Remote Administration Guidelines for the NIH Toolbox®: Response to COVID-19

To assist our users during the COVID-19 pandemic, we created guidelines for the remote administration of the NIH Toolbox (NIHTB). When altering the administration guidelines of tests, you need to consider if those alterations affect the integrity of the test. That is, after you alter the test administration, can you have a reasonable expectation that you are still measuring the same construct and that you have preserved the psychometric properties of the test. With this in mind, not all tests can be administered remotely. We begin with general considerations and then move to more specific NIHTB administration guidelines. **The specific NIHTB administration guidelines can be found in Appendix A (English version of the app) and Appendix B (Spanish version of the app).**

General Guidelines for Remote Assessment

For remote assessments, you need to maintain proper test administration standards, such as a quiet environment with limited noise and distractions. It would be best if you communicated these expectations to the participant in advance of the test session. It would be preferable if the participant was alone to avoid any distractions, though this may not be possible given the participant's age or situation. If there is a lot of noise or other distractions during the testing, the results will likely be compromised.

An adult caregiver/parent may be present when a child or a compromised adult is tested, but this caregiver/parent should not intervene in test responses. The caregiver/parent should not be able to view the screen and it is best that this person sit behind or to the side of the participant so the caregiver/parent cannot make eye contact with the participant. With this setup, the caregiver/parent can be a reassuring presence for the participant, without actively interfering with the testing. That said, for some participants, you will need to stress that the participant's responses should not be coached. Remember there are all levels of coaching from the most blatant where someone corrects the participant's response, to subtler where the participant receives extra smiles or grimaces depending on the response.

Examiners should practice how they plan to administer the test using teleconference technologies (e.g., positioning of materials). Examiners should adhere to the standardized administration instructions as much as possible. Teleconferencing equipment and set-up should be checked prior to the start of the evaluation. We suggest allotting 5-10 extra minutes to the evaluation for set-up, particularly as each participant may have different equipment available.

- When you first attempt to set up a remote visit, where the examiner and participant are both remote, find out what kind of equipment the participant has available to assess whether this meets the minimum requirements to proceed with a remote evaluation. There may also be a situation where a participant can come to a facility, but the examiner cannot be there. In this instance, there is less technical burden on the remote participant, but other considerations may need to be taken into account. The American Psychological Association offers a number of recommendations that may be helpful when setting up a remote assessment:

  1. Is the technology platform HIPAA compliant with a BAA for technology vendor? Does it need to be for your type of evaluation?

2. Does the examiner and the participant have adequate internet connectivity for video-conferencing?
3. Does the participant understand how to log in and use the technology?
4. Is the internet connection password protected and secure and not a public Wi-Fi—for both the examiner and the participant?
5. Is the antivirus/antimalware protection up to date to prevent hacking to either the participant's or the examiner's computer?

- Offer set-up suggestions to the remote participant, such as sitting comfortably squarely in front of the computer during the evaluation and making sure the computer speakers are turned up. Ask the participant to clear their desk of any distractions.
- Be aware that there can be a time-lag using screen share. This may mean that what you see on your iPad may not be what the participant is seeing. If possible, you can log into a session on your computer, in addition to the iPad, so you can see what the participant is seeing.
- Before beginning each session, verify the participant's identity and location. Repeat any agreements signed in the consent e.g. no one will record the session without permission; all Apps and notifications on the computer, tablet, or smart phone are turned off. Remind the participant that they cannot take screen shots of the test content, as the material is copyrighted.
- Make sure you can hear and see the participant and likewise, that the participant can hear and see you. For example, make sure the participant can see your iPad and that you can clearly see the participant. Ensure that the picture and audio quality are acceptable.
- Before you get started, establish guidelines as to what will happen if you get disconnected or must end the session prematurely. For example, let the participant know that the examiner will attempt to reconnect if the line has interference or gets dropped. Also, provide a plan for a situation where the examiner could not reconnect for some reason. For example, tell the participant that the examiner will attempt to reconnect, but if the participant doesn't hear from them within 5 minutes, the participant should consider the evaluation postponed and the examiner will follow up to reschedule. Most helpful would be to exchange phone numbers so that the participant and the examiner can reach each other immediately in case of technical difficulties.
- As much as possible, record in the NIHTB App, under the Notes function, what was done differently to administer the tests. For example, a note may include: Participant and Examiner were both remote and administered tests using Zoom. Or, Remote administration was discontinued because participant's children were playing loudly in the room and could not relocate due to situational constraints.

IRB approvals and consent forms
You will probably need to modify your study protocol and consent forms for remote administration and then get approval of these modifications from your IRB or other institution providing ethical oversight. Modifications for remote administration are likely to include:
   a. Using a HIPAA approved platform for screen sharing (e.g. Doxy.me; thera-LINK; and Zoom. We believe these are HIPAA compliant with a BAA, but encourage users to verify and document as needed).
   b. Description of steps taken to ensure data is as secure as it is in standard administrations.
   c. Consent forms that include such elements as protection of the privacy of the materials presented, descriptions of the requisite testing environment and equipment to be used; permission to record or statement that no recording will be performed.

We recommend that you follow up with your University, Hospital, company or other governing body for guidelines on:
- How to amend your IRB and consent forms
- How to update any documentation needed for proper clinical care or other assessment procedures
- How to properly clean and care for equipment to control for spread of COVID-19

Cautionary Note with Remote Testing and Screen Sizes
To allow for remote administration of our tests, we selected only those tests that we believed could still offer insight into the construct being tested. Unfortunately, we do NOT know how remote administration will affect the test results, and it will likely have a differential impact per test and per situation. In fact, there are a multitude of factors that can detract from standardized administration including distractions in the participant's home environment, added stress of the COVID-19 pandemic, and, of course, changes to the test administration.

We have adapted two tests in an effort to make them more amenable to remote testing via screen share. Of note, we could not adapt the Oral Reading Recognition Test for participants under the age of 5 years. To perform an assessment using screen share, we unfortunately cannot control for the size of test stimuli. We do strongly discourage the use of a smartphone as this would simply make any performance test stimuli so small it would be difficult to view. We anticipate that change in stimulus display size will have the most impact on the cognition tests. Of these, stimuli changes for Picture Sequence Memory are likely to have the biggest impact on test results followed by List Sort Working Memory. Picture Vocabulary and Oral Reading are likely to be less impacted. We strongly suggest that you use resultant normative data for the cognition tests cautiously. We do not provide a crystalized composite score, i.e., using the remote version of the Picture Vocabulary test because we do not know how the remote versions of this test will affect the composite. Also, we do not recommend trying to prorate the fluid composite score (or the total composite score), based on the tests that can be administered. We do not anticipate that a prorated fluid composite score based on Picture Sequence Memory and List Sort Working Memory will be comparable to the fluid composite score based on all 6 subtests (many of which factor in reaction time).

Please record as much information about the technology used for remote administration from both the examiner and participant, including information such as participant's equipment used (including model and year of computer, size of screen for display). For the examiner, record specifications of hardware used as well as software, including version numbers and program used for remote admin. Having these details will better help understand the test results for these measures, if an ad hoc review is needed.

Our goal with offering the remote administration of the NIHTB is to help assessments continue if they need to be administered at this time. We are offering the best solution that we can, knowing that it is not a perfect solution. We do strongly suggest that our users weigh the pros and cons of administering the NIHTB measures in this manner. We know that remote administration can affect the nature of the assessment and results, the question that remains is by how much.

Cognition Domain

Instrument	Equipment	Cognition Supplemental Materials	Remote Measure Created	Remote Administration
Picture Vocabulary	None	None	Yes, see **Appendix A or Appendix B (Spanish)** for supplemental Test instructions	**Can be administered remotely**; see supplemental notes and Appendix A
Picture Sequence Memory Test	None	None	Yes, see **Appendix A or Appendix B (Spanish)** for supplemental Test instructions	**Can be administered remotely**; see supplemental notes and Appendix A
List Sorting Working Memory Test	Bluetooth Wireless Keyboard	NIH Toolbox List Sorting Working Memory Test Examiner Answer Sheet	None	**Can be administered remotely**; see supplemental notes below
Flanker Inhibitory Control and Attention Test	None	Home Base	None	**Cannot be administered remotely** unless the iPad & home base are in front of the participant [scoring is based on timing accuracy]
Dimensional Change Card Sort Test	None	Home Base	None	**Cannot be administered remotely** unless the iPad & home base are in front of the participant [scoring is based on timing accuracy]
Pattern Comparison Processing Speed Test	None	None	None	**Cannot be administered remotely** unless the iPad is in front of the participant [administration is based on timing accuracy]
Oral Reading Recognition Test	Bluetooth Wireless Keyboard	Oral Reading Recognition Test Training and Certification Materials	None	**Can be administered remotely to participants age 5 and older**; see supplemental notes below
Oral Symbol Digit Test (Supplemental)	None	Oral Symbol Digit (OSD) Form (for Participant)	None	**Cannot be administered remotely** as OSD form cannot be emailed or left with the participant. If examiner cannot ensure that the OSD form has been returned or destroyed.
Auditory Verbal Learning Test (Supplemental)	None	None	None	**Can be administered remotely**; see supplemental notes below

- For any tests that are identified as 'Can be administered remotely': Prior to administration, the examiner will need to practice using the equipment planned for the administration.
- For any tests that are identified as 'Cannot be done unless iPad is in front of participant' (for 2 tests Home Base is also required): This means if the examiner and the participant are both remote, then these tests cannot be administered. If there is a situation in which the participant can come to a facility but the examiner is remote, then the participant and set-up need to be in clear view of the examiner; we are aware of one publication by Rebchuck et al (2019) that used this paradigm. For more information:

Rebchuck, A. D., Deptuck, H.M., O'Neill, Z. R., et al. (2019). Validation of a novel telehealth administration protocol for the NIH Toolbox – Cognition Battery. *Telemedicine and e-Health, 25*(3), 273-242. https://doi.org/10.1089/tmj.2018.0023

Cognition Supplemental Notes

1. **Picture Vocabulary Test – Remote Administration**
   a. **You will need to have the Remote Test instructions found in Appendix A or Appendix B to administer this test. The instructions in the App have not been changed.**
   b. To assist in the administration of the test, numbers were added to the edge of the images so that the participant can select a number corresponding with an image.
2. **Picture Sequence Memory: Form A (or Form B or Form C) – Remote Administration**
   a. **You will need to have the Remote Tests instructions found in Appendix A or Appendix B (Spanish) to administer this test. The instructions have not been changed in the app.**
   b. To assist in the administration of the test, numbers were added to the drop zone boxes. Finding a simple way to identify the target picture proved to be impossible in the time we had to adapt this measure.
   c. Not having a standard way to identify the target pictures clearly changes the task demands; thus, it is not clear how the validity of this measure changes with remote administrations.
3. **List Sorting Working Memory Test**
   This measure requires setting up the Bluetooth Wireless Keyboard before beginning the session.
   a. If there is a problem with the Keyboard during the administration of the test, the examiner needs to have a way to contact the participant to notify him or her that there is a problem.
   b. You can speak to them on the line while you are resolving the problem or you can tell them that you will contact them in a few minutes once the problem is resolved.
   c. Remember to have the NIHTB List Sorting Working Memory Answer Examiner Answer Sheet nearby for accurate scoring of the responses.

4. **Oral Reading Recognition Test**
   **This measure should not be administered remotely to participants under the age of 5 years as some items require pointing.
   Like the List Sorting Test, this measure requires setting up the Bluetooth Wireless Keyboard before beginning the session.

a. If there is a problem with the Keyboard during the administration of the test, the examiner needs to have a way to contact the participant to notify him or her that there is a problem.

b. You can speak to them on the line while you are resolving the problem or you can tell them that you will contact them in a few minutes once the problem is resolved.

c. Remember to have the <u>NIHTB Pronunciation Guide for Oral Reading Recognition</u> nearby for accurate scoring of the responses.

5. **Auditory Verbal Learning Test (Rey)**

a. The introductory instructions as well as the instructions for each of the three trials are printed on the iPad screen for the examiner to read. **<u>The iPad screen is NOT shared with the participant for this measure.</u>**

b. After the examiner reads the instructions and starts the trial, the examiner needs to work fast, keeping pace with the participant as he or she says words.

c. The examiner should ignore any word that the participant says that is not on the list.

Motor Domain

Instruments	Equipment	Additional Apple Product	Remote Administration
9-Hole Pegboard Dexterity Test	• 9-Hole Peg Test Kit	--	**Cannot be done** unless the equipment is in front of the participant
Grip Strength Test	• Hand Dynamometer	--	**Cannot be done** unless the equipment is in front of the participant
Standing Balance Test	• iPod -Protective case • Balance Pad (e.g., AIREX) • Gait Belt with Velcro (e.g. Scott) • Sanitary booties	iPod (5th generation or later) Balance Pod App (Free App Store download	**Cannot be done** unless the equipment is in front of the participant
4-Meter Walk Gait Speed Test and 2-Minute Walk Endurance Test	• Measuring tape • 2 Cones • Diagram for Walking Course (*Appendix 6 of the Administration Manual*) • Colored masking tape for walking course	--	**Cannot be done remotely**

- Unless the participant can interact with equipment, 9-hole pegboard, grip strength, and standing balance cannot be administered.
- The 4-Meter and 2-Minute Walking tests cannot be administered remotely.

Sensation Domain

Instruments	Equipment	Included materials	Remote Administration
Pain Interference Test	--	--	**Can be administered remotely**; see supplemental notes below
Pain Intensity Test	--	--	Can be administered remotely; see supplemental notes below
Words-in-Noise (WIN) Test	• Headphones with at least: Bandwidth /Frequency Response: 10Hz – 10,000HZ, Isolation + 10dB or Greater Sensitivity: -96 dB SPL/V or greater	--	**Cannot be administered remotely** as the laterality of the stimuli is not preserved when presented on a shared screen
Odor Identification Test	• Scratcher (e.g., guitar pick, coin)	Odor Identification Cards	**Cannot be done** unless the equipment is in front of the participant
Visual Acuity Test	• Portable Tablet Stage • Bluetooth Wireless Keyboard • Table • Measuring Tape	HOTV Letters for young children	**Cannot be done** unless the equipment is in front of the participant
Regional Taste Test	Appendix 7 in the Administration manual has list of required taste samples. Due to the complex nature of sending taste samples, we are unable to supply these. If possible, please review the app interface.	--	**Cannot be done remotely**

- See Emotion Domain administration for additional guidance on the Pain Interference and Pain Intensity Tests. These are questionnaires and can be administered remotely. Items can be displayed via a videoconference screen, or read aloud to the participant as needed. The participant verbally indicates his/her response and the examiner records it on the iPad.

- Odor Identification and Visual Acuity cannot be administered unless the participant can interact with equipment.

- Words-in-Noise does not preserve the laterality of the stimuli when presented by screen sharing.

- The Regional Taste Test cannot be administered remotely.

Sensation Supplemental Notes

1. **Pain Interference and Pain Intensity Measures**

   Two measures, NIHTB Pain Interference CAT Age 18+ and NIH Toolbox Pain Intensity FF Age 18+, make up the measurement of this construct.

   a) Each is self-administered; for each, instructions are presented on the iPad screen. Each instrument is presented separately to the participant.

   b) Since there is no specific introduction to the Pain Surveys, the NIH Toolbox Emotion Instructions should be selected from the instrument list to introduce these two measures.

Emotion Domain

Instruments	Equipment	Included materials	Remote Administration
All Tests	--	--	Can be administered remotely

Emotion Supplemental Notes

1. Emotion measure items can be displayed via a videoconference screen, or read aloud to the participant as needed. The participant verbally indicates his/her response and the administrator records it on the iPad.

2. Examiners should follow best practices for administration of self-report measures:

   a) All questions must be read as written. E.g., for first person pronouns such as "I", read "I" NOT "You"
      - Allow the participant to read onscreen and answer as possible.
   b) Responses should come directly from the participants; avoid suggestions, hints, or interpretations from you or others.
   c) When participants do not understand a term or concept, tell them to answer as best they can; avoid attempting to provide synonyms or definitions because you might unintentionally change the meaning of the items
   d) If needed, send participants copies of questionnaires or response options for them to refer to ahead of time.
   e) Remain neutral in reference to the content of participant responses; don't react negatively or positively to answers

3. Some measures are also available online for download at **http://www.healthmeasures.net/resource-center/data-collection-tools/paper- forms.** However, please consider if this is a viable option as the forms would need to be downloaded and printed or viewed on a screen. Next, the forms would need to be answered and these answers returned to the examiner. There are several possible ways the participant could return the answers including traditional mail, or the participant could read responses to the examiner over the phone, or send responses via email. Finally, the examiner would need to enter the responses into the iPad for the purpose of scoring. Alternatively, some Emotion measures can be hand scored using the **Scoring Instructions for NIH Toolbox Emotion Measures** or via the free **HealthMeasures Scoring Service, powered by Assessment Center**^{SM} **.** If you choose this administration option and have been using CAT versions of any Emotion measures, please use the corresponding Fixed Length Form of that measure.

Closing Remarks

Please thoroughly investigate the platform that is chosen for remote testing. Some platforms allow for session recording and you should disable this feature, unless it is in compliance with your protocols, IRB guidelines and participant expectations. Remind the participant that any screenshots of these tests are strictly prohibited. Remind the participant that you need their honest effort or the test results are invalid.

As much as possible, record how the administration differed by using the Notes function in the app. By having detailed records, reviews of administration can be done if needed.

Again, please consider whether remote administration is right for your study or assessments. We know that changing administration of tests can affect results; however, we do not know how significantly this will impact the results of these tests. To minimize effects, please adhere as much to the standardized procedures as possible.

Lastly, we will continue to be responsive to the needs of our users and keep you posted via NIHToolbox.force.com and our social media feeds:

- **Twitter -** **https://twitter.com/nihtoolbox**
- **FaceBook -** **https://www.facebook.com/pg/NIHToolbox/posts/**
- **LinkedIn -** **https://www.linkedin.com/company/nihtoolbox/**

Please feel free to reach out to our help desk with additional questions Help@NIHToolbox.org.

Updated 1/25/2021

Appendix A

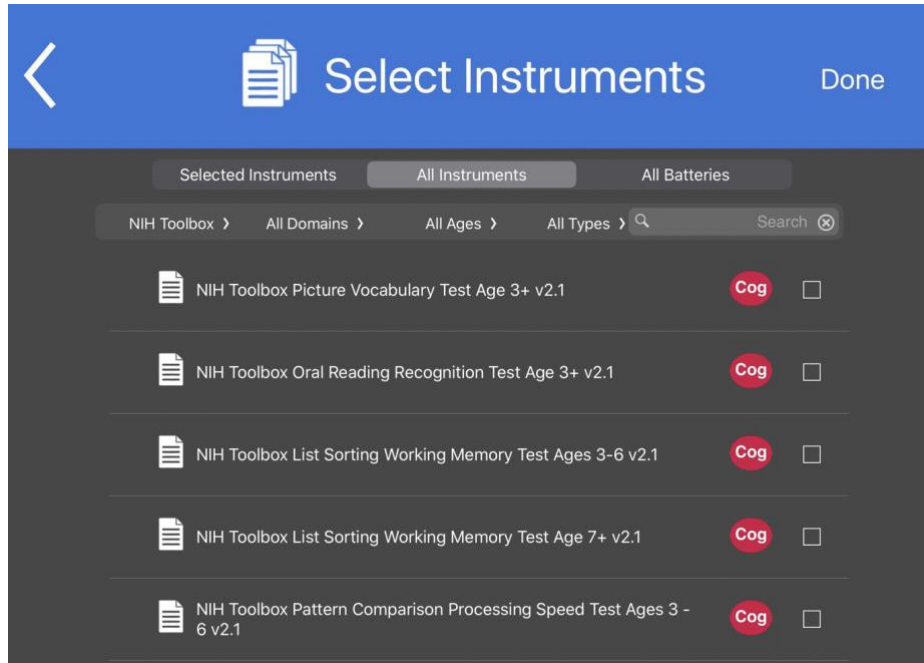**Revised administration instructions for:**

Picture Vocabulary (Remote)
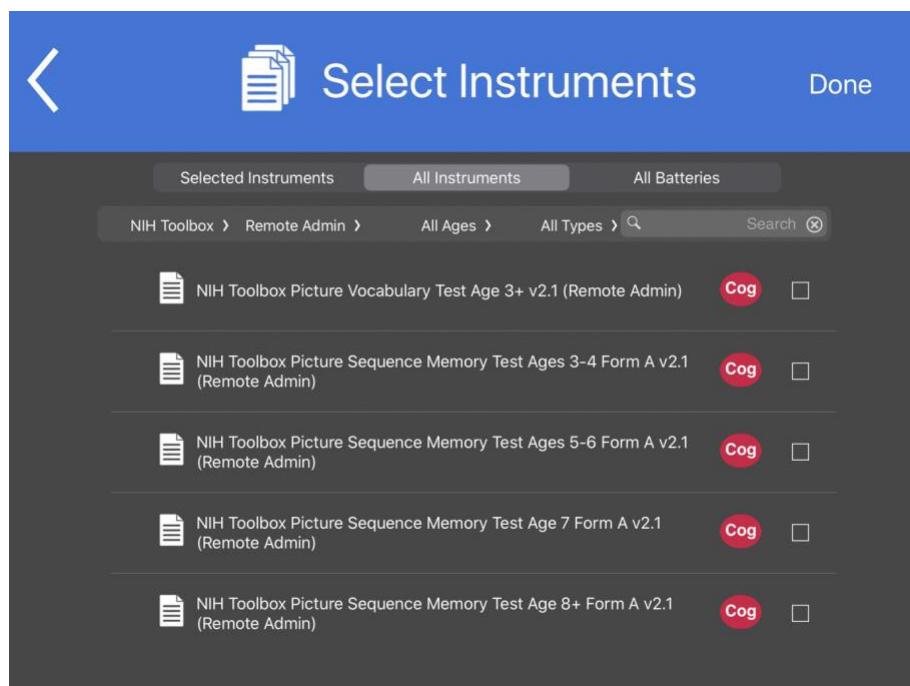**Picture Sequence Memory: Forms A, B or C (Remote)**

- **You need this for test administration of the two measures that were revised for remote administration.** **The instructions have <u>NOT</u> been changed in the NIH Toolbox App. The examiner needs to read the revised instructions in this document during testing.**

- **Instructional text in blue in this Appendix is to highlight the difference in the instructions from how it appears in the app.**

- **If possible, you may stop screen sharing during instruction-only screens to avoid having the participant see the different instructions. Or, you may tell the participant to disregard the on-screen instructions, if needed.**

- **If the participant cannot comply with the instructions, the test should be discontinued and the reason should be noted in the NIHTB App's Notes function.**

Location of Measures Revised for Remote Administration

After adding (or selecting) the participant, go to Select Instruments screen. Go to All Domains → Cognition → Remote Admin.
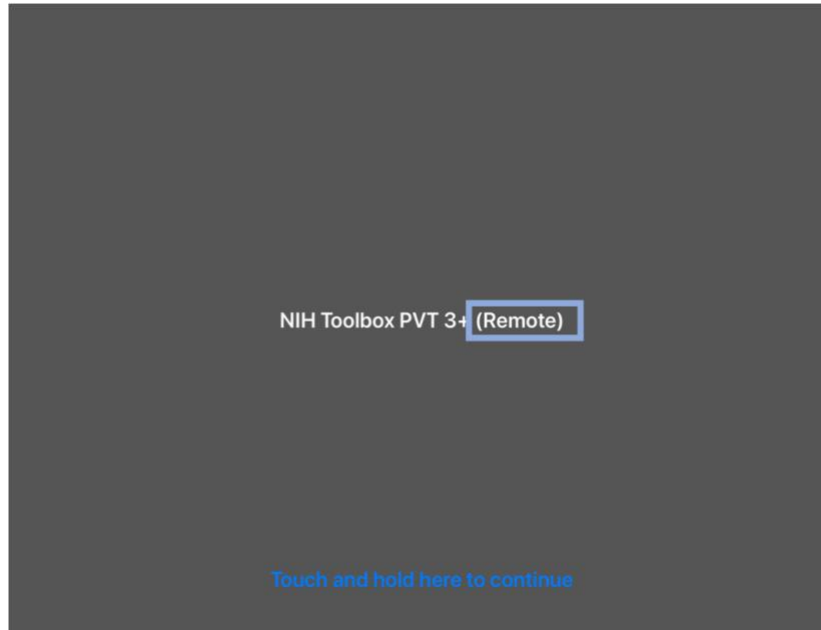

See that all tests that were revised for remote administration are available under this subdomain.

NIH Toolbox Picture Vocabulary Test (Remote)

Make sure test title screen has the word **Remote.**

For remote administration, the examiner needs to respond on behalf of the participant. Numbers were placed along side of the pictures to allow the participant to identify their response more easily. The examiner should ensure that they have clearly understood the participant's response before moving forward.
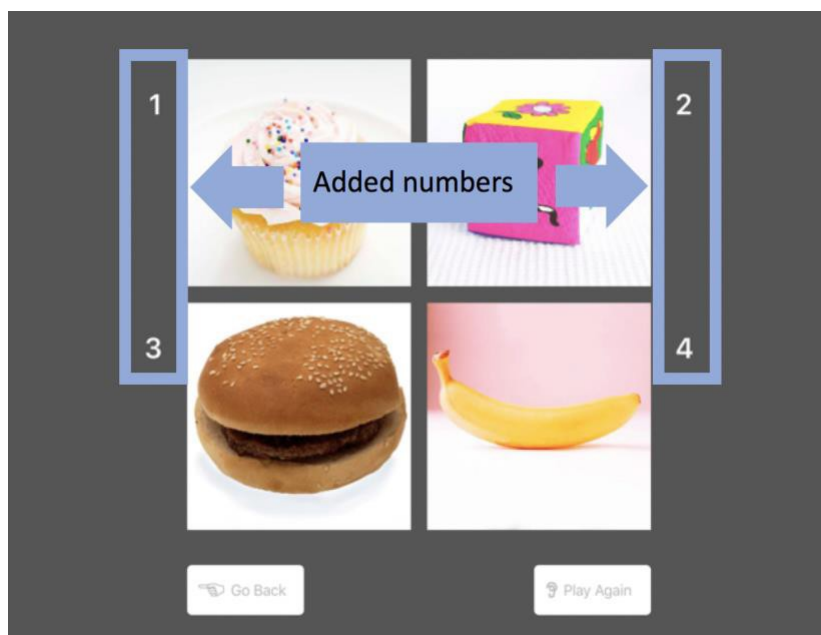
The task is introduced with the Title Screen: *NIH Toolbox PVT 3+ (Remote)*. At the bottom of the screen is a button *Touch and Hold Here to Continue*. Touch and hold that button to begin the test.

The next screen is slightly different for participants ages 3-6 and those ages 7+.

Instructions

Ages 3-6:

Say: **Let's look at some pictures. See there are four pictures, 1, 2, 3, 4. You will hear a word, and I want you to tell me the number next to the picture that means the same as the word that was said. Some words will be easy and some will be harder. Answer as best as you can. If you need to hear a word again, I can play it again.**
If you think you made a mistake and want to change your last answer, I can bring back the word and pictures. Are you ready to play?

When participant is ready, touch button that says *Touch and Hold Here to Continue*.

Ages 7+:

Say: **You are going to be asked the meaning of some words. For each item, you will hear a word and see four pictures on the screen. Tell me the number next to the picture that means the same as the word that was said. If you are not sure, make your best guess. If you need to hear the word again, I can play it again. After you tell me the number next to picture, I will enter your response, and then you will hear a new word and see more pictures.**
If you want to change your last answer, I can bring back that word and pictures. The pictures you just saw will reappear and you will hear the word again. Tell me the number of your choice, and then more words and pictures will appear. Tell me when you are ready to start.

When participant is ready, touch button that says *Touch and Hold Here to Continue*.

Practice Items

Practice item 1:

An audio recording says: **Let's try one for practice: Banana. Touch the picture of Banana.**
Say: **Tell me the number that is next to the picture of Banana.**

- Correct response is FOUR. If correct, the audio recording says: **That's right!** The program will automatically go to the next practice item.
- If incorrect, the Banana picture will light up and an audio recording says: **This is a banana. Let's try again.**
- The examiner should allow the participant up to three chances to answer this practice item correctly.
- After three unsuccessful attempts by the participant, the examiner should touch the picture of the banana and say: **This is a banana.** The next practice item will appear automatically.

Practice item 2:

An audio recording says: **Let's try another one: Spoon. Touch the picture of Spoon.**
Say: **Tell me the number that is next to the picture of Spoon.**

- If correct, an audio recording says: **That's right!**
- If incorrect, the Spoon picture will light up and an audio recording says: **This is a spoon. Let's try again.**
- The examiner should allow the participant up to three chances to answer this practice item correctly.
- After three unsuccessful attempts by the participant, the examiner should touch the picture of the spoon and say: **This is a spoon.**
- The introduction to the test items will appear automatically.

Test Items

The introductory screen to the test items is slightly different for participants ages 3-6 and those ages 7+. The two screens are printed below.

Ages 3-6:
Say: **Now, let's try some more. Remember, you will hear a voice say a word and then you will see four pictures. One of the pictures will show what the word means. Tell me the number of that picture. Then you will hear a new word and see four more pictures. Any questions?**

When participant is ready, touch button that says *Touch and Hold Here to Continue*.

Ages 7+:
Say: **Now, you're going to do some more. Remember, you will hear a word and then you will see four pictures. One of the pictures will show what the word means. Tell me the number of that picture and then you will hear a new word and see four more pictures. Again, tell me the number of the picture that shows what the word means. If you don't know, make your best guess. Any questions?**

When participant is ready, touch button that says *Touch and Hold Here to Continue*.

An audio recording will introduce each word with the instructions: **Touch…** (for participants ages 3-6) and just the **Word** (for participants ages 7+). The items will continue in this format until the test is completed. The examiner may need to continue to remind the participant to **Tell me the number next to the picture of …**

Because this test is done remotely, the participant will not be able to touch the image and can indicate their response by selecting the number that corresponds with their answer.

NIH Toolbox Picture Sequence Memory Test Forms A, B, & C (Remote)

After selecting the appropriate form and age version of the test, make sure test title screen has the word **Remote**.
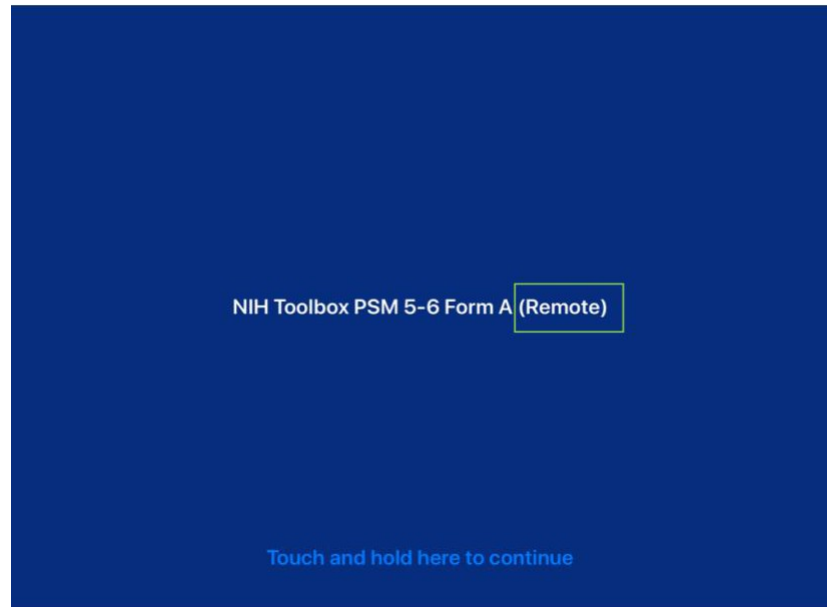
To assist in remote administration, numbers were added to drop zone boxes. These boxes are numbered in a sequential fashion that corresponds to the order of the images, i.e., drop zone box 1 should correspond to the first image in the sequence.
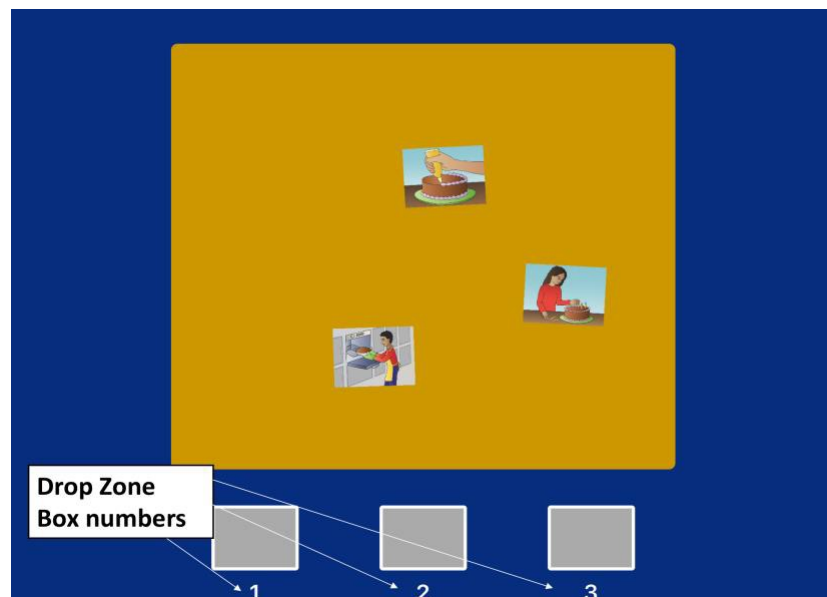
NIH Toolbox Picture Sequence Memory Test: Forms A, B and C (Remote)

- All four age (ages 3-4, 5-6, 7, and 8+) versions of PSM Forms A, B or C were adapted for remote administration.

The participant is first introduced to drop zone numbers during the demonstration sequences and practice trials. When the live items are introduced, they do not have numbers on the boxes in the

drop zone. The numbers appear when the images are presented in a scrambled order in the yellow square. The scrambled images in the yellow square have no specific identifiers. Each participant will need to develop a vocabulary or method for explaining which image he or she wants to move and then must tell the examiner into which numbered box he or she wants to move that image. If the participant decides he or she wants to move a given image from a box in the drop zone box to another drop box, this needs to be communicated to the examiner who will re-order the target images according to the participant's wishes.

Picture Sequence Memory Test Instructions ALL AGES (Remote): Communication regarding image movement

The test begins with a Title Screen: NIH Toolbox PSM *AGE Form A or B or C* (Remote). At the bottom of the screen is a button *Touch and Hold Here to Continue*. Touch and hold that button to begin the test.

On the next screen, read the text: **Now we are going to play a memory game, but first I am going to show you how the pictures can be moved on the screen.** When finished reading, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.*

The next screen begins the three-step demonstration sequence. If the steps are not followed, the *Touch and Hold Here to Continue* button will not be active.

Step 1: Moving Pictures from the Yellow Box to the Gray Boxes

Read the text above the yellow box on the screen and demonstrate the actions described.

Say: **Here you see some pictures in a yellow box. These pictures need to be moved to the grey boxes below. The boxes down here are numbered, 1 and 2. There are two pictures: one of a hand cutting flowers and the other of flowers in a red vase. If you want to move the picture of the red vase to box number 1, you could tell me "the vase or "the red vase to box 1".** The examiner moves the first picture to box number 1, then says: **Now you tell me how to move the other picture.**

If the participant does not make his or her choice clear, repeat the process, by taking the pictures (images) back to the yellow box and saying: **There are two pictures: one of a hand cutting flowers and the other of flowers in a red vase. If you want to move the picture of the red vase to box number 1, you could tell me "the vase or "the red vase to box 1".** The examiner moves the first picture to box number 1, then says: **Now you tell me how to move the other picture.**
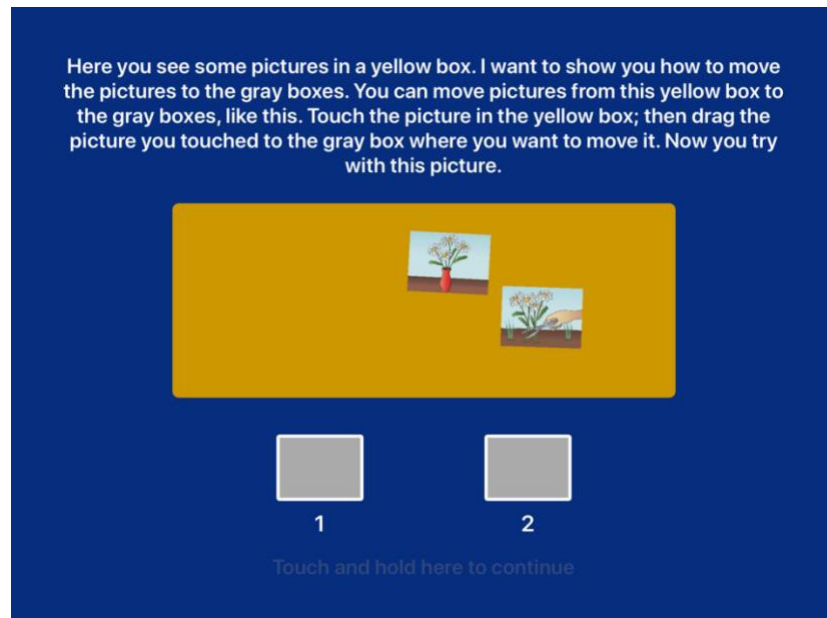
If participants are unable to communicate which pictures they want in which box, the test should be discontinued and the reason should be written into the notes file in the app.

After the participant demonstrates understanding of this step, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.*

Step 2: Moving Pictures from the Gray Boxes to the Yellow Box
Say: **You can also move pictures from the gray boxes back to the yellow box, like this*. I can move the picture back to the yellow box like this. See how the picture now shows up on the yellow background. Now tell me which picture you want to move from box 2 to the yellow background.**

NOTE: You will have to move the pictures in the proper order to advance the screen.

After the participant demonstrates understanding of this step, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.* If participants are unable to communicate which pictures they want to move to the yellow background, the test should be discontinued and the reason should be written into the notes file in the app.
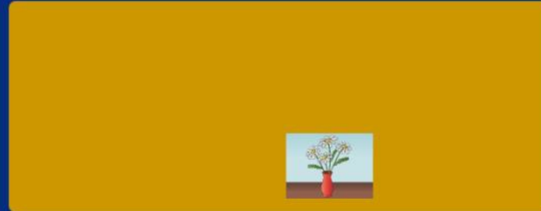
Step 3: Moving Pictures between the Gray Boxes
You can quickly advance through this practice screen.

Say: **There is no problem if you want to move the pictures to a different box.** Demonstrate how to move the cutting flowers picture to Box 2. Then say: **To move between boxes, we have to move the pictures back to the yellow background and then you tell me which picture you want me to move to which box.**

The examiner should demonstrate this by showing the participant what she or he is doing— moving the picture from the box 2 to box 1.

The examiner remotely demonstrates moving the picture to the yellow box
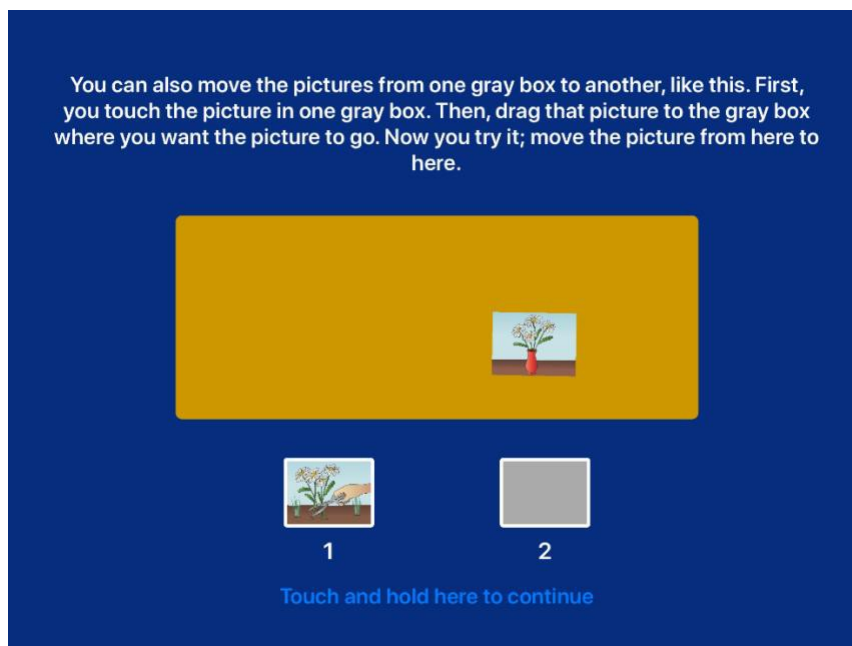
The examiner then demonstrates the return the picture to box 1

NOTE: Although we do not recommend moving images between the drop zone boxes with the remote version, you still need to do this step to advance the screen. Unless it is very clear that the examiner knows what the participant wants, we recommend moving the target image back to the yellow box so that it is clear what the participant wants to do.

After the participant demonstrates understanding of this step, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.*

If participants are unable to communicate which pictures they want in which box, the test should be discontinued and the reason should be written into the notes file in the app.

PSM Practice Sequence and Test items Ages 3-4 Forms A, B or C (Remote)

Introduction to the Practice Items:
Read the screen: **Now, we're going to play the game. You will see some pictures on the screen. You should remember them and tell them back to me in the same way you saw them on the screen.**

When finished reading, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.*

The next screen begins the practice sequences. There are two practice sequences. If the child does not succeed after two trials on first practice sequence of two pictures, the test is discontinued.

The second practice sequence has three pictures; if the child succeeds in four or fewer trials, the test sequence is started. If the child does not succeed on the second practice sequence after four trials, the test is discontinued.

Practice Sequence 1:
Say: **Now, you will see how to Eat Ice Cream.** When finished reading, touch and hold the button at the bottom of the screen that says *Touch and Hold here to Continue.*

As the pictures are presented, an audio recording will say appropriate labels:

> **First, put a scoop on the cone.**
> **Then, eat the ice cream.**

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to Eat Ice Cream. Now, you move the pictures in the same way you saw them on the screen.**
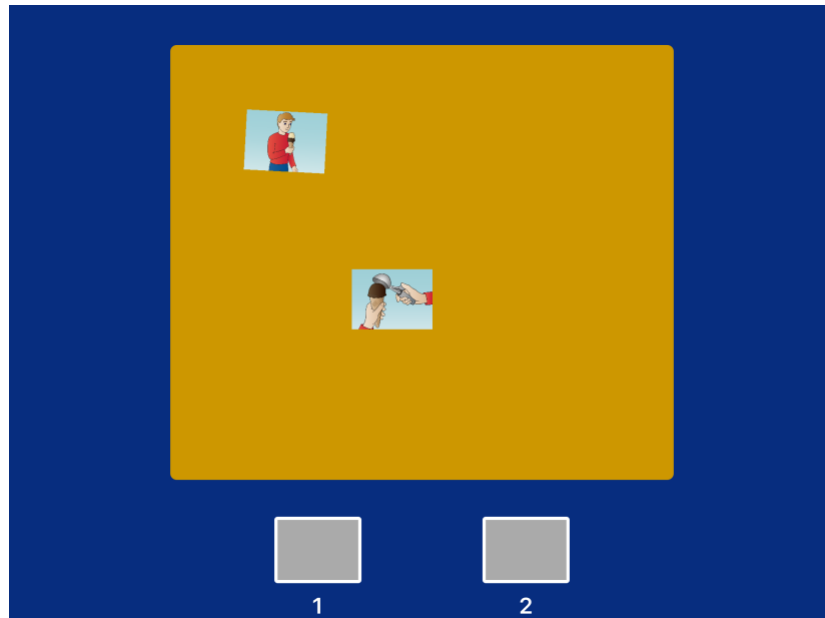
Examiner says: **Tell me how you would like to move these. Tell me which picture should move to each box.** If the participant doesn't automatically give a response, prompt him/her appropriately by asking which picture goes into Box 1 and which picture goes into Box 2.

Examiner says: **Keep telling me which picture goes into each box until all the pictures are placed in the order you saw.**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"Are you finished?"** Ask this of the child.

If child says YES, touch and hold the YES button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- If child gives correct response: Practice sequence 2, Have a Birthday Party, will be presented.
- If child gives incorrect response: Eat Ice Cream will be presented again with an audio recording that says: **Let's try that again**

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to Eat Ice Cream. Now, you move the pictures in the same way you saw them on the screen**. The examiner may have to explain that the child made a mistake on the first trial.

If child fails both trials of Practice Sequence 1, test will discontinue.

Practice Sequence 2**:**

Say: **That's right. Now, you will see how to have a Birthday Party.** When finished reading, touch and hold the button at the bottom of the screen that says *Touch and Hold Here to Continue.*
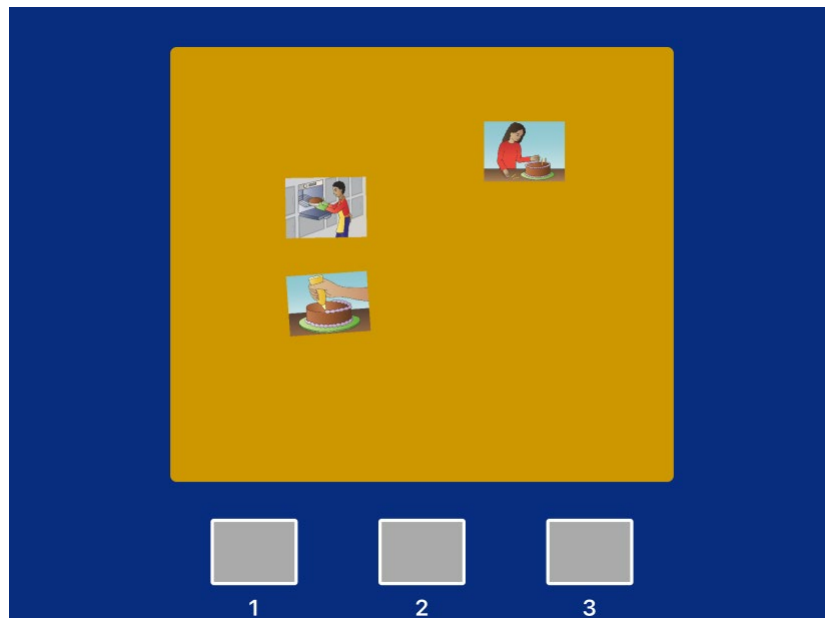
As the pictures are presented, an audio recording will say appropriate labels:

> **First, bake the cake.**
> **Next, frost it.**
> **And last, put on the candles.**

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to have a Birthday Party. Now, you move the pictures in the same way you saw them on the screen.**

Examiner says: **Tell me how you would like to move these. Tell me which picture should move to each box.** If he or she doesn't automatically say the response, prompt them appropriately by asking which picture goes into Box 1, which picture goes into Box 2, and which picture goes into Box 3.

Examiner says: **Keep telling me which picture goes into which box until all the pictures are placed in the order you saw.**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"Are you finished?"** Ask this of the child.

If child says YES, touch and hold the YES button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
1. If child gives correct response, Test Item will be presented.
2. **2.** If child gives incorrect response, Have a Birthday Party will be presented again with an audio recording saying, **Let's try that again**. After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to Have a Birthday Party. Now, you move the pictures in the same way you saw them on the screen.**

3. If child gives incorrect response again, #2 above is repeated up to two additional times (or a total of 4 trials).
4. If child fails all 4 trials, test will discontinue.

Test Sequences:
Children ages 3-4 are presented with two test items: the same 6-step sequence.

Read the screen: **Now we are going to play the game with more pictures. This time you will see how to Play in the Park** (Form A); **Go to the Fair** (Form B); **Work on the Farm** (Form C).

When finished reading, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.*

Test Item 1:
As the pictures are presented, an audio recording will say appropriate labels:

Form A: Play in the Park	Form B: Go to the Fair	Form C: Work on the farm
Open a picnic basket	Take the pony out of the barn	Dig a hole
Lay out the blanket	Put the saddle on the pony	Plant the tomatoes
Sit on the blanket	Go for a pony ride	Water the tomatoes
Put a coin in the duck food machine	Put the hot dog in a bun	Put up a fence
Get the duck food	Spread mustard on the hot dog	Get some paint
Feed the ducks	Eat the hot dog	Paint the fence

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to Play in the Park** (Form A); **Go to the fair** (Form B); **Work on the farm** (Form C). Examiner says: **How do you want me to move the pictures? Tell me which picture should move to each box.**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"Are you finished?"** Ask this of the child. If child says YES, touch and hold the YES button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Test Item 2:
Read the screen: **Now you will see again how to Play in the Park** (Form A); **Go to the Fair** (Form B); **Work on the farm** (Form C). **Everyone has to do this more than once.** When finished reading, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.*

As the pictures are presented, an audio recording will say appropriate labels (same as Test item 1 above).

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to Play in the Park** (Form A); **Go to the Fair** (Form B); **Work on the Farm** (Form C).

Examiner says: **How do you want me to move the pictures? Tell me which picture should move to each box.**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"Are you finished?"** Ask this of the child. If child says YES, touch and hold the YES button.

If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- Test will terminate after the two test sequences have been presented.

PSM Practice Sequences Ages 5-6 AND Age 7 All Forms (Remote)

Practice Sequence 1:

Say: **Now, you will see how to Have a Birthday Party.** When finished reading, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.*
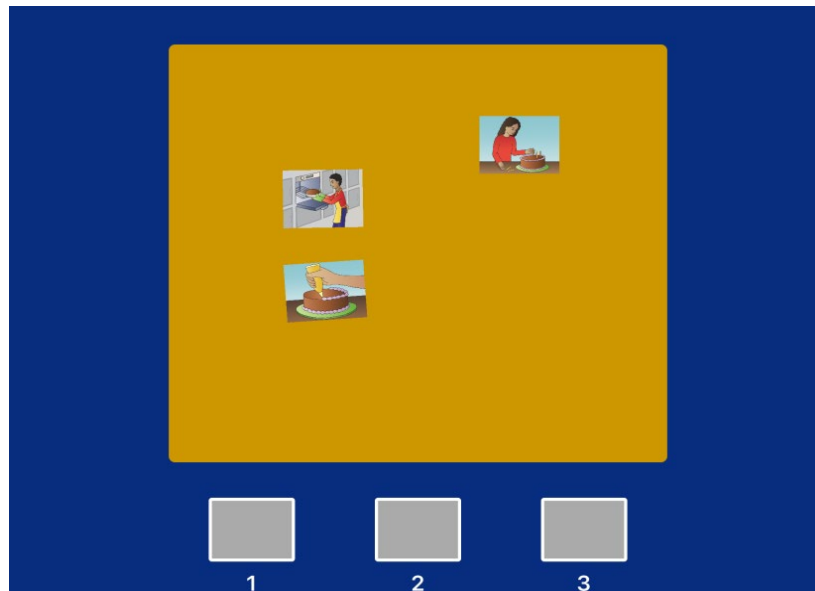
As pictures are presented, an audio recording will say the appropriate labels:

> **First, bake the cake.**
> **Next, frost it.**
> **And last, put on the candles.**

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to Have a Birthday Party. Now, you move the pictures in the same way you saw them on the screen.**

Examiner says: **Tell me how you would like to move these. Tell me which picture should move to each box.** If the participant doesn't automatically say the response, prompt them appropriately by asking which picture goes into Box 1, which picture goes into Box 2, and which picture goes into Box 3.

Examiner says: **Keep telling me which picture goes into which box until all the pictures are placed in the order you saw.**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"Are you finished?"** Ask this of the child. If child says YES, touch and hold the YES button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to

be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.
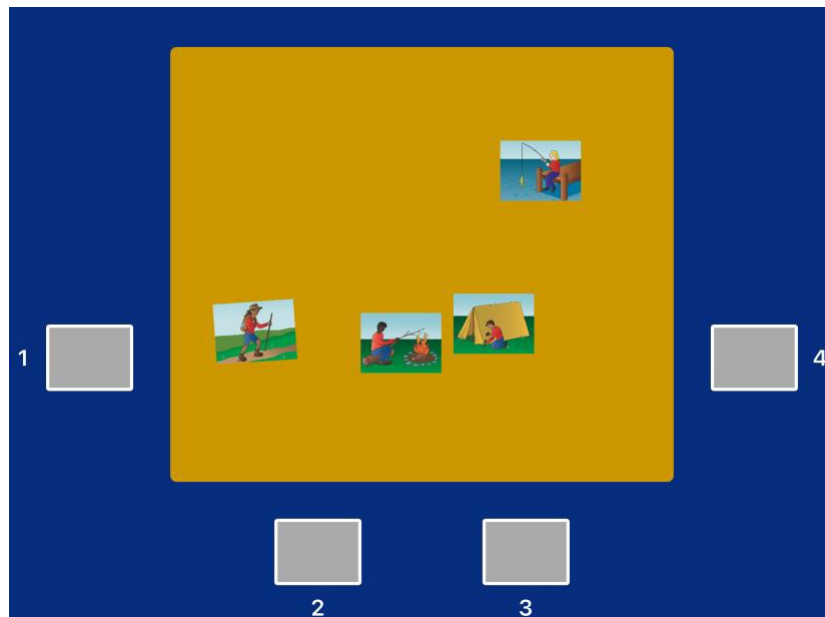
Logic:
- If child gives correct response, Practice sequence 2, Go Camping, will be presented.
- If child gives incorrect response, Have a Birthday Party will be presented again with an audio recording saying: **Let's try that again.** After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to Have a Birthday Party. Now, you move the pictures in the same way you saw them on the screen.** Examiner says: **Tell me how to move the pictures in the order you saw.**
- If child gives incorrect response again, #2 above is repeated up to two additional times (or a total of 4 trials).
- If child fails all 4 trials, test will discontinue.

Practice Sequence 2:
Say: **That's right. Now, you will see how to Go Camping.** When finished reading, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.* As pictures are presented, an audio recording will say the appropriate labels:

> **First, put up the tent.**
> **Then, go for a hike.**
> **Then, catch a fish.**
> **And last, roast a marshmallow.**

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to Go Camping. Now, you move the pictures in the same way you saw them on the screen.** Examiner says: **Tell me how to move the pictures in the order you saw.**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"Are you finished?"** Ask this of the child. If child says YES, touch and hold the YES button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- If child gives correct response, Test Item will be presented.
- If child gives incorrect response, Go Camping will be repeated with an audio recording saying, **Let's try that again.** After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to Go Camping. Now, you move the pictures in the same way you saw them on the screen.** Examiner says: Tell me how to move the pictures in the order you saw.
- If child gives incorrect response again, #2 above is repeated up to two additional times (or a total of 4 trials).
- If child fails all 4 trials, test will discontinue.

PSM Test Items Children Ages 5-6 Forms A, B or C (Remote)

Children ages 5-6 will be presented with two test items: each with a 9-step sequence.

Read the screen: **Now we are going to play the game with more pictures. This time you will see how to Play in the Park** (Form A); **Go to the fair** (Form B); **Work on the farm** (Form C). When finished reading, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.*

Test Item 1:
As the pictures are presented, an audio recording will say appropriate labels:

Form A: Play in the park	Form B: Go to the fair	Form C: Work on the farm
Fly a kite	Get a hot dog	Put the cow in the barn
Play in the sand	Go for a pony ride	Drive the tractor
Go down the slide	Pet the sheep	Feed the pig
Pull the wagon	Win a dog show	Load the cart
Draw on the side walk	Go on a ride	Peel the corn
Pet the dog	Get some tickets	Chop some wood
Feed the ducks	Get some ice cream	Collect the eggs
Push the swing	Play a game	Put the blanket on the horse
Smell a flower	Milk a cow	Plant the tomatoes

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to Play in the Park** (Form A); **Go to the fair** (Form B); **Work on the farm** (Form C)**. Now, you move the pictures in the same way you saw them on the screen.** Examiner says: **How do you want me to move the pictures?**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"Are you finished?"** Ask this of the child. If child says YES, touch and hold the YES button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Test Item 2:
Read the screen: **Now you will see again how to how to Play in the Park** (Form A); **Go to the fair** (Form B); **Work on the farm** (Form C)**.** When finished reading, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.*

As the pictures are presented, an audio recording will say appropriate labels (same as Test item 1 above). After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to**

Play in the Park (Form A); **Go to the fair** (Form B); **Work on the farm** (Form C). **Now, you move the pictures in the same way you saw them on the screen.** Examiner says: **How do you want me to move the pictures?**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"Are you finished?"** Ask this of the child. If child says YES, touch and hold the YES button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- Test will terminate after the two test sequences have been presented*.*

PSM Test Items for Age 7 Forms A, B or C (Remote)

Test Sequences:
Children age 7 will be presented with two test items: one with a 15-step sequence and the other with an 18-step sequence. Read the screen: **Now we are going to play the game with more pictures. This time you will see how to Play in the Park** (Form A); **Go to the fair** (Form B); **Work on the farm** (Form C). When finished reading, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.*

Test Item 1:
As the pictures are presented, an audio recording will say appropriate labels:

Form A: Play in the park	Form B: Go to the fair	Form C: Work on the farm
Fly a kite	Get a hot dog	Put the cow in the barn
Play in the sand	Go for a pony ride	Drive the tractor
Go down the slide	Pet the sheep	Feed the pig
Pull the wagon	Win a dog show	Load the cart
Swing on the monkey bars	Watch the rodeo	Put the carrots in the basket
Lay out the blanket	Catch a pig	Pick the fruit
Play catch	Judge the cake	Fix the fence
Catch a butterfly	See a puppet theater	Cut the sheep's wool
Kick the ball	Take a picture of a clown	Collect the honey
Take the baby for a walk	Look at the babies	Shovel out the barn
Draw on the sidewalk	Go on a ride	Peel the corn
Pet the dog	Get some tickets	Chop some wood
Feed the ducks	Get some ice cream	Collect the eggs
Push the swing	Play a game	Put the blanket on the horse
Smell a flower	Milk a cow	Plant the tomatoes

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's to Play in the Park** (Form A); **Go to the fair** (Form B); **Work on the farm** (Form C). **Now, you move the pictures in the same way you saw them on the screen.** Examiner says: **How do you want me to move the pictures?**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"Are you finished?"** Ask this of the child. If child says YES, touch and hold the YES button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Test item 2:

Read the screen**: Now we're going to do the same pictures with some more pictures added. Everyone is asked to do this more than once.** When finished reading, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.*

As the pictures are presented, an audio recording will say appropriate labels:

Form A: Play in the park	Form B: Go to the fair	Form C: Work on the farm
Fly a kite	Get a hot dog	Put the cow in the barn
Play in the sand	Go for a pony ride	Drive the tractor
Go down the slide	Pet the sheep	Feed the pig
Pull the wagon	Win a dog show	Load the cart
Swing on the monkey bars	Watch the rodeo	Put the carrots in the basket
Lay out the blanket	Catch a pig	Pick the fruit
Play catch	Judge the cake	Fix the fence
Catch a butterfly	See a puppet theater	Cut the sheep's wool
Ride a bike	Watch a tractor pull	Cut the wheat
Row the boat	Play in the band	Herd the goats
Read a book	Go on a hay ride	Put up the scarecrow
Kick the ball	Take a picture of a clown	Collect the honey
Take the baby for a walk	Look at the babies	Shovel out the barn
Draw on the sidewalk	Go on a ride	Peel the corn
Pet the dog	Get some tickets	Chop some wood
Feed the ducks	Get some ice cream	Collect the eggs
Push the swing	Play a game	Put the blanket on the horse
Smell a flower	Milk a cow	Plant the tomatoes

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to Play in the Park** (Form A); **Go to the fair** (Form B); **Work on the farm** (Form C). **Now, you move the pictures in the same way you saw them on the screen**. Examiner says: **How do you want me to move the pictures?**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"Are you finished?"** Ask this of the child. If child says YES, touch and hold the YES button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- Test will terminate after the two test sequences have been presented*.*

PSM Practice Sequence and Test items Ages 8+ Form A, B or C (Remote)

Practice Sequence**:**

Say: **Now, you will see how to Go Camping.** When finished reading, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.*

As pictures are presented, an audio recording will say the appropriate labels:

First, put up the tent. **Then, go for a hike.** **Then, catch a fish.** **And last, roast a marshmallow.**

After the pictures are presented and as the pictures are scrambled, an audio recording will say**: That's how to Go Camping. Now, you move the pictures in the same way you saw them on the screen.**

Examiner says: **Tell me how you would like to move these. If the participant doesn't automatically say the response, prompt them appropriately by saying to Box 1, 2, 3, or 4.** Examiner says: **Keep telling me which picture goes into which box until all the pictures are placed in the order you saw.**
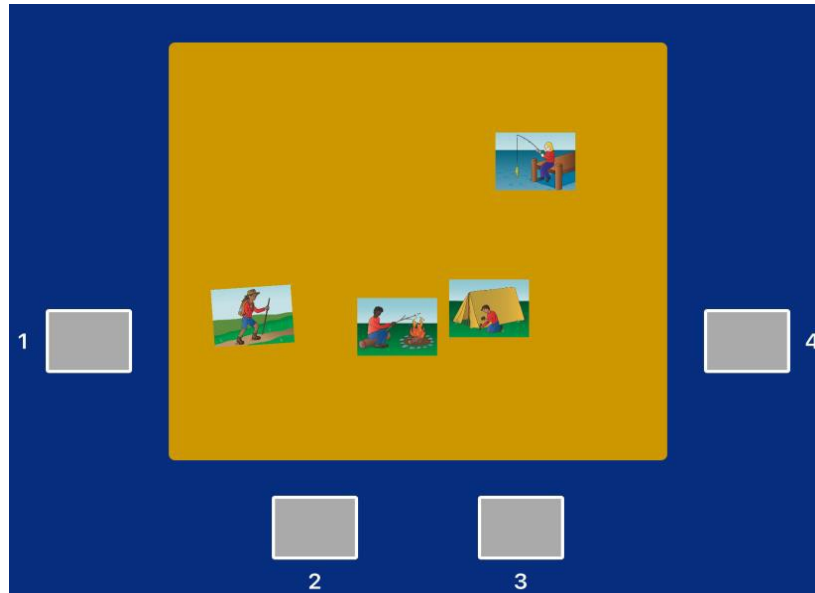
When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"Are you finished?"** Ask this of the participant.

If participant says YES, touch and hold the YES button. If the participant says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- If participant gives correct response, Test Item will be presented.
- If participant gives incorrect response, Go Camping will be repeated with an audio recording saying **Let's try that again.** After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to Go Camping. Now, you move the pictures in the same way you saw them on the screen**. Examiner says: **Tell me how to move the pictures in the order you saw.**
- If participant gives incorrect response again, #2 above is repeated up to two additional times (or a total of 4 trials).
- If participant fails all 4 trials, test will discontinue.

Test Sequences:
Participants ages 8+ will be presented with two test items: one with a 15-step sequence and the other with an 18-step sequence. Read the screen: **Now we are going to play the game with more pictures. This time you will see how to Play in the Park** (Form A); **Go to the fair** (Form B); **Work on the farm** (Form C). When finished reading, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.*

Test Item 1:
As the pictures are presented, an audio recording will say appropriate labels:

Form A: Play in the park	Form B: Go to the fair	Form C: Work on the farm
Fly a kite	Get a hot dog	Put the cow in the barn
Play in the sand	Go for a pony ride	Drive the tractor
Go down the slide	Pet the sheep	Feed the pig
Pull the wagon	Win a dog show	Load the cart
Swing on the monkey bars	Watch the rodeo	Put the carrots in the basket
Lay out the blanket	Catch a pig	Pick the fruit
Play catch	Judge the cake	Fix the fence
Catch a butterfly	See a puppet theater	Cut the sheep's wool
Kick the ball	Take a picture of a clown	Collect the honey
Take the baby for a walk	Look at the babies	Shovel out the barn
Draw on the sidewalk	Go on a ride	Peel the corn
Pet the dog	Get some tickets	Chop some wood
Feed the ducks	Get some ice cream	Collect the eggs
Push the swing	Play a game	Put the blanket on the horse
Smell a flower	Milk a cow	Plant the tomatoes

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to Play in the Park** (Form A); **Go to the fair** (Form B); **Work on the farm** (Form C). **Now, you move the pictures in the same way you saw them on the screen.** Examiner says: **How do you want me to move the pictures?**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"Are you finished?"** Ask this of the child. If child says YES, touch and hold the YES button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Test Item 2:
Read the screen: **Now we're going to do the same pictures with some more pictures added. Everyone is asked to do this more than once.** When finished reading, touch the button at the bottom of the screen that says *Touch and Hold Here to Continue.*

As the pictures are presented, an audio recording will say appropriate labels:

Form A: Play in the park	Form B: Go to the fair	Form C: Work on the farm
Fly a kite	Get a hot dog	Put the cow in the barn
Play in the sand	Go for a pony ride	Drive the tractor
Go down the slide	Pet the sheep	Feed the pig
Pull the wagon	Win a dog show	Load the cart
Swing on the monkey bars	Watch the rodeo	Put the carrots in the basket
Lay out the blanket	Catch a pig	Pick the fruit
Play catch	Judge the cake	Fix the fence
Catch a butterfly	See a puppet theater	Cut the sheep's wool
Ride a bike	Watch a tractor pull	Cut the wheat
Row the boat	Play in the band	Herd the goats
Read a book	Go on a hay ride	Put up the scarecrow
Kick the ball	Take a picture of a clown	Collect the honey
Take the baby for a walk	Look at the babies	Shovel out the barn
Draw on the sidewalk	Go on a ride	Peel the corn
Pet the dog	Get some tickets	Chop some wood
Feed the ducks	Get some ice cream	Collect the eggs
Push the swing	Play a game	Put the blanket on the horse
Smell a flower	Milk a cow	Plant the tomatoes

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **That's how to Play in the Park** (Form A); **Go to the fair** (Form B); **Work on the farm** (Form C). **Now, you move the pictures in the same way you saw them on the screen.** Examiner says: **How do you want me to move the pictures?**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"Are you finished?"** Ask this of the child. If child says YES, touch and hold the YES button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- Test will terminate after the two test sequences have been presented*.*

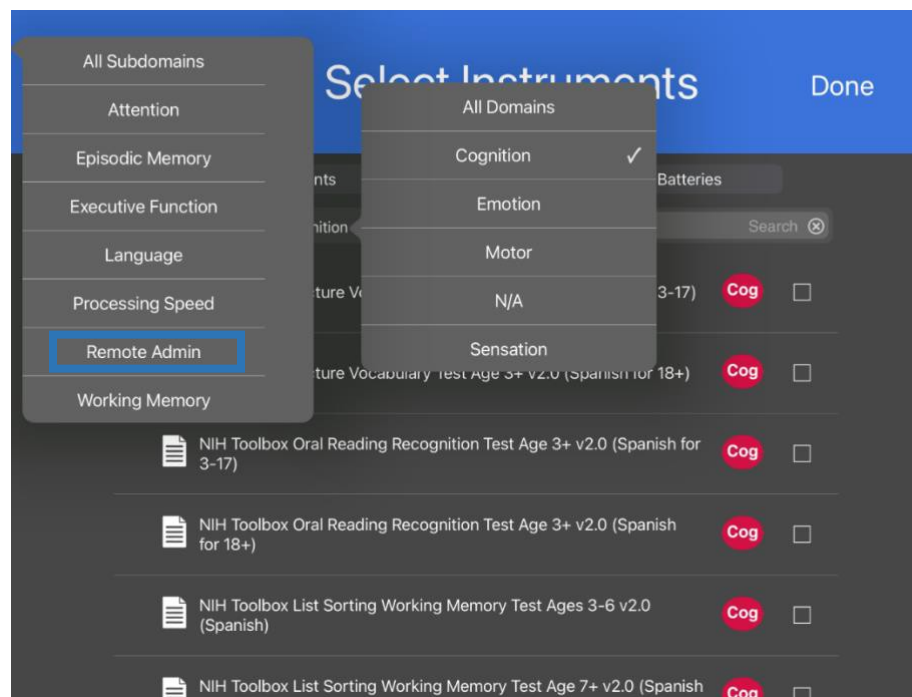# Appendix B

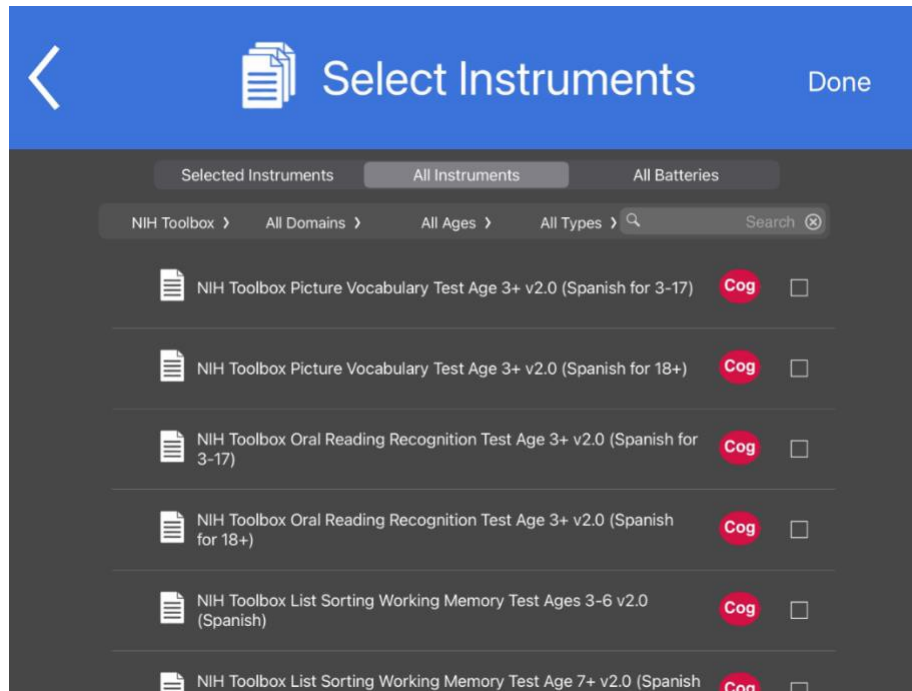**Revised administration instructions for:**

Spanish Picture Vocabulary (Remote)
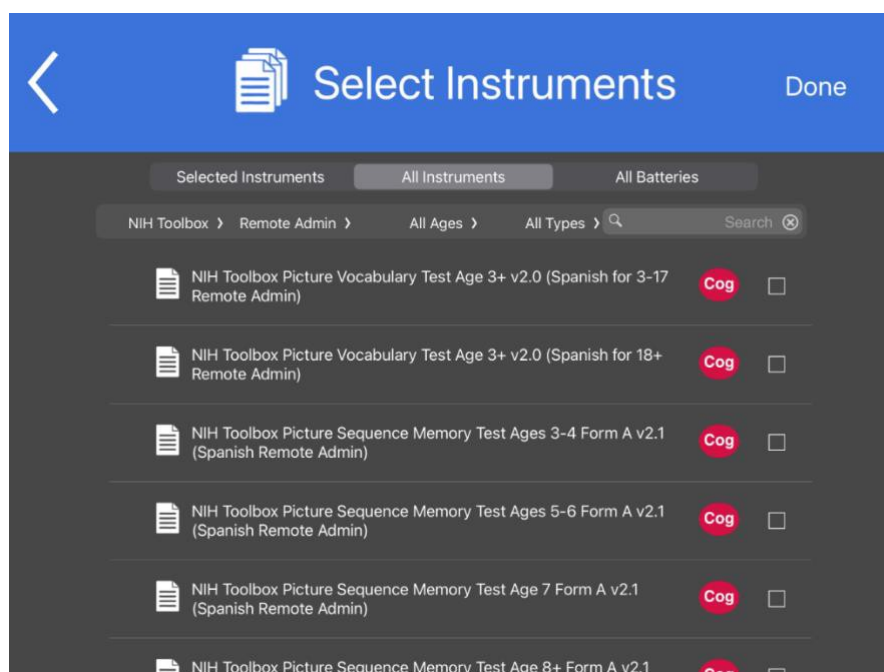**Spanish Picture Sequence Memory: Form A (Remote)**

- **You need this for test administration of the two measures that were revised for remote administration. The instructions have <u>NOT</u> been changed in the NIH Toolbox App. The examiner needs to read the revised instructions in this document during testing.**

- **Instructional text in blue in this Appendix is to highlight the difference in the instructions from how it appears in the app.**

- **If possible, you may stop screen sharing during instruction-only screens to avoid having the participant see the different instructions. Or, you may tell the participant to disregard the on-screen instructions, if needed.**

- **If the participant cannot comply with the instructions, the test should be discontinued and the reason should be noted in the NIHTB App's Notes function.**

Location of Measures Revised for Remote Administration

After adding (or selecting) the participant, go to Select Instruments screen. Go to All Domains →
Cognition → Remote Admin.

See that all tests that were revised for remote administration are available under this subdomain.

Instructions

PVT Ages 3+ (ages 3-17):

Say: **Veamos algunas imágenes. Mira las cuatro imágenes, 1, 2, 3, 4. Oirás una palabra, y quiero que me digas el número que está al lado de la imagen que significa lo mismo que la palabra que se dijo. Algunas palabras serán fáciles y otras serán más difíciles. Responde lo mejor que puedas. Si quieres escuchar una palabra de nuevo, puedo hacer que suene otra vez.**

Si crees que te equivocaste y quieres cambiar tu última respuesta, puedo volver atrás a la palabra y las imágenes anteriores. ¿Estás listo/a para jugar?

When participant is ready, touch button that says *Presionar aquí para continuar.*

PVT Ages 18+ (ages 3-17, up to Grade 2):

Say: **Veamos algunas imágenes. Oirás una palabra y verás cuatro imágenes en la pantalla. Dime el número que está al lado de la imagen que significa lo mismo que la palabra que se dijo. Algunas palabras serán fáciles y otras serán más difíciles. Si no estás seguro/a de una respuesta, trata de adivinar. Si necesitas oír una palabra otra vez, puedo hacer que suene otra vez. Después de que me digas el número que está al lado de la imagen, registraré tu respuesta, y entonces oirás una nueva palabra y verás más imágenes.**

Si quieres cambiar tu última respuesta, puedo volver atrás a la palabra y las imágenes anteriores. Las imágenes que acabas de ver volverán a aparecer y oirás la palabra otra vez. Dime el número que has elegido, y entonces aparecerán más palabras e imágenes. Dime cuando estés listo/a para comenzar.

When participant is ready, touch button that says *Presionar aquí para continuar.*

PVT Ages 18+ (ages 18+, Grades 3+):

Say: **Veamos algunas imágenes. Oirá una palabra y verá cuatro imágenes en la pantalla. Dígame el número que está al lado de la imagen que significa lo mismo que la palabra que se dijo. Algunas palabras serán fáciles y otras serán más difíciles. Si no está seguro/a de una respuesta, trate de adivinar. Si necesita oír una palabra otra vez, puedo hacer que suene otra vez. Después de que me diga el número que está al lado de la imagen, registraré su respuesta, y entonces oirá una nueva palabra y verá más imágenes.**

Si quiere cambiar su última respuesta, puedo volver atrás a la palabra y las imágenes anteriores. Las imágenes que acaba de ver volverán a aparecer y oirá la palabra otra vez. Dígame el número que ha elegido, y entonces aparecerán más palabras e imágenes. Dígame cuando esté listo/a para comenzar.

When participant is ready, touch button that says *Presionar aquí para continuar.*

Practice Items

Ages 3-17:

Practice item 1:

An audio recording says: **Vamos a intentarlo con una para practicar: plátano. Toca la imagen del plátano.**
Say: **Dime el número que está al lado de la imagen del plátano.**
- Correct response is FOUR. If correct, the audio recording says: **¡Muy bien!** The program will automatically go to the next practice item.
- If incorrect, the Banana picture will light up and an audio recording says: **Esto es un plátano. Vamos a intentarlo otra vez.**
- The examiner should allow the participant up to three chances to answer this practice item correctly.
- After three unsuccessful attempts by the participant, the examiner should touch the picture of the banana and say: **Esto es un plátano.** The next practice item will appear automatically.

Practice item 2:

An audio recording says: **Vamos a intentarlo con otra palabra: cuchara. Toca la imagen de la cuchara.**
Say: **Dime el número que está al lado de la imagen de la cuchara.**
- If correct, an audio recording says: **¡Muy bien!**
- If incorrect, the Spoon picture will light up and an audio recording says: **Esto es una cuchara. Vamos a intentarlo otra vez.**
- The examiner should allow the participant up to three chances to answer this practice item correctly.
- After three unsuccessful attempts by the participant, the examiner should touch the picture of the spoon and say: **Esto es una cuchara.**
- The introduction to the test items will appear automatically.

Ages 18+:

Practice item 1:

An audio recording says: **Vamos a intentarlo con una para practicar: plátano. Toque la imagen del plátano.**
Say: **Dígame el número que está al lado de la imagen del plátano.**
- Correct response is FOUR. If correct, the audio recording says: **¡Muy bien!** The program will automatically go to the next practice item.
- If incorrect, the Banana picture will light up and an audio recording says: **Esto es un plátano. Vamos a intentarlo otra vez.**
- The examiner should allow the participant up to three chances to answer this practice item correctly.
- After three unsuccessful attempts by the participant, the examiner should touch the picture of the banana and say: **Esto es un plátano.** The next practice item will appear automatically.

Practice item 2:

An audio recording says: **Vamos a intentarlo con otra palabra: cuchara. Toque la imagen de la cuchara.**
Say: **Dígame el número que está al lado de la imagen de la cuchara.**
- If correct, an audio recording says: **¡Muy bien!**
- If incorrect, the Spoon picture will light up and an audio recording says: **Esto es una cuchara. Vamos a intentarlo otra vez.**
- The examiner should allow the participant up to three chances to answer this practice item correctly.

- After three unsuccessful attempts by the participant, the examiner should touch the picture of the spoon and say: **Esto es una cuchara.**
- The introduction to the test items will appear automatically.

Test Items

The introductory screen to the test items is slightly different for participants ages 3-6 and those ages 7+. The two screens are printed below.

Ages 3-17:
Say: **Ahora, vamos a intentarlo con algunas más. Recuerda que oirás una voz que dice una palabra y luego verás cuatro imágenes. Una de las imágenes mostrará lo que significa la palabra. Dime el número de esa imagen. Después oirás una palabra nueva y verás otras cuatro imágenes. ¿Alguna pregunta?**

When participant is ready, touch button that says *Presionar aquí para continuar.*

An audio recording will introduce each word with the instructions. The items will continue in this format until the test is completed. The examiner may need to continue to remind the participant to **Dime el número que está al lado de la imagen de…**

Because this test is done remotely, the participant will not be able to touch the image and can indicate their response by selecting the number that corresponds with their answer.

Ages 18+ (3-17):
Say: **Ahora, va a hacer algunas más. Recuerde que oirá una voz que dice una palabra y luego verá cuatro imágenes. Una de las imágenes mostrará lo que significa la palabra. Dígame el número de esa imagen y después oirá una palabra nueva y verá otras cuatro imágenes. Otra vez, me tiene que decir el número de la imagen que muestre lo que significa la palabra. Si no sabe, trate de adivinar. ¿Alguna pregunta?**

When participant is ready, touch button that says *Presionar aquí para continuar.*

An audio recording will introduce each word with the instructions. The items will continue in this format until the test is completed. The examiner may need to continue to remind the participant to **Dime el número que está al lado de la imagen de…**

Because this test is done remotely, the participant will not be able to touch the image and can indicate their response by selecting the number that corresponds with their answer.

Ages 18+ (18+):
Say: **Ahora, va a hacer algunas más. Recuerde que oirá una voz que dice una palabra y luego verá cuatro imágenes. Una de las imágenes mostrará lo que significa la palabra. Dígame el número de esa imagen y después oirá una palabra nueva y verá otras cuatro imágenes. Otra vez, me tiene que decir el número de la imagen que muestre lo que significa la palabra. Si no sabe, trate de adivinar. ¿Alguna pregunta?**

When participant is ready, touch button that says *Presionar aquí para continuar.*

An audio recording will introduce each word with the instructions. The items will continue in this format until the test is completed. The examiner may need to continue to remind the participant to **Dígame el número que está al lado de la imagen de…**

Because this test is done remotely, the participant will not be able to touch the image and can indicate their response by selecting the number that corresponds with their answer.

NIH Toolbox Picture Sequence Memory Test Form A (Remote)

After selecting the appropriate form and age version of the test, make sure test title screen has the word **Remote**.

To assist in remote administration, numbers were added to drop zone boxes. These boxes are numbered in a sequential fashion that corresponds to the order of the images, i.e., drop zone box 1 should correspond to the first image in the sequence.
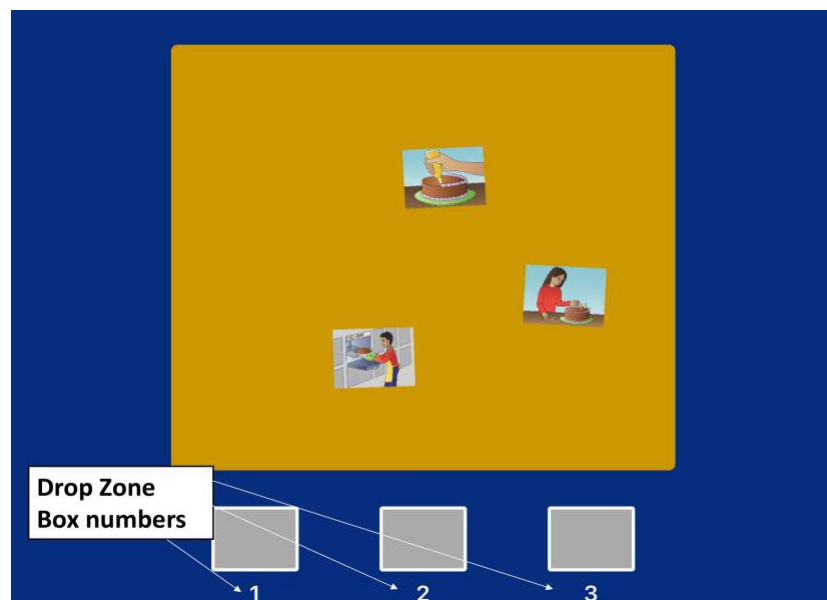
NIH Toolbox Picture Sequence Memory Test: Form A (Remote)

- All four age (ages 3-4, 5-6, 7, and 8+) versions of PSM Form A was adapted for remote administration.

The participant is first introduced to drop zone numbers during the demonstration sequences and practice trials. When the live items are introduced, they do not have numbers on the boxes in the drop zone. The numbers appear when the images are presented in a scrambled order in the yellow square. The scrambled images in the yellow square have no specific identifiers. Each participant will need to develop a vocabulary or method for explaining which image he or she wants to move and then must tell the examiner into which numbered box he or she wants to move that image. If the participant decides he or she wants to move a given image from a box in the drop zone box to another drop box, this needs to be communicated to the examiner who will re-order the target images according to the participant's wishes.

Picture Sequence Memory Test Instructions for Ages 3-17 (Remote): Communication regarding image movement

The test begins with a Title Screen: NIH Toolbox PSM *AGE Form A* (Remote). At the bottom of the screen is a button *Presionar aquí para continuar*. Touch and hold that button to begin the test.

On the next screen, read the text: **Ahora vamos a jugar a un juego de memoria pero primero te voy a enseñar cómo se hacen mover imágenes en esta pantalla.**

When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

The next screen begins the three-step demonstration sequence. If the steps are not followed, the *Presionar aquí para continuar* button will not be active.

Step 1: Moving Pictures from the Yellow Box to the Gray Boxes
Read the text above the yellow box on the screen and demonstrate the actions described.
Say: **Aquí ves algunas imágenes en un cuadro amarillo. Hay que mover estas imágenes a los cuadros grises que ves en la parte baja. Los cuadros grises están numerados, 1 y 2. Hay dos imágenes: una de una mano cortando flores y otra de las flores en un florero rojo. Si quieres que mueva la imagen del florero rojo al cuadro número 1, me puedes decir "el florero rojo al cuadro 1".**Demonstrate how to move the first picture to box number 1. Then say: **Ahora dime cómo mover la otra imagen.**

If the participant does not make his or her choice clear, repeat the process, by taking the pictures (images) back to the yellow box and saying: **Hay dos imágenes: una de una mano cortando flores y otra de las flores en un florero rojo. Si quieres que mueva la imagen del florero rojo al cuadro número 1, me puedes decir "el florero rojo al cuadro 1".** Demonstrate how to move the first picture to box number 1. Then say: **Ahora dime cómo mover la otra imagen.**

If participants are unable to communicate which pictures they want in which box, the test should be discontinued and the reason should be written into the notes file in the app.

After the participant demonstrates understanding of this step, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

Step 2: Moving Pictures from the Gray Boxes to the Yellow Box

Say: **También puedes volver a mover las imágenes desde los cuadros grises al cuadro amarillo, así. Puedo mover la imagen otra vez al cuadro amarillo así. Mira ahora la imagen en el cuadro amarillo. Dime cúal imagen quieres que mueva del cuadro número 2 al cuadro amarillo.**

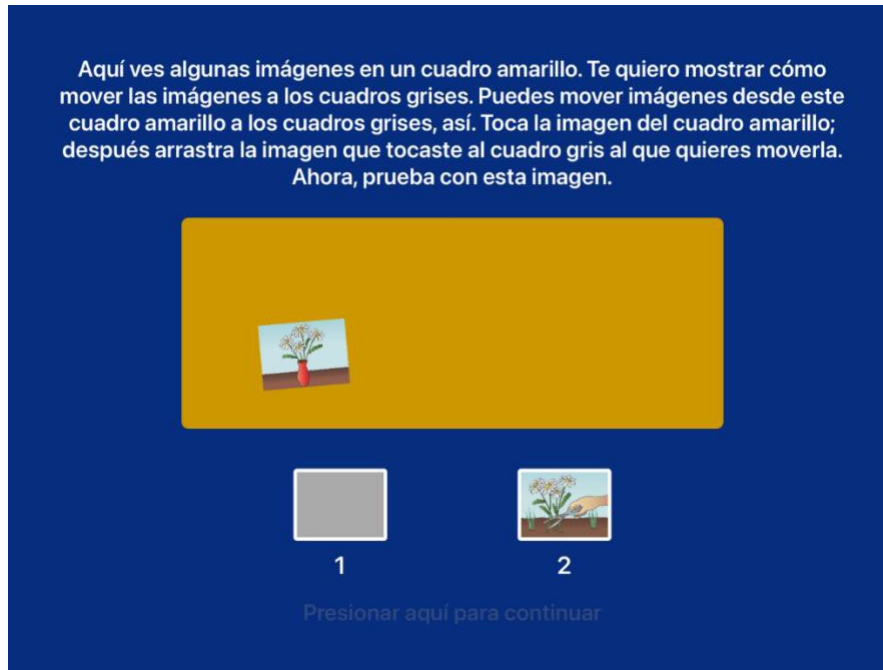**NOTE: You will have to move the pictures in the proper order to advance the screen.**

After the participant demonstrates understanding of this step, touch the button at the bottom of the screen that says *Presionar aquí para continuar.* If participants are unable to communicate which pictures they want to move to the yellow background, the test should be discontinued and the reason should be written into the notes file in the app.
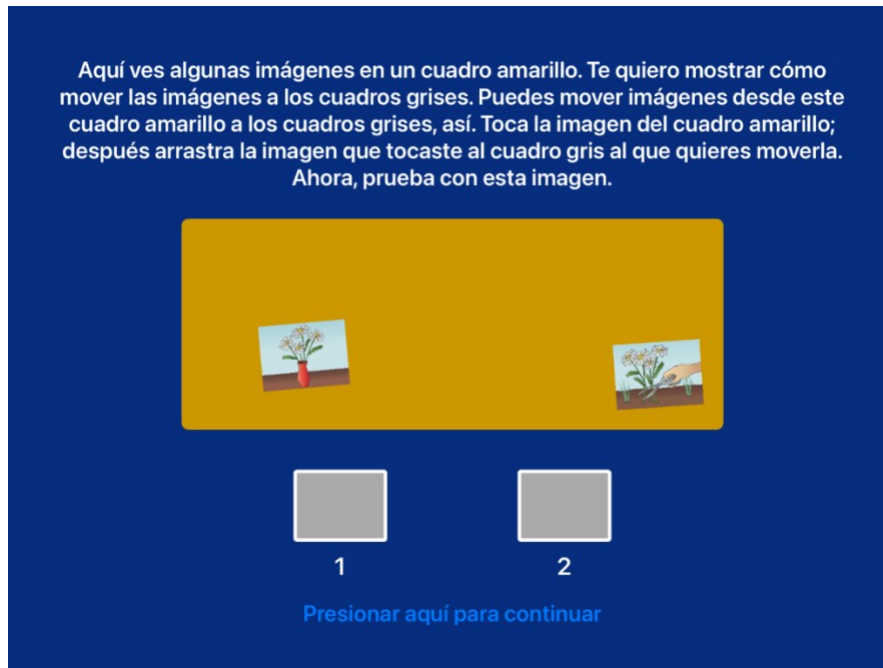
Step 3: Moving Pictures between the Gray Boxes

You can quickly advance through this practice screen.

Say: **Las imágenes se pueden mover a un cuadro distinto sin ningún problema.** Demonstrate how to move the cutting flowers picture to Box 2. Then say: **Para moverlas entre cuadros, tenemos que mover las imágenes otra vez al cuadro amarillo y luego me dices qué imagen quieres que mueva a qué cuadro.**

The examiner should demonstrate this by showing the participant what she or he is doing—moving the picture from the box 2 to box 1.

The examiner remotely demonstrates moving the picture to the yellow box

The examiner then demonstrates the return the picture to box 1

Aquí ves algunas imágenes en un cuadro amarillo. Te quiero mostrar cómo mover las imágenes a los cuadros grises. Puedes mover imágenes desde este cuadro amarillo a los cuadros grises, así. Toca la imagen del cuadro amarillo; después arrastra la imagen que tocaste al cuadro gris al que quieres moverla. Ahora, prueba con esta imagen.

1   2

Presionar aquí para continuar

NOTE: Although we do not recommend moving images between the drop zone boxes with the remote version, you still need to do this step to advance the screen. Unless it is very clear that the examiner knows what the participant wants, we recommend moving the target image back to the yellow box so that it is clear what the participant wants to do.

After the participant demonstrates understanding of this step, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

If participants are unable to communicate which pictures they want in which box, the test should be discontinued and the reason should be written into the notes file in the app.

Picture Sequence Memory Test Instructions for Ages 18+ (Remote): Communication regarding image movement

The test begins with a Title Screen: NIH Toolbox PSM *AGE Form A* (Remote). At the bottom of the screen is a button *Presionar aquí para continuar*. Touch and hold that button to begin the test.

On the next screen, read the text: **Ahora vamos a jugar a un juego de memoria pero primero le voy a enseñar cómo se hacen mover imágenes en esta pantalla.**

When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

The next screen begins the three-step demonstration sequence. If the steps are not followed, the *Presionar aquí para continuar* button will not be active.

Step 1: Moving Pictures from the Yellow Box to the Gray Boxes
Read the text above the yellow box on the screen and demonstrate the actions described.

Say: **Aquí ve algunas imágenes en un cuadro amarillo. Hay que mover estas imágenes a los cuadros grises que ve en la parte baja. Los cuadros grises están numerados, 1 y 2. Hay dos imágenes: una de una mano cortando flores y otra de las flores en un florero rojo. Si quiere que mueva la imagen del florero rojo al cuadro número 1, me puede decir "el florero rojo al cuadro 1".** Demonstrate how to move the first picture to box number 1. Then say: **Ahora dígame cómo mover la otra imagen.**

If the participant does not make his or her choice clear, repeat the process, by taking the pictures (images) back to the yellow box and saying: **Hay dos imágenes: una de una mano cortando flores y otra de las flores en un florero rojo. Si quiere que mueva la imagen del florero rojo al cuadro número 1, me puedes decir "el florero rojo al cuadro 1".** Demonstrate how to move the first picture to box number 1. Then say: **Ahora dígame cómo mover la otra imagen.**

If participants are unable to communicate which pictures they want in which box, the test should be discontinued and the reason should be written into the notes file in the app.

After the participant demonstrates understanding of this step, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

Step 2: Moving Pictures from the Gray Boxes to the Yellow Box
Say: **También puede volver a mover las imágenes desde los cuadros grises al cuadro amarillo, así. Puedo mover la imagen otra vez al cuadro amarillo así. Mire ahora la imagen en el cuadro amarillo. Dígame cúal imagen quiere que mueva del cuadro número 2 al cuadro amarillo.**

NOTE: You will have to move the pictures in the proper order to advance the screen.

After the participant demonstrates understanding of this step, touch the button at the bottom of the screen that says *Presionar aquí para continuar.* If participants are unable to communicate which pictures they want to move to the yellow background, the test should be discontinued and the reason should be written into the notes file in the app.
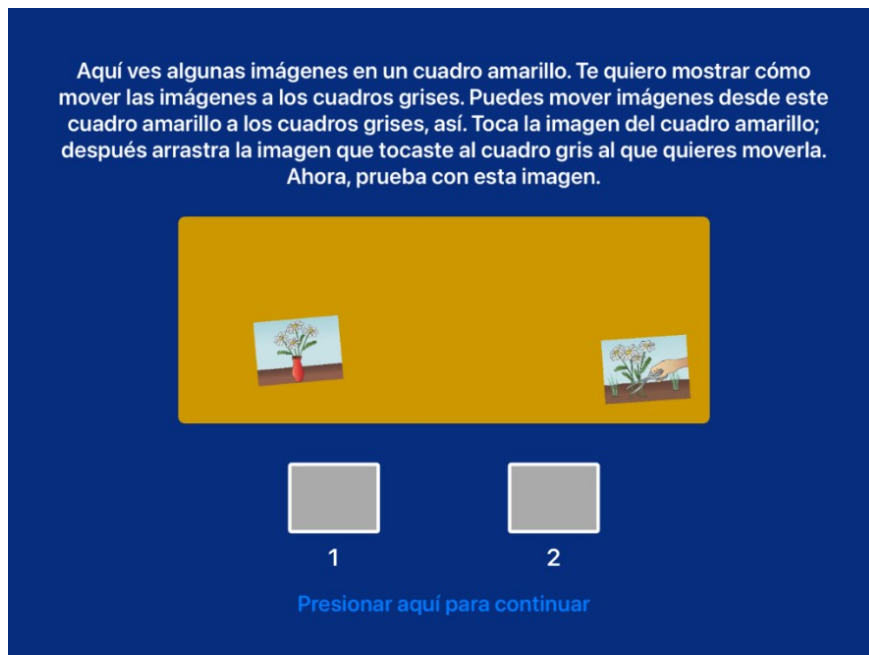
Step 3: Moving Pictures between the Gray Boxes
You can quickly advance through this practice screen.

Say: **Las imágenes se pueden mover a un cuadro distinto sin ningún problema.** Demonstrate how to move the cutting flowers picture to Box 2. Then say: **Para moverlas entre cuadros, tenemos que mover las imágenes otra vez al cuadro amarillo y luego me dice qué imagen quiere que mueva a qué cuadro.**

The examiner should demonstrate this by showing the participant what she or he is doing—moving the picture from the box 2 to box 1.

The examiner remotely demonstrates moving the picture to the yellow box

The examiner then demonstrates the return the picture to box 1

NOTE: Although we do not recommend moving images between the drop zone boxes with the remote version, you still need to do this step to advance the screen. Unless it is very clear that the examiner knows what the participant wants, we recommend moving the target image back to the yellow box so that it is clear what the participant wants to do.

After the participant demonstrates understanding of this step, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

If participants are unable to communicate which pictures they want in which box, the test should be discontinued and the reason should be written into the notes file in the app.

PSM Practice Sequence and Test Items Ages 3-4 Form A (Remote)

Introduction to the Practice Items:
Read the screen: **Ahora vamos a jugar al juego de memoria. Te mostraré algunas imágenes en la pantalla. Quiero que te acuerdes de ellas; luego quiero que me las digas igual que las viste en la pantalla.**

When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

The next screen begins the practice sequences. There are two practice sequences. If the child does not succeed after two trials on first practice sequence of two pictures, the test is discontinued.

The second practice sequence has three pictures; if the child succeeds in four or fewer trials, the test sequence is started. If the child does not succeed on the second practice sequence after four trials, the test is discontinued.

Practice Sequence 1:
Say: **Ahora, verás cómo se come el helado.** When finished reading, touch and hold the button at the bottom of the screen that says *Presionar aquí para continuar.*

As the pictures are presented, an audio recording will say appropriate picture labels.

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Así se come el helado. Ahora mueve tú las imágenes igual que las viste en la pantalla.**
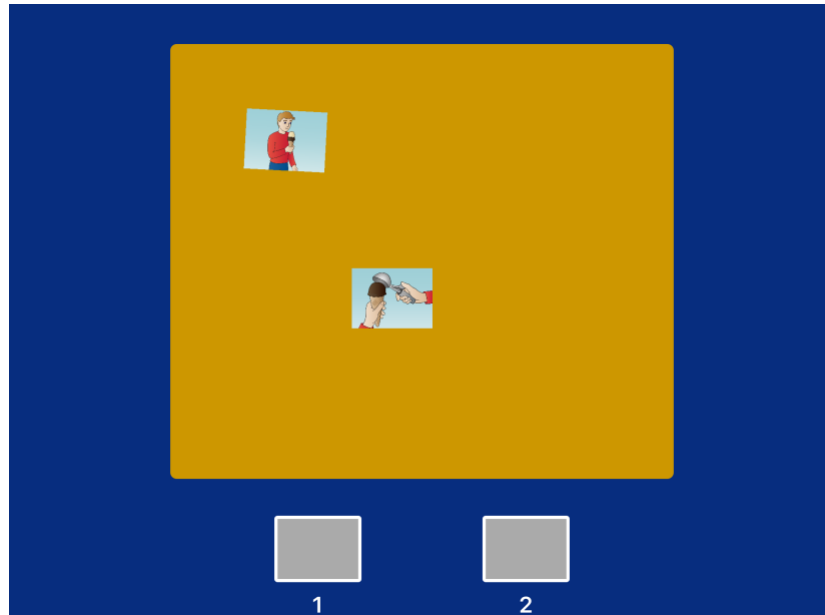
Examiner says: **Dime cómo querrías mover estas. Dime qué imagen hay que mover a cada cuadro.** If the participant doesn't automatically give a response, prompt him/her appropriately by asking which picture goes into Box 1 and which picture goes into Box 2.

Examiner says: **Sígueme diciendo qué imagen va en qué cuadro hasta que todas las imágenes estén colocadas en el orden que las viste.**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Terminaste?"** Ask this of the child.

If child says YES, touch and hold the Sí button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- If child gives correct response: Practice sequence 2, Have a Birthday Party, will be presented.
- If child gives incorrect response: Eat Ice Cream will be presented again with an audio recording that says**: Vamos a intentarlo otra vez.**

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Así se come el helado. Ahora mueve tú las imágenes igual que las viste en la pantalla.** The examiner may have to explain that the child made a mistake on the first trial.

If child fails both trials of Practice Sequence 1, test will discontinue.
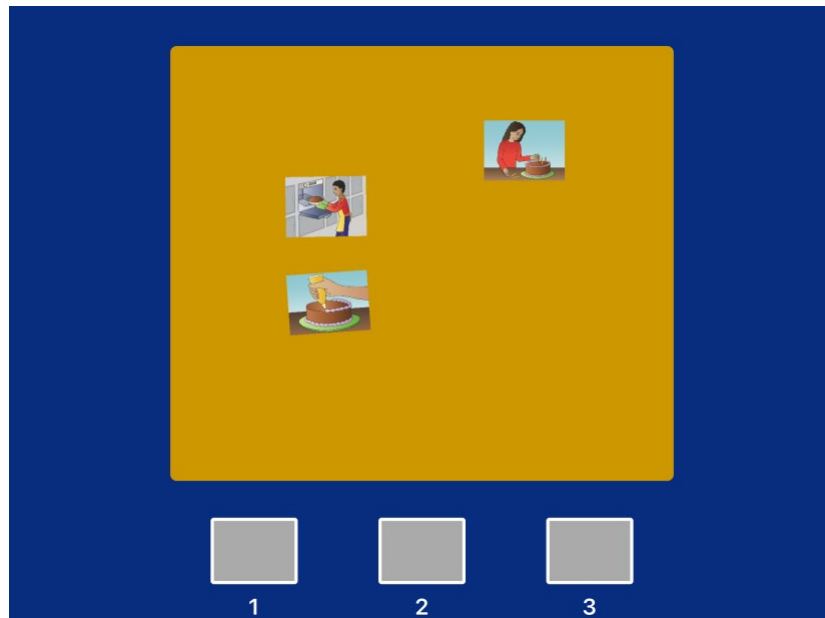

Practice Sequence 2**:**
Say: **¡Muy bien! Ahora, verás cómo hacer una fiesta de cumpleaños.** When finished reading, touch and hold the button at the bottom of the screen that says *Presionar aquí para continuar.*

As the pictures are presented, an audio recording will say appropriate picture labels.

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Así se hace una fiesta de cumpleaños. Ahora mueve tú las imágenes igual que las viste en la pantalla.**

Examiner says: **¿Cómo quieres que mueva las imágenes? Dime qué imagen hay que mover a cada cuadro.** If the participant doesn't automatically say the response, prompt them appropriately by asking which picture goes into Box 1, which picture goes into Box 2, and which picture goes into Box 3.

Examiner says: **Sígueme diciendo qué imagen va en qué cuadro hasta que todas las imágenes estén colocadas en el orden que las viste.**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Terminaste?"** Ask this of the child.

If child says YES, touch and hold the Sí button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
1. If child gives correct response, Test Item will be presented.
2. **If child gives incorrect response, Have a Birthday Party will be presented again with an audio recording saying, Vamos a intentarlo otra vez. After the pictures are presented and as the pictures are scrambled, an audio recording will say: Así se hace una fiesta de cumpleaños. Ahora mueve tú las imágenes igual que las viste en la pantalla.**
3. If child gives incorrect response again, #2 above is repeated up to two additional times (or a total of 4 trials).
4. If child fails all 4 trials, test will discontinue.

Test Sequences:
Children ages 3-4 are presented with two test items: the same 6-step sequence.

Read the screen: **Ahora, vamos a jugar a un juego con más imágenes. Esta vez, verás cómo jugar en el parque.**

When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

Test Item 1:
As the pictures are presented, an audio recording will say appropriate picture labels.

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Así se juega en el parque. Ahora mueve tú las imágenes igual que las viste en la pantalla.** Examiner says: **¿Cómo quieres que mueva las imágenes? Dime qué imagen hay que mover a cada cuadro.**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Terminaste?"** Ask this of the child. If child says YES, touch and hold the Sí button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Test Item 2:
Read the screen: **Ahora verás de nuevo cómo jugar en el parque. Todo el mundo tiene que hacer esto más de una vez.** When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

As the pictures are presented, an audio recording will say appropriate labels (same as Test item 1 above).

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Así se juega en el parque. Ahora mueve tú las imágenes igual que las viste en la pantalla.** Examiner says: **¿Cómo quieres que mueva las imágenes? Dime qué imagen hay que mover a cada cuadro.**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Terminaste?"** Ask this of the child. If child says YES, touch and hold the Sí button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- Test will terminate after the two test sequences have been presented**.**

PSM Practice Sequences Ages 5-6 AND Age 7 Form A (Remote)

Introduction to the Practice Items:
Read the screen: **Ahora vamos a jugar al juego de memoria. Te mostraré algunas imágenes en la pantalla. Quiero que te acuerdes de ellas; luego quiero que me las digas igual que las viste en la pantalla.**

When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

The next screen begins the practice sequences. There are two practice sequences. If the child does not succeed after two trials on first practice sequence of two pictures, the test is discontinued.

The second practice sequence has three pictures; if the child succeeds in four or fewer trials, the test sequence is started. If the child does not succeed on the second practice sequence after four trials, the test is discontinued.
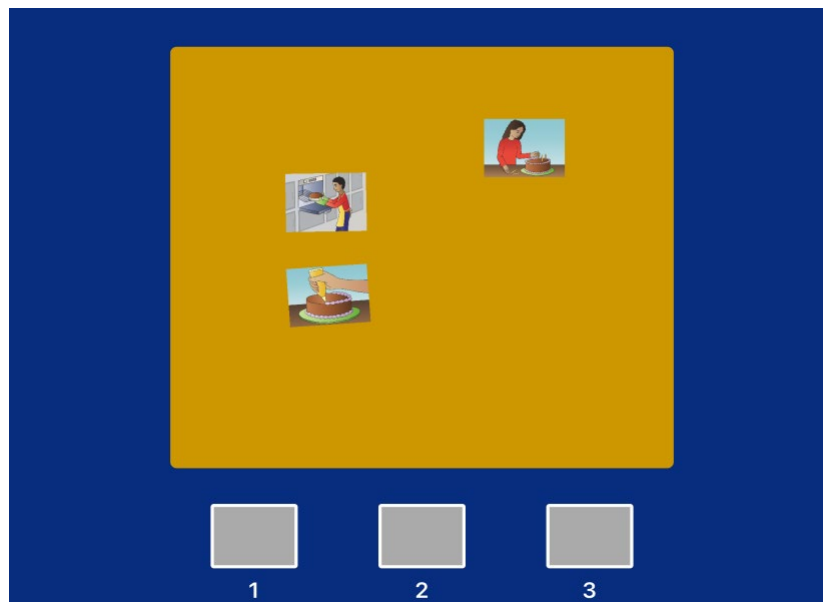
Practice Sequence 1:

Say**: Ahora, verás cómo hacer una fiesta de cumpleaños.** When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

As pictures are presented, an audio recording will say the appropriate picture labels.

After the pictures are presented and as the pictures are scrambled, an audio recording will say**: Así se hace una fiesta de cumpleaños. Ahora mueve tú las imágenes igual que las viste en la pantalla.**

Examiner says: **¿Cómo quieres que mueva las imágenes? Dime qué imagen hay que mover a cada cuadro.** If the participant doesn't automatically say the response, prompt them appropriately by asking which picture goes into Box 1, which picture goes into Box 2, and which picture goes into Box 3.

Examiner says: **Sígueme diciendo qué imagen va en qué cuadro hasta que todas las imágenes estén colocadas en el orden que las viste.**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Terminaste?"** Ask this of the child. If child says YES, touch and hold the Sí button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.
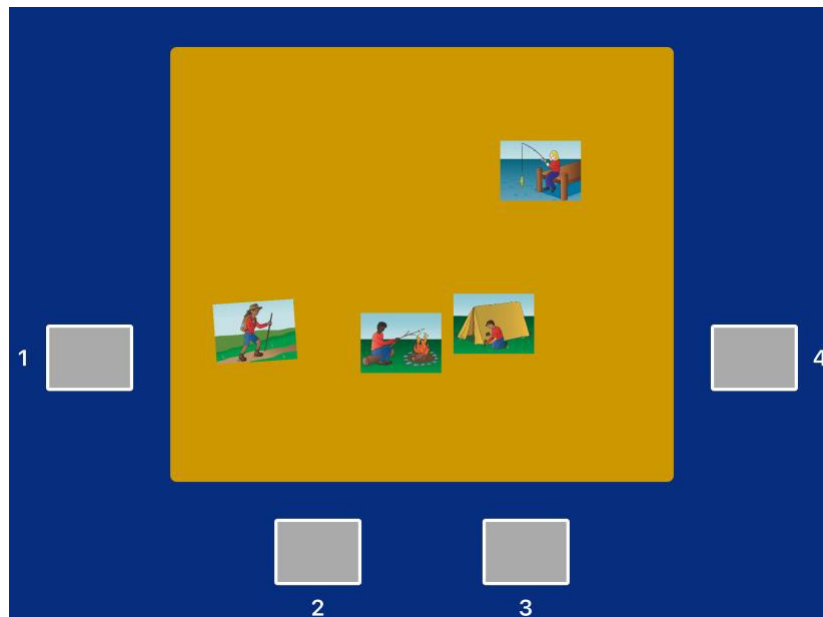
Logic:
- If child gives correct response, Practice sequence 2, Go Camping, will be presented.
- If child gives incorrect response, Have a Birthday Party will be presented again with an audio recording saying **Vamos a intentarlo otra vez.** After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Así se hace una fiesta de cumpleaños. Ahora mueve tú las imágenes igual que las viste en la pantalla.** Examiner says: **Dime cómo mover las imágenes en el orden que las viste.**

- If child gives incorrect response again, #2 above is repeated up to two additional times (or a total of 4 trials).
- If child fails all 4 trials, test will discontinue.

<u>Practice Sequence 2</u>**:**
Say: **Muy bien. Ahora, verás cómo acampar.** When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.* As pictures are presented, an audio recording will say the appropriate picture labels.

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Así se va a acampar. Ahora mueve tú las imágenes igual que las viste en la pantalla.** Examiner says: **Dime cómo mover las imágenes en el orden que las viste.**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Terminaste?"** Ask this of the child. If child says YES, touch and hold the Sí button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- If child gives correct response, Test Item will be presented.
- If child gives incorrect response, Go Camping will be repeated with an audio recording saying, **Vamos a intentarlo otra vez.** After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Así se va a acampar. Ahora mueve tú las imágenes igual que las viste en la pantalla.** Examiner says: **Dime cómo mover las imágenes en el orden que las viste.**
- If child gives incorrect response again, #2 above is repeated up to two additional times (or a total of 4 trials).
- If child fails all 4 trials, test will discontinue.

PSM Test Items for Ages 5-6 Form A (Remote)

Test Sequences:
Children ages 5-6 will be presented with two test items: each with a 9-step sequence.

Read the screen: **Ahora, vamos a jugar a un juego con más imágenes. Esta vez, verás cómo jugar en el parque.** When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

Test Item 1:
As the pictures are presented, an audio recording will say appropriate picture labels.

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Asi se juega en el parque. Ahora mueve tú las imágenes igual que las viste en la pantalla.** Examiner says: **¿Cómo quieres que mueva las imágenes?**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Terminaste?"** Ask this of the child. If child says YES, touch and hold the Sí button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Test Item 2:
Read the screen: **Ahora verás de nuevo cómo jugar en el parque. Todo el mundo tiene que hacer esto más de una vez.** When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

As the pictures are presented, an audio recording will say appropriate labels (same as Test item 1 above). After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Asi se juega en el parque. Ahora mueve tú las imágenes igual que las viste en la pantalla.** Examiner says: **¿Cómo quieres que mueva las imágenes?**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Terminaste?"** Ask this of the child. If child says YES, touch and hold the Sí button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- Test will terminate after the two test sequences have been presented*.*

PSM Test Items for Age 7 Form A (Remote)

Test Sequences:
Children age 7 will be presented with two test items: one with a 15-step sequence and the other with an 18-step sequence. Read the screen: **Ahora, vamos a jugar a un juego con más imágenes. Esta vez, verás cómo jugar en el parque.** When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

Test Item 1:
As the pictures are presented, an audio recording will say appropriate picture labels.

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Asi se juega en el parque. Ahora mueve tú las imágenes igual que las viste en la pantalla.** Examiner says: **¿Cómo quieres que mueva las imágenes?**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Terminaste?"** Ask this of the child. If child says YES, touch and hold the Sí button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Test item 2:
Read the screen**: Ahora vamos a trabajar con las mismas imágenes pero agregaremos algunas más. A todo el mundo se le pide que haga esto más de una vez.** When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

As the pictures are presented, an audio recording will say appropriate picture labels.

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Asi se juega en el parque. Ahora mueve tú las imágenes igual que las viste en la pantalla.** Examiner says: **¿Cómo quieres que mueva las imágenes?**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Terminaste?"** Ask this of the child. If child says YES, touch and hold the Sí button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- Test will terminate after the two test sequences have been presented*.*

PSM Practice Sequence and Test Items Ages 8+ Form A for 8-17 (Remote)

Introduction to the Practice Items:

Read the screen: **Ahora vamos a jugar al juego. Te mostraré algunas imágenes en la pantalla. Quiero que te acuerdes de ellas; luego quiero que me las digas igual que las viste en la pantalla.**

When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

The next screen begins the practice sequence. There is one practice sequence that has four pictures; if the child succeeds in four or fewer trials, the test sequence is started. If the child does not succeed after four trials on the practice sequence, the test is discontinued.

Practice Sequence**:**

Say: **Ahora, verás cómo acampar.** When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

As pictures are presented, an audio recording will say the appropriate picture labels.

After the pictures are presented and as the pictures are scrambled, an audio recording will say**: Así se va a acampar. Ahora mueve tú las imágenes igual que las viste en la pantalla.** Examiner says: **¿Cómo quieres que mueva las imágenes?** If the participant doesn't automatically say the response, prompt them appropriately by saying to Box 1, 2, 3, or 4. Examiner says: **Sígueme diciendo qué imagen va en qué cuadro hasta que todas las imágenes estén colocadas en el orden que las viste.**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Terminaste?"** Ask this of the participant.

If participant says YES, touch and hold the Sí button. If the participant says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- If participant gives correct response, Test Item will be presented.
- If participant gives incorrect response, Go Camping will be repeated with an audio recording saying **Vamos a intentarlo otra vez.** After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Así se va a acampar. Ahora mueve tú las imágenes igual que las viste en la pantalla.** Examiner says: **¿Cómo quieres que mueva las imágenes?**
- If participant gives incorrect response again, #2 above is repeated up to two additional times (or a total of 4 trials).
- If participant fails all 4 trials, test will discontinue.

Test Sequences:

Participants ages 8+ will be presented with two test items: one with a 15-step sequence and the other with an 18-step sequence. Read the screen: **Ahora, vamos a jugar a un juego con más imágenes. Esta**

vez, verás cómo jugar en el parque. When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

Test Item 1:
As the pictures are presented, an audio recording will say appropriate picture labels.

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Asi se juega en el parque. Ahora mueve tú las imágenes igual que las viste en la pantalla.** Examiner says: **¿Cómo quieres que mueva las imágenes?**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Terminaste?"** Ask this of the child. If child says YES, touch and hold the Sí button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Test Item 2:
Read the screen**: Ahora vamos a trabajar con las mismas imágenes pero agregaremos algunas más. A todo el mundo se le pide que haga esto más de una vez.** When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

As the pictures are presented, an audio recording will say appropriate picture labels.

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Asi se juega en el parque. Ahora mueve tú las imágenes igual que las viste en la pantalla.** Examiner says: **¿Cómo quieres que mueva las imágenes?**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Terminaste?"** Ask this of the child. If child says YES, touch and hold the Sí button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- Test will terminate after the two test sequences have been presented*.*

PSM Practice Sequence and Test items Ages 8+ Form A for 18+ (Remote)

Introduction to the Practice Items:
Read the screen: **Ahora vamos a jugar al juego. Le mostraré algunas imágenes en la pantalla. Quiero que se acuerde de ellas; luego quiero que me las diga igual que las vio en la pantalla.**

When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*
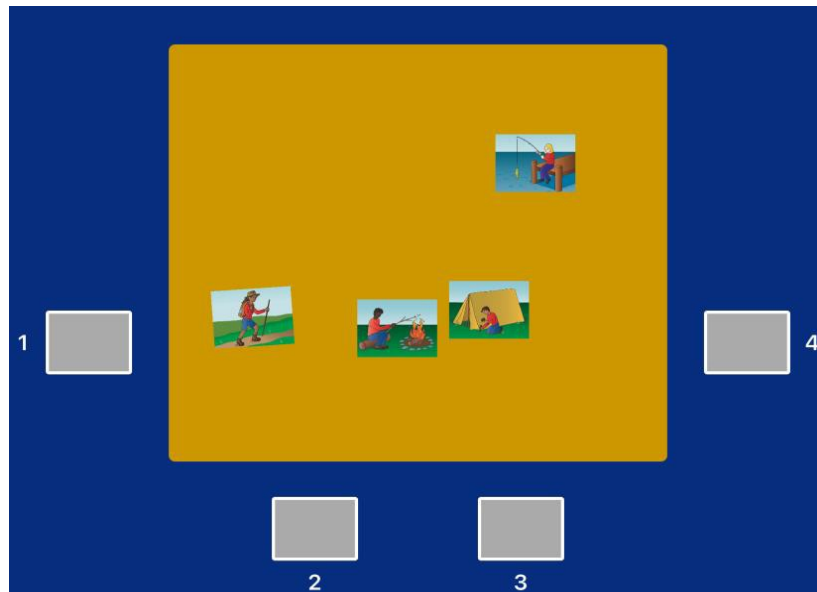
The next screen begins the practice sequence. There is one practice sequence that has four pictures; if the participant succeeds in four or fewer trials, the test sequence is started. If the participant does not succeed after four trials on the practice sequence, the test is discontinued.

Practice Sequence**:**
Say: **Ahora, verá cómo acampar.** When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

As pictures are presented, an audio recording will say the appropriate picture labels.

After the pictures are presented and as the pictures are scrambled, an audio recording will say**: Así se va a acampar. Ahora, mueva usted las imágenes igual que las vio en la pantalla.** Examiner says: **¿Cómo quiere que mueva las imágenes?** If the participant doesn't automatically say the response, prompt them appropriately by saying to Box 1, 2, 3, or 4. Examiner says: **Sigame diciendo qué imagen va en qué cuadro hasta que todas las imágenes estén colocadas en el orden que las vio.**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Ha terminado?"** Ask this of the participant.

If participant says YES, touch and hold the Sí button. If the participant says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- If participant gives correct response, Test Item will be presented.

- If participant gives incorrect response, Go Camping will be repeated with an audio recording saying **Vamos a intentarlo otra vez.** After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Así se va a acampar. Ahora, mueva usted las imágenes igual que las vio en la pantalla.** Examiner says: **¿Cómo quiere que mueva las imágenes?**
- If participant gives incorrect response again, #2 above is repeated up to two additional times (or a total of 4 trials).
- If participant fails all 4 trials, test will discontinue.

Test Sequences:

Participants ages 8+ will be presented with two test items: one with a 15-step sequence and the other with an 18-step sequence. Read the screen: **Ahora, vamos a jugar a un juego con más imágenes. Esta vez, verá cómo jugar en el parque.** When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

Test Item 1:

As the pictures are presented, an audio recording will say appropriate picture labels.

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Asi se juega en el parque. Ahora, mueva usted las imágenes igual que las vio en la pantalla.** Examiner says: **¿Cómo quiere que mueva las imágenes?**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Ha terminado?"** Ask this of the child. If child says YES, touch and hold the Sí button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Test Item 2:

Read the screen**: Ahora vamos a trabajar con las mismas imágenes pero agregaremos algunas más. A todo el mundo se le pide que haga esto más de una vez.** When finished reading, touch the button at the bottom of the screen that says *Presionar aquí para continuar.*

As the pictures are presented, an audio recording will say appropriate picture labels.

After the pictures are presented and as the pictures are scrambled, an audio recording will say: **Asi se juega en el parque. Ahora, mueva usted las imágenes igual que las vio en la pantalla.** Examiner says: **¿Cómo quiere que mueva las imágenes?**

When all pictures have been placed in gray boxes, a pop-up will appear on the screen, **"¿Ha terminado?"** Ask this of the child. If child says YES, touch and hold the Sí button. If the child says NO, touch any of the pictures and the pop-up will disappear. If no picture is moved out of a gray box, the pop-up will continue to be on the screen. The pop-up will close if a picture is moved back to the yellow box and will reappear each time all pictures have been placed in gray boxes.

Logic:
- Test will terminate after the two test sequences have been presented*.*