Neurocognitive Test Battery Examiner's Packet
ARIC Visits 9 & 11 and ACHIEVE Annual Visits

ID NUMBER: ☐☐☐☐☐☐☐

DATE: 03/24/2021
VERSION 5.0

ADMINISTRATIVE INFORMATION

0a. Completion Date: ☐☐ / ☐☐ / ☐☐☐☐
 Month   Day   Year

0b. Staff ID: ☐☐☐

Materials Needed to the Complete the Battery:	
Card with Pentagons and "Close your eyes" card (MMSE) – 5x8	Incidental Learning Template
MMSE Scoring Key for Spelling WORLD Backwards	Set of 2 Trail Making Tests (A and B) on card stock per participant. Each card will have the sample on the front and the test on the back.
Pencil	Boston Naming Binder
Wrist Watch	Do Not Disturb Sign for the door during the exam
1 Sheet of Paper	Audio Recorder
Set of 10 cards for the Delayed Word Recall – 5x8	Clipboard
Digit Symbol Substitution Form	Stop Watch
Digit Symbol Substitution Scoring Transparency	

Neurocognitive Test Battery Packet Contents	
Block A	**Block B**
Ensuring Speech Understanding (ESU)	Logical Memory I
Mini Mental Status Exam (MMEO or MMEE)	Digit Span Backwards
Delayed Word Recall (DWR)	Trails A & B
Digit Symbol Substitution (DSS)	Boston Naming
Incidental Learning	Logical Memory II
Word Fluency (FAS)	**Neurocognitive Summary Form (NCS)**
Animal Naming	

Ensuring Speech Understanding

Materials: Black pen

Instructions and script:
"Listen carefully because I am going to read you several sentences. After I read each sentence, try to repeat out loud as much of the sentence as possible. The first sentence is…"
Read each sentence slowly (~2-3 seconds) articulating clearly with normal inflections. No repetitions are allowed. Circle and sum the bolded words that are repeated correctly.

Trial 1		Score
If the total score for Trial 1 ≥13, stop ESU and proceed with the neurocognitive testing per protocol. If the total score for Trial 1 is ≤12, proceed with Trial 2 below using a slightly louder tone of voice.	1. The **player** **lost** the **shoe**.	
	2. The **fire** is **very** **hot**.	
	3. A **lady** **wore** a **coat**.	
	4. The **kitchen** **window** was **clean**.	
	5. **Strawberry** **jam** is **sweet**.	
	TOTAL SCORE	

Trial 2		Score
If the total score for Trial 2 ≥13, stop ESU and proceed with the neurocognitive testing per protocol. If the total score for Trial 2 is ≤12, proceed with neurocognitive testing using a slightly louder tone of voice and supplement verbal instructions with written prompts where appropriate.	1. The **book** **tells** a **story**.	
	2. The **team** is **playing** **well**.	
	3. A **boy** **did** a **handstand**.	
	4. **Mother** **opened** the **drawer**.	
	5. The **fish** **swam** in a **pond**.	
	TOTAL SCORE	

MINI MENTAL STATE EXAM

FORM CODE: | M | M | E | O | or | M | M | E | E |*

*The only difference between the MMEO and MMEE form is the three recall words (#11-13 & 24-26).
These words will change year to year. MMEO for odd years=face-velvet-daisy; MMEE for even years=blue-pear-sofa

Materials: Black pen, pencil, wrist watch, one sheet of paper, pentagon drawing and "Close your eyes" card

Scoring note:

Items which are not attempted due to a <u>physical disability</u> (e.g., vision or hearing loss) should be marked as "Not Attempted."

Items which are not administered due to <u>cognitive impairment</u> should be marked as "Incorrect."

"In this next part of the exam I will ask you some questions and give you some short tasks that will require memory and concentration. Some may be a little bit more difficult than others."

	CORRECT	INCORRECT/ DON'T KNOW	NOT ATTEMPTED/ REFUSED
0c. What is your full name?	☐1	☐0	☐0
0d. How old are you?	☐1	☐0	☐0
0e. What is the full date of your birth?	☐1	☐0	☐0
0f. Without looking at a clock or watch, what is the approximate time of day? Score as correct if within one hour of the actual time.	☐1	☐0	☐0
1. What year is this?	☐1	☐0	☐0
2. What season is this? Winter: Dec, Jan, Feb, March / Spring: March, April, May, June / Summer: June, July, August, Sept / Fall/Autumn: Sept, Oct, Nov, Dec	☐1	☐0	☐0

	CORRECT	INCORRECT/ DON'T KNOW	NOT ATTEMPTED/ REFUSED
3. What month is this? *Score as correct if within one day of the actual month.*	☐ 1	☐ 0	☐ 0
4. What is the day of the week? *If the participant gives the date instead of the day, give credit for date and say, "Good, and what day of the*	☐ 1	☐ 0	☐ 0
5. What is the date?	☐ 1	☐ 0	☐ 0
6. What state are we in?	☐ 1	☐ 0	☐ 0
7. What city is this?	☐ 1	☐ 0	☐ 0
8. What county do you live in?	☐ 1	☐ 0	☐ 0
9. What is the name of this place where we are right now?	☐ 1	☐ 0	☐ 0
10. Are we on the ground floor or a higher floor of this building?	☐ 1	☐ 0	☐ 0

"I am going to name three objects. After I have said all three words, I want you to repeat them all back to me. Ready? Repeat these words after me: _____-_____-_____. Please try to remember what they are, because I am going to ask you to name them again in a few minutes."

Be sure to use the words for the appropriate year (noted below). Circle the set of words used.

If participant is unable to recall all three words, repeat up to 2 additional trials until he/she correctly names all three objects, but score only the first trial.

2021	2022	2023	CORRECT	INCORRECT/ DON'T KNOW	NOT ATTEMPTED/ REFUSED
11. Face	**Blue**	**Face**	☐ 1	☐ 0	☐ 0
12. Velvet	**Pear**	**Velvet**	☐ 1	☐ 0	☐ 0
13. Daisy	**Sofa**	**Daisy**	☐ 1	☐ 0	☐ 0

How do you spell the word "World?" *(If unable to spell: **It's spelled W-O-R-L-D**). Coach only once and then continue with the second part of the question, even if the performance in spelling forward is not perfect.*			
How would you spell it backwards? Record the order of the letters given. Refer to scoring template to assign credit (e.g., DROW = 4 correct). *Allow additional trials if requested.*	**CORRECT**	**INCORRECT/ DON'T KNOW**	**NOT ATTEMPTED/ REFUSED**
Record response: _____ _____ _____ _____ _____			
14. D	☐ 1	☐ 0	☐ 0
15. L	☐ 1	☐ 0	☐ 0
16. R	☐ 1	☐ 0	☐ 0
17. O	☐ 1	☐ 0	☐ 0
18. W	☐ 1	☐ 0	☐ 0

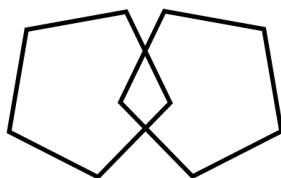|	**CORRECT**	**INCORRECT/ DON'T KNOW**	**NOT ATTEMPTED/ REFUSED**
19. Point to a pencil. Ask, **"What is this called?"**	☐ 1	☐ 0	☐ 0
20. Point to a watch. Ask, **"What is this called?"**	☐ 1	☐ 0	☐ 0
21. Repeat this phrase after me: "No ifs, ands, or buts."	☐ 1	☐ 0	☐ 0
22. Please write any complete sentence you can think of on this piece of paper.	☐ 1	☐ 0	☐ 0

Have the participant write a sentence of his/her choice. Ignore grammar, spelling and punctuation. *If needed, prompt by saying,* **'Write a sentence about the weather."** <u>Note dominant hand used.</u>

	CORRECT	**INCORRECT/ DON'T KNOW**	**NOT ATTEMPTED/ REFUSED**
23. Here is a drawing. Please copy the drawing on this piece of paper. 	☐ 1	☐ 0	☐ 0

Hand the participant a piece of paper and the pentagons card. Orient the card as shown. <u>Allow 1 minute</u> for copying. Score 1 if all sides and angles are preserved and two five-sided figures intersect to form a four-sided figure. Ignore tremor, rotation, minor gaps, and self-correction.   <u>Note dominant hand used.</u>

Now what were those 3 objects I asked you to remember? Provide no hints.			CORRECT	INCORRECT/ DON'T KNOW	NOT ATTEMPTED/ REFUSED
2021	2022	2023			
24. Face	Blue	Face	☐ 1	☐ 0	☐ 0
25. Velvet	Pear	Velvet	☐ 1	☐ 0	☐ 0
26. Daisy	Sofa	Daisy	☐ 1	☐ 0	☐ 0

Listen carefully because I'm going to ask you to do something. Hold up a piece of paper in plain view of the participant but out of reach. **Take this paper in your <non-dominant > hand** (pause), **fold it in half** (pause)**, and put it on the floor.** Substitute, **"Hand it back to me,"** if participant is disabled or bed- bound. After saying the entire command, hold the paper within reach of the participant (but not in favor of either hand). Do not repeat any individual part of the command. One repetition is permitted at the participant's request, but the entire command must be repeated verbatim. *If the participant reaches for the paper immediately after hearing the first portion of the command, move your hand away so that the paper is out of reach and continue to state the next two parts of the command without interruption.*

	CORRECT	INCORRECT/ DON'T KNOW	NOT ATTEMPTED/ REFUSED
27. Takes paper in correct hand	☐ 1	☐ 0	☐ 0
28. Folds paper in half	☐ 1	☐ 0	☐ 0
29. Places paper on floor	☐ 1	☐ 0	☐ 0

Please read this sentence out loud and then do what it says. Display sentence command "CLOSE YOUR EYES." Score 1 point only if the participant closes his/her eyes. As soon as the participant closes his/her eyes say, "**Open.**"	CORRECT	INCORRECT/ DON'T KNOW	NOT ATTEMPTED/ REFUSED
30. Closes eyes	☐ 1	☐ 0	☐ 0

31. MMSE TOTAL SCORE (CDART will calculate the score.)	
32. How many questions were not attempted due to EITHER refusal or physical disability? (Consider only Q1 to Q30. If all Q1-Q30 are answered, enter 0.)	_____

DELAYED WORD RECALL — EXPOSURE

Materials: Black pen, word cards, stopwatch

Instructions and script: "I am going to show you some words that I'd like you to try to remember. I will read each word first. I would like you to repeat the word I say out loud and then use it in a sentence — this will help you remember the words. Do not use words from a previous card in your sentence. The first word is…" Present the first card, etc.

Check each word in column A after the participant has read it aloud and used it in a sentence. *If the participant has trouble forming a sentence or offers associations, the examiner may offer suggestions. Encourage the participant to form sentences that convey the meaning of the word, e.g., do not allow sentences like, "The chimney is nice," but encourage statements like, "The smoke went up the chimney."* Sentences linking multiple words from the word list are not allowed. *If this occurs say,* **'Please use only one word from the cards in each sentence."** *Do not correct for homophone (sentence with flour vs. flower) or plurals. For other incorrect suffixes, (e.g., "ing", etc.) politely remind the participant of the correct word.*

After column A is completed say, **'To help you remember, we'll go through the words again. Just like before, I will read each word. Then I would like you to repeat the word and use it in a sentence. You may use the same sentence you used the first time or make up a different one. The first word is…"** Again present each card to the participant.

Check each word in column B after the participant has read it aloud and used it in a sentence the second time.

Words	A) Check after sentence	B) Check after sentence
Chimney	☐	☐
Salt	☐	☐
Harp	☐	☐
Button	☐	☐
Meadow	☐	☐
Train	☐	☐
Flower	☐	☐
Finger	☐	☐
Rug	☐	☐
Book	☐	☐

DIGIT SYMBOL SUBSTITUTION TASK

Score: _____

Materials: Black pen, Digit Symbol form, stopwatch

<u>**Instructions and Script:**</u>   Place Digit-Symbol form in front of the participant.

"This is the digit-symbol task. Look at these boxes across the top of the page. On the top of each box are numbers from one through nine. On the bottom of each box there is a special mark. Each number has its own mark."

Point to 1 and its mark, then to 2 and its mark.

"Down here are boxes with numbers in the top part, but the bottom part is empty." Point to the four rows. **"I want you to put the correct mark in each box like this."**

"Here is a 2; the 2 has this mark." Point to the first sample item, then to the mark below the 2 in the key. **"So I put it in this box, like this."**   Write in the symbol.

"Here is a 1; the 1 has this mark." Point to the second sample item, then to the mark below the 1 in the key. **"So I put it in this box."**   Write in the symbol.

"Here is a 3; the 3 has this mark." Point to the third sample item, then to the mark below the 3 in the key. **"So I put it in this box."** Write in the symbol.

"Now, just for practice, you fill in all the boxes up to this heavy line."

If the participant makes an error on a sample item, correct the error immediately and review the use of the key. Continue to help (if necessary) until the seven sample items have been filled in correctly. Do not proceed with the test until the participant clearly understands the task.

Look to see if a left-handed participant blocks the key when filling in the marks. If so, fold a separate template in half, exposing only the key, for the participant to use.

"Yes, now you know how to do them."

"When I tell you to begin, start here," point to the first test item **"and fill in as many boxes as you can, one after the other, without skipping any. Work as quickly as you can. When you finish one line,"** sweep finger across the first row**, "go on to the next one,"** sweep finger across the second row**. "Keep working until I tell you to stop and remember to work as quickly as you can."**

"Ready? Go ahead." Begin timing. <u>At the end of 90 seconds</u>, say, **"Stop. That's good, thank you."** <u>Examiner should be vigilant that timing is precise.</u>

If the participant skips an item or starts doing only one type (e.g., only the 1's), say, "**Do them in order. Don't skip any**." *Point to the first item skipped and say,* **"Do this one next."** *Do not stop timing. Credit is not given for items completed out of sequence (e.g., doing all the 1's). Credit is given for skipped items that are subsequently completed after being pointed out.*

Do not intervene if the participant fills in a wrong symbol, but if the participant has clearly lost focus as to what to do (e.g., starts filling in something other than symbols), you may give the following reminder: **"Remember, you are to fill in the mark that goes below each number, as indicated in the key up above."**

If the participant pauses at the end of a row or stops working, encourage him/her to continue say, **"Good, keep going."** *Point to the beginning of the next row, if necessary.*

Using the DSST transparency, count the number of correctly completed blocks and record the score on the summary form (the seven sample items are not included in the total score).

DELAYED WORD RECALL

Materials: Black pen

> **Instructions and script:**
>
> **A few minutes ago, you read and made a sentence with several words that were on those cards. Please tell me all of the words you can remember in any order. Ready? Begin.**
>
> <u>Allow 60 seconds</u>. After the participant's response (or after a pause of 10 seconds), provide one prompt for more words say, **"Can you think of any more words?"** Credit is given for plurals.
>
> Score 1 point for each word recalled.

Words	Check all words recalled
Chimney	☐
Salt	☐
Harp	☐
Button	☐
Meadow	☐
Train	☐
Flower	☐
Finger	☐
Rug	☐
Book	☐
TOTAL	_____

INCIDENTAL LEARNING

Materials: Black pen, pencil, IL template, stopwatch

Instructions and script: Place IL template in front of the participant.

PART A

"Now I'd like you to write down all of the symbols you can remember (point to the <u>bottom </u>row of the IL template)**, in any order, from the task you did a moment ago. Ready? Go ahead."**

<u>Allow 60 seconds.</u>

PART B

"Now I'd like you to fill in the numbers that you think go with each symbol (point to the <u>top </u>row of the IL template)**. Ready? Go ahead."**

<u>Allow 60 seconds.</u>

1. TOTAL SYMBOLS (regardless of pairing)	_____ Max = 9
2. TOTAL DIGIT-SYMBOL PAIRS (number of correct symbols correctly paired with corresponding numbers)	_____ Max = 9
Scoring note: The total # of digit pairs should not exceed the total # of symbols.	

WORD FLUENCY TASK

Materials: Black pen, stopwatch

<u>Instructions and script:</u> **"On this next task, I will say a letter. Then I want you to tell me as many different words as you can think of, as fast as you can, that begin with that letter.**

Leave out names of people, names of places, and numbers. So, if I were to say 'T,' you should not say words like 'Thomas,' 'Texas,' or the number 'Ten.' But, you could say words like 'table,' 'take,' or 'turtle.'

Also, do not use the same word again with a different ending. For example, if you said 'take,' then you should not say 'takes,' or 'taking.' These would all be considered the same word. Are you ready? Tell me as many words as you can think of that start with the letter F. I will tell you when to stop. Ready? Go."

Start the stopwatch. Record all words produced (use the back of the page if more space is needed). However, if the examiner can't keep up with the words produced and misses a word but is certain that the participant produced an admissible word, place an "X" on the line to indicate credit for the word. Place a single strike mark through inadmissible words, e.g., proper nouns (names or places), simple variations (adding "ed" or "ly"), plurals, and repetitions.

If the participant stops for more than 10 seconds, encourage further responses say, **"Can you think of any more words that start with the letter F?"** <u>Allow 60 seconds for each letter</u>. The next letter is not given until the entire 60 second period has passed.

After 60 seconds, instruct the participant to stop and proceed to the letter A saying, "**Stop. Thank you. Now, tell me as many words as you can think of that start with the letter A. I will tell you when to stop. Ready? Go."** Begin timing. Allow 60 seconds.

After 60 seconds, instruct the participant again to stop and proceed to the letter S saying, **"Stop. Okay, thank you. Now, tell me as many words as you can think of that start with the letter S. I will tell you when to stop. Ready? Go."** Begin timing. Allow 60 seconds.

Do not intervene for the occasional inadmissible word, however, if the participant has clearly lost focus as to what to do (e.g., begins naming only inadmissible words, such as numbers, or begins to name only variants of a previous word, such as "flower" followed by "rose," "daisy," etc.), clarify the instructions saying, **"Tell me words that start with F** (A or S) **but do not include numbers,"** (or people, etc. depending on the error).

If a participant asks if they have already said a word, do not say "yes" or "no." Instead, simply encourage more responses saying, **"It's okay; keep going."**

	F	A	S
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
TOTAL	_____	_____	_____

ANIMAL NAMING FORM

Materials: Black pen, stopwatch

Instructions and Script: **"Now we'll try something different. On this next task, I want you to tell me as many different animals as you can think of. Name them as quickly as you can. I will tell you when to stop. Ready? Go ahead."**

Start timing. <u>Allow 60 seconds</u>. Write down all of the words produced verbatim in the order in which they were presented. If production is too rapid for verbatim recording, the examiner may also indicate that an acceptable word was produced by simply making an "X" on the form. *If there is a pause of 10 seconds or more, repeat basic instructions and give the starting word "dog." If the participant discontinues before the end of the time period, encourage him/her to produce more names.*

Place a single strike mark through repetitions or plurals; these should only be counted once. Names of extinct, imaginary, or magical animals are admissible. Given names like "Fido" or "Spot" are not counted. Credit is given for: breeds (e.g., terriers; male, female, infant names of a species (e.g., bull, cow, calf); both superordinate and subordinate examples of a species (e.g., both dog and terrier are credited); birds; fish; reptiles; and insects. Prompt participant not to provide given names after 3 consecutive occurrences.

Score the total number of admissible animals (new examiners should check their count by audio tape for 2 months after initial certification).

Animals			
1		17	
2		18	
3		19	
4		20	
5		21	
6		22	
7		23	
8		24	
9		25	
10		26	
11		27	
12		28	
13		29	
14		30	
15		31	
16		32	

5 MINUTE BREAK

If administering Test Block A only:

Give the participant some encouraging words, for example, **"You did a great job. Now, we'll take a 5 minute break. After that we'll move to something new."**

If administering Test Block B:

Give the participant some encouraging words, for example, **"You are doing a great job. Now, we'll take a 5 minute break. After that we'll try a few more tasks and finish up this part of the exam."**

LOGICAL MEMORY I

Materials: Black pen, stopwatch

<u>Instructions and Script:</u> "**I am going to read you a little story. Listen carefully, and try to remember as many details of the story as you can. When I am through, I want you to tell me everything you can remember. The story is…**"

Read the story slowly (~ 30 seconds), articulating clearly, with normal inflections. No repetitions are allowed.

Story A	Total of each line
Anna / Thompson / of South / Boston, / employed / as a cook /	_____
in a school / cafeteria, / reported / at the City Hall / Station /	_____
that she had been held up / on State Street / the night before /	_____
and robbed / of fifty-six dollars. / She had four /	_____
small children, / the rent was due, / and they had not eaten /	_____
for two days. / The police, / touched by the woman's story, /	_____
took up a collection / for her. /	_____
Total number of story elements correctly identified for Story A	_____ (Max = 25)

"Now, begin at the beginning and tell me everything you can remember from the story."
<u>Allow 90 seconds.</u>   *If the participant asks you to start over mid-way through the story, say,* **"I can only read the story one time."** *and continue with reading the story. If the participant indicates that he/she cannot recall any more details about the story and the full 90 seconds have not passed, allow a few additional seconds and provide one prompt, saying* **"Can you think of any more details?"** *If the answer is 'no,' there is no need to wait the full 90 seconds before moving on to the next story.*

To simplify the scoring, make a check mark by any words of the story that the participant repeats unchanged. In general, record the participant's words verbatim between the lines of the story above. Make sure that the examiner's hand written record is decipherable before proceeding. New examiners should check their handwritten record with audio tape of the responses for 2 months after initial certification.

Scoring is deferred until after the cognitive battery is completed. Score one point for each item/story element correctly repeated. For questionable responses, refer to the QxQ for this test.

LOGICAL MEMORY I

Materials: Black pen, stopwatch

Instructions and Script: Allow at least 10 seconds to pass before moving on to Story B. Say, "**Okay, that was fine. Now I am going to read you another little story. Just like you did with the first story, listen carefully, and try to remember as many details of the story as you can. When I am through I want you to tell me everything you can remember. The story is…**"

Read the story slowly (~ 30 seconds), articulating clearly, with normal inflections. No repetitions are allowed.

Story B	Total of each line
Robert / Miller / was driving / a ten-ton / truck /	_____
down a highway / at night / in the Mississippi / Delta, /	_____
carrying eggs / to Nashville, / when his axle / broke. /	_____
His truck skidded / off the road, / into a ditch. /	_____
He was thrown / against the dashboard / and was badly shaken. /	_____
There was no traffic / and he doubted that help would come. /	_____
Just then his two-way radio / buzzed. / He quickly answered, /	_____
"This is Grasshopper." /	_____
Total number of story elements correctly identified for Story B	_____ (Max = 25)

"**Now, begin at the beginning and tell me everything you can remember from the story.**"

Allow 90 seconds. *If the participant indicates that he/she cannot recall any more about the story, and the full 90 seconds have not passed, allow a few additional seconds and provide one prompt saying,* "**Can you think of any more details?**" *If the answer is 'no,' there is no need to wait the full 90 seconds before moving on to the next test.*

Scoring is as noted for Story A.

After 90 seconds say, "**Okay, good. Later on I will ask you to tell me these stories again, so try to remember them.**"

Allow at least 10 seconds to elapse before beginning the next subtest.

DIGITS BACKWARDS

Materials: Black pen

Instructions and Script: "Now I am going to say some numbers. When I stop, I want you to say them backwards. For example, if I say: 1-2-3, what would you say?" If the participant responds correctly (3-2-1), say, "That's right" and proceed to item 1. If the participant fails the practice trial say, "No, you would say 3-2-1. I said 1-2-3; so to say those numbers backwards, you would say, '3-2-1'".

"Now try these numbers." Read the digits clearly and at a rate of 1 per second. Say the numbers in a monotone voice with inflection dropping slightly on the last digit. Remember to administer both trials of each item. Begin Trial 2 and beyond saying, "Here's another." Each trial may be presented only once.

Record responses verbatim. Scoring: completely correct trial = 1 point (e.g., Item 1, Trial a: 1-5 = 1 point). Incorrect trial = 0 points. Total the number correct at the bottom of the form.

Discontinue after two consecutive errors of the same length item (e.g., missing two 5-digit sequences).

	Trial Sequence	Response	Correct	Error/ Refused
1	Trial a: **5-1** (1-5)		☐	☐
	Trial b: **3-8** (8-3)		☐	☐
2	Trial a: **4-9-3** (3-9-4)		☐	☐
	Trial b: **5-2-6** (6-2-5)		☐	☐
3	Trial a: **3-8-1-4** (4-1-8-3)		☐	☐
	Trial b: **1-7-9-5** (5-9-7-1)		☐	☐
4	Trial a: **6-2-9-7-2** (2-7-9-2-6)		☐	☐
	Trial b: **4-8-5-2-7** (7-2-5-8-4)		☐	☐
5	Trial a: **7-1-5-2-8-6** (6-8-2-5-1-7)		☐	☐
	Trial b: **8-3-1-9-6-4** (4-6-9-1-3-8)		☐	☐
6	Trial a: **4-7-3-9-1-2-8** (8-2-1-9-3-7-4)		☐	☐
	Trial b: **8-1-2-9-3-6-5** (5-6-3-9-2-1-8)		☐	☐
	Total number correct trials		_____	

TRAILS A

Materials: Black pen, Trails A tracing sheet, pencil, stopwatch

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SAMPLE

Place SAMPLE A on the table in front of the participant. Give the participant a pencil.

"On this page (point) **are some numbers. Begin at number 1** (point to 1) **and draw a line from 1 to 2** (point to 2), **2 to 3** (point to 3), **3 to 4** (point to 4), **and so on, in order, until you reach the end** (point to the circle marked 'end'). **Try not to lift the pencil as you move from one number to the next. Draw the lines as fast as you can. Ready? Go ahead."**

"Good. Let's try the next one." Proceed to Test A.

If the participant makes an error, mark through the line and go back to the point where 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 he/she indicates 3, say,* **"Correct, please start here and continue."** *If the participant indicates any other numbers say,* **"The next number would be 3. Please start here and continue."**

If the participant cannot complete the sample and clearly does not comprehend the task, do not administer Test A or Trail B (code as not attempted due to task difficulty).

TEST A

"On this page are numbers from 1 to 25. Do this the same way: Begin at number 1 (point to 1) **and draw a line from 1 to 2,** (point to 2), **2 to 3** (point to 3), **3 to 4** (point to 4), **and so on, in order, until you reach the end** (point to end). **Try not to lift the pencil as you move from one number to the next. Remember, work as fast as you can. Ready? Go ahead."**

Start timing. Call all errors to the participant's attention immediately (draw a small dash through the incorrect line) and have the participant proceed from the point the mistake occurred. Say **"That one was not correct."** Point to the last correct number and say, **"Please start here and continue."** Do not stop timing.

Record errors and time. Note: If errors are greater than 4, then errors should be recorded as 5 and the time recorded as 4 minutes (regardless of the actual time it took to make the errors). If the participant exceeds 4 minutes, the test is stopped and the time is recorded as 4 minutes, and errors recorded as the # of errors made in those 4 minutes.

At the end, say, **"That's fine,"** *or* **"very good."**

1) Total time to complete	_____ : _____ (Max = 4:00) **Minutes Seconds**
2) Total number of errors	_____ (Max = 5)

TRAILS B

Materials: Black pen, Trails B tracing sheet, pencil, stopwatch

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SAMPLE

Place SAMPLE B on the table in front of the participant. Give the participant a pencil.

"On this page are some numbers and letters. Please take the pencil and draw a line, alternating in order between the numbers and letters. Start at number 1 (point to 1), **then go to the first letter, A** (point to A), **then go to the next number, 2** (point to 2), **then the next letter, B** (point to B), **and so on until you reach the end** (point to end). **Remember, first you have a number, then a letter, then a number, then a letter, and so on. Try not to lift the pencil as you move from one number or letter to the next. Draw the lines as fast as you can. Ready? Go ahead."**

If the participant makes an error, mark through the line and go back to the point where 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 the answer is correct say,* **"Correct, 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 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 Test B (code as not attempted due to task difficulty).

TEST B

"Good. Let's try the next one. On this page are some numbers and letters. Begin at number 1 (point) **and draw a line from 1 to A** (point to A), **A to 2** (point to 2), **2 to B** (point to B), **B to 3** (point to 3), **3 to C** (point to C) **and so on in order until you reach the end** (point to end). **Remember, first you have a number, then a letter, then a number, then a letter, and so on. Try not to lift the pencil as you move from one number or letter to the next. Draw the lines as fast as you can. Ready? Go ahead."**

Start timing. Call all errors to the participant's attention immediately (draw a small dash through the incorrect line) and have the participant proceed from the point the mistake occurred. Say **"That one was not correct."** Point to the last correct number (or letter) and say, **"Please start here and continue."** Do not stop timing.

Record errors and time. Note: If errors are greater than 4, then errors should be recorded as 5 and the time recorded as 4 minutes (regardless of the actual time it took to make the errors). If the participant exceeds 4 minutes, the test is stopped and the time is recorded as 4 minutes, and errors recorded as the # of errors made in those 4 minutes.

At the end say, **"That's fine"** or **"Very good."**

1) Total time to complete	_____ : _____ (Max = 4:00) **Minutes Seconds**
2) Total number of errors	_____ (Max = 5)

BOSTON NAMING

Materials: Black pen, stopwatch, Boston Naming Binder

Instructions and Script: **"Next, I am going to show you a series of pictures. For each picture, I want you to try to tell me what the picture is. If you can't tell me, that's okay. After we complete each picture, we we'll go on to the next one. Let's begin."** Introduce each picture saying, **"What is this?"** Show the pictures one at a time and write down all responses. *If the participant is unable to name the item in 20 seconds mark the item as an "error" and move on to the next picture.*

The examiner should provide no help (hints or clues). *The examiner may prompt if the participant gives a general response (e.g., "you sleep on it" for "bed") saying,* **"Can you think of a specific name for it?"** *If a participant asks "What do you do with it?" repeat the request,* **"What do you think the name of it is?"**

If the participant gives a generalized response to an item, for example "sea creature" for octopus prompt, **"Can you think of a more specific name for it?"** Do not give more than one prompt per item.

Record all responses to avoid cueing the participant about his/her performance.

Score 1 for correct and 0 for incorrect responses. See the QxQ for an acceptable alternate response for some items. Discontinue after 6 consecutive failures. Record the total score at the bottom of this form.

Picture	Response	Correct	Error/Refused
1. bed		☐	☐
2. pencil		☐	☐
3. whistle		☐	☐
4. comb		☐	☐
5. saw		☐	☐
6. helicopter		☐	☐
7. octopus		☐	☐
8. hanger		☐	☐
9. camel		☐	☐
10. pretzel		☐	☐
11. racquet		☐	☐
12. volcano		☐	☐

Picture	Response	Correct	Error/Refused
13. dart		☐	☐
14. globe		☐	☐
15. beaver		☐	☐
16. rhinoceros		☐	☐
17. igloo		☐	☐
18. dominoes		☐	☐
19. escalator		☐	☐
20. hammock		☐	☐
21. pelican		☐	☐
22. pyramid		☐	☐
23. unicorn		☐	☐
24. accordion		☐	☐
25. asparagus		☐	☐
26. latch		☐	☐
27. scroll		☐	☐
28. sphinx		☐	☐
29. trellis		☐	☐
30. protractor		☐	☐
Total number of correct responses		_____	

LOGICAL MEMORY II

Materials: Black pen, stopwatch

<u>**Instructions and Script:**</u> *"*Okay, this is the last task. Do you remember the little stories I read to you a few minutes ago? Now I want you to tell me the stories again. Tell me everything that you can remember about the stories.*"*

*If the participant does not recall one or both of the stories after 10 seconds, offer a reminder. For Story A, say, "***One story was about a woman who was robbed***."* <u>Allow 90 seconds.</u> *If the participant indicates that he/she cannot recall any more about the story, and the full 90 seconds have not passed, allow a few additional seconds and provide one prompt saying, "***Can you think of any more details?"*** *If the answer is 'no,' there is no need to wait the full 90 seconds before moving on to the next story.* No further help is provided for Story A other than general encouragement.

*If the participant asks a question about the story or for repetition of some or all of it say, "***Please tell me as much as you can remember about the story***."* Use the same scoring procedure as used for Logical Memory I.

Story A	Total of each line
Anna / Thompson / of South / Boston, / employed / as a cook /	_____
In a school / cafeteria, / reported / at the City Hall / Station /	_____
that she had been held up / on State Street / the night before /	_____
and robbed / of fifty-six dollars. / She had four /	_____
small children, / the rent was due, / and they had not eaten /	_____
for two days. / The police, / touched by the woman's story, /	_____
took up a collection / for her. /	_____
Total number of story elements correctly identified for Story A	_____ (Max = 25)

LOGICAL MEMORY II

Story B	Total of each line
Robert / Miller / was driving / a ten-ton / truck /	_____
down a highway / at night / in the Mississippi / Delta, /	_____
carrying eggs / to Nashville, / when his axle / broke. /	_____
His truck skidded / off the road, / into a ditch. /	_____
He was thrown / against the dashboard / and was badly shaken. /	_____
There was no traffic / and he doubted that help would come. /	_____
Just then his two-way radio / buzzed. / He quickly answered, /	_____
"This is Grasshopper." /	_____
Total number of story elements correctly identified for Story B	_____ (Max = 25)

1) Which story was recalled first? *(check one)*

   ☐ Story A

   ☐ Story B

   ☐ Neither

2) Was a reminder offered for Story A?   Yes ☐   No ☐

3) Was a reminder offered for Story B?   Yes ☐   No ☐

ARIC™ NEUROCOGNITIVE BATTERY SUMMARY FORM

FORM CODE: | N | C | S |

If a test was discontinued, record the reason for discontinuation using the appropriate letter:

A = Refusal (participant declines/refuses to perform a test)

B = Task difficulty (participant could not fully understand the instructions or became frustrated)

C = Impairment (Visual, hearing, literacy, or limb or motor problem)

BLOCK A		
TEST NAME	**IF DISCONTINUED:** Enter reason for discontinuation.	**SCORE**
2. Digit Symbol Substitution	2a. ☐	2b. ☐ ☐
3. Delayed Word Recall	3a. ☐	3b. ☐ ☐
4. Incidental Learning	4a. ☐	4b. Symbols ☐ 4c. Digit-Symbol Pairs ☐
5. Word Fluency (FAS)	5a. ☐	5b. F Total ☐ ☐ 5c. A Total ☐ ☐ 5d. S Total ☐ ☐
6. Animal Naming	6a. ☐	6b. ☐ ☐
BLOCK B		
7. Logical Memory I	7a. ☐	7b. Story A ☐ ☐ 7c. Story B ☐ ☐
8. Digits Backwards	8a. ☐	8b. ☐ ☐

TEST NAME	IF DISCONTINUED: Enter reason for discontinuation.	SCORE
9. Trails A (Part A, TMT A)	9a. ☐	9b. Time to complete ☐ Minutes 9c. ☐ ☐ Seconds (Max = 4:00) 9d. Number of errors ☐ (Max = 5)
10. Trails B (Part B, TMT B)	10a. ☐	10b. Time to complete ☐ Minutes 10c. ☐ ☐ Seconds (Max = 4:00) 10d. Number of errors ☐ (Max = 5)
12. Boston Naming	12a. ☐	12b. ☐ ☐
15. Logical Memory II	15a. ☐	15b. Story A ☐ ☐ 15c. Story B ☐ ☐ 15e. Which story was recalled first? ☐ Story A ☐ Story B ☐ Neither 15f. Reminder for Story A? ☐ Yes ☐ No 15g. Reminder for Story B? ☐ Yes ☐ No

ADMINISTRATION NOTES

16. For any tests that were fully completed (not discontinued), was there anything that you feel may have substantially influenced the test results for this participant? These might include for example: hearing loss, vision problems, tremor, arthritis in the hands, sedation, or if performed in the home/LTC setting, environmental factors such as poor lighting, background noise or interruptions during the testing session.

16a. If yes, specify: