.0 point for each correct answer under Uncued or Semantic columns, 0.0 points for correct answer under Phonemic column)

a. Total correct without a cue ("Uncued" column): ___ ___

b. Total correct with a semantic cue given ("Semantic" column): ___ ___

c. **Total correct (sum of a + b, maximum of 32):** ___ ___