

Neuropsychological (NP) Test Battery: Administration Manual

Version 02/24/2022

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GENERAL TESTING GUIDELINES

1. Establish Rapport.
 - a. Remember that the participant's comfort with testing is always paramount. Offer to discontinue tests if participant becomes agitated. Use examiner discretion if participant seems agitated, even when they say it is okay to continue (eg. when it seems that participant is unlikely to stop the test because of their commitment to the study!)
2. Turn off all cell phones and beepers during testing.
3. Place "Do Not Disturb" sign on door and write the time of testing on calendar on the door.
4. Ensure that the participant receives the Brain Bank information *after* the neuropsych testing in order to avoid any distracting thoughts during testing.
5. By default, the tests should always be given in the same order (following the response sheets). However, there are times when flexibility is prudent, and you should use clinical judgment to determine whether this is the case.
6. **ALL TESTS MUST BE ADMINISTERED USING THE INSTRUCTIONS WRITTEN IN THIS MANUAL, WORD FOR WORD.** Paraphrasing, adding information, or omitting information is not permitted. Again, however, there are times when instructions need to be presented in different ways in order to be understood by the participant. Attempt the standard instructions first, and, if they are not understood, proceed to use your own words to teach the participant how to do the task. **ALWAYS** make a note on the score sheet if you did a non-standard administration.
7. For that matter, it is a good idea to make notes about any number of things that happen during testing. Observations you make of the participant's behavior and their comments, unusual interruptions during tests, difficulty getting into set, and so on.
8. **DO NOT GIVE ANSWERS TO TEST ITEMS**, unless specifically called for in the test instructions. If asked, simply say, "I am not allowed to give any answers." If the participant pursues the topic, you can say something like, "We are hoping to bring you back again sometime in the future to do this test again. If I give you the answers today, the test will not be valid the next time." If person becomes aggravated, give answer so that you can maintain rapport.
9. Examiner is to use a **PURPLE** or **GREEN** pen at all times. Black ink, red ink, and pencil are not to be used. To correct an error, cross out using *one line*, and initial. **DO NOT USE WHITE-OUT** or otherwise obscure the error—it needs to remain visible.
10. All exams must be voice-recorded. The recordings are used to transcribe participants' responses verbatim on some tests (e.g., Logical Memory). Also, the voice recordings will be analyzed by a computer program, so be sure you understand how to use the recorder correctly and how to save in .wav format (the highest quality), and also be sure to always have a back-up battery available. If the participant refuses voice-recording, testing can continue for Gen3 NP/MRI.
11. **ALL GEN 3 PARTICIPANTS** are now going to get the balance physical function test. There are, however, some exceptions. And, of course, safety is always paramount. If you believe there is any risk that a person may fall, do not do the tests. Use your judgment, please, when making these decisions.
12. If your participant cancels, please be sure to paperclip all digital neuropsych (dNP) pages back together in the same order. Please leave the dCDT clock page separately, not clipped in dNP packet.

TESTING PRIORITIES

We should follow the priorities list (and deviate from the standard order) if the participant is getting fatigued/frustrated, needs to leave early, or if you don't think you will be able to administer the full battery for any reason (e.g., not enough time, maintaining rapport). As always, use your discretion.

When administering the Long Battery, prioritize the tests in the Short Battery above those in the Long Battery.

WRAT reading and the learning disability questions are very important if the participant has never been seen before; if he/she has been seen before, they are less important.

**If MRI is after NP testing, prioritize getting the participant to the MRI Center on time for their scan over completing tests. End testing at least 15 minutes before the time of their appointment, no matter where you are in the battery, so that they will arrive at the time of their appointment.

High Priority Tests: (do these first; Memory is most important, followed by Trails, etc.)

Memory

Trails

Clocks

WRAT reading (if never seen before)

Similarities

Coding

Tests to skip: (Balance is least important, followed by Finger Tapping, etc.)

Balance/physical function

Finger Tapping

WRAT reading if given before

Cookie Theft

Information

Block Design

Determining what Battery to give to participants

The two main versions of the Neuropsych battery are the Short Battery and Long Battery.

The Long form are all tests that have been given over the years with no exceptions made unless time runs out, or at examiner discretion. These are given to participants in Cognitive Clinic, Brain Donors, participants over 80 and Home Visit participants.

The Short Battery is a truncated version of the Long Battery where a select few of the tests are not given (Information, Cookie Theft, Block Design, Finger Tapping). Short Batteries are administered to most participants who are not in the aforementioned groups.

All participants are asked to participate in an MRI at the time of their visit unless they are a Home Visit, Remote or have any exclusion criteria (i.e-pacemaker or large metal implant).

INFORMED CONSENT FORMS

Our U19 consent form covers the NP testing and MRI scan.

It is essential that the following procedure be followed to insure that no FHS participant is ever given an MRI scan for our studies without prior consent.

The MRI technologists will only take an FHS participant into the scanner if they have received confirmation of prior consent in one of the following ways:

1. If Neuropsych testing is also being done at the Wellness Center, the tester will verbally inform the technologist that the consent has been given. [8.1.16 – not currently relevant]
2. If the participant is scheduled for an MRI only or NP only, and has given consent recently during a prior visit to FHS, the tester will still consent the participant with the appropriate consent form.
3. If the participant is scheduled for an MRI only or an MRI *before* NP test, and prior consent has NOT been given, an FHS staff member must be at the Wellness Center at least 20 minutes prior to the scheduled appointment so that consent can be given.

Informed consent documentation procedures:

1. Document time of consent next to examiner's signature line on the consent form.
2. Scan signed consent forms into the N drive in the path neurodata/Administrative/Consent Forms/Signed Consent Forms. Name in the following format:
CF_IDType_ID_yyyymmdd_TechID.
3. In each battery, there will be a "Documentation of Informed Consent" form. Please fill out this form after testing.

Other consent protocols:

1. Ensure that the participant and examiner both signs and prints their name, and writes the correct date. If an incorrect date is written, have the participant change the date and initial the change.
2. Consent is a discussion, and therefore ask questions during or after explaining procedures. Ensure that the participant understands the purpose of the study, what they will be doing, and any risks and benefits.
3. If the participant is unable to give consent, have a LAR sign, print, and date the consent form after they are also informed of the details of our research study.

Failure to follow these procedures is considered a protocol deviation, and must be reported to the IRB.

DIGITAL PEN PROCEDURES

Printing and preparing the forms:

Staff member responsible for printing digital pen pages are currently the only people with network access to the Okidata color laser printer which is used to print the forms. The dNP forms are printed separately from the full NP battery, using a program called Anoto penDocuments. This will be the responsibility of whoever prints and prepares the batteries each week. The dNP forms are printed as a set of 13 pages, and a set will be clipped in with each battery folder with a dNP cover page to be filled out by the examiner.

Important: in contrast to the single-page dCDT form, all copies of which are identical and interchangeable, every printed set of dNP forms is unique, and its physical pages are digitally associated as one document. Therefore, the pages must stay together: **please do not mix up or swap individual dNP pages from different printed sets!**

Testing with the dNP forms:

Because we have been instructed to not re-cap the digital pen between the beginning and end of dCDT (i.e., between checking the starting box and checking the ending box), it is recommended that the cap be removed and placed out of reach of the examiner and participant for the duration of testing. (It's too easy to automatically grab a pen cap and put it on, without thinking.)

Testers should plan to allow a little extra time before the participant arrives in order to prepare the battery. The batteries are being printed without these pages, so testers will prepare by inserting the dNP versions in the appropriate locations. The dNP forms are printed in the order in which the tests appear in the battery (VR, Trails, Cookie Theft, Digit Symbol, Pre-Drawn Clocks, Math Fluency), but they don't have page numbers.

For every set of dNP forms included with a battery, the person preparing the battery will include a cover page for the digital pen NP tests. **Please fill out this form, before or after testing, with the participant's real ID. Please dock the pen the same day of testing if possible.** Beyond that, using the pen with these forms (all but the Clock Command/Copy page) is very easy: no need to check any boxes. You don't need to worry about capping and uncapping the pen during testing as you do with the dCDT. The dCDT should be done as normal (checking boxes and writing the ID there is still required); there is no interference between dNP forms and the dCDT to worry about.

Data transfer:

Simply dock your pen as you normally do for dCDT. **Testers:** please try to do this the same day as testing to have an accurate time stamp of the data. When you dock the pen, the dNP digital ink download is done in the background, so please leave your pen docked for a minute, even if you see nothing happen. If you have any clocks on your pen, ClockSketch should pop up as normal.

When you dock your pen, make sure you are using your normal computer--the program has to be set up individually for each account on each computer. Upon docking, the data will be automatically linked to a shared penDocuments library on the N drive. **Please email Ben or Cody with any potential problems using the pen or transferring data as soon as possible.**

Charging the Pen: The pen charges when it's connected to the computer. Make sure to let the pen charge for a good amount of time from time to time.

DIGITAL CLOCK PROCEDURES

FHS dCDT Administration:

dCDT tests will be administered either back-to-back or with a delay, depending on the participant's ID. If the participant's ID ends in an odd number, then they will receive back-to-back Copy and Command conditions. If the ID ends in an even number, Command will be administered after Similarities and Copy after BNT.

The examiner should fold the dCDT form, check *the right **upper** hand box* (carefully remaining inside of the box), and then present the command side of the clock form and the digital pen to the participant. The pen should vibrate to indicate that the pen has been activated. Regardless of condition, the pen **should not** be capped and the lower right hand box **should not** be checked until after the Copy condition has been completed. This means that during the delay condition, the examiner should take back the uncapped pen, dCDT form, and loose cap to set them aside. After the Copy condition is complete, write the FH-ID (not the Dummy ID) under the line on the bottom right side of the page, then check the box in the lower right corner.

dCDT Instructions:

It is best to avoid giving participants any idea of what the pen does or how it captures the dCDT test. This may affect how they draw their clocks and could interfere with any analyses on latencies. Simply state the historical directions: "I'd like you to draw a clock, put in all the numbers, and set the time to ten after eleven." If they ask, you can say that it digitally captures how they draw the clock.

Identifying Participant Tests on ClockSketch:

When you dock your pen at FHS, the Clocksketch program will automatically open. At this point, you must enter the dummy ID for your participant. This will be on the Visual Reproductions – Immediate page. It can also be looked up on the N:drive in the dCDT Files folder. In the N-Drive in the Dummy IDs folder, there should be an excel file titled "dummy." This spreadsheet contains every Framingham participant's FHS ID matched with a dummy ID. This dummy ID needs to be entered into the program when you upload the files along with a few other items of information (such as Testing site and tester name, etc.).

dCDT File Organization on the N Drive:

The folder system for scored clocks is modeled after the current DVR system. Files should be labeled as such dCDT_IDType_ID_yyyymmdd_TechID (i.e. with dCDT, participant ID, date test administered, and tester ID.) Each tester has their own folder titled "Name-TechID#" in "weekly dCDTS" the dCDT Files folder into which they should drop their dCDT files. Testers should always place the files here and the person in charge of clocks will move them after they have been reviewed and uploaded. The files will then be archived by the date of testing.

PROTOCOL MODIFICATIONS FOR PARTICIPANTS WITH SENSORY IMPAIRMENTS

1. Vision Impairments

- a. Do not assume that the participant cannot do a test because they have vision difficulties; they may have limited vision that could allow them to complete the visual tasks.
- b. Assess their vision by asking if they can see the consent form – we don't have any testing stimuli smaller than that.
- c. If they can't see the consent form but they do have some vision, show them the WRAT words before beginning testing and ask if they can see those (don't administer the test out of order, just show them the words).
- d. Don't administer any tests that require timing and vision if any vision impairment is present (Coding, Math, Trails)
- e. If they have some vision:
 - i. Ask them how they would feel about trying some of the visual tasks or if they'd be more comfortable skipping them all together.
 - ii. Administer BNT the same as always, but note that there is vision impairment.
 - iii. Administer Visual Reproductions normally, but preface it with "you may not be able to see it clearly and if that's the case then let me know."
- f. If they are unable to sign their name on the consent form, they can write an X on the signature line.
- g. Regarding COVID protocols, instead of having the 4 folders on the table with the participant, keep them at your desk and walk the pages over so you can keep an eye on how they're doing and discontinue visual tasks if needed.

2. Hearing Impairments

- a. Many hearing aids are now equipped with Bluetooth that connects to the participants phone – you can call them from your cell phone and keep your phone in front of you on the tester's table.
- b. Talk distinctly, loudly, with a deeper voice (high pitches are usually the first sounds lost), and be sure to enunciate.
- c. Sometimes "yelling" helps, but not always.
- d. Assess their hearing – if they continually ask you to repeat yourself, don't administer tests like Logical Memory or Paired Associates (or any test where you can only say the stimuli once).
- e. For similarities and FAS, you can write out the words or letter; for Information, it may invalidate the test.
 - i. When in doubt, write it out, then talk to the Clinical Supervisor afterwards to see if we need to invalidate the test.
- f. For BNT, the phonemic cue may be hard for the participant to hear, but still give it.

INITIAL INSTRUCTIONS

“We’ll be working together for about an hour give or take [for short battery, “an hour and a half” for a long battery] and when we’re done [“you’ll have your MRI after this at the Wellness Center”, OR “you’ll be all done with today’s testing” OR whatever is appropriate, according to the schedule].

I’ll be administering to you a series of tests that assess cognitive skills, such as attention, memory and language. I’ll be asking you questions, having you remember things, and having you solve puzzles and problems.

Some of these things will be very easy. Some of them will be difficult. That’s the way the tests were designed—nobody can answer all the questions or remember everything.

We expect that you’ll say “I don’t know” or “I don’t remember” at times—everybody does. What we ask is that you try your best on all of the tests.

There are only a couple of tests on which I can give you feedback regarding whether you are right or wrong. For most of the tests, I can’t give you this information. And I can’t tell you the correct answers, even after you’ve completed the test.

If you’d like to take a break at any time please just let me know. If you’d like to stop a particular test and try a different one, or stop testing altogether, please just let me know. It is always your decision to continue or not.

Do you have any questions before we begin?”

Cognitive Clinic Only:

“At some point either during or after you and I work together, we will break so that our neurologist, <insert name here>, can see you.”

MRI Clinic Only:

[8.1.16 – not currently relevant] “At <insert time here> I will take you downstairs for your MRI, which takes about 30 minutes to complete. In total, we expect that you will be here for about 2 hours.”

If they have not yet done MRI, “Your MRI is then scheduled at the Wellness Center at <insert time>. That takes about 30 minutes to complete.

Digital Pen Instructions:

This is a special pen for recording your drawings. Hold and write with the pen as you do naturally. We have found that sometimes, especially if the pen is held too far horizontally (demonstrate this), it vibrates and buzzes. This buzzing is not in any way harmful. If you feel it vibrate/buzz as you are working, just hold the pen a little more vertically and

continue with what you were doing. If the pen starts to run out of ink while you are using it, continue with what you are writing or drawing.

Note: If pen buzzing appears to affect performance on any task, there is a variable to code for this in the Factors Affecting Testing section. For all digital pen tasks for Trails, note how many times the pen buzzed and whether you believe it affected performance (eg, pt. paused when pen buzzed).

Digital Pen Instructions:

“Would it be okay with you if I record our session today?”

Note: If you mention any personally identifying information during the recording (such as name, etc) please refer to the “DVR protocol file naming cheat sheet” to name your DVR on the Ndrive accordingly. [2.24.22 – Not currently relevant]

DEMOGRAPHICS

1. **Current Marital Status:** Record how they describe their most current marital status. For example, if someone tells you “I was widowed, then remarried, then divorced,” you should record “divorced.” Note: if the participant is unable to provide an accurate history, it is helpful to pull their main chart and determine their marital status after testing. Simply make a note: “per chart, ‘married.’” If the participant says “Single” confirm “Never Married.”
2. **Participant Handedness:** When asking a participant about their handedness, follow up on their response to query about whether they might be ambidextrous. So, if they say, “Right-handed,” you might say, “Are there any things that you do DOMINANTLY with your left hand, such as throwing a ball, holding a tennis racquet, etc.?” The key here is that an ambidextrous person is not just someone who “does pretty well” with their non-dominant hand, but, rather, one who does some things *dominantly* with one hand, and other things *dominantly* with the other hand. This split is often seen between fine motor (e.g. writing, eating, drawing, dialing a phone) and gross motor (e.g., sports) skills.
3. **Familial Handedness:** With this question we are getting at whether there may be any genetic “left-handedness” in the participant. So, we are interested in blood relatives who might share genes with the participant. Ask about siblings, parents, grandparents, aunts, & uncles. If they instantly respond “no,” it is often helpful to follow up with “living or deceased.” If the participant says that the only person in their family who is left-handed is one of their children, query further to determine whether this might have come from the child’s other parent. That is, “Is anyone in her mother’s family left-handed?” Query similarly if the family member is a grandchild. Avoid asking whether the participant’s spouse is left handed. We do not want to assume the child’s parent is the participant’s spouse. If there is evidence of left-handedness in the other parent’s family, and none in the participant’s family, mark “1=yes” next to “if children or grandchildren only, do other family lines explain it?” If there are any left-handed people in the participant’s family, including a child with no obvious link to the other parent, mark “Some Left.”

4. **Highest Educational Level Completed:** It is often not enough to simply ask “what is the highest degree or level of school you have completed.” For example, if you ask this and a participant responds, “High School,” you should clarify, “You graduated from High School?” because you do not want to assume this. If they earned a degree beyond high school, ask the field of study. If they say “some college courses,” ask about the type of school, and whether they earned a degree (certificate, two year, four year, etc.). If they did not finish high school, be sure to ask why they left (in order to get at whether they left to support family versus difficulty with learning/troubles in school) The more specific information you gather in response to the question, the easier and more accurate your coding will be.
5. **Highest Occupational Status Achieved:** This is not necessarily the job that the participant holds at the time of testing, the last job held, or the job held for the longest time. Be sure to query, “was/is that the only job you’ve worked?” If the job title does not clearly indicate how to code the participant’s job, then query to get more information (eg, ask where they worked and what their job responsibilities were).
6. **Current Employment Status:** “Full Time” employment is considered 30 hours per week or more. Less than 30 hours is “part time.” Make sure to ask if they currently volunteer (and how many hours per week). NOTE: Some participants will say they work “part time” but when asked the number of hours per week, will reply 30+
7. **Vision and Hearing Problems:** The important information you are gathering with this question is whether sensory impairments are likely to interfere with testing, which is why the question is phrased as “uncorrected.” Thus, if you say, “Do you have any problems with your vision,” and the respondent says, “Yes, I’m far-sighted,” you then need to follow up with questions about whether glasses correct this problem and whether they have their reading glasses with them (if not obvious). Similarly, many older adults will say that they have hearing difficulty, so you follow up to find out whether they can hear you adequately (as you speak in a normal tone of voice), or whether they can hear you if you raise, or lower the pitch, of your voice. NOTE: even if the participant reports trouble, DO NOT ASSUME that the visual or auditory tests cannot be done. Some participants who are “legally blind” can still do some of the tests requiring vision (e.g., BNT, Cookie Theft, sometimes even Visual Reproductions). Rarely, however, can the Trails tests be administered to these participants.
 - a. Make sure to describe the nature of impairment (i.e. the response given by the participant).
 - b. If you question the validity of a participant’s reports (eg. says “no hearing problems” but you have to shout the question three times), write down what they say, but code response as “unknown.” Make sure to note your observations.
8. **Seizure Disorder:** If the participant answers “no,” move on. If participant says “yes” or “unsure,” continue with follow-up questions (equivalent to “1” or “7”). If the participant refuses to answer, or seizure disorder status is unknown, (equivalent to “9”), do not administer A-D. If you are unable to ascertain answers due to dementia, or the participant

simply doesn't know, check charts (if applicable). Otherwise, mark "yes." Note: Participants often confused TIAs for seizures. Make sure to clarify.

9. **History of Learning Disorder:** when asking the question, "did you ever have trouble learning in school," participants often say things like "I was never a good student." It is important to press them to discuss if they have been diagnosed with any type of learning disorder...and if so, what is the diagnosis, and what interventions have occurred. If they have not been diagnosed with a disorder, it is important to ask if they think they have a learning or attention disability.
10. **Head Injury:** Make sure to ask enough questions to get a sense of whether or not the participant had a "major" head injury. Major is, of course, subjective, so when in doubt, it counts, and you should ask the follow-up questions.
11. **Language:** We are trying to determine how language might impact testing for each participant and get a gauge on their primary languages are and how comfortable they are testing in English. If the participant does not speak any languages other than English, leave A-E blank.
12. **Caffeine/Inhaler:** If a participant asks what a cup of coffee means, tell them that it means an 8 oz cup of coffee, or an espresso shot. If they take caffeine pills, ask them what the equivalence is.
13. **History of Dementia:** We are curious if the participant has any family history of cognitive impairment, dementia, or Parkinson's disease. These questions were based on (and edited) the NACC questionnaire. Include as many relatives as they list- leave any not applicable cells blank. First-degree relatives are biological parents, siblings, and children only. 'Other' relationships include second-degree relatives: grandmother, grandfather, aunt, uncle, grandchild, niece, nephew, half-sibling (*note: must be blood related). Attempt to code subtype as best as they know, and use '1 = Dementia (Unknown Etiology)' if they cannot specify further than 'dementia'. The autopsy question provides us information to the scope of the diagnosis.

LOGICAL MEMORY – Immediate Recall (WMS)

Start instructions by saying:

“I am going to read you a little story of about 4 or 5 lines. Listen carefully because when I am through, I want you to tell me everything I read to you. Are you ready?”

Read the story at a normal rate of speed—not too fast, not too slow. Do NOT include pauses in your speech at each scoring break. If you do this, you may be giving the participant a strategy to recall the information (“chunking” pieces of information for them). Read the story with NORMAL pauses, where expected, such as at commas. After reading the story, say:

“Tell me everything you remember”

When the participant stops talking, query,

“Are there any other details you remember?”

Be sure to allow the participant time to think about the story. If they do not give an answer, ask, **“Is there anything you remember?”** If the participant still is not able to tell you anything about the story, provide the prompt by saying:

“It was a story about a woman.”

Data collection: Write verbatim everything the participant says. At the point in the verbalization where you query, write “(Q)” Ensure that when you note confabulations, that you also count them (if applicable) as “other” perseverations. Listen to the DVR after testing to insure accuracy.

VISUAL REPRODUCTION – Immediate Recall (WMS)

Place the response sheet on the table in front of the participant and hand him/her the digital pen. Say:

“I am going to show you a drawing. You will have just 10 seconds to look at it. Then I will take it away and let you draw it from memory. Don’t begin to draw until I say go. Ready?”

After exposing the drawing for 10 seconds, turn the page and say “Now draw it here” pointing to designated drawing area. On the Examiner’s Page, you then track the participant’s drawing using arrows and numbers to record the order and direction of production. After the drawing is complete, point to the area for Design B and say:

“You will draw the next one here.”

Expose drawing for 10 seconds & track the production as above. Then say:

“Here is one that is a little harder. This next one has 2 drawings on it. I want you to look at both of them carefully—again you have only 10 seconds to look at them and then I will take it away and let you make both drawings; the one on the left side---here” (point to space) **“and the right one---here”** (point). **“Ready?”**

After exposing the drawing for 10 seconds, turn the page and say:

“Now draw it here” (pointing to designated drawing area.)

- If the participant begins to draw while the stimulus is still showing, say:

“Please wait until I turn the page”

- If the participant says **“OK, I’m ready!”** before the 10 seconds are up, say:

“You get the full 10 seconds to study the drawing.”

Data collection: As the participant draws, the tester must copy the way in which the participant creates the drawing. The tester copies the drawing on a separate piece of paper noting the direction and order in which the participant drew the lines of each drawing. Pay particular attention to the direction, since this is one of the variables that is coded (i.e., “Draws right to left”). If the participant writes too quickly, or you cannot see the entire page, do your best to capture as much data as possible. Make sure to note any limitations in data collection on your scoring page. Remember to write the participants Dummy ID below the handwritten one with the digital pen.

PAIRED ASSOCIATE - Learning Trials (WMS)

Start instructions by saying:

“I’m going to read a list of words, two at a time. When I’m through, I will tell you one of the words, and I want you to tell me which word went with it. For example, if the words were “*East, West*” (be sure to give a brief pause here) “.....*Gold, Walk,*” “Then when I said, *East*, you would say” _____ (wait for response), “and when I said, *Gold*, you would say” _____ (wait for response).

Depending on response to sample say:

“Right, now please listen carefully as I read the list”

OR

“No, Gold goes with Walk.” (If necessary, explain directions again)

Read the words with a one-second pause between each word in a pair, and a 1-1/2 second pause between word pairs. Be sure to read the lists off the instruction page, NOT the response page (the pairs are in different order). Then say:

“Which word went with” _____?

BE SURE TO GIVE FEEDBACK AFTER EACH RESPONSE, EITHER:

“Right”

OR

“No, that one was _____”

*Do not repeat the first word when correcting! (Ex. DO NOT say “No, North goes with south.”)

Learning Trial 2:

Start instructions by saying:

“Now, we will do the same thing we just did. Please listen carefully as I read through the list of word pairs.”

Read the words with a one-second pause between each word in a pair, and a 1-1/2 second pause between word pairs. Then say:

“Which word went with _____?”

BE SURE TO GIVE FEEDBACK AFTER EACH RESPONSE, EITHER:

“Right” OR “No, that one was _____”

Learning Trial 3: “**Again we will do the same thing. Please listen carefully as I read through the list of word pairs.**” (Make sure you do NOT say “we will do the same thing one more time.”)

Read the words with a one-second pause between each word in a pair, and a 1-1/2 second pause between word pairs. Then say:

“Which word went with _____?”

BE SURE TO GIVE FEEDBACK AFTER EACH RESPONSE, EITHER:

“Right” OR “No, that one was _____”

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. If the participant says something like, “They don’t go together,” try to get by with just a smile. If they are persistent, say something like, “They go together because the test puts them together.” DO NOT INDICATE to the participant that some pairs go together and some do not. This is providing the person with a strategy for encoding the information, and you want to avoid doing this.
2. If the participant starts to say the second word while you are administering the second trial, just say, “I’m going to read the list for you again, then ask you to tell me the words,” and continue from where you left off (do NOT repeat pairs you already said). **If it is clear that the participant is saying the word as a rehearsal strategy and is not interrupting the flow of administration, you may let them do that. Use your discretion.
3. If participant gives “Crying” for Baby, confirm that that is an acceptable answer, and then correct the participant, as the word is actually “Cries.” This is the **only** case of an acceptable answer that should be corrected. Answers such as “Cry” for Baby and “Groceries” for School are considered correct and receive 1 point; do not correct the participant in these cases.

Data Collection: Record responses on answer sheet. If the response is incorrect, record the response that the participant gives.

DIGIT SPAN (WAIS)- Forward and Backward

Say digits at the rate of one per second, not grouped. *Let the pitch of your voice drop with the last digit of each series.* Do not vary the tone or pitch of your voice until the last number; presentation of numbers should be “robotic” in tone. DO NOT REPEAT ANY ITEMS! If requested, say simply, “I’m sorry – I can’t. Would you like to try it?”

DIGIT FORWARD

“I’m going to say some numbers. Listen carefully, and when I am through say them right after me.”

IMPORTANT ADMINISTRATION CONSIDERATIONS

- In any series, if the participant repeats Trial I correctly, proceed to the next higher series. If the participant fails (score of either “0” or “1”) Trial I, administer Trial II of the same series, then proceed to the next series if s/he passes. The second trial of a series is given ONLY if the first trial is failed.

Discontinue for scoring purposes: After failure (“0” or “1”) on both trials of a given series.

Testing Limits: If you have already discontinued the test for scoring purposes, and the participant gets a score of 2 or a score of 1 on the first trial of a longer sequence, you can proceed to the next level (that is, s/he has already shown the ability to repeat the numbers at that span length with no omissions, commissions or repetitions) and you do not have to administer the second trial. Continue administering spans until both trials receive a score of 0.

Digit Span (Forward) (WAIS)		Check here if test NOT completed (record reason in Factors Affecting Testing section)
Score: 0 = incorrect 1 = incorrect, sequencing error only 2 = correct 8 = not administered	Span Lengths: • Circle the longest correct span length • Underline the longest span scored “1” or “2” AFTER the official discontinue.	
5-8-2 5 8 2 0 1 2 8	6-9-4 _____ 0 1 2 8	Span = 3
6-4-3-9 6 4 3 9 0 1 2 8	7-2-8-6 _____ 0 1 2 8	Span = 4
4-2-7-3-1 4 2 3 1 0 1 2 8	7-5-8-3-6 7 8 5 3 6 0 1 2 8	Span = 5
6-1-9-4-7-3 6 1 9 3 4 7 0 1 2 8	3-9-2-4-8-7 _____ 0 1 2 8	Span = 6
5-9-1-7-4-2-8 5 9 1 7 4 2 8 0 1 2 8	4-1-7-9-3-8-6 4 1 9 3 7 8 6 0 1 2 8	Span = 7
5-8-2-9-2-6-4-7 5 8 2 9 6 4 7 0 1 2 8	3-8-2-9-5-1-7-4 3 8 2 9 5 7 4 0 1 2 8	Span = 8
2-7-5-8-6-2-5-8-4 _____ 0 1 2 8	7-1-3-9-4-2-5-6-8 _____ 0 1 2 8	Span = 9
Is qualitative score valid?	0 = No 1 = Yes	

DIGIT BACKWARD

“Now I am going to say some more numbers, but this time when I stop I want you to say them backwards. For example, if I say 7-1-9 what would you say?”

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. Clearly write the participant’s responses, even for the examples.
2. If the participant responds correctly, say, **“Here are some others”** and proceed with the test beginning with Trial I of the 3-digit series.
3. If the participant does not reply correctly to the first sample item, or fails to understand, give the script from the battery, saying **“Remember you are to say them backwards: 3-4-8.”** If the participant succeeds this time, proceed with the test using Trial I of the 3-digit series. If the participant fails the second sample item, proceed with the test by giving Trial I of the 2-digit series. Cue the participant each time if they continue to say the numbers in the forward order but remember do not repeat the sequence. If the failures at the 3-digit series were scored “0,” discontinue the test. If at least one failure at 3-digit series was sequencing only, then attempt 4-digit series and continue with usual administrative procedure.
4. Record the number of cues given on the data collection sheet.
5. If a participant passes an example but fails both trials of the 3-digit series, go back and give the 2-digit series.
6. If the participant gets both sample items wrong, and gets both of the first two items (2-digit series) wrong, discontinue test, unless at least one failure was sequencing only (score = “1”); then proceed with usual test administration. The participant is given zero (0) as a score for “Digits Backward Span.”
7. If the participant repeats the digits in the CORRECT but FORWARD order, cue them by saying, “remember to say it backwards.” You should cue the participant as many times as necessary in order that s/he remembers to provide the series backward. However, it is important to note that the participant had difficulty maintaining set (Under “factors affecting testing” use either #21: alternative administration or #19: other: participant had difficulty maintaining set and required cueing).
8. If they then say it correctly after they have been cued, score it as correct. DO NOT repeat the series, move on to the next item.

Discontinue for scoring purposes: After failure (“0” or “1”) on both trials of a given series.

Testing the limits: If you have already discontinued the test for scoring purposes, and the participant gets a score of 2 or a score of 1 on the first trial of a longer sequence, you can proceed to the next level (that is, s/he has already shown the ability to repeat the numbers at that span

length with no omissions, commissions or repetitions) and you do not have to administer the second trial. Continue administering spans until both trials receive a score of 0.

Data Collection: Write exactly the numbers the participant says in the space provided. Be sure to indicate if they re-started the series. Their final response should be clearly indicated.

LOGICAL MEMORY-Delayed Recall & Multiple Choice (WMS)

LOGICAL MEMORY-Delayed Recall (WMS)

“At the beginning of the test, I read a story to you. Tell me that story again.”

If the participant does not recall the story, prompt them by saying:

“It was a story about a woman.”

Do NOT jump to the cue immediately, give them a chance to recall it without the cue.

When the participant stops talking, query:

“Are there any other details you remember?”

Mark a (Q) on the page at the point of this query.

Data collection: Write verbatim everything the participant says.

LOGICAL MEMORY-Multiple Choice (WMS)

“I’m going to ask you some questions about that story. I’d like you to tell me which one, of the three choices in each question, is correct.”

If the participant says that they was not given that information or that they is not sure, ask them to guess (“**if you HAD to guess...**”). If the participant does not want to guess, circle “6” (no guess). Avoid asking, “Do you have a guess or can you take a guess” because this gives the options for the participant to answer “no”.

Data collection: Circle the participant’s response.

NOTE: The tradition of FHS has been to score #2 as correct if the participant responds “Annie” Thompson. No additional query is needed.

VISUAL REPRODUCTIONS- Delayed Recall and Multiple Choice (WMS)

VISUAL REPRODUCTIONS- Delayed (WMS)

Place the response sheet on the table in front of the participant. Say:

“Now I want to see how well you remember those drawings that I showed you. Try to draw as many as you can remember and you don’t have to draw them in the same order that I showed them to you.”

Data collection: As the participant draws, the tester must copy the way in which the participants creates the drawing. The tester copied the drawing on a separate piece of paper noting the direction and order in which the participant drew the lines of each drawing.

VISUAL REPRODUCTION- Multiple Choice (WMS)

Present the page with the choices for Design A and ask:

“Which one of these drawings did I show you at the beginning?”

Do the same for Design B, Design C-1 and Design C-2. Prompt for a guess if they are not sure (**“If you HAD to guess...”**).

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. Whenever possible, take the pen away from the participant **BEFORE** showing the multiple choice items. When participants repeatedly use the pen tip to point to the correct drawing, they leave obvious marks on the page. If they insist on keeping the pan, or if they are using their own, ask them to please use the eraser end to point to the drawings.

Data collection: Circle the participants’ answer on the sheet provided.

VERBAL PAIRED ASSOCIATES- Recall & Recognition (WMS)

VERBAL PAIRED ASSOCIATES- Recall (WMS)

“Now I want to see how well you remember the word pairs. What word went with ____?”

DO NOT GIVE FEEDBACK AFTER RESPONSES AT THIS TIME

Data collection: Record responses.

VERBAL PAIRED ASSOCIATES- Recognition (WMS)

“I’m going to give you some multiple choice options for those word pairs. Which word went with ____, was it ____, ____, or ____?”

If the participant responds before all options are read, say:

“I need to read all of them.”

SIMILARITIES

“Now we are going to do something completely different. I’m going to say two things, and I’d like you to tell me how they are alike, in what way they are the same”

Start with item 1 for all participants. Introduce the item by saying:

“In what way are an ORANGE and a BANANA alike?”

1. If participant says they are either fruit or both foods, say **“Good”** and proceed to item 2.
2. If participant does NOT say either fruit or food, but says another acceptable answer, such as they both have skin, say, **“That’s correct, they are also both fruit.”** Then proceed to item 2.
3. If participant mentions a difference, fails to respond, or says that they are not alike, score **“0”** for the item and say, **“They are alike in that they are both fruit, you eat both, both have skins”** and then go on to item 2.

“Now, in what way are a COAT and a DRESS alike?”

Give no help on this or on the succeeding items. Introduce each item in the same manner

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. At times, you may find that the participant is trying to give one-word responses to the items—this seems more frequent with this particular battery because Similarities follows Verbal Paired Associated. If you believe that this is what is happening, and it is impacting the participant’s performance, you may say, **“You are allowed to use more than one word to answer.”**

Discontinue rule: After 4 consecutive failures which are responses scored as “0” or “6” (“don’t know/no guess”).

Data collection: Record responses verbatim.

CLOCK DRAWING TO COMMAND

Place folded paper, blank side up, and pen in front of participant.

“I’d like you to draw a clock, put in all of the numbers, and set the hands to ten after eleven.”

Begin timing as soon as instructions are completed.

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. If the participant asks you to repeat the time, you are allowed to do this. Please note the request on the score form. Prior to providing the time, you should pause, often times participants ask just to ‘double check.’
2. If the participant asks for a time reminder but then says the CORRECT time and asks for a clarification, this is not scored as a reminder for time, this is scored as “No”. However, if the participant says the INCORRECT time, then you should correct them and score this as a request for reminder of time.

Data collection: Track drawing on examiner’s page with arrows for directions and numbers for sequence of details drawn.

VERBAL FLUENCY (FAS)

“I will say a letter of the alphabet. Then I want you to give me as many words that begin with that letter as quickly as you can. For instance, if I say *B*, you might give me bad, bottle, bed. However, I do not want you to use words that are proper names such as Boston or Brian. Also, I do not want you to use the same word again with a different ending, such as bake, baking, baked. Any questions? The first letter is *F*. Give me as many words as you can that begin with *F*.”

Begin timing. Record each verbalization in the appropriate space depending on the time frame (15 second intervals) in which it was said. Time for one minute.

“The next letter is *A*. Begin.”

Record as above.

“The next letter is *S*. Begin.”

Record as above. It is often helpful to maintain the “sss” sound for 1 second, because it makes it more obvious that the letter is “S” not “F” or “X”)

“This time I’d like you to tell me the names of as many animals as you can, as quickly as you can. It does NOT matter what letter the words begin with; I just want you to name animals. Ready? Begin.”

Record as above.

If the person loses set, and begins providing incorrect words, you can cue him/her back to set AFTER THE SECOND ERROR IN A ROW. For example, if, when doing “A,” the person says, “ask, answer, free, farm” then, after “farm,” say, “**Remember we want words that start with the letter A.**” The same holds true for other errors as well (e.g., proper names, different forms of same word)

Foreign words

1. If asked whether they can give foreign words, respond that they should say English words
2. If a foreign word is given, allow it *however*
3. If a second consecutive foreign word is given, cue the participant, “Please try to use only English words”
4. If multiple foreign words are given, but they are NOT consecutive, they are allowed without cuing
5. All valid foreign words are counted unless they are given *after* the cue to use English

Data Collection: Record totals as described on score sheet.

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. If the person says, “that’s it!” or has a very long pause that indicates they are finished, you may say “**you have more time...**” or “**keep going!**”

2. If the person says something like, “Fish. No, fish is not an animal,” prompt by saying, **“that’s fine”** to convey that fish are animals (this is also often said about insects); we don’t want them to eliminate entire categories of animals as options just because they misinterpret what is meant by “animal”
3. If the person says, “No, I already said that,” after a perseveration, it IS included as a perseveration in scoring. Similarly if, they say a proper noun and then self-correct with a statement like, “No, that is a proper noun,” it IS counted as a loss of set error.
4. Neologisms (made-up words) and phonemic errors (e.g., “photo” for “F”) are NOT loss of set errors.
5. Any proper nouns are considered errors (e.g., names of months, days of week, etc.). In other words, any noun that is capitalized when spelled is an error.
6. If the participant says a word unfamiliar to you, wait until after the test is completed, and ask about it. Have the participant spell the word and/or give a definition. This will allow you to later look in the dictionary to see whether the word was, in fact, a valid response.
7. Always verify words you do not know by looking them up in the dictionary. Make sure they are spelled correctly.
8. Words in foreign languages are permitted but not encouraged, and should be cued after two consecutive words. The words need to be verified later if you do not know the word to be real.

BOSTON NAMING TEST (BNT)

“I’m going to show you some pictures, and I’d like you to tell me the one word that best names the object in each picture.”

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. Show the first item.
2. At 10 seconds, if there is no correct response, give the semantic cue.

NOTE: If the participant is talking when the clock reaches 10 seconds, allow them to give their response. If they give the correct answer after 10 seconds but before you can give the semantic cue, give them credit in ‘No cue’ column and write 10 seconds for the time it took them to answer. However, if the response is incorrect, proceed to cue as usual even if it is after 10 seconds once they finish talking.

3. At 20 seconds, if there is still no correct response, give the phonemic cue.
4. TIME LIMIT for response is 40 seconds.
5. If participant gives an answer that means the same thing, but is not correct (e.g., “harness” for “yoke”), say,

“Can you tell me another word for that?”
6. If participant gives an incorrect response (eg “protractor” for “compass,” say, **“it’s not a [protractor]...”**)
7. If the participant gives a general response (eg “boat” for “canoe,” say, **“can you be more specific?”**)
8. If the person is not a native English speaker, you should use your clinical judgment to determine whether the test can be fairly administered.

Discontinue rule: There is NO discontinue rule for this test. Administer every item to every participant.

Data Collection: Record responses verbatim in the appropriate column according to whether cues have been given. Note the time it takes for the participant to provide his/her FINAL answer. If you use one of the prompts described above, write a “Q” on the response form.

CLOCK DRAWING TO COPY

Place pen and folded paper with prepared clock showing in front of participant.

“Please copy this clock.”

If the participant asks, “does it have to be exact?” Respond by saying, **“just do the best you can.”**

Data collection: Track drawing on examiner’s page with arrows for directions and numbers for sequence of details drawn. Remember to write the participant’s ID at the bottom of the page and check the box on the lower right corner after.

TRAILMAKING TESTS- Trails A

Sample A

Place sample in front of participant, give participant a pen, and say,

“On this page (point) are some numbers. Begin at number 1 (point to “1”) and draw a line from one to two, (point to “2”), two to three (point to “3”), three to four (point to “4”), and so in, in order, until you reach the end (point to the circle marked “END”). Draw the lines as fast as you can. Do not lift the pen from the paper. Ready, Begin!”

If the participant makes a mistake on Sample A, point it out and explain it. The following explanations of mistakes are acceptable:

1. **“You started with the wrong circle. This is where you start”** (point to “1”).
2. **“You skipped this circle”** (point to the one omitted). **You should go from number one (point) to two (point), two to three (point) and so on until you reach the circle marked END (point)."** If it is clear that the participant intended to touch the circle but missed it, do not count it as an omission, but caution him/her to touch the circle.
3. **“You only went as far as this circle (point). You should have gone to this circle marked END (point)."**
4. **“Please keep the pen on the paper, and continue right on to the next circle.”**

After the mistake has been explained, mark out the wrong part and say, **“Go on from here”**, pointing to the last correct circle.

If the participant still cannot complete Sample A, take the participant’s hand and guide the pen through the trail. Then say:

“Now you try it. Put your pen, point down. Remember, begin at number one (point) and draw a line from one to two (point to “2”), two to three (point to “3”), three to four (point to “4”), and so on, in order until you reach the circle marked END (point). Do not skip around but go from one number to the next in the proper order. If you make a mistake, mark it out. Remember, work as fast as you can. Ready, Begin!”

If the participant succeeds, say, **“Good! Let’s try the next one.”**

If the participant still cannot do it, discontinue the test.

Test

“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 one to two, (point to “2”), two to three (point to “3”), three to four (point to “4”), and so in, in order, until you reach the end (point to the circle marked “END”). Remember, work as fast as you can and do not lift the pen from the paper. Ready, Begin!”

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. Start timing. If the participant makes an error, call it to his or her attention immediately, by following the steps below, and have the participant proceed from the point where the mistake occurred. Do not stop timing. The assistance given when an error is made should proceed along a continuum of instruction, as follows:
 - a. Cross out line, point to last correct circle, and say, **“This is a mistake. Start again from here.”**
 - b. If participant does not start, ask, **“What should come next?”**
 - c. If unable to proceed, ask, **“Do you remember the sequence?”**
 - d. If participant still cannot proceed, go back three circles and say, **“You were at X [number] (point), what should come next?”**
2. If the participant says the next number loud, questioning you regarding whether it is correct, you need to say: **“I can’t say anything until you draw the line.”**
3. When Part A is finished, stop timing, take the paper and say, **“That’s fine. Now we’ll try another one.”**
4. Pen lifts do not count as errors and should not be cued.

Data Collection: Record the time to completion. Take note of number of pen lifts and whether participant showed awareness of lifting the pen. Take note of number of pen buzzes and whether pen buzzing seemed to have affected participant performance.

TRAILMAKING TESTS- Trails B

Sample B

Place paper in front of participant.

“On this page are some numbers and letters. Begin at number one (point) and draw a line from one to A (point to “A”), A to two (point to “2”), two to B (point to “B”), B to three (point to “3”), three to C (point to “C”), and so on, in order, until you reach the end (point to the circle marked END). Remember, first you have a number (point to “1”), then a letter (point to “A”), then a number (point to “2”), then a letter (point to “B”), and so on. Draw the lines as fast as you can and do not lift the pen from the paper. Begin!”

If the participant makes a mistake on Sample B, point it out and explain. The acceptable explanations are above (under Sample A).

Proceed as with Sample A if the participant does not correctly complete Sample B (i.e., guide the hand with eraser end down and repeat instructions).

If the participant succeeds, say, **“Good! Let’s try the next one.”**

Test

“On this page are some numbers and letters. Do this one the same way. Begin at number one (point) and draw a line from one to A (point to “A”), A to two (point to “2”), two to B (point to “B”), B to three (point to “3”), three to C (point to “C”), and so on, in order, until you reach the end (point to the circle marked END). Remember, first you have a number (point to “1”), then a letter (point to “A”), and so on. Do not skip around, but go from one circle to the next in the proper order. Draw the lines as fast as you can and do not lift the pen from the paper. Ready, Begin!”

Start timing. If the participant makes an error, immediately put a dash through the incorrect line and have the participant proceed from the point at which the mistake occurred. Follow error correction guidelines outlined for Trails A. Do not stop timing.

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. The Trails tests are very important to data analysis. In a situation where time is of the essence, please allow time to finish Trials. If necessary, ask the participant if s/he would be willing to complete the remaining tests after the MRI or neurology visit.
2. If the participant starts before the instructions are done in the sample, say, **“I’m sorry, but I have to read through all of the instructions.”**
3. If the participant starts before the instructions are done in the test, say, **“please don’t start until I say *begin*”**.
4. Pen lifts do not count as errors and should not be cued.

Data Collection: Record the time to completion. Take note of number of pen lifts and whether participant showed awareness of lifting the pen. Take note of number of pen buzzes and whether pen buzzing seemed to have affected participant performance. It is important to continue this test to the extent that the participant is willing and able. If the participant struggles, but is able to maintain set with some cuing, it is important to continue the test for as long as necessary. If you find that the participant loses set with each circle, it may be discontinued. If the participant starts to become agitated, discontinue (clinical judgement).

WRAT-3 READING

“Please look carefully at the words on this page. I’d like you to read them out loud, so I can hear you. Please read slowly and clearly so I can record your responses. Begin here (point to the first word), and go across the page and on to the next line and so on. Go ahead.”

If the participant cannot read five words, have him/her read the letters at the top of the page.

When the participant makes the FIRST ERROR, say, **“Will you please say that one again?”** THIS IS ONLY FOR THE FIRST ERROR. If, at any time, the participant says something that you cannot hear, say, **“Will you please say that again exactly as you just said it?”**

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. We have a large print version of this test for participants with vision problems. If you use it, indicate this at the end of the battery under “factors that may have affected testing” with a comment that says “used large print stimuli.”
2. If the participant says, “I don’t know these words”, say, **“just try to pronounce them”**.
3. If the participant says, “These are too hard”, say, **“how do you think you would pronounce them? You don’t have to know what they mean.”**
4. If the participant reads the words too quickly, say, **“please read them just a little more slowly...I’m having trouble keeping up with you.”**
5. If the participant asks you “how do I pronounce it?” say, **“I’m sorry, I’m not allowed to say.”**

Discontinue rule: After 10 consecutive errors (score of 0 or 6), the test is discontinued.

Data collection: Circle “correct,” “incorrect,” or “no guess” as appropriate for each word. Write a “Q” next to the word that was queried (i.e., the first error; the word you asked them to say again). If the error is phonemic, underline the mispronounced phoneme. If the error is a wrong accent, circle the incorrectly accented syllable. Finally, if the error is semantic, write down the word in the blank space next to the word.

FINGER TAPPING

Be sure to ask the participant before the instructions if they have any problems/pain in their hands/arm.

“This is a test of your finger tapping speed. We are going to do several trials with each hand, always using your index, or pointer, finger. Let me show you, first.”

Demonstrate how to use the tapper correctly. Say,

“You need to keep all the rest of your fingers on the board like this. Make sure you go all the way up and all the way down, or the counter will not register your taps, see?”
Demonstrate taps that do not register.

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. BE SURE TO RE-SET TO ZERO AFTER EACH TRIAL
2. Start with the dominant hand and have the participant place the dominant hand palm down with the fingers extended and the index finger placed on the key. Direct the participant to tap as quickly as s/he can, moving only the index finger, not the whole hand or arm. Allow a practice trial with the dominant hand hand before testing that hand so the participant can get a “feel” for the apparatus, then do Trial 1 of the dominant hand.
3. Have participant practice with non-dominant hand, then do Trial 1 of non-dominant.
4. Alternate left and right hands. Time the tapping for 10 seconds each. Five 10-second trials are given with each hand, except when the results are too variable from one trial to another. Specifically, the test procedure requires that five trials be within a five-point range from fastest to slowest (for example, 50, 53, 50, 52, 55). The trials do not need to be consecutive. If one or more trials exceed this range, additional trials are given. A maximum of 10 trials is allowed. Fatigue may affect performance, so rest periods are fine. Do not allow the participant to move or lift fingers. With poorly coordinated adults, this requirement is difficult and may be relaxed as long as it is clear that the score is obtained by index finger oscillation and not by movement of the whole hand.

Data Collection: Record the number on the counter when you say stop, not when the participant in fact stops (these may or may not be the same, participants sometimes will do extra taps).

How to handle unusual participant verbal and non-verbal behaviors		
Participant’s behavior	Examiner’s response	Comments
frustration	“only a few more times”	
Repeated lifting of non-tapping fingers	“remember to keep your other fingers on the board”	
Appearing to be in discomfort	“let me know if it starts to bother you”	

“What does THIS do?!”	“our brain controls everything you do, so this is giving us a snapshot of your motor functioning”	I’ve found that “it looks at hand-eye coordination” works well
Lifting middle finger	Allow this if they can’t stop even after a prompt. If a second additional finger lifts too, however, discontinue the trial.	Some people cannot do the test w/out lifting another finger! Only the middle finger is permitted – if any others, discontinue the test

BLOCK DESIGN (WAIS)

Design #1

Present four blocks to the participant (two all red, one all white and one half red and half white) and say, “**You see these blocks. They are all alike. On some sides they are all red; on some, all white; and on some, half red and half white.** (Hold one block and turn it to clearly show different sides.) **I’m going to put them together to make a design. Watch me.**” Arrange the four blocks SLOWLY, ONE BLOCK AT A TIME, into the design on Card 1 without exposing the card to the participant. Then, leaving the model intact, place four other blocks in front of the participant with two solid red blocks, one solid white block, and one half-n-half block facing up. Say, “**Now make one just like this**” <point to the model you made>.

If the participant succeeds within time limit, move on to the next design.

If participant fails to complete in time, pick up the participants’ blocks, leaving examiner’s model intact, and say, “**Watch me again.**” Demonstrate a second time, this time using the participant’s four blocks. Allow the participant to view the new construction for a few seconds, then mix up the blocks, still leaving the examiner’s model intact, and place the four blocks in front of the participant with two solid red blocks, one solid white block, and one half-n-half block. Say, “**Now you try it and be sure to make it just like mine.**” Regardless of success or failure, move on to next design.

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. Stay aware of the behavior of the participant during Design 1. If it looks as though the participant is trying to copy the sides as well as the tops, say, “**you only have to copy the top**”.
2. For Design 1, the first trial is administered. If the participant gets it correct in the first 60 seconds, you move on to Design 2. However, if the participant does not correctly complete Design 1 in the 60 second time limit, then Trial 2 is administered. This can be confusing and this confusion is related to the difference between the standard administration of the test, and the testing the limits part of the test. That we record whether the participant was able to accurately construct the design BEYOND the time limit is a testing the limits variable (recording sequencing errors on Digit Span). Thus, if

for Trial 1 they correctly complete the design, but it takes them more than 60 seconds to do so, THIS IS STILL A FAILURE, and Trial 2 needs to be administered.

Design #3 (Second one administered), 4, 5, & 6

Give the participant four blocks, show the design in the booklet and say, “**now make one like this. Tell me when you have finished.**”

Discontinue rule: If both Design 1 (trial 1 & 2) and Design 3 are failed, discontinue the test

Design #7

Give the participant all nine blocks placing blocks with three of each side up, show the design in the booklet and say, “**now make one like this, using nine blocks. Be sure to tell me when you have finished.**”

Discontinue rule: If Design 1 (trial 1&2) AND Design 3 are failed, OR after three consecutive failures.

Data Collection: Track the sequence of block placements. Even if you cannot keep up with all block placements, be sure that your tracking page documents the FINAL construction, if it is incorrect. Record the time to completion.

How to handle unusual participant verbal and non-verbal behaviors		
Participant’s behavior	Examiner’s response	Comments
Placing blocks on top of the stimuli	Place blocks back on table and say, “I’d like you to use these blocks <point to blocks> to make a design just like this one <point to stimulus>”	
Stacking blocks	Same as above	
Participant appears to be trying to copy the sides of the blocks, as well as the tops, during Design #1	“You only need to copy the tops of the blocks.”	Be aware of the participant’s behavior. You can sometimes see participants turn or shift their heads or eyes in a way that makes it seem as though they are examining the sides of the Examiner’s block construction.
“Do I have to use all the blocks?”	Yes.	
“It is not possible to make this design”	“It’s difficult to do. You have some more time—go ahead and try some more.” or “Would you like to continue trying?”	How you respond to this should be determined by your clinical assessment. Is the participant frustrated b/c has been trying unsuccessfully to complete item? Is the participant suspicious? It may be necessary for you to reassure the participant that you are not trying to “trick” him/her.

INFORMATION (WAIS-R)

Begin with item # 5. If both #5 and #6 are correct, give credit for 1-4. If EITHER #5 or #6 is answered incorrectly, administer #1-4. **Discontinue Rule:** After 5 consecutive errors.

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. Read each question exactly as stated. If the response to a question is incomplete or not clear, you may say, “**Explain what you mean**” or “**Tell me more about it**”, but do not ask leading questions or spell the words. Do not alter the wording of any question.

2. Note the following for each question:
 - a. #5: Where does the sun rise? If the participant points, say, “**Yes, but what direction is that?**”
 - b. #6: Name 4 men who have been president since 1950 (emphasize “since.”. If participant gives more than 4 responses, and at least one is WRONG, ask him/her to choose just 4 as his/her final answer.
 - c. #7: Who was Louis Armstrong? If participant gives some other correct answer such as “Satchmo,” say, “**But what is he most famous for?**”
 - d. #14: Who was Amelia Earhart? Accept “first woman pilot” as correct.
 - e. #15: Why are dark clothes warmer than light-colored clothes? Do NOT give credit for response that dark clothes “hold,” “attract,” or “draw” heat.
 - f. #17: Who was Martin Luther King? If the participant gives some other correct answer such as “Minister” or “Black leader,” say, “**But what was he famous for?**”
 - g. #21: How does yeast cause dough to rise? Do NOT give credit for “Chemical reaction.”
 - h. #24: Name three kinds of blood vessels in the human body. Names of specific vessels are not acceptable, but give credit for venules and arterioles.
 - i. #25: At what temperature does water boil? If scale is not specified, say, “**What scale?**”
 - j. #26: Who was Marie Curie? Do NOT give credit for “Discoverer of radiation”.
 - k. #29: “Goethe” is pronounced GER-tuh. “Gounod” is “Goo-know”

3. If the participant’s response suggests s/he didn’t hear the question accurately (e.g. “in the morning” as a response to “where does the sun rise”), then repeat the question and write a (q) on the response page where the question was repeated. Record verbatim.

Data Collection: Record all responses verbatim. IF response is identical to correct answer listed on score sheet, you can circle it. If query is used, indicate this with a “Q” at the point where it was given.

COOKIE THEFT

Place Cookie Theft picture, paper (landscape orientation), and pen in front of participant.

“Here is a picture for you to look at. Write down everything that is happening in the picture. Please use complete sentences. Go ahead and tell me when you are finished.”

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. Emphasize the word “happening” when giving the instructions.
2. Begin timing as soon as instructions are completed, and end when participant says s/he is finished.
3. Unless you believe it will affect rapport, stop participant if still writing at 10 minutes.
4. Do not stop the participant if they rotate the paper to a portrait orientation.
5. If the participant says “do you want me to write everything I see?”, say, **“Write down everything that is *happening* in the picture.”** Simple repetition of the instructions is the best approach and often sufficient.
6. If the participant asks “is that enough?”, say, **“It’s up to you. You tell me when you are finished.”**
7. If the participant asks “do I need to write as fast as I can?”, say, **“No.”**

Data Collection: Record as described on score sheet. If the time to completion is \geq 10 minutes, then code “9:99”

HOOPER VISUAL ORGANIZATION TEST

“This is a test of your ability to recognize pictures of objects when the pictures have been cut up and rearranged. Look at each picture and decide what it might be if it were put together. For example, look at the first picture.” [*present item 1.*] **“What would it be if it were put together?”**

IF CORRECT: **“That’s right, it’s a fish.”**

IF INCORRECT: **“The correct answer is fish.”**

“You see here is the head, the fins, and the tail.” (*POINT AS YOU GO ALONG*)

“If it were put together correctly, it would be a fish.”

Whether correct or incorrect, say: **“Now do the other pictures in the same way. Toward the end they become rather hard. Try to give an answer even if you are not sure of it.”**

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. If the participant cannot retrieve the actual name of the item, but can **CLEARLY DESCRIBE** the item, give him/her credit for a correct response (this is not a naming test).
2. After item 1, do **NOT** indicate whether the response is correct or incorrect, and do not reveal the correct answer if an error is made. If the respondent delays more than a minute on any item, encourage him or her to guess.
3. If the participant rotates the booklet, or asks to rotate the booklet, allow it.
4. Participants are allowed to turn the pages themselves. However, if the participant has fine motor problems that might make this difficult, examiner should turn the pages.
5. If the participant is struggling to figure out design, say, **“Feel free to turn the page.”**
6. If the participant gives the answer “I don’t know” repeatedly, especially if they flip through the pages quickly, then encourage them to **“make a guess!”**

Data Collection: Record incorrect answers verbatim. Circle the appropriate score.

DIGIT CODING

Example:

<Point to the key at the top of the page >

“Look at these boxes. Each box has a number in the top part <point across the numbers from 1 to 9> and a special mark in the bottom part <point across the symbols> Each number has its own mark.”

<Point to 1 and its mark in the key, then 2 and its mark. Then point to the seven squares located to the left of the heavy black line>

Down here, the boxes have numbers in the top parts but are empty in the bottom parts. You are to draw the marks that belong in the empty boxes, like this.

<Point to the first Sample Item, then point back to the key to show its corresponding mark>

Here is a 6; the 6 has this mark. So I put it in this empty square, like this.

<write in the symbol, point to the second sample item>”

<REPEAT FOR EXAMPLES 1 to 3>

Sample:

“Now you do these. Stop when you get to this line.” <point to the heavy line>

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. If the participant makes an error on any of the Sample Items, correct the error immediately and review use of the key. Continue to provide help if needed. DO NOT PROCEED until the participant clearly understands the task.

Test:

“Begin here and fill in as many squares as you can, one after the other without skipping any. Keep working until I tell you to stop. Work as quickly as you can without making any mistakes. When you finish this line <point to first row> go on to this one. <Point to first square in second row>”

“Go ahead.” <begin timing>

If participant omits an item or starts to do only one type, say:

“Do them in order. Don’t skip any. <point to omitted item> do this one next”

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. Provide no further assistance except reminding the participant to continue until instructed to stop.
2. After 120 seconds (2 minutes) say STOP. If the participant hasn’t completed third line at 2 minutes, do not say stop and wait until they finish the third line.

Data Collection: at each of the 15 second intervals, circle the last symbol that the participant has completed on the miniature digit coding grid. You can later use this to count the number completed at each time interval. Additionally, participants must complete three lines before instructed to stop.

DIGIT SYMBOL INCIDENTAL LEARNING- Pairing & Free Recall

DIGIT SYMBOL INCIDENTAL LEARNING- Pairing

Fold the paper in half, in order to cover the pairing items, and pass the participant the folded piece of paper, and say:

“Now I want you to fill in all of the symbols you can remember that go with these numbers, in any order. Tell me when you are finished.”

DIGIT SYMBOL INCIDENTAL LEARNING- Free Recall

Turn over paper. Be sure top is oriented so when paper is unfolded.

“In this area <point> I’d like you to write down all of the symbols you can remember, in any order. Tell me when you have finished.”

CLOCK DRAWING: Number Placement & Time Setting

CLOCK DRAWING: NUMBER PLACEMENT

Present the participant with the 18 cm pre-drawn circle and a pen.

“Make this circle into a clock by placing all the numbers where they belong.”

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. If they begin using Roman numerals, say **“please use regular numbers.”** This is *only* for this clock, not for the command/copy clocks.

CLOCK DRAWING: TIME SETTING

Present the participant with the 18 cm pre-drawn clock.

“Here is a clock with the numbers already written in. I would like you to draw hands on this clock and set the time to '20 after 7'.”

MATH FLUENCY

“I want you to complete these equations <hand paper to participant>. Do them from LEFT <point as you go> to RIGHT, as fast as you can, without skipping any. If you have finished, move on to the next page. Ready, GO.” <begin timing>

IMPORTANT ADMINISTRATION CONSIDERATIONS

1. After three minutes, say “Stop” timer and record time. If the participant finishes all the equations before three minutes, record that time.
2. If participant goes from RIGHT to LEFT or SKIPS a problem, remind him/her ONCE and say: **“remember, do them from LEFT to RIGHT, as fast as you can, without skipping any.”**

Note: If the participant notices that they have been making errors on the test and tries to go back and correct them, we should not allow them to do this. We should cue the participant to continue on with the test and try to get as many items completed as possible. The tester should say, "Keep going from where you are and try to get as many done as you can." If more cueing/explanation is necessary, you can add: "You are not allowed to skip around" and "but I'll mark that you noticed your errors."

Data collection: on the miniature data page on the scoring page, circle the last completed item at 1:00, 2:00, and 3:00 respectively.

BALANCE PHYSICAL FUNCTION TEST

“I’m going to ask you to stand in a few positions that involve some balance. I would like you to stand up and lift your leg up, balancing on your other leg, for as long as you can, like this, keeping your remaining foot flat on the ground <demonstrate>. If you would like to put your arms out to help you balance, that is fine, but be sure to keep your remaining foot flat on the ground. Hopping is not permitted. Hold this position for as long as you can. I will ask you to stop after 30 seconds. Go ahead, and I will tell you when the time is up. <time participant for 30 seconds, or until s/he puts his/her foot down, hops, or touches the wall, desk, or table. Check the appropriate box indicating the foot lifted>”

“Good. Now do same thing with the other leg. Again, I will tell you when the time is up. <time participant for 30 seconds or until s/he puts the foot back down>,”

“Thank you. Now I’d like you to do the same thing, again with the first leg, but close your eyes. As soon as you open your eyes or put your foot back on the ground, I will have to stop the time, so please do your best to keep your eyes closed.”

IMPORTANT ADMINISTRATION CONSIDERATION

1. Participant may begin the test with either leg. It is acceptable for the participant to use his/her hands to keep steady before timing begins. The leg may be held at any height, and timing must stop when the lifted foot touches the ground.

Data collection: Record whether participant was able to stay for 30 seconds, or, number of seconds s/he was able to stay, as indicated on the score sheet. Make sure to circle the box next to the foot with which the participant began the test.

SPIRAL TEST

Start instructions by saying:

“You will use the following sheets to draw 1 spiral with each hand, for a total of 2 spirals. One spiral will go on each page. Use the digital pen to draw the spirals by beginning at the center of the page and slowly draw a spiral moving outward until you fill the entire page.”

Examiner flips to the page in the binder that has the example spiral and allows participant to look at it.

Continue with the instructions below and demonstrate with the pen as you say:

Aim for circles that are about ½ inch apart and try to keep the pen on the paper. You are allowed to hold the paper with your other hand if you need to. Please ensure that when you are drawing the spirals that:

- 1. The paper is resting on a flat surface**
- 2. You do not rest your wrist or forearm of your writing hand on the table**
- 3. And you are not holding or bracing your drawing hand for stability**

Then examiner gives the participant the digital page that says right hand or left-hand spiral, ensuring that the participant is given the page that begins with their dominant hand. If ambidextrous, start with the right hand.

Say the following instruction and make sure to point out the starting and ending points.

“Begin your spiral at the middle point labeled “start here” and work out to the edge, ending at the “end here” point. Try not to overlap the lines in your spiral.”

After, take the paper from them and hand them the other paper, either the right hand or left hand one depending on which one they started with.

If the participant is drawing their lines too close or too far apart, examiner can say:

“Remember to draw them about ½ apart.”

If the participant begins to rest their wrist or elbow on the table examiner can remind them:

“Make sure to not rest your wrist or forearm on the table.”

If the participant stops drawing before reaching the end point examiner can say to them:

“Remember to keep drawing until you reach the point labeled end here.”

If they brace their drawing arm with their other arm remind them:

“Remember, do not hold your drawing arm.”

Data collection: No data collection needs to be taken while the participant is drawing the spirals. Make sure to note any limitations that might affect the drawing of the spiral, like a physical limitation. Make sure to fill out the top right of the page with the ID and date.

TESTING PRIORITIES

We should follow the priorities list (and deviate from the standard order) if the participant is getting fatigued/frustrated, is noticeably upset about memory problems when asking about memory/thinking concerns, needs to leave early, or if you don't think you will be able to administer the full battery for any reason. As always, use your discretion.

When administering the Long Battery, prioritize the tests in the Short Battery above those in the Long Battery.

WRAT reading and the learning disability questions are very important if the participant has never been seen before; if he/she has been seen before, they are less important.

High Priority Tests: Do these first.

1. **Memory**
2. **Trails**
3. **Clocks**
4. **WRAT reading (if never seen before)**
5. **Similarities**
6. **Coding**

Tests to skip: These tests are acceptable to omit.

1. **Balance/ Physical Function**
2. **Finger Tapping**
3. **WRAT reading (if given before)**
4. **Cookie Theft**
5. **Information**
6. **Block Design**