

# **Administration Manual for CIFASD**

## **International Consortium Project**

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\* This manual contains all possible tests. Tests not being administered by your site can be removed, but please keep all other tests in same order. Each site is to administer the tests in this order by omitting those tests not being administered at your particular site if need be.

## Questionnaires

At the start of the session during the consenting process, please give the **parent/guardian** the following questionnaires to work on while the child is being tested:

1. Child Behavior Checklist for Ages 6 - 18
2. SCT Scale (Barkley Slug)
3. Parent/Teacher DBD Rating Scale

During the lunch break, please have the **child** complete the Youth Self-Report if they are between the ages of 11 and 18. Subjects outside of this age range should not receive this questionnaire. The child should work on this independently (without the help of a parent as we want their viewpoint of who they are – not that of their parent); however, some children may have some questions as to what some words or statements mean. Please be available to help them with these sorts of questions.

The following questionnaires are to be filled out by the child's **teacher**:

1. Teacher's Report Form for Ages 6 - 18
2. SCT Scale (Barkley Slug)
3. Parent/Teacher DBD Rating Scale

Please give them to the teacher to fill out and get back to you either directly, via the parent/guardian or by mail.

## Edinburgh Handedness

Ages: All ages

Norms available: N/A

Procedure:

**THINK CAREFULLY ABOUT EACH OF THE FOLLOWING TASKS AND TELL ME WHICH HAND YOU PREFER TO USE TO DO THEM.**

**Q1: WHICH HAND DO YOU PREFER TO USE FOR** (insert the appropriate item from the test packet)? Record the child's response. It is ok to repeat the question if needed. This question can be dropped when the child clearly understands the task and you can just state the next item. Please verbalize the clarifications of the action written in parenthesis to the child when reading items #9 and #10 and make the appropriate substitutes for 'hand' as needed.

If the child responds "both", confirm their response by saying: **YOU PREFER/USE BOTH OF YOUR HANDS THE SAME AMOUNT FOR** (insert the appropriate item)? If they confirm their response of "both", circle 'B' on the response form for the first question and 'I' on the second question. If the child adjusts their response to pick one hand that they actually prefer for the item, circle 'B' on the response form and then underline which hand they have now indicated as their preferred and proceed to Q2.

If the child responds "I don't know", circle 'DK' on the response form and move on to the next item. [It seems many children have not had exposure to knives (#6) and matches (#8). Items with a 'DK' response will not be scored.]

**Q2: DO YOU NEVER, SOMETIMES OR INTERCHANGEABLY USE THE OTHER HAND?** Record the child's response.

If the child does not understand the 2<sup>nd</sup> question, it can be rephrased as follows: **DO YOU EVER USE YOUR** (insert opposite as preferred) **HAND?** If child answers "no," move on to next item. If child answers "yes," ask: **DO YOU USE THAT** (ok to insert opposite as preferred **YOUR LEFT** or **RIGHT** instead of saying **THAT**) **HAND ONLY SOMETIMES/EVERY ONCE IN A WHILE OR JUST AS MUCH/OFTEN AS YOUR OTHER** (ok to insert preferred **LEFT** or **RIGHT** instead of saying **OTHER**) **HAND?** Record the child's response.

Raw Score: Assign a value to each hand per item using the guidelines listed on the test packet response form. Add up the right and left hand totals separately and use them to complete the Edinburgh Score calculation.

### Leiter-R Verbal Script

The purpose of this verbal script is to make it less awkward for the subject and examiner to complete these tests through the addition of brief verbal instructions and communication. This script is to accompany the non-verbal instructions outlined in the Leiter-R manual and listed on the pages following this script – it is **not** a substitute for them. Please make sure you are familiar with the non-verbal gestures and that you continue to use them along with this verbal script.

**For all subtests:** Administer the age appropriate starting point/teaching trial item. Teach up to 3 trials if needed on the first item ONLY (the child's starting point/teaching trial item). Provide help and encouragement as needed to make sure the child understands the task. If the child does not understand, demonstrate pointing to the object in the picture. You may place your hand gently on child's hand to assist him/her in pointing to correct location, if necessary. If child answers correctly, smile and say: **THAT'S RIGHT** or **GOOD JOB** or something to that effect. You may teach on all of the cards of the teaching trial if needed.

Be mindful of the reversal and discontinue rules.

•Figure Ground (The Find It Game):

**THIS IS THE 'FIND IT' GAME. EACH OF OBJECTS ON THESE CARDS** (point to objects on each card from A to C) **ARE HIDING IN THIS PICTURE** (point to picture). **SHOW ME WHERE EACH OF THESE** (hold up card A) **ARE HIDING IN THE PICTURE BY POINTING TO THE OBJECT ON THE CARD AND THEN WHERE IT IS IN THE PICTURE. WHERE IS THIS** (point to card A) **HIDING?**

If needed, use this Teaching Trial Wording Example: **THIS CARD** (point to card A of teaching trial) **SHOWS A** (object name – dinosaur, lemon on a sign, boy's smile). **THE** (object name) **IS HIDING IN THIS PICTURE** (point to picture). **POINT TO WHERE THE** (object name) **IS HIDING.**

For the remaining items, present the child with the new cards and picture and say, **NOW, FIND THESE** (point to objects on cards) **IN THIS PICTURE.**

•Form Completion (The Put Together Game):

Without the trays showing (younger children starting point): **THIS IS THE 'PUT TOGETHER' GAME. EACH CARD** (point to the cards) **HAS PIECES OF AN OBJECT ON IT. IF ALL OF THE PIECES IN THE CARD WERE PUT TOGETHER** (demonstrating putting together with your hands), **WHERE WOULD IT BE IN THE PICTURE** (point to general location in the picture)? Allow the child to respond.

For the remaining items, present the child with the new cards and picture and say, **“NOW SHOW ME WHAT THESE CARDS WOULD LOOK LIKE IF ALL THE PIECES WERE PUT TOGETHER”**.

Explain to the child how to use the trays once you reach the items that require they do so.

With the trays showing (older children starting point): **THIS IS THE ‘PUT TOGETHER’ GAME. EACH CARD HAS PIECES OF AN OBJECT ON IT. PLACE EACH CARD IN THE CORRECT SLOT (point to the tray slots) TO MATCH THE PICTURE IT GOES WITH. WHAT WOULD THESE PIECES LOOK LIKE IF THEY WERE ALL PUT TOGETHER (demonstrating putting together with your hands)? PLACE THE CARDS IN THE EMPTY SLOTS.** Allow the child to respond. Provide the child with help on the first item if needed. Also provide them with positive feedback upon successful completion.

For the remaining items, present the child with the new cards and picture and say, **“NOW SHOW ME WHAT THESE CARDS WOULD LOOK LIKE IF ALL THE PIECES WERE PUT TOGETHER”**.

Sequential Order (The Which Comes Next Game):

Starting point SO3: This game is called the “Which Comes Next Game”. **LOOK AT THIS SET OF PICTURES** (point to the picture). **YOU SEE, HERE IS A LARGE CAT** (point) **AND HERE IS A MEDIUM-SIZED CAT** (point). **WHICH ONE OF THESE CARDS** (point to cards) **SHOULD COME NEXT** (point to the empty tray slot)?

Starting point SO5: **THIS GAME IS THE “WHICH COMES NEXT GAME”**. **LOOK AT THIS SET OF PICTURES** (point to the picture). **PLACE THESE CARDS** (point to the cards) **UNDERNEATH** (point to tray slots) **THE EMPTY** (outline an empty slot with your finger) **SQUARES TO SHOW WHICH CARD COMES NEXT.**

Repeated Patterns (The Over and Over Game): **THIS GAME IS CALLED THE “OVER AND OVER GAME”**. **THESE PICTURES FORM A PATTERN** (point to the picture and emphasize the repeated pattern concept by pointing to each of the pictures on the easel from your right to left using a “hopping motion” with your finger, pausing briefly at the end of each repeated series). **PLACE THE CARDS IN THE SLOTS OF THE TRAY TO KEEP THE PATTERN GOING OVER AND OVER AGAIN.**

Attention Sustained (The Drawing Game):

**AS 9 (square):** Turn to the Teaching Trials page in the booklet and focus on AS 9.

**Practice: With Demonstration:** In this box are some shapes (draw a circle with your finger around the general area of the box of shapes for AS 9). Each time you see this shape (point to the target square) below, I'd like you to cross it out *like this (demonstrate crossing out with marker on 1<sup>st</sup> square – top row 2<sup>nd</sup> shape)* using this marker (hold up the purple Leiter-R marker and show the child). Now you try some (hand the child the marker).

**Without Demonstration:** Omit the *italicized* portion of the above.

Provide the child with positive feedback (“Good.” Or, “That’s right.”) on a couple of the practice items. Allow the child 2 minutes to complete the practice. If the child takes less than 2 minutes, record the time it took the child to complete the practice on the test packet form. Help the child as needed to make sure they understand what is being asked of them. If they cross out a shape other than the square, remind them of the directions by saying something like, “No,, only cross out the shapes that look like this one (point to the target square)”.

**Trial:** Turn to the appropriate page (AS 9) in the booklet.

Good. Now do the same thing on this page. Cross out as many as you can that look just like this (point to the target square) until I tell you to stop. Go as fast as you can. You may not find all of the shapes in the box before the time is up. Ready, begin (start timing).

Stop the child at 30 seconds or record the time it took the child to complete this task on the test packet form. Unless it is disruptive to the child, have him/her stop at end of time limit. If child does not want to stop, **only count those answers crossed out within the specified time limit.**

**AS 10 (half circle):** Return to the Teaching Trials page of the booklet.

**Practice:** Now let’s try this one (point to the box for AS 10). This time I want you to look for this shape (point to the target half circle) and cross it out each time you see it in this box below (circle the box area with your finger). Go ahead and practice some.

Allow the child 30 seconds and record the time the child took to complete the practice.

**Trial:** Turn to the appropriate page (AS 10) in the booklet.

Good. Now do the same thing on this page. Cross out as many as you can that look just like this (point to the target half circle) until I tell you to stop. There is a time limit and most people do not find all of the shapes in the box before the time is up. Ready, begin (start timing).

Stop the child at 30 seconds or record the time it took the child to complete this task.

**AS 11 (triangle and slanted oval):** Return to the Teaching Trials page of the booklet. Practice: Now let's try this one (point to the box for AS 11). This time I want you to look for this shape (point to the triangle) and this shape (point to the slanted oval) and cross them out each time you see them just like this (point to the target combination) it in this box below (circle the box area with your finger). Go ahead and practice some.

Allow the child 30 seconds and record the time the child took to complete the practice. Some children draw a mark on each individual shape. Prompt the child that it is ok to draw one line through both shapes. Demonstrate if needed.

Trial: Turn to the appropriate page (AS 11) in the booklet. Good. Now do the same thing on this page. Cross out as many as you can that look just like this (point to the target combination) until I tell you to stop. There is a time limit and most people do not find all of the shapes in the box before the time is up. Ready, begin (start timing).

Stop the child at 60 seconds or record the time it took the child to complete this task.

**AS 12 (circle, square and circle):** Return to the Teaching Trials page of the booklet. Practice: Now let's try this one (point to the box for AS 12). This time I want you to look for this shape (point to the circle), this shape (point to the square) and this shape (point to the circle) and cross them out each time you see them just like this (point to the target combination) it in this box below (circle the box area with your finger). Go ahead and practice some.

Allow the child 30 seconds and record the time the child took to complete the practice.

Trial: Turn to the appropriate page (AS 12) in the booklet. Good. Now do the same thing on this page. Cross out as many as you can that look just like this (point to the target combination) until I tell you to stop. There is a time limit and most people do not find all of the shapes in the box before the time is up. Ready, begin (start timing).

Stop the child at 60 seconds or record the time it took the child to complete this task.

You may cue child up to 2 times on each page, if needed, but no further Teaching trials are allowed. Cuing consists of pointing back and forth between target picture and 1 (ONE) correct answer on page. Do not demonstrate crossing out on actual test pages.

It's important not to provide the child with any verbal hints, so please never state the name of the shape (i.e. square or circle), just refer to it as "this" or "that".



## Leiter-R Figure Ground (FG)

Ages: 2-0 to 20-11

Norms Available: All ages

Procedure: From the Leiter-R Examiner's Manual pgs 29-30.

Set up Easel #1 in the forward position, such that card slots are not visible.

Items FG1, FG3, and FG5 are teaching items (depending on starting age). Up to 3 teaching trials may be used on all cards for the first item at the starting age. Teach by demonstration, pointing back and forth between card and easel indicating nonverbally that the figure on each card is located somewhere on the easel picture. If needed, place the card next to the hidden figure in the picture and gesture back and forth to indicate that the pictures are the same. After demonstration, return cards to the table and see if the child can complete responses independently.

For children between ages 2-0 and 5-11:

### **FG1: Teaching**

Place 2 cards, centered in front of the child, in alphabetical order, from your left to right. Use pantomime, facial expression, gestures, pointing, and a questioning manner to indicate that dinosaur is hidden in the picture, and the child should point to the place in the picture where dinosaur is hidden. If the child does not understand, demonstrate by pointing to dinosaur in the picture. If necessary, you may place your hand gently on the child's hand to assist him/her in pointing to the correct location on the easel. You may demonstrate on bush as well. If the child answers correctly, smile and nod up and down to indicate the child's response was correct.

### **Administration**

Return cards used to teach the child to original position in front of the child. Indicate nonverbally that the child should independently point to the place in the picture where figures depicted on cards are hidden. Credit is given if the child can obviously tell where the figure on the card is located in the picture, even if pointing is not exact.

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## Leiter-R Figure Ground (cont'd)

For children between ages 6-0 and 10-11:

### **FG3: Teaching**

Place 3 cards, centered in front of the child, in alphabetical order, from your left to right. Use pantomime, facial expressions, gestures, pointing, and a questioning manner to indicate that lemon on sign is hidden in the picture, and the child should point to the place in the picture where lemon on sign is hidden. If the child does not understand, demonstrate by pointing to lemon on sign. If necessary, you may place your hand gently on the child's hand to assist him/her in pointing to the correct location. You may demonstrate on boy's shirt and two lemons on table as well. If the child answers correctly, smile and nod up and down to indicate the child's response was correct.

### **Administration**

Return cards used to teach child to original position in front of the child. Indicate nonverbally that the child should independently point to the place in the picture where figures depicted on cards are hidden. Credit is given if the child can obviously tell where the figure on the card is located in the picture, even if pointing is not exact.

For children between ages 11-0 and 20-11:

### **FG5: Teaching**

Place 3 cards, centered in front of the child, in alphabetical order, from your left to right. Use pantomime, facial expressions, gestures, pointing, and a questioning manner to indicate that boy's smile is hidden in the picture, and the child should point to the place in the picture where boy's smile is hidden. If the child does not understand, demonstrate by pointing to boy's smile. If necessary, you may place your hand gently on the child's hand to assist him/her in pointing to the correct location. You may demonstrate on shoe and hair bow as well. If the child answers correctly, smile and nod up and down to indicate the child's response was correct.

### **Administration**

Return cards used to teach child to original position in front of the child. Indicate nonverbally that the child should independently point to the place in the picture where figures depicted on cards are hidden. Credit is given if the child can obviously tell where the figure on the card is located in the picture, even if pointing is not exact.

### Reversal:

If the child cannot *independently* provide the correct answers on the starting item, even after teaching, return to the starting point for the preceding age group.

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## Leiter-R Figure Ground (cont'd)

### General administration:

Continue administering by placing cards, centered in front of the child, approximately 6" from the table's edge, in alphabetical order, from your left to right. **Use gestures and other nonverbal cues to indicate that the child should point to the place in the picture where figures depicted on cards are hidden.** Look questioningly toward the child. After each response, return any cards that have been moved back to their original order and return them to the response card box.

**Stop Rule:** Test child on each easel page until 6 cumulative responses are failed. Child receives credit for correct responses completed. Do not administer items **after** 6 cumulative failed responses.

**Raw Score:** Give 1 point for each correct answer. Give full credit to older children for previous items not administered (max = 31).

## Leiter-R Form Completion (FC)

Ages: 2-0 to 20-11

Norms Available: All ages

Procedure: From the Leiter-R Examiner's Manual pgs 32-34.

For ages 2-0 to 10-11, set up Easel #1 in the forward position, such that the card slots are not visible. For ages 11-0 and older (and when continuing with younger kids), set up Easel #2 in the standard position such that the card slots ARE visible.

Items FC1, FC2, FC3, FC6, and FC9 are teaching items (depending on the child's age). Up to 3 teaching trials may be used. Teach by demonstration, pointing back and forth between the model and the child's materials. If needed, place materials next to the figure in the easel picture and gesture back and forth to indicate that the pictures are the same. After demonstration, return the child's shapes/cards to the original position in front of the child and see if s/he can complete responses independently.

For children between ages 2-0 and 5-11:

### **FC1-FC2: Teaching**

Place shapes for examiner's model in front of the child, close to the easel. They should be positioned to look like the illustration on the easel. Then place the child's shapes between the child and examiner's model. Make sure the child's shapes are randomly placed (see Easel Book #1 for correct placement). Use pantomime, facial expressions, gestures, pointing, and a questioning manner to indicate that the child should move his/her shapes to match the examiner's model. Emphasize "pushing together" in your gestures. If necessary, you may place your hand gently on the child's hand to assist him/her in moving his/her shapes to match the examiner's model. If child answers correctly, smile and nod up and down to indicate child's response was correct.

### **Administration**

Then, return shapes used to teach the child into a different random placement in front of the child. Indicate nonverbally that the child should independently move shapes to match the examiner's model.

### **FC3: Teaching**

Place the card, centered in front of the child, approximately 6" from the table's edge. Use pantomime, facial expressions, gestures, pointing, and a questioning manner to indicate that star-ball is "put together" on the easel, and the child should point to the place on the easel where star-ball is located. Emphasize the concept "put together" by motioning with your hands cupped and pushing them together toward each other.

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## Leiter-R Form Completion (cont'd)

### Administration

Then, return the card used to teach the child to original position in front of the child. Indicate nonverbally that the child should independently point to the place on the easel where the figure depicted on the card is “put together.”

For children between ages 6-0 and 10-11:

### FC6: Teaching

Place 3 cards, centered in front of the child, in alphabetical order, from your left to right. Use pantomime, facial expressions, gestures, pointing, and a questioning manner to indicate that **soccer ball** is “put together” on the easel, and the child should point to the place on the easel where **soccer ball** is “put together.” Emphasize the concept “put together” by motioning with your hands cupped and pushing them together toward each other. If the child does not understand, demonstrate by pointing to **soccer ball** on the easel. If necessary, you may place your hand gently on the child’s hand to assist him/her in pointing to the correct location on the easel. You may teach on **sun** and **beach ball** as well. If the child answers correctly, smile and nod up and down to indicate the response was correct.

### Administration

Then, return cards used to teach the child to original position in front of the child. Indicate nonverbally that the child should point to the place on the easel where the figures depicted on the cards are “put together.”

For children between ages 11-0 and 20-11:

### FC9: Teaching

Use Easel Book #2, placing it in the standard position with the card slots showing. Place the 3 cards, centered in front of the child, in alphabetical order, from your left to right, approximately 6” from the table’s edge. Use pantomime, facial expressions, gestures, pointing, and a questioning manner to indicate that the figure depicted on each of the cards can be “put together.” Further indicate that the child should place the card in the slot corresponding to the “put together” figure in the illustration on the easel. Emphasize the concept “put together” by motioning with your hands cupped and pushing them together toward each other. If the child does not understand, point to the card slot on the tray where the card should be placed. If necessary, you may place your hand gently on the child’s hand to assist him/her in placing cards in the correct slot. You may teach on all cards for this item.

### Administration

Then, return cards used to teach the child to original position in front of the child. Indicate nonverbally that he/she should independently move cards to correct card slots.

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## Leiter-R Form Completion (cont'd)

### Reversal:

If the child cannot ***independently*** provide correct answers on the starting item, even after teaching, return to the starting point for the preceding age group.

### General administration:

Continue administering by placing cards, centered in front of the child, approximately 6" from the table's edge, in alphabetical order, from your left to right. ***Use gestures and other nonverbal cues to indicate that the child should "put together" shapes, point to the picture of "put together" card, or place cards in the appropriate card slot.*** Look questioningly toward the child. After each response, return any cards that have been moved back to their original order and return them to the response card box.

**Stop Rule:** Test child on each easel page until 7 cumulative responses are failed. Child receives credit for correct responses completed. Do not administer items **after** 7 cumulative failed responses.

**Raw Score:** Give 1 point for each correct answer. Give full credit to older children for previous items not administered (max = 36).

## Leiter-R Sequential Order (SO)

Ages: 2-0 to 20-11

Norms Available: All Ages

Procedure: From Leiter-R Examiner's Manual pgs 36-38.

Set up Easel Book #2. For Item SO1, place the easel in the forward position so card slots are not showing. For all other items, place the easel in the standard position, such that card slots ARE showing.

Items SO1, SO3, and SO5 are teaching items (depending on starting age). Use up to 3 teaching trials on all shapes/cards on first item at a particular age group. Teach by demonstration, pointing back and forth between the examiner's model and the child's materials (or between card and easel). Indicate nonverbally that shapes/cards must go in a certain order. If needed, place shapes in the wrong order and shake your head "no." Then, place shapes/cards in the correct order and nod your head "yes." After demonstration, return shapes/cards to the table and see if the child can complete responses independently.

For children between ages 2-0 and 5-11:

### **SO1: Teaching**

Place shapes (small, medium, and large triangles) close to the easel in front of the child, positioned to look like the illustration on the easel (mistake on examiner's page: triangles facing wrong direction in "Examiner's Model"). Then place the child's 3 triangles between the child and the examiner's model. Make sure the child's shapes are randomly placed (see Easel Book #2 for correct placement). Use pantomime, facial expressions, gestures, pointing, and a questioning manner to indicate that shapes go in order from small (make "little" gesture using fingers), to medium (make "medium" gesture using hands), to large (make "big" gesture using arms). Sweep your hand over the child's shapes and indicate they should also be placed in order of size. If the child does not understand, demonstrate by moving shapes to match the examiner's model, gesturing to emphasize order from little, to medium, to big. If necessary, you may place your hand gently on the child's hand to assist him/her in moving his/her shapes to match your model. You may teach on all 3 triangles. If the child answers correctly, smile and nod up and down to indicate response was correct.

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## Leiter-R Sequential Order (cont'd)

### Administration

Return shapes used to teach the child to a different random placement, in front of the child. Indicate nonverbally that the child should independently place shapes to match the examiner's model. After the item is administered, hold each shape up to the easel and indicate that each shape also matches the easel. **Child is scored on ability to place shapes in the correct order only.** Easel pictures are for teaching only.

### SO2: Teaching

Place 2 cards, centered in front of the child, in alphabetical order, from your left to right. Use pantomime, facial expressions, gestures, pointing, and a questioning manner to indicate that only 1 card belongs in the card slot beneath the empty square on the easel. The child should indicate which card belongs in the empty square or specific slot on the tray. Gesture back and forth to indicate that this card [A] belongs in the empty square, but the other card does not belong in the empty square/slot. If the child does not understand, demonstrate the position on the tray where the card should be placed. Gesture to emphasize the concept by pointing to the small square on the easel and make "little" gesture; then point to the medium square on the easel and make "medium" gesture; finally point to empty square on the easel and make "large" gesture. Motion between the 2 cards and look questioningly at the child. If necessary, you may place your hand gently on the child's hand to assist him/her in placing the card in the correct slot. If the child answers correctly, smile and nod up and down to indicate child's response was correct.

### Administration

Return cards used to teach child to table, in original position, in front of the child. Indicate nonverbally that he/she should independently place card in correct tray slots.

For children between ages 6-0 and 10-11:

### SO3: Teaching

Place 2 cards, centered in front of the child, in alphabetical order, from your left to right. Indicate by pantomime, gesture, and pointing that only 1 of the cards (hold up 1 finger) should be selected and placed in the slot on the tray corresponding to the empty square on the easel (point to the empty square and to the slot). Emphasize the concept by pointing to the large cat on the easel, making "large" gesture using arms; then, pointing to "medium" cat and making "medium" gestures using hands; finally, point to the empty square on the easel and make "small" gesture. Motion between the 2 cards. Look questioningly at the child and indicate nonverbally that the child should select 1 card and place it in the slot on the tray that corresponds to the empty square on the easel.

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## Leiter-R Sequential Order (cont'd)

### Administration

Return cards used to teach the child to original position in front of the child. Indicate nonverbally that he/she should place the card in the correct tray slot. Credit is given if the child indicates the correct placement on the tray slot (i.e., by pointing), even if placement on the tray is not exact.

For children between ages 11-0 and 20-11:

### SO5: Teaching

Place 2 cards, centered in front of the child, in alphabetical order, from your left to right. The child should indicate which cards belong in empty squares or in specific tray slots. Use pantomime to indicate that only 1 card belongs beneath each empty square on easel. Gesture back and forth to indicate that each card belongs in an empty square and in a specific slot, but the other card does not belong in the empty square/slot. Emphasize sequential order concept, nonverbally, by indicating to the child that blue moves upward in each of the 3 squares on the easel. Look questioningly at the child and make appropriate movements to indicate that blue continues to move upward on cards. Motion to the 2 cards. Indicate nonverbally that cards should be placed into the appropriate slots on the tray. If the child does not understand, demonstrate the position on the tray where the card should be placed. You may place your hand gently on the child's hand to assist him/her in placing the card in the correct tray slot, if necessary. If the child answers correctly, smile and nod up and down to indicate the response was correct.

### Administration

Return cards used to teach the child to original position in front of the child. Indicate nonverbally that the child should independently place cards in correct place on the tray. Credit is given if the child indicates correct placement in tray slots (i.e., by pointing), even if placement on the tray is not exact.

### Reversal:

If the child cannot *independently* provide correct answers on the starting item, even after teaching, return to the starting point for the preceding age group.

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## Leiter-R Sequential Order (cont'd)

### General administration:

Continue administering by placing shapes/cards, centered in front of the child, approximately 6" from the table's edge, in alphabetical order, from your left to right. **Use gestures and other nonverbal cues to indicate that he/she should match his/her materials to examiner's model or place cards in correct tray slot.** Look questioningly toward the child. Emphasize the concept of sequential order in your nonverbal gestures. After each response, return any cards that have been moved back to their original order and return them to the response card box.

Stop Rule: Test all items on each easel page until 7 cumulative responses are failed. Do not administer items **after** 7 cumulative failed responses.

Raw Score: Give 1 point for each correct answer. Give full credit to older children for previous items not administered (max = 47).

### Leiter-R Sequential Order Distractor Card

For items 7-13 there is one distractor card in the mix. No mention is made of having the extra card. Some children have asked what do with the extra and others have placed the extra into a leftover slot. A few kids have adjusted their entire line up one way or the other in order to add the distractor card (going from a score of 5 to a score of zero b/c of their uncertainty about what to do with the extra card). Most kids that do this shift once - end up doing it again and again and are discontinuing quite early. They are obviously capable of placing the cards in the right sequence, but due to their confusion about the extra card - they end up failing. **To ensure this doesn't happen and effect the child's performance, make sure they understand that there is an extra card.**

Emphasize to the child that they will be placing the cards in the EMPTY slots/squares (point and trace an empty slot). It is ok to tell them that there is an extra card and to answer their questions about the distractor if they ask.

## Leiter-R Repeated Patterns (RP)

Ages: 2-0 to 20-11

Norms Available: All Ages

Procedure: From Leiter-R Examiner's Manual pgs 38-39.

Open Easel Book #2 to the forward position for items RP1-RP3, such that the card slots are not showing. For all other items, open Easel Book #2 to the standard position, such that the card slots ARE visible.

Items RP1 and RP5 are teaching items (depending on starting age). Use up to 3 teaching trials on all shapes/cards on first item at a particular age group. Teach by demonstration, pointing back and forth between the examiner's model and the child's materials (or between card and easel). Indicate, nonverbally, that shapes must go in a certain order, and each card belongs in a specific tray slot. If needed, place the card in the correct tray slot and point back and forth between card and easel. Reinforce the relationship between card, easel, and placement in tray. Child may try to match shapes. Use gestures to indicate that pieces form a repeated pattern (i.e., hold up 1 finger for first position and 2 fingers for second position). If the child attempts to match shapes, shake your head vigorously "no" to indicate do not match. After demonstration, return shapes/cards to the table and see if the child can complete responses independently.

For children between ages 2-0 and 5-11:

### **RP1: Teaching**

Place 2 blue and 2 yellow shapes in front of the easel. Position them to look like the illustration on the easel. Place the child's shapes between the child and your model in random order (see easel for proper placement). Use pantomime to indicate that shapes go in order. Emphasize repeated pattern concept by pointing to each square in the model, from your right to left (i.e., yellow, blue, [pause]; yellow blue, [pause]). Then point to the far left, beyond the last blue square. If the child does not understand, demonstrate the answer by placing child's 2 shapes in correct pattern so the yellow square is first and the blue square is last. Repeat pointing in rhythm, this time including all 3 sets (yellow, blue, [pause]; yellow, blue, [pause]; yellow, blue, [pause]). Return the child's shapes to random placement. Point to the child's shapes and indicate, by pointing back and forth, that the child should place the yellow and blue squares at the end of the pattern. If necessary, you may gently assist the child in moving shapes to match the model. You may teach on both pieces. If child answers correctly, smile and nod up and down to indicate the response was correct.

**Continued on Next Page**

## Leiter-R Repeated Patterns (cont'd)

### Administration

Return shapes used to teach the child to a different random placement, in front of the child. Indicate nonverbally that the child should independently place shapes to match the examiner's model. After the item is administered, hold each shape up to the easel and indicate that each shape also matches the easel.

### RP4: Teaching

After child has completed RP4 using shapes, adjust easel so card slots are visible, and place 2 cards, centered in front of the child, in alphabetical order, from your left to right. Use pantomime to indicate that cards should be placed into the correct tray slot. Emphasize that only 1 (hold up one finger) of the child's cards belongs in each slot, and the child should place the card in the correct slot. If the child does not understand, demonstrate the position on the tray where the card should be placed. If necessary, you may place your hand gently on the child's hand to assist him/her in placing the card in the correct tray slot. Once the child seems to understand, return the cards to the table and see if s/he can independently place them in correct slots. Cards are only used to train the child for subsequent items. Do not score the child's ability using cards for this item.

For children between ages 6-0 and 20-11:

### RP5: Teaching

Place 3 cards, centered in front of the child, in alphabetical order, from your left to right. Use pantomime to indicate that cards should be placed into the correct tray slots. Emphasize repeated patterns concept by point to each picture on easel from your right to left (i.e., apple, banana, [pause]; apple, banana, [pause]). Then point to far left to 2 empty squares. Use appropriate gestures to indicate that 2 of the 3 cards belong in the empty squares. Point to corresponding tray slot to indicate the child should position each card beneath the related empty square. If child does not understand, demonstrate where the card should be placed. Repeat pointing in rhythm, this time including all sets: (apple, banana, [pause]; apple, banana, [pause]; apple, banana, [pause]). Return cards to position in front of child. Indicate by pointing back and forth between cards and easel that he/she should place cards in the correct tray slots. If necessary, you may place your hand gently on child's hand to assist him/her in placing card in the correct tray slot. If the child answers correctly, smile and nod up and down to indicate the response was correct.

### Administration

Return cards used to original position in front of the child. Indicate nonverbally that he/she should independently move cards to correct placement on tray. Credit is given if the child indicates correct placement on the tray (i.e., by pointing), even if placement in tray slots is not exact.

**Continued on Next Page**

## Leiter-R Repeated Patterns (cont'd)

### Reversal:

If the child cannot ***independently*** provide correct answers on the starting item, even after teaching, return to the starting point for the preceding age group.

### General administration:

Continue administering by placing shapes/cards, centered in front of the child, approximately 6" from the table's edge, in alphabetical order, from your left to right. ***Use gestures and other nonverbal cues to indicate that he/she should place his/her materials in order or place cards in correct tray slot.*** Look questioningly toward the child. After each response, return any cards that have been moved back to their original order, and return them to the response card box.

Stop Rule: Test all items on each easel page until 6 cumulative responses are failed. Do not administer items **after** 6 cumulative failed responses.

Raw Score: Give 1 point for each correct answer. Give full credit to older children for previous items not administered (max = 27).

## Leiter-R Attention Sustained (AS)

Ages: 2-0 to 20-11

Norms Available: All ages

Procedure: From the Leiter-R Examiner's Manual pgs 52-53.

**Teaching:** Place an age-appropriate response booklet in front of the child. Examiner can use up to 2 minutes to teach on the first teaching activity and up to 30 seconds on the subsequent teaching activities. Teach by demonstration, pointing back and forth between the picture at the top of the teaching trial and one or more of the appropriate matching pictures in the teaching trial. If necessary, you can demonstrate crossing out one or more pictures, or gently place your hand over the child's hand and help him/her to cross out appropriate target pictures.

### Reversal/Stop Rule:

If the child cannot complete teaching trials in age-appropriate response booklet, discontinue subtest and proceed to next test.

### General Administration:

Administer by centering Attention Sustained Response Booklet in front of child so that only 1 page is exposed at a time. ***Use gestures and other nonverbal cues to indicate that the child should cross out as many of the pictures as possible that look like the targeted picture at the top of the page during the allotted time.*** You may cue the child up to 2 times on each page, if needed, but no further teaching trials are allowed. Cuing consists of pointing back and forth between target picture and 1 (ONE) correct answer on the page. Do not demonstrate crossing out on the actual test pages.

After the first page is administered, return to the teaching trial page to demonstrate the second page. Repeat the process for the third and fourth pages. Specific timing instructions for each part are noted at the top of each page in the response booklet. You may indicate that you will be timing the child and that most people do not find all the pictures. Unless it is disruptive to the child, have him/her stop at the end of the time limit. If the child does not want to stop, **only count those answers crossed out within the specified time limit.**

Raw Score: Subtract total number of errors from the total number of correct items marked (max = age dependent).

## Starting the CANTAB Computer

1. Turn on the computer (switch on the lower back). Login (site specific).
2. Double click on the “Control Centre” icon (frog) located on the desktop.
3. Calibrate the Touch Screen (per page 12 of the Software User Manual).
  - a. Click on the “Options” button.
  - b. The Touch Screen Tab will be automatically selected. Click on the “Calibrate” button.
  - c. After the “Calibrate” button has been clicked, a black screen will be presented with instructions, which you should follow. When prompted to touch the locations in the corners of the screen where the lines intersect, always do so as precisely as possible to ensure the calibration is accurate.
    - The black screen will say, “Calibration registers when you release” and “Touch and release the point where the lines meet”. This prompt will appear twice – first in the lower left-hand corner and next in the upper right-hand corner. The computer will make a beep sound after you touch the screen. Try and be as accurate as possible when touching where the lines meet.
  - d. A grid is then shown, on which you may drag your finger to test that its location and the location of the point on the grid that changes color coincide correctly. When you are satisfied, press Esc and press ‘Y’ to abort the calibration testing. - Don’t be alarmed if as you are touching and dragging your finger on the grid screen if the computer changes two points (+ intersections) blue. Just make sure the computer is marking the area you are targeting. Your most recent touch will be colored red.
  - e. Click on “OK”.
4. Make sure under **Battery** that **Consortium Battery** is showing. If not, select it from the pull-down menu by clicking on the down arrow. The selected tests that we are using for the Consortium Battery should be listed in the proper order under **Test**.
5. Click on the “Enter Subject Details” button. Enter the following:
  - a. ID number and Site Code.
  - b. Subject’s first name and last initial.
  - c. Date of birth.
  - d. Age of subject.
  - e. Sex of subject.
  - f. Dominant hand of subject.
  - g. Full Scale IQ score.\*
  - h. Medications taken the day of testing.\*
6. Click on the “Run Battery” button.
7. When the “Run Consortium Battery” window appears, make sure all tests are marked 0. Then click on the “Run Battery” button.
8. Follow the CIFASD Test Administration Manual instructions for each test.

\* If you do not have all the information for the subject details, you can go back and add in the details in the Results Manager. All you need to run the test are the subject’s ID, name, date of birth, age, sex, and handedness.



## General CANTAB Guidelines

Set-Up/Calibration: The computer should be set up and the touch screen calibrated before the subject arrives for the test session. The touch screen should be calibrated if the computer has been powered down and turned on again since it was last calibrated. In other words, each time you turn on the CANTAB, the touch screen should be calibrated. (See the previous page of this manual for specific instructions on set-up and calibration.)

Positioning: The tester should be seated in front of the keyboard and mouse, which should be placed to the side of the screen. The subject is then seated at a comfortable distance in front of the screen. The subject should be positioned so that he/she has to reach out and touch the screen, which should be approximately 60 cm away. This is to stop the subject resting a hand on the base of the screen. It is a good idea to encourage them to place it on the table in front of the screen after each response.

To PAUSE a test: If you need to pause a test for any reason, do not use the pause key, since this will not stop the test timers. Instead, press the escape key (ESC), then when ready to continue testing, answer 'N' to the 'do you wish to abort?' prompt.

Speakers: If the volume on your CANTAB system is very loud, try the following steps to adjust it: Right-click on the volume icon in the system tray (on the taskbar) and choose the popup menu item to open the volume controls window. Choose 'properties' from the 'options' menu, and in the tick-list at the bottom, tick the option for the PC internal speaker. Then click 'OK'. One of the sliders in the volume control window should now be able to control the PC speaker volume, which is set independently of the main volume, and which will affect the volume for all of the CANTAB tests.

The above procedure has not worked for some of the CANTAB systems at our sites. We remedied our loud volume here (San Diego) by putting tape over the speakers. Please contact us if you have any questions and we'll do our best to help out.

## **CANTAB Motor Screening (MO)**

Ages: All ages

Norms Available: All ages

Procedure: From the CANTAB Administration Manual  
Give the instructions before going into the test.

**HERE IS THE COMPUTER THAT WE WILL USE. I AM GOING TO SHOW YOU HOW IT SHOULD BE USED. ARE YOU READY?**

Press the space bar and start pointing to the X's displayed on the screen in turn. **THE IDEA IS TO TOUCH THE X'S IN TURN WHEN THEY FLASH PINK AND GREEN, AS I AM DOING NOW.** Touch the first cross.

**IF YOU TOUCH THEM PROPERLY, THERE WILL BE A TUNE.** Touch the second cross.

**IF YOU DO NOT TOUCH THEM PROPERLY, YOU WILL NOT HEAR ANYTHING.** Touch screen away from the cross in a couple of places, then touch the third cross.

The computer will then give the message PLEASE WAIT. **YOU SHOULD USE THE TIP OF THE FOREFINGER\* OF THE HAND YOU WRITE WITH FOR IT TO WORK PROPERLY. IF YOU TOUCH PROPERLY, THE CROSS WILL GO. YOU MUST THEN TAKE YOUR HAND AWAY AND WAIT FOR THE NEXT ONE.**

\*The child is to use the tip of their dominant hand forefinger only on all CANTAB tests. Please prompt the child to use this finger to respond as needed throughout all tests and make note of it in the behavioral observations on the test packet form.

Now give the following instructions: **NOW I WOULD LIKE YOU TO HAVE A GO, PLEASE.** Press the space bar. Then say: **REMEMBER TO TOUCH THE X'S WITH THE TIP OF YOUR FOREFINGER WHEN THEY FLASH.**

If the subject is confused by the procedure or does not touch the X's properly, the following prompts may be used:

**USE THE TIP OF YOUR FOREFINGER. NOW LOOK FOR THE NEXT ONE (THAT FLASHES).**

**TOUCH ONLY, THERE'S NO NEED TO PRESS HARD.**

If the screen does not respond, ask the subject to take their finger away and touch again – pressing harder will not make it work.

## **CANTAB Big/Little Circle (BLC)**

Ages: All ages

Norms Available: All ages

Procedure: From the CANTAB Administration Manual  
Give the instructions before going into the test.

**NOW YOU ARE GOING TO SEE TWO SQUARES, EACH WITH A CIRCLE IN IT. I WOULD LIKE YOU TO TOUCH THE LITTLE CIRCLE.** Press the space bar to get the first pair of circles. Then say: **TOUCH THE LITTLE CIRCLE.**

If necessary, you may prompt up to a maximum of three times (unless the subject stops responding altogether) with: **KEEP TOUCHING THE LITTLE CIRCLE.**

If the subject is getting it wrong, say: **YOU ARE TOUCHING THE WRONG ONE.**

If the subject keeps their finger on the screen, say: **TAKE YOUR FINGER AWAY SO THE NEXT TWO CIRCLES CAN APPEAR ON THE SCREEN.**

After 20 pairs of circles the computer will stop and display PLEASE WAIT. At this point say: **THIS TIME YOU WILL AGAIN SEE TWO CIRCLES, BUT NOW I WOULD LIKE YOU TO TOUCH THE BIG ONE.** Press the space bar to get the pair of circles. Then instruct the subject with: **KEEP TOUCHING THE BIG ONE.**

If necessary, you may prompt up to a maximum of three times (unless the subject stops responding altogether) with: **KEEP TOUCHING THE BIG CIRCLE.**

If the subject is getting it wrong, say: **YOU ARE TOUCHING THE WRONG ONE.**

If the subject keeps their finger on the screen, say: **TAKE YOUR FINGER AWAY SO THE NEXT TWO CIRCLES CAN APPEAR ON THE SCREEN.**

After 20 more pairs of circles the computer will move on to the next subtest.

## **CANTAB Pattern Recognition Memory (PRM)**

Ages: All ages

Norms Available All ages

Procedure: From the CANTAB Administration Manual  
Give the instructions before going into the test.

### Trial 1

**THIS TIME A BOX WILL APPEAR. SEVERAL PATTERNS WILL APPEAR INSIDE THE BOX, ONE AFTER ANOTHER.** Do NOT use the word “object” since this may bias the subject to using a verbal label.

**LOOK CAREFULLY, AND TRY TO REMEMBER THE PATTERNS THAT YOU SEE. YOU WILL NOT HAVE TO DESCRIBE THE PATTERNS TO ME AND YOU WILL NOT HAVE TO REMEMBER THE ORDER IN WHICH THEY APPEAR, YOU WILL JUST HAVE TO PICK THEM OUT FROM OTHER PATTERNS. ARE YOU READY?** Press the space bar and the patterns will appear (a total of 12 patterns each set – do not verbalize this number to the child). Gesture to the screen and say: **HERE IS THE FIRST PATTERN.**

Make sure the subject is looking at the screen. If they are not, use the prompt: **KEEP LOOKING.**

When the study phase has finished and the first two choice boxes appear, say the following: **NOW THERE ARE TWO PATTERNS. TOUCH THE ONE THAT YOU SAW BEFORE.**

After the subject has responded and the next choice appears say: **TOUCH THE ONE YOU SAW PREVIOUSLY.** (Examiner may explain if child is confused about what ‘previously’ means and should use the following prompt.)

Use prompts for the remaining choices as necessary:  
**WHICH ONE DID YOU SEE BEFORE? TOUCH IT.**

### Trial 2

When the first trial is complete, the screen will display PLEASE WAIT. Use the following instructions: **NOW WE ARE GOING TO DO THE SAME THING AGAIN, BUT WITH NEW PATTERNS. AGAIN, LOOK AT THE PATTERNS AND TRY TO REMEMBER THEM.** Press the space bar.

Use prompts for the remaining choices as necessary:  
**WHICH ONE DID YOU SEE BEFORE? TOUCH IT.**

## **CANTAB Spatial Recognition Memory (SRM)**

Ages: All ages

Norms Available: All ages

Procedure: From the CANTAB Administration Manual  
Give the instructions before going into the test.

**NOW WE ARE GOING TO DO SOMETHING DIFFERENT. IN A MOMENT, A SERIES OF FIVE SMALL BOXES WILL APPEAR, ONE BY ONE IN DIFFERENT PLACES ON THE SCREEN. LOOK AT THEM CAREFULLY AND TRY TO REMEMBER WHERE THEY APPEAR. THE ORDER IS NOT IMPORTANT. AT THE END, YOU WILL HAVE TO REMEMBER WHERE THEY WERE, SO IT'S THEIR PLACE ON THE SCREEN YOU HAVE TO REMEMBER. ARE YOU READY?**

Press the space bar. Make sure that the subject is looking at the screen; if they are not, use the prompt: **KEEP LOOKING.**

### Choice Stage

**NOW THERE ARE TWO BOXES. TOUCH THE ONE THAT IS IN THE SAME PLACE AS BEFORE.**

Use the following prompts as necessary:

**TOUCH THE ONE THAT WAS IN THE SAME PLACE AS BEFORE.**

**WHICH ONE? TOUCH IT.**

At the end of the session the computer will display PLEASE WAIT. At this point give the following instructions: **NOW I WOULD LIKE YOU TO DO THE SAME THING AGAIN WITH FIVE BOXES APPEARING IN DIFFERENT PLACES. AGAIN, TRY TO REMEMBER WHERE THEY APPEAR ON THE SCREEN.**

Press the space bar.

Continue until the four sessions are completed. In between each one, the computer will display PLEASE WAIT.

## CANTAB Spatial Span (SSP)

Ages: All ages

Norms available: All ages

Procedure: From the CANTAB Administration Manual  
Give the instructions before going into the test.

**FOR THIS TEST YOU WILL SEE SOME SQUARES ON THE SCREEN AND THESE WILL CHANGE COLOR ONE BY ONE. WHAT YOU HAVE TO DO IS REMEMBER THE ORDER IN WHICH THE SQUARES CHANGE COLOR. I AM GOING TO DO THE FIRST ONE TO SHOW YOU HOW IT IS DONE.** Now press the space bar to start the test.

### Trial 1

One by one, the two white squares will change color. The second will be followed by a tone. The tester should demonstrate while at the same time instructing the subject. Say to the subject: **TO BEGIN WITH, TWO SQUARES WILL CHANGE COLOR. LOOK AT THE SQUARES AND REMEMBER THE ORDER IN WHICH THEY CHANGE COLOR. THIS ONE CHANGED COLOR FIRST** (point to first box) **AND THIS ONE CHANGED COLOR SECOND** (point to second box).

After the tone, say to the subject, **THE NOISE MEANS THAT THE SEQUENCE HAS FINISHED. NOW THE IDEA IS TO TOUCH THE SQUARES IN THE SAME ORDER THAT THEY CHANGED COLOR, AS I AM DOING. THIS ONE CHANGED COLOR FIRST. AND THIS ONE CHANGED COLOR SECOND.**

Demonstrate by touching the squares in the correct sequence. At the end of the trial the computer will display FINISHED followed by NEW SET. Press the space bar to continue.

### Trial 2

Now, instruct the subject as follows: **NOW I WOULD LIKE YOU TO HAVE A GO. TWO SQUARES WILL AGAIN CHANGE COLOR AND AS BEFORE YOU HAVE TO REMEMBER THE ORDER.**

When the tone sounds, say to the subject: **NOW TOUCH THEM IN THE SAME ORDER YOU SAW THEM CHANGE COLOR. WHICH ONE CHANGED COLOR FIRST? AND WHICH ONE CHANGED COLOR SECOND?**

If necessary, say: **MAKE SURE YOU TAKE YOUR FINGER AWAY FROM THE SCREEN BETWEEN TOUCHES, BUT WAIT BETWEEN EACH TOUCH UNTIL YOU SEE THE BOX CHANGE COLOR.**

Continued on Next Page

## **CANTAB Spatial Span (cont'd)**

The following prompts may be given:

**KEEP LOOKING.**

**TAKE YOUR FINGER AWAY FROM THE SCREEN BETWEEN TOUCHES.**

### Trial 3 Onwards

Repeat instructions as necessary.

At each new level, indicate how many boxes will change color (use the number in the lower left-hand corner of the computer screen as a reminder). For example, say: **NOW N SQUARES (or BOXES) WILL CHANGE COLOR.** Press the space bar to begin the sequence.

(The test instructions say squares on the first 2 trials but the screen says boxes, so either should be adequate.)

If the child stops responding before they've hit the target number of squares, prompt the child with the following:

**KEEP TOUCHING UNTIL YOU'VE TOUCHED N BOXES.**

If the child is still puzzled, state that the computer will write FINISHED when the child has touched the appropriate number of boxes.

The subject should have acquired the procedure and it is probable that they will not need prompting.

Be sure to emphasize the need to withdraw the finger from the screen after each response and, if necessary, to wait until the square just touched turns white again before touching the next one.

Also emphasize that the subject should wait until the auditory signal occurs before responding and specify for each level how many boxes will change color.

If the subject makes an obvious mistake or appears confused, repeat the essential instructions.

If the subject makes mistakes in all sequences at a particular level the program will terminate. There are 3 sequences at each level (levels = 2 – 9 squares).

## CANTAB Spatial Working Memory (SWM)

Ages: All ages

Norms Available: All ages

Procedure: From the CANTAB Administration Manual

### Set 1 – Red

Press the space bar to begin the test. Three red boxes will be displayed on the screen and on the right hand side a black area called 'home'. Refer to the colored squares as 'boxes' to get over the idea that the blue squares or 'tokens' may be hidden inside them. **FOR THIS TEST YOU WILL SEE SOME COLORED BOXES ON THE SCREEN. WHAT YOU HAVE TO DO ON EACH GO IS TO LOOK FOR A BLUE TOKEN THAT THE COMPUTER HAS HIDDEN INSIDE ONE OF THESE BOXES. ONLY ONE TOKEN WILL BE HIDDEN AT A TIME. YOU HAVE TO COLLECT ENOUGH BLUE TOKENS TO FILL THE BLACK HOLE ('HOME') ON THE RIGHT OF THE SCREEN. TO LOOK INSIDE A BOX YOU WILL HAVE TO TOUCH IT LIKE THIS.** Touch the box in the middle of the screen. (Use this box to avoid alerting the subject to any kind of organized sequential strategy.) **THIS BOX DOES NOT HAVE A BLUE TOKEN IN IT SO I SHALL TRY A DIFFERENT BOX.** Touch another box. **THIS BOX HAS A BLUE TOKEN INSIDE IT AND NOW I AM GOING TO MOVE IT OVER HERE TO FILL THE BLACK HOLE** (touch the white column or the black hole on the right-hand side of the screen).

The following instruction is of crucial importance and must be strongly emphasized. **NOW I HAVE FOUND A BLUE TOKEN IN THIS BOX...** Point to the one you have just used. **...THERE WILL NEVER BE ONE IN THERE AGAIN, SO I MUST NOT GO BACK TO IT. THERE ARE TWO MORE BLUE TOKENS TO FIND, BUT THE COMPUTER NEVER USES THE SAME BOX TWICE FOR THE BLUE TOKEN, SO I MUST TOUCH ANOTHER ONE.** Touch another. **THERE IS NO TOKEN INSIDE THIS BOX SO I WILL TRY ANOTHER.** Touch the box you have not yet found a token in to reveal the blue token. **THIS BOX DOES HAVE A BLUE TOKEN THIS TIME SO I WILL PUT IT INTO HOME.** Now touch the right-hand side of the screen to put it into home. **NOW I HAVE FOUND TWO TOKENS AND THE LAST ONE MUST BE IN HERE.** Touch the only box you have not yet found a token in to reveal the blue token and then touch the right-hand side of the screen. **NOW I HAVE FOUND ALL THREE TOKENS AND I HAVE FINISHED BECAUSE I HAVE FILLED UP THE BLACK HOLE COMPLETELY WITH BLUE TOKENS.**

The computer will display COMPLETED and play a short tune. After a pause the words NEW SET will appear. Now say: **NOW YOU HAVE A GO.**

**Continued on Next Page**



### **CANTAB Spatial Working Memory (cont'd)**

#### Set 2 – Yellow

Press the space bar and three yellow boxes will appear. **TOUCH ONE OF THE BOXES TO SEARCH FOR A BLUE TOKEN.** The subject should touch one of the boxes that will open up to reveal a blue square. **NOW YOU HAVE GOT ONE BLUE TOKEN TO FILL THE BLACK HOLE.** Transfer the token by touching on 'home'. **LOOK FOR ANOTHER ONE BUT REMEMBER THAT IT WILL BE IN A DIFFERENT BOX THIS TIME.** The subject should touch one of the other boxes and will not find a blue token this time. **TRY ANOTHER ONE.** The subject should touch one of the other boxes and this time will find a blue token. **GOOD, NOW YOU HAVE FOUND THE SECOND BLUE TOKEN.**

If necessary, say: **NOW PUT THE TOKEN IN THE BLACK HOLE. NOW YOU ONLY HAVE ONE MORE TOKEN TO FIND.**

The subject should then touch the box in which a token has not yet been found.

- If the subject touches the correct box, give encouragement. Say: **GOOD** or **NICE JOB.**
- If the subject makes a mistake, say: **REMEMBER NOT TO RETURN TO A BOX WHERE YOU GOT A BLUE TOKEN, AS THE COMPUTER WILL NEVER HIDE IT IN THAT BOX AGAIN.**

#### Set 3 – Green

Press the space bar to go onto the next trial. For Set 3, repeat the essential instructions used in practice as follows (however, if the participant has clearly understood the instructions, let them proceed without prompt).

Prompt if the subject returns to a box where they got a blue token with: **REMEMBER NOT TO RETURN TO A BOX WHERE YOU HAVE ALREADY FOUND A BLUE TOKEN, AS THE COMPUTER WILL NEVER HIDE IT IN THAT BOX AGAIN.**

Now say: **LOOK FOR A BLUE TOKEN... TRY ANOTHER... THERE IT IS – PUT IT HOME AND LOOK FOR ANOTHER BLUE TOKEN... IT WILL BE IN A DIFFERENT BOX FROM WHERE YOU FOUND THE OTHER ONE... PUT IT ON THE RIGHT TO FILL THE HOLE.**

Give the following prompt if they open an empty box: **BAD LUCK. TRY AGAIN.**

Give the following prompt if they open one with a blue token: **GOOD. NOW PUT IT IN THE BLACK HOLE OR HOME AND FIND THE OTHER TWO.**

**Continued on Next Page**

## **CANTAB Spatial Working Memory (cont'd)**

### Set 4 Onwards

There will be one more practice set with 3 boxes and then the computer will move on to the test trials which will include four with 4 boxes, four with 6 boxes, and four with 8 boxes.

At the beginning of each new trail, say: **NOW THERE ARE N BOXES AND N BLUE TOKENS TO FIND.** Press the space bar.

After the first blue token has been found, use the instruction: **YOU HAVE N-1 MORE TO FIND.** Avoid reminding the subject of this from now on. Use the following prompts:

**PUT IT ON THE RIGHT/HOME.**

**LOOK FOR ANOTHER ONE.**

## Grooved Pegboard Test

Ages: 6-0 to 16-11  
Norms Available: 5-16  
Procedure: From Grooved Pegboard Instruction/Owner's Manual.

Place the pegboard in mid-line with the subject so that the board is near the edge of the table and the peg tray is immediately above the board. Move all of the pegs into the circular tray and say: **THIS IS A PEGBOARD** (point) **AND THESE ARE THE PEGS** (point). **ALL THE PEGS ARE THE SAME** (hold up 2 pegs). **THEY HAVE A ROUND SIDE AND A SQUARE SIDE** (demo to child) **AND SO DO THE HOLES IN THE BOARD** (point to the board). **WHAT YOU MUST DO IS TO MATCH THE PEGS INTO THE HOLES LIKE THIS.** Demonstrate how to place a couple of pegs in the top row while saying: **MAKE SURE YOU PICK UP JUST ONE PEG AT A TIME AND USE ONLY ONE HAND AT A TIME.** Remove and place all pegs back into the tray.

Allow the child to practice before administering the test. **NOW YOU TRY. LET'S PRACTICE WITH YOUR** (dominant) **HAND FIRST.** Allow the child to practice the top row. Explain and demonstrate as needed. **GOOD.** Remove and place all pegs back into the tray. **NOW LET'S PRACTICE WITH YOUR** (non-dominant) **HAND.** Repeat the practice procedure for the non-dominant hand. For the child's right hand, pegs are placed from the child's left to right. For the child's left hand, pegs are placed from the child's right to left. Fill in the child's dominant and non-dominant hand.

**\* WHEN I SAY GO, BEGIN HERE** (point to the appropriate hole) **AND PUT THE PEGS INTO THE BOARD AS FAST AS YOU CAN USING ONLY YOUR** (dominant) **HAND. FILL THE TOP ROW COMPLETELY FROM THIS SIDE TO THIS SIDE** (indicate). **DO NOT SKIP ANY, FILL IN EACH ROW THE SAME WAY YOU FILLED IN THE TOP ROW. ANY QUESTIONS? READY, AS FAST AS YOU CAN, GO.** Start timing.

All children complete entire board or discontinue the test at 300 seconds (for each hand). Note the time that each row is completed and the number and location of drops.

When the child has finished with their dominant hand, return the pegs to the tray and say: **NOW WE ARE GOING TO DO THE WHOLE BOARD WITH YOUR OTHER HAND.** Repeat the \* directions above substituting non-dominant for dominant hand.

Prompt as needed. Record each prompt next to row given. If the child...

Attempts to use other hand: **USE ONLY YOUR** (right/left) **HAND.** (P)<sup>one hand</sup>

Picks up >1 peg at a time: **YOU CAN ONLY PICK UP ONE PEG AT A TIME.** (P)<sup>one peg</sup>

Stops or skips a row: **DO THIS ROW NEXT**(point). (P)<sup>skip</sup>

Starts on the wrong side of the board: **START HERE** (point). (P)<sup>start</sup>

Is working slow: **WORK AS FAST AS YOU CAN.** (ONLY once per hand.) (P)<sup>fast</sup>

Raw Score: Time to complete 2 rows (for children  $\leq 8$ ) or 5 rows (for children  $\geq 9$ ).  
Time for each hand is recorded separately.

## Virtual Water Maze

Ages: All ages

Norms Available: N/A

Procedure: Virtual Navigation Software Morris Water Task User's Manual.

Turn on computer and log onto Tester. Double click on the Water Maze icon located on the desktop. Click on the "Load" button and choose the "FASD Standard" profile. Click on the "Start" button. Put the child's I.D. number in the "Enter a Participant ID" field (ignore the "Group Code field"), then click OK. "Please wait..." screen will appear.

Read the following to the child: **IN THIS TASK YOU WILL SEE A VIRTUAL ROOM ON THE COMPUTER SCREEN SIMILAR TO ONES YOU HAVE SEEN IN VIDEO GAMES. YOU WILL BE SWIMMING IN A CIRCULAR POOL OF WATER AND YOU CAN MOVE AROUND THE POOL BY USING THE KEYBOARD KEYS TO MOVE FORWARD (point to UP arrow key) AND TURN TO THE LEFT (point to LEFT arrow key) OR RIGHT (point to RIGHT arrow key). YOU CANNOT MOVE BACKWARDS OR GO BELOW THE SURFACE OF THE WATER. YOUR JOB IS TO ESCAPE FROM THE WATER BY CLIMBING ONTO A PLATFORM THAT IS JUST BELOW THE SURFACE OF THE WATER. YOU WILL NOT BE ABLE TO SEE THE PLATFORM, BUT WHEN YOU BUMP INTO IT, IT WILL RAISE YOU OUT OF THE WATER. THE COMPUTER WILL DISPLAY A MESSAGE AND PLAY A SOUND WHEN YOU FIND THE PLATFORM. THE PLATFORM IS ALWAYS IN THE SAME SPOT IN THE POOL AND YOU CAN USE THE PICTURES ON THE WALLS OF THE ROOM TO HELP YOU FIND IT. YOU WILL START FACING THE WALL OF THE POOL, SO YOU WILL HAVE TO TURN AND SWIM AROUND THE POOL UNTIL YOU FIND THE PLATFORM. IF YOU DON'T FIND THE PLATFORM WITHIN 40 SECONDS, IT WILL BECOME VISIBLE AND YOU WILL HEAR A SOUND, BUT YOU SHOULD TRY TO FIND THE PLATFORM BEFORE IT BECOMES VISIBLE. YOU SHOULD ALWAYS TRY TO FIND THE PLATFORM AS QUICKLY AS POSSIBLE BECAUSE YOU WILL WIN POINTS EACH TIME YOU FIND THE PLATFORM; THE FASTER YOU FIND THE PLATFORM THE MORE POINTS YOU WILL RECEIVE. ONCE YOU FIND THE PLATFORM YOU WILL NOT BE ABLE TO LEAVE IT AND YOU WILL STAY THERE FOR JUST A FEW SECONDS. WHILE YOU ARE ON THE PLATFORM, YOU CAN TURN AND VIEW THE PICTURES ON THE WALLS. THEN YOU WILL BE STARTED AT THE EDGE OF THE POOL AGAIN. THIS WILL BE REPEATED SEVERAL TIMES. YOU WILL BE STARTED AT A DIFFERENT LOCATION EACH TIME, SO MAKE SURE THAT YOU ARE PAYING ATTENTION TO THE PICTURES ON THE WALL. NEAR THE END OF THE TASK, THE PLATFORM WILL ALWAYS BE VISIBLE. YOU WILL STILL BE ABLE TO WIN POINTS, SO MAKE SURE YOU SWIM TO THE PLATFORM AS QUICKLY AS POSSIBLE. TRY TO WIN AS MANY POINTS AS YOU CAN. DO YOU HAVE ANY QUESTIONS?** Answer any questions the child may have, then press the F2 key to start the test.

**Continued on Next Page**

## Virtual Water Maze (cont'd)

On the first trial remind the child (if needed) that they can use the arrow keys once on the platform to rotate and look at the pictures on the walls. Say: **REMEMBER YOU CAN TURN AND VIEW THE PICTURES ON THE WALLS.** Do not prompt on any other trials.

If the child should have questions during the test, examiner may reiterate appropriate directions. For example, if the child complains that the platform has moved, the examiner can say something like: **THE PLATFORM IS ALWAYS IN THE SAME SPOT IN THE POOL.**

When the test is over, press the F2 key to return to the main menu. The computer automatically saves the data. Click on the "Exit Program" button to return to the desktop.

Ask the child the follow-up questions listed on the test packet form.

### *Key Functions:*

- Esc – This key is used to abort an individual trial. If pressed during a trial, the 5 second 'on platform' period will follow along with a normal ITI (inter-trial interval). This key has no function during the 'on platform' period, the ITI, or in the main menu.
- F2 – This key is only used to close 'Wait for Instructions' screens.
- F3 – This key is used to open 'Wait for Instructions' screens during the experiment. It will open the 'Wait for Instructions' screen which must be closed with F2. This is useful if you need to pause the experiment. This key will not work during the 'on platform' period, during the ITI, or in the main menu.
- F4 – This key will abort the experiment and return you directly to the main menu.
- F6 – This key will abort the program and return you to Windows.

## Pictorial Depression Scale

Ages: 4-0 to 10-11  
Norms Available: None  
Procedure: O'Connor & Kasari (2000). *Alcohol Clin Exp Res*, 24, 1084-1092.

First pick out a set of pictures that most resembles the child in terms of their ethnic background and physical appearance. Boy pictures for boys, girl pictures for girls. Then use the following directions:

**I AM GOING TO SHOW YOU A PICTURE OF TWO BOYS/GIRLS. I WANT YOU TO POINT TO THE CHILD WHO IS MOST LIKE YOU. LET'S PRACTICE FIRST.**

Examiner points to the picture on the left. **THIS BOY/GIRL LIKES ICE CREAM.**

Examiner points to the picture on the right. **THIS BOY/GIRL DOES NOT LIKE ICE CREAM. WHICH ONE IS THE MOST LIKE YOU?**

Child points to one of the two figures, if it is the one on the left, the examiner says: **YOU LIKE ICE CREAM?** Wait for the child to confirm the response.

If the child points to the figure on the right, the examiner says: **YOU DON'T LIKE ICE CREAM?** Wait for the child to confirm the response.

If the child is confused by the task, practice with them some more using other examples like: **THIS CHILD LIKES TO JUMP. THIS CHILD LIKES TV**, etc.

Once the child understands the task, go through each of the 23 items on the scale, each time confirming the choice the child has made. The items are counterbalanced for positive and negative valence, so you can check for position bias if the child keeps pointing to the child in the same position each time. If there appears to be position bias, reiterate the directions, making sure examiner clearly points to each picture.

If the child responds that they are in the middle, prompt them: **WHICH ONE IS MOST LIKE YOU?** Reread the statements if necessary.

It is OK to reword a question if a child has trouble understanding it. For example, on #19, examiner can say: **THIS BOY/GIRL FEELS LIKE BEING ALIVE. THIS BOY/GIRL DOES NOT WANT TO BE ALIVE.** Be sure to record both responses and label.

If the child responds with a specific situation, examiner can ask for a more generalized answer. For example, on #4, if the child says that they don't like to play games because their sibling always win, say something like: **IF YOUR (sister/brother) DIDN'T ALWAYS WIN, WOULD YOU LIKE TO PLAY GAMES?** Make sure to record both answers.

\*Note: If child receives a score of 1 on either #19 or #20, report this to the PI ASAP.

Raw Score: Circle the number that corresponds to child's answer. Add up both columns.

## NES3

Age: All ages

Norms Available: N/A

Procedure: Letz R. NES3 User's Manual. Atlanta, GA, Neurobehavioral Systems, Inc., 2000.

Turn on computer and log onto Tester. Double click on “NES-3” icon on desktop. When it asks if using a stylus, hit the “N” key. Enter in subject details (ID, child’s initials, interviewer’s initials, DOB, sex, native language, and handedness). Click the “OK to Run” button. Then, on the new screen, under the “Configuration File” box, choose the CPTonly.cfg file from the “Selection List” (making sure this is the test listed in the “Config:” field). Under the “Tests to Administer” box, uncheck all the letter subtests. Only three tests should be checked: “CPT-Animals Single”, “CPT-Animals Following (AX)”, and “CPT-Animals Repeated.”

Give the following instructions before running the tests: **WE WILL BE USING THIS COMPUTER TO TEST YOUR ABILITY TO PAY ATTENTION. THE COMPUTER WILL PRESENT A SET OF STANDARD TASKS THAT HELP MEASURE HOW WELL YOU PAY ATTENTION. YOU WON'T NEED TO READ OR TYPE ANYTHING; YOU WILL JUST TOUCH THE SPACE BAR ON THE KEYBOARD TO RESPOND. JUST LISTEN TO THE INSTRUCTIONS THE COMPUTER GIVES YOU AND RESPOND AS QUICKLY AND ACCURATELY AS YOU CAN. I WILL ALWAYS BE NEARBY TO ANSWER ANY QUESTIONS YOU MIGHT HAVE. BUT, I CANNOT ANSWER ANY QUESTIONS ONCE EACH TEST BEGINS. SO, MAKE SURE YOU ASK ALL YOUR QUESTIONS BEFORE THE TEST BEGINS. NOW LISTEN.** Click the “Run Tests” button.

When the computer is finished giving instructions for each subtest, explain to child that they should hit the space bar every time they see the cat (for the Single Animal task), every time the cat follows the wolf (for the Following Animal task), or every time they see a repeated animal, no matter what animal (for the Repeating Animal task). Once child clearly understands task, hit shift and + to begin test.

When tests are completed, computer automatically saves data and returns to main menu. Click on “File” then “Exit” to return to desktop.

- Examiner is allowed to point out which animal is the wolf on Following Animal task (only if child asks). Make sure to note that this prompt was given on the record form. This is the only assistance allowed once test starts.
- If “Call interviewer” icon appears, record data and hit F5 or shift and + to resume test.

## Visual Discrimination Reversal Learning

Ages: ≥ 7-0

Norms Available: ≥ 7-0

Procedure:

Turn on computer and login as Tester. Double click on “Reversal Learning” icon on desktop. Enter in child’s ID number (including the site code) and select the appropriate language. Read the following:

**I AM GOING TO SHOW YOU TWO DESIGNS ON THE COMPUTER SCREEN, ONE AT A TIME. ONE OF THOSE DESIGNS IS THE ‘WINNER’, AND THE OTHER THE ‘LOSER’. IF YOU PRESS THIS KEY (pointing to space bar) WHEN THE WINNER IS ON, THE COMPUTER WILL SAY, ‘YOU HAVE WON A POINT’. IF YOU DON’T PRESS WHEN THE ‘LOSER’ IS ON, AFTER A FEW SECONDS THE COMPUTER WILL AGAIN SAY, ‘ YOU HAVE WON A POINT’. ALSO REMEMBER, IF YOU DON’T PRESS WHEN THE WINNER IS ON, YOU WILL LOSE A POINT. IF YOU PRESS IT WHEN THE LOSER IS ON YOU WILL LOSE A POINT TOO. SO, MAKE SURE THAT YOU PRESS WHEN THE WINNER IS ON AND DON’T PRESS WHEN THE LOSER IS ON. WHEN THE LOSER IS ON THE SCREEN JUST WAIT FOR A FEW SECONDS. OK. LET’S PRACTICE SOME.** Click “OK.” “Press the space bar to begin” screen will appear. Hit the space bar to begin. The first set of trials are practice trials. During the practice, make sure child has grasped the concept of responding to the “winner” stimulus and withholding their response to the “loser.” Offer further instruction if needed on these practice trials only! It is essential they understand what is being asked of them. Train as often as needed on the practice trials.

Once the practice trials end, “Press the space bar...” screen will appear again, say: **THE NEXT PART WORKS THE SAME WAY. TRY TO WIN AS MANY POINTS AS POSSIBLE. REMEMBER TO PRESS THE SPACEBAR TO ONE DESIGN AND NOT TO PRESS THE SPACEBAR TO THE OTHER ONE. DO YOU HAVE ANY QUESTIONS?** Answer any questions the child has and then hit the space bar to begin. No further assistance may be provided during the actual test.

Extinction: When a “Wait” sign appears on the screen, say: **THERE IS A SECOND PART TO THIS TEST. THIS PART IS NOT AS LONG AS THE FIRST PART AND IS A LITTLE DIFFERENT. AGAIN TRY TO WIN AS MANY POINTS AS POSSIBLE. DO YOU HAVE QUESTIONS?** Answer any questions child may have. Press the space bar to continue with the test.

Towards the end neither picture is a “winner” and the child should learn to not hit the space bar for either one (do not verbalize this to the child). Some children get very frustrated with this as it goes against the rules. Comfort the child by encouraging them to try their best and remind them that the second part is slightly different.

When program finishes the data is automatically saved and returns to the desktop.



## Progressive Planning Test (PPT)

Ages: All Ages

Norms Available: N/A

Procedure:

Handedness: Either hand may be used to manipulate the beads (alternating is ok as long as two beads are not in possession at the same time).

Place peg apparatus in front of child so tallest peg is on child's left. Stack beads on tallest one (initial position) in the following order: Blue, Orange, and Yellow (acronym "BOY"). For problems 6 –9 stack beads BOYG and for problems 10 – 12 stack beads BOYGR. The tallest peg is 1, middle peg is 2 and shortest peg is 3.

Place card #3 between child and apparatus and say: **LOOK AT THESE 3 BEADS. YOUR JOB IS TO MOVE THE BEADS FROM HERE** (point to peg 1) **TO THIS ONE** (point to peg 3) **SO THAT THEY ARE IN THE ORDER SHOWN ON THE CARD** (point to the card). **THERE ARE TWO RULES: FIRST, YOU CAN MOVE ONLY ONE BEAD AT A TIME. THAT MEANS THAT YOU HAVE TO PUT A BEAD ON ONE OF THESE TWO PEGS** (pointing to pegs 2 and 3) **BEFORE PICKING ANOTHER ONE.** Demo. **SECOND, AFTER REMOVING A BEAD FROM THIS PEG** (point to peg 1) **YOU CANNOT PUT IT BACK THERE.** Demo. **HOWEVER, YOU CAN GO BACK AND FORTH BETWEEN THESE TWO PEGS** (pointing to pegs 2 and 3). **SO, YOU HAVE TO SOLVE THE PROBLEM BY USING THESE TWO PEGS** (pointing to pegs 2 and 3). **DO YOU HAVE ANY QUESTIONS?** If child has questions, answer them and make sure they understand before you begin. If child does not have questions, say: **START.** Start timing. (Repeat instructions if necessary. Demonstrate how to solve Card #3 if child fails to solve it on the 3<sup>rd</sup> trial. If child fails all 3 trials on Card #3, reverse to Card #2. If child fails all 3 trials on Card #2, reverse to Card #1.)

Record time elapsed between placing card in front of child and child making the first move (defined as releasing a bead on pegs 2 or 3) as the latency time. On 1<sup>st</sup> trial on Card #3, record time between saying 'start' and making 1<sup>st</sup> move. Also record the total time for each trial administered. Separate the latency and total time by a slash (/).

If child is stuck on a problem (an incorrect move renders a problem unsolvable – see solutions page), allow about 5 seconds then ask: **ARE YOU STUCK?** If child answers affirmatively, then place beads back in initial position in appropriate order\* and say: **TRY AGAIN.** If child answers negatively, then allow an extra 5 seconds and say: **YES, I THINK YOU ARE STUCK.** \*Before moving on after the first stuck situation, also provide the child with this prompt: **IT IS OK TO THINK FIRST BEFORE YOU MOVE.** Then put the beads back in initial position and move onto next trial/card.

Immediately correct rule violations and record each instance:

**REMEMBER, YOU ARE NOT SUPPOSED TO MOVE TWO AT A TIME.**

**REMEMBER, YOU CANNOT PUT THE BEAD BACK ON THAT PEG.**

**Continued on Next Page**

## Progressive Planning Test (cont'd)

If child fails trials 1 or 2, say:

**THAT WASN'T QUITE RIGHT. LET'S TRY AGAIN.** Return beads to initial position.

If the child fails trail 3, say: **THAT ONE WAS HARD. LET'S TRY THE NEXT ONE.**  
Return beads to initial position and place next card in front of child.

If child successfully solves a problem, say: **GOOD JOB! LET'S TRY THE NEXT ONE.**  
Return beads to initial position and place next card in front of child.

If the child believes they are stuck, but are not and they try to start again, stop them asn say: **YOU MAY NOT BE STUCK – KEEP TRYING.**

### Minimally Constrained Condition

Once the child fails to solve 2 consecutive maximum constrained condition problems, administer problems 5 – 10 under minimally constrained condition to test limits. Say: **NOW WE ARE GOING TO CHANGE THE RULES. THIS TIME THERE IS ONLY ONE RULE. THAT IS, YOU CAN MOVE ONLY ONE BEAD AT A TIME. BUT YOU CAN GO BACK TO THIS PEG LIKE THIS** (demonstrate). **ARE YOU READY?** Then administer 5 –10.

Immediately correct rule violations and record each instance:

**REMEMBER, YOU ARE NOT SUPPOSED TO MOVE TWO AT A TIME.**

**Stop Rule:** Allow a maximum of 3 trials for each problem under maximum constrained condition and discontinue after 2 consecutive failed problems (6 consecutive failed trials). Allow only 1 trial for minimally constrained condition, but administer all problems (5 – 10). There is no discontinue on the minimally constrained condition.

**Raw Score:** Record moves child makes (both color of bead and peg moved to, i.e., Y3 when child moves yellow bead to shortest peg) as well as number of rules broken. See suggested notation on the next page. For maximally constrained condition, circle score corresponding to trial child got item correct in. Award full credit to previous items not administered. Add up scores and total number of rules broken. Calculate mean latency time (1<sup>st</sup> trials only) and mean total time (for successful trials only). Count the number of cards solved on the first trial, all trials, and the number solved within cards 1-4 and 5-8 on any trial. For minimally constrained condition, calculate score for each item and add these scores up. Count total number of rules broken. Calculate mean latency time and mean total time.

### **PPT Notation Key (by JJVV in San Diego):**

Recording a Move: BOYGR and 123 pairings for each move as defined in the test instructions. Ex. Y2.

Bead Drop: Underline the bead color letter if the bead drops from the child's hand. If it bounces on the floor or is out of the child's hand for a long period of time be sure to note this in the margin. Ex. B3.

Hold but NO Move: If the child picks up a bead and holds on to it debating moves for a while and then returns it to the same peg & position, this is not a move. However, as the child does expend energy and time in doing so, note this by writing the bead letter and drawing an up and down arrow. Such instances will not be counted as a move and will therefore not be included in the total number of moves.

'Are you Stuck?' Prompt: Note when you ask the child this or when they admit to being stuck and they are correct by writing 'PS' and circling it right within the sequence of moves recording line. Continue recording moves if the child makes any after this prompt for about 5 seconds and then move the child on to the next trial or card.

Not Stuck/Keep Trying Prompt: If the child thinks they are stuck, but in fact they aren't, write 'S' with a circle around it and then 'P' with a circle and 'KT' in superscript right next to it to indicate that you provided them with the appropriate prompt of encouragement.

Planning Ahead Prompt: After the child's first incorrect move where the 'are you stuck?' prompt is provided also note when the 'It is ok to think first before you move' prompt is given. Do so by noting it on the response line with a 'P' with a circle and a 'think' in superscript right next to it.

Rule Violations: If the child breaks a rule, indicate which rule and where it occurs by writing either 'Ru1' or 'Ru2' (each with a circle around them) right within the sequence of moves on the recording line with 'Ru1' being one bead at a time and 'Ru 2' forbidding the return to peg 1.

Time Limit: Note if the examiner provides the child with encouragement to respond if they haven't moved in 3 minutes or so by writing a 'TL' and circling it within the sequence of moves.

\* Obviously the abbreviations work for the English language, but will not be appropriate in other languages once translated. Please use something similar once translated.

## **PPT Maximum Constrained Conditions (2 Rules) Solutions**

Card #3: Y2/O3/B3/Y3

Card #4: Y2/O2/B3/O3/Y3

Card #5: Y3/O2/Y2/B3/Y3/O3

Card #6: G3/Y2/G2/O3/B3/G3/Y3

Card #7: G3/Y2/O2/G2/B3/G3/O3/Y3

Card #8: G3/Y3/O2/Y2/G2/B3/G3/Y3/O3

Card #9: G2/Y3/G3/O2/G2/Y2/B3/Y3/G3/O3

Card #10: R2/G3/R3/Y3/O2/Y2/R2/G2/B3/G3/R3/Y3/O3

Card #11: R2/G2/Y3/G3/R3/O2/R2/G2/Y2/B3/Y3/G3/R3/O3

Card #12: R3/G2/R2/Y3/R3/G3/O2/G2/R2/Y2/B3/Y3/R3/G3/O3

NOTE: There are additional moves that can be made within these solution sequences that do not spoil the child's attempt rendering them stuck. For example, if on card #3 the child's first move is Y3 instead of Y2 this is not necessarily a failure. They still have an opportunity to move it to peg 2 before placing the orange bead. Use caution to make sure the unlisted move the child had made is actually incorrect and not just extra.

## Finger Localization

Ages: All ages  
Norms Available: N/A  
Procedure: Galin, et al., (1977). *Brain Lang*, 4, 588-590.  
Roebuck, et al., (2002). *Alcohol Clin Exp Res*, 26, 1863-1871.

The first hand administered **must be** alternated between subjects (even number subjects given right hand first and odd number subjects given left hand first). Child's hands should be vertical such that the palms are facing each other as if to clap. Their fingers should be spread apart with their pinky finger not resting on the table. Prompt them with position reminders as necessary and note such prompts on the test packet.

Use a *sharpened* pencil to *lightly* touch the middle of the target finger pad.  
[Note: 2=Index 3=Middle 4=Ring 5=Pinky] The column heading on the response form indicates which finger(s) on which hand you will be touching.

For the first single set, the hands remain visible, while for the second single set and the double set, the hands are placed in the box so that the child cannot see them.

For the uncrossed condition, have the child touch the finger with the thumb of the same hand. For the crossed condition, have the child touch the corresponding finger on the opposite hand with that hand's thumb. Administer both hands on the uncrossed condition before administering both hands on the crossed condition for each part. For the double set, the appropriate pace is touch, "click", touch, with no pause between touch and click.

It is very important that the child understand the task and that it is clear to them which hand they will be responding with. Demonstrate as needed on the first item per column until the child responds on the appropriate hand. If they are responding on the right hand, but with the wrong finger(s), score it is wrong and move on to the next item.

Please place these symbols to the immediate left of the test item where appropriate:  
R = Repeat = You can repeat each item for the child if needed per the child's request or if they don't respond.

P = Prompt = You had to prompt the child about something. Try and note in the superscript the main purpose for your prompt. For example, P<sup>hand</sup> when you have to prompt the child to respond on the other hand.

\* = Wrong Hand Response = Place an asterisk to the left of the target number(s). Remind the child which hand to respond even if they spontaneously correct EACH time they respond on the wrong hand. Please note such reminders with a P<sup>hand</sup>. Self-corrections are acceptable.

*\*Take off any glasses (eye wear) while administering this task as the children may be viewing which fingers you are touching through the reflection.*

**Reminder:** Demonstrate each condition to the child before giving the first item.

Identification of Single Fingers – Hand Visible:

Uncrossed: **FIRST, I'M GOING TO TOUCH ONE FINGER ON YOUR (right/left) HAND (touch hand) WITH THIS PENCIL. SHOW ME WITH YOUR (right/left) THUMB (touch thumb) WHICH FINGER I TOUCHED.**

Crossed: **NOW WE'RE GOING TO DO SOMETHING A LITTLE DIFFERENT. I'M GOING TO TOUCH ONE FINGER ON YOUR (right/left) HAND (touch hand), BUT THIS TIME, I WANT YOU TO SHOW ME ON YOUR (left/right) HAND (touch hand) WITH YOUR (left/right) THUMB (touch thumb) WHICH FINGER I TOUCHED.**

Identification of Single Fingers – Hand Hidden:

Uncrossed: **NOW PUT YOUR HANDS INSIDE THE BOX. NOW YOU WON'T SEE ME TOUCHING YOUR FINGERS BUT YOU WILL FEEL IT. I'M GOING TO TOUCH ONE FINGER ON YOUR (right/left) HAND (touch hand) WITH THIS PENCIL. SHOW ME WITH YOUR (right/left) THUMB (touch thumb) WHICH FINGER I TOUCHED.**

Crossed: **AGAIN, I'M GOING TO TOUCH ONE FINGER ON YOUR (right/left) HAND (touch hand), BUT THIS TIME, I WANT YOU TO SHOW ME ON YOUR (left/right) HAND (touch hand) WITH YOUR (left/right) THUMB (touch thumb) WHICH FINGER I TOUCHED.**

Identification of Two Fingers – Hand Hidden:

Uncrossed: **NOW I'M GOING TO TOUCH TWO FINGERS ONE AT A TIME ON YOUR (right/left) HAND (touch hand). WITH YOUR (right/left) THUMB (touch thumb), SHOW ME WHICH FINGERS I TOUCHED, IN THE SAME ORDER THAT I TOUCHED THEM.**

Crossed: **AGAIN, I'M GOING TO TOUCH TWO FINGERS ONE AT A TIME ON YOUR (right/left) HAND (touch hand). BUT, THIS TIME, I WANT YOU TO SHOW ME WITH YOUR (left/right) HAND (touch hand) AND YOUR (left/right) THUMB (touch thumb), WHICH FINGERS I TOUCHED, IN THE SAME ORDER THAT I TOUCHED THEM.**

**Raw Score:** Record the child's first response (in the first blank), as well as their last response (in the middle blank). Record if the child self corrects > 2 times to get to their final response (mark a √ in the last blank). Add up the total number of incorrect final responses for the uncrossed and crossed trials separately at the bottom of each column. Use the FL Scoring Sheet for additional scores.

## D-KEFS Verbal Fluency

Ages: 8-0 to 18-11

Norms Available: All ages

Procedure: From DKEFS Examiner's Manual pgs 55-58.

For all sections, if a child asks if they already said a word, prompt: **I CANNOT TELL YOU. WOULD YOU LIKE ME TO WRITE IT DOWN?** Write down word and whether child answered yes or no. Do not include this word in totals if child answers no.

Place Verbal Fluency Rule Sheet in front of child so that they can see it.

### Letter Fluency Test

**I'M GOING TO SAY A LETTER OF THE ALPHABET. WHEN I SAY BEGIN, I WANT YOU TO TELL ME AS MANY WORDS AS YOU CAN THAT BEGIN WITH THAT LETTER. YOU WILL HAVE 60 SECONDS BEFORE I TELL YOU TO STOP. NONE OF THE WORDS CAN BE NAMES OF PEOPLE, OR PLACES, OR NUMBERS. FOR EXAMPLE, IF I GAVE YOU THE LETTER T, YOU COULD SAY TAKE, TOY, TOOTH, AND SO FORTH, BUT YOU SHOULD NOT SAY TOM BECAUSE THAT IS A PERSON'S NAME, YOU SHOULD NOT SAY TEXAS BECAUSE THAT IS THE NAME OF A PLACE, AND YOU SHOULD NOT SAY TWELVE BECAUSE THAT IS A NUMBER. ALSO, DO NOT GIVE ME THE SAME WORD WITH DIFFERENT ENDINGS. FOR EXAMPLE, IF YOU SAY TAKE, YOU SHOULD NOT ALSO SAY TAKES AND TAKING. DO YOU HAVE ANY QUESTIONS?**

**THE FIRST LETTER IS F. READY? BEGIN.**

Start timing. Record all of child's responses verbatim in appropriate box (write words generated in first 15 seconds in box labeled "1-15 seconds," etc.). After 60 seconds, say: **STOP.**

**THE NEXT LETTER IS A. READY? BEGIN.**

Start timing. Record all of child's responses verbatim in appropriate box. After 60 seconds, say: **STOP.**

**THE NEXT LETTER IS S. READY? BEGIN.**

Start timing. Record all of child's responses verbatim in appropriate box. After 60 seconds, say: **STOP.**

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## D-KEFS Verbal Fluency (cont'd)

The following prompts may be used during the test:

**KEEP GOING.** If child fails to make a response after any 15-second interval. Examiner may give this prompt only once per letter.

**THE LETTER WE ARE USING NOW IS \_\_\_\_.** If child generates 3 consecutive words that do not start with designated letter. Examiner may give this prompt only once per letter.

Remove Verbal Fluency Rule Sheet from in front of child for Category and Switching subtests.

### Category Fluency Test

**NOW WE ARE GOING TO DO SOMETHING A LITTLE DIFFERENT. THIS TIME, I WANT YOU TO TELL ME AS MANY ANIMALS AS YOU CAN. IT DOESN'T MATTER WHAT LETTER THEY START WITH. YOU WILL HAVE 60 SECONDS BEFORE I TELL YOU TO STOP. DO YOU HAVE ANY QUESTIONS? READY? BEGIN.**

Start timing. Record all of child's responses verbatim in appropriate box. After 60 seconds, say: **STOP.**

**NOW TELL ME AS MANY BOYS' NAMES AS YOU CAN. YOU WILL HAVE 60 SECONDS BEFORE I TELL YOU TO STOP. READY? BEGIN.**

Start timing. Record all of child's responses verbatim in appropriate box. After 60 seconds, say: **STOP.**

The following prompts may be used during the test:

**KEEP GOING.** If child fails to make a response after any 15-second interval. Examiner may give this prompt only once per category.

**THE CATEGORY WE ARE USING NOW IS \_\_\_\_.** If child generates 3 consecutive words that do not fit category. Examiner may give this prompt only once per category.

### Category Switching

**NOW WE ARE GOING TO DO SOMETHING A LITTLE DIFFERENT. I WANT YOU TO SWITCH BACK AND FORTH BETWEEN SAYING AS MANY FRUITS AND AS MANY PIECES OF FURNITURE AS YOU CAN. IT DOESN'T MATTER WHAT LETTER THEY START WITH. YOU WILL HAVE 60 SECONDS BEFORE I TELL YOU TO STOP. SO YOU WOULD SAY A FRUIT, THEN A PIECE OF FURNITURE, THAN A FRUIT, THEN A PIECE OF FURNITURE, AND SO ON. YOU CAN START WITH EITHER A FRUIT OR A PIECE OF FURNITURE. DO YOU HAVE ANY QUESTIONS? (see the next page for fruit/furniture question prompting) READY? BEGIN.**

Start timing. Record all of child's responses verbatim in appropriate box. After 60 seconds, say: **STOP.**

**Continued on Next Page**



## D-KEFS Verbal Fluency (cont'd)

### Fruit/Furniture Questions:

If a child asks you questions about what fruits or furniture are, please use the following hints to respond to their questions. Provide these hints only if the child asks these questions during your instructions. DO NOT name an actual fruit or piece of furniture for the child.

Furniture: Pieces of furniture are things that you can sit on or at... you know like this (point at table) or this (point at chair). Think of things like that you have at your house.

Fruit: Fruits are things you eat that have seeds. If the child is still puzzled say, 'Some fruits grow on trees'.

If the child guesses 'table' or 'apple' while you are giving these hints, let the child know you aren't allowed to tell them if they are right or wrong and that you want them to wait to respond until you say 'begin'.

The following prompts may be used during the test:

**KEEP GOING.** If child fails to make a response after any 15-second interval. Examiner may give this prompt only once.

**THE CATEGORIES YOU ARE TO SWITCH BETWEEN ARE \_\_\_ AND \_\_\_.** If child generates 3 consecutive words that are not members of 1 of the 2 designated categories. Examiner may give this prompt only once.

Raw Score: For each letter/category, add up the total number of correct words (total number and for each 15" interval), total number of repetitions and set loss words, and the total number of words (correct and incorrect) child gave. Do not include those words that the child self corrects. For switching, add up the number of correct switches to obtain Total Switching Accuracy.

## D-KEFS Trail Making

Ages: 8-0 to 18-11

Norms Available: All ages

Procedure: From D-KEFS Examiner's Manual pgs 39-45.

For all practice pages, make sure the booklet is lying flat on the table and facing the child so that he/she can easily write on it. During any condition, if the examinee has difficulty holding the response booklet stationary, hold down the top or side edges of the booklet with your fingertips. Keep the booklet square. The examinee may lift the pen from the paper at any point during the practice and scored tasks of all five conditions. The examiner is allowed to correct as often as necessary during the practice. For Visual Scanning, correct and explain any errors. For Number Sequencing, Letter Sequencing, Number-Letter Switching, and Motor Speed, if the child makes an incorrect connection, stop him/her immediately after he/she has completed the connection. Write an X over the incorrect connection, explain the error, and point to the correct connection. Ask the child to proceed from the last correctly connected number/letter/circle. If the child cannot complete the practice task after 4 corrections by the examiner, discontinue the practice task and do not administer the scored task. Administer the next appropriate condition. If a child cannot complete Letter Sequencing practice, do not administer Number-Letter Switching, go immediately to Motor Speed.

For Number Sequencing, Letter Sequencing, Number-Letter Switching, and Motor Speed scored tasks, make sure the booklet is opened to the 2<sup>nd</sup> and 3<sup>rd</sup> pages, and is flat on the table directly in front of the child, horizontally at the child's midline. If the child makes an incorrect connection during the scored test, stop him/her immediately after he/she has completed the connection. Write an X over the incorrect connection, say, **YOU MADE A MISTAKE**, and, *without explaining the error*, say, **START HERE** (pointing to the last correctly connected number/letter/circle). Keep the stopwatch running while pointing out errors.

For Visual Scanning, Number Sequencing, Letter Sequencing, and Motor Speed, if the child has failed to finish the task by 150 seconds or for Number-Letter Switching, 240 seconds, say: **STOP. THAT'S GOOD**. Allow the child to finish marking any numbers/letters (Visual Scanning) or complete any connections in progress before telling him/her to stop. These responses/connections are scored as being completed within the time limit. Record time as maximum time allowed for that condition.

For Conditions 2-4: If the child does not quite touch a circle that they are targeting, prompt them each time this occurs with: **MAKE SURE YOU TOUCH THE CIRCLE**. This will not be considered an error, but shortcuts should not benefit someone's time. Make sure they correct their line after each prompt.

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**D-KEFS Trail Making (cont'd)**

**Visual Scanning – Condition 1**

Point to the practice page and say: **HERE ARE SOME NUMBERS AND LETTERS. I WANT YOU TO FIND ALL OF THE THREES ON THIS PAGE. MAKE A MARK LIKE THIS EACH TIME YOU SEE A THREE** (draw a slash mark through the 3 that is in the upper-left quadrant of the box from the child's perspective). **DON'T PLACE MARKS ON ANY OF THE OTHER NUMBERS OR LETTERS, JUST THE THREES. MARK THE THREES AS QUICKLY AS YOU CAN WITHOUT MISSING ANY. GO AHEAD.**

After the child has completed the practice task, say: **GOOD. NOW LET'S TRY THIS ONE.** After placing the booklet appropriately, say: **HERE ARE MORE NUMBERS AND LETTERS. LIKE BEFORE, I WOULD LIKE YOU TO MARK ALL OF THE THREES ON THESE TWO PAGES. MARK THE THREES AS QUICKLY AS YOU CAN WITHOUT MISSING ANY. TELL ME WHEN YOU ARE FINISHED. READY? BEGIN.** Start timing. When the child has marked all the threes or indicated that he/she has finished, stop timing. Record the total time in seconds on the test packet form.

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## D-KEFS Trail Making (cont'd)

### Number Sequencing – Condition 2

Point to the practice page and say: **HERE ARE SOME MORE NUMBERS AND LETTERS. THIS TIME, I WANT YOU TO CONNECT *JUST THE NUMBERS*. BEGIN AT NUMBER 1** (point to the 1) **AND DRAW A LINE FROM ONE TO 2** (trace this connection with your finger), **2 TO 3** (trace this connection with your finger), **3 TO 4** (trace this connection with your finger), **AND SO ON, IN ORDER, UNTIL YOU REACH THE END** (point to the 5). **DRAW THE LINES AS QUICKLY AS YOU CAN WITHOUT MAKING MISTAKES. GO AHEAD.**

If the child completes the practice task with fewer than 4 errors, say: **GOOD. NOW LET'S TRY THIS ONE.** After placing the booklet appropriately, say: **ON THIS PAGE ARE MORE NUMBERS AND LETTERS. DO THIS THE SAME WAY BY CONNECTING *JUST THE NUMBERS*. BEGIN AT NUMBER 1** (point to the 1) **AND DRAW A LINE FROM 1 TO 2** (trace this connection with your finger), **2 TO 3** (trace this connection with your finger), **3 TO 4** (trace this connection with your finger), **AND SO ON, IN ORDER, UNTIL YOU REACH THE END** (point to the 16). **DRAW THE LINES AS QUICKLY AS YOU CAN WITHOUT MAKING MISTAKES. READY? BEGIN.** Start timing. When the child completes the last connection (reaches number 16), stop timing. Record the total time in seconds on the test packet form.

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## D-KEFS Trail Making (cont'd)

### Letter Sequencing – Condition 3

Point to the practice page and say: **THIS TIME, I WANT YOU TO CONNECT *JUST THE LETTERS*. BEGIN AT THE LETTER A** (point to the letter A) **AND DRAW A LINE FROM A TO B** (trace this connection with your finger), **B TO C** (trace this connection with your finger), **C TO D** (trace this connection with your finger), **AND SO ON, IN ORDER, UNTIL YOU REACH THE END** (point to the letter E). **DRAW THE LINES AS QUICKLY AS YOU CAN WITHOUT MAKING MISTAKES. GO AHEAD.**

If the child completes the practice task with fewer than 4 errors, say: **GOOD. NOW LET'S TRY THIS ONE.** After placing the booklet appropriately, say: **DO THIS THE SAME WAY BY CONNECTING *JUST THE LETTERS*. BEGIN AT A** (point to A) **AND DRAW A LINE FROM A TO B** (trace this connection with your finger), **B TO C** (trace this connection with your finger), **C TO D** (trace this connection with your finger), **AND SO ON, IN ORDER, UNTIL YOU REACH THE END** (point to the P). **DRAW THE LINES AS QUICKLY AS YOU CAN WITHOUT MAKING MISTAKES. READY? BEGIN.** Start timing. When the child completes the last connection (reaches the letter P), stop timing. Record the total time in seconds on the test packet form.

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## D-KEFS Trail Making (cont'd)

### Number-Letter Switching – Condition 4

Point to the practice page and say: **THIS TIME, I WANT YOU TO DO SOMETHING DIFFERENT. I WANT YOU TO SWITCH BETWEEN CONNECTING THE NUMBERS AND LETTERS. BEGIN AT NUMBER 1** (point to the 1) **AND DRAW A LINE FROM 1 TO A** (trace this connection with your finger), **A TO 2** (trace this connection with your finger), **2 TO B** (trace this connection with your finger), **B TO 3** (trace this connection with your finger), **AND SO ON, IN ORDER, UNTIL YOU REACH THE END** (point to the D). **IN OTHER WORDS, YOU WILL DRAW A LINE FROM A NUMBER TO A LETTER, TO A NUMBER, AND SO ON, IN ORDER, UNTIL YOU REACH THE END. DO YOU HAVE ANY QUESTIONS? DRAW THE LINES AS QUICKLY AS YOU CAN WITHOUT MAKING MISTAKES. GO AHEAD.**

If the child completes the practice task with fewer than 4 errors, say: **GOOD. NOW LET'S TRY THIS ONE.** After placing the booklet appropriately, say: **ON THIS PAGE ARE MORE NUMBERS AND LETTERS. DO THIS THE SAME WAY BY SWITCHING BETWEEN NUMBERS AND LETTERS. BEGIN AT NUMBER 1** (point to the 1) **AND DRAW A LINE FROM 1 TO A** (trace this connection with your finger), **A TO 2** (trace this connection with your finger), **2 TO B** (trace this connection with your finger), **B TO 3** (trace this connection with your finger), **AND SO ON, IN ORDER, UNTIL YOU REACH THE END** (point to the P). **IN OTHER WORDS, YOU WILL DRAW A LINE FROM A NUMBER TO A LETTER, TO A NUMBER, AND SO ON, IN ORDER, UNTIL YOU REACH THE END. DRAW THE LINES AS QUICKLY AS YOU CAN WITHOUT MAKING MISTAKES. READY? BEGIN.** Start timing. When the child completes the last connection (reaches the letter P), stop timing. Record the total time in seconds on the test packet form.

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## D-KEFS Trail Making (cont'd)

### Motor Speed – Condition 5

Point to the practice page and say: **HERE IS A DOTTED LINE. I WANT YOU TO START HERE** (point to “Start”) **AND DRAW A LINE OVER THE DOTTED LINE AS QUICKLY AS YOU CAN LIKE THIS** (trace the first 3 connections with your finger). **KEEP DRAWING OVER THE DOTTED LINE UNTIL YOU REACH THE END** (point to “End”). **YOU DO NOT HAVE TO DRAW YOUR LINE NEATLY ON THE DOTTED LINE; JUST DRAW IT AS QUICKLY AS YOU CAN. MAKE SURE YOUR LINE TOUCHES EVERY CIRCLE ALONG THE PATH. DO YOU HAVE ANY QUESTIONS? GO AHEAD.**

These prompts may be given as often as necessary during either trial:  
**REMEMBER, IT’S MORE IMPORTANT TO DRAW YOUR LINE QUICKLY THAN TO MAKE IT NEAT.** If the child tries to draw over the dotted line as neatly as possible, thereby losing time.  
**REMEMBER TO MAKE YOUR LINE TOUCH EVERY CIRCLE ALONG THE PATH.** If the child tries to take shortcuts and misses circles along the path.

If the child completes the practice task with fewer than 4 errors, say: **GOOD. NOW LET’S TRY THIS ONE.** After placing the booklet appropriately, say: **AGAIN, I WOULD LIKE YOU TO DRAW OVER THE DOTTED LINE AS QUICKLY AS YOU CAN. START HERE** (point to “Start”) **AND DRAW A LINE LIKE THIS** (trace over the first 3 connections with your finger) **UNTIL YOU REACH THE END** (point to “End”). **REMEMBER, IT’S MORE IMPORTANT TO DRAW THE LINE QUICKLY THAN TO MAKE IT NEAT, BUT MAKE SURE YOUR LINE TOUCHES EVERY CIRCLE ALONG THE PATH. READY? BEGIN.** Start timing. When the child completes the path, stop timing. Record the total time in seconds on the test packet form.

Raw Score: Record the completion time for each of the 5 tasks, separately. Count up the number of omissions and commissions for Condition 1 and the number of set loss, sequencing, and time discontinue errors for Conditions 2 through 5.

## Developmental Test of Visual-Motor Integration (VMI)

Ages: 2-0 to 18-11

Norms Available: All ages

Procedure: From VMI Administration, Scoring, & Teaching Manual pgs 19-21.

(Please use the following transition as this test immediately follows D-KEFS Trails.)

**NOW WE ARE GOING TO DO SOMETHING A LITTLE DIFFERENT. FOR THIS TASK IT IS MORE IMPORTANT TO BE NEAT. TAKE YOUR TIME AND MAKE THE BEST COPY THAT YOU CAN.**

Place the test booklet face down in front of the child. Always keep both the test booklet and the child's body *centered* and *squared* to the table throughout testing. A different position of the booklet or the body can greatly affect the task. When *you* draw, you hold the booklet. When the *child* draws, ask the *child* to hold the booklet. If the child does not eventually hold it, *you* hold it.

Open the VMI test booklet to page #4. Give the child a pencil without an eraser or a ballpoint pen to complete this task. Point to the first item (task 7 – the copied vertical line). Say: **MAKE ONE LIKE THAT. MAKE YOURS RIGHT HERE** (point to the empty square below the form). Encourage the child if necessary. Do not, however, trace the form with your finger or pencil because such motions provide important cues. Do not let the child trace the form either. Avoid calling the form by its name or by a descriptive term (i.e., It is unacceptable to say triangle, but acceptable to say form/shape/figure).

Allow only ONE try per form with NO erasing! (Again, the child should be working with a pencil without an eraser or a ballpoint pen.) If needed, say: **REMEMBER – ONLY ONE TRY ON EACH FORM AND YOU CANNOT ERASE.** Allow only single line strokes, not thickened or hollow “lines” to emulate the thick lines of the printed forms. If needed, say: **THESE FORMS WERE DRAWN WITH A MARKER SO YOURS DO NOT NEED TO BE THIS DARK AND THICK.** Accept and allow productions of children over age nine who first sketch with light lines and then complete a form with darker lines.

When the child seems to understand the task say: **GOOD. GO AHEAD AND DO THE REST OF THEM. TURN TO THE NEXT PAGE WHEN YOU FINISH THIS ONE.** If the child does not understand this task or copy any one of items 7, 8 or 9 well enough to earn a point on it, turn to page 2 of the test booklet and use the instructions on the next page. Either way, administer ALL items to all children. (See VMI manual page 21 #18.)

You may give the following prompts *as often as necessary*:

- Point to an item and say: **MAKE ONE LIKE THIS** to remind child of directions.
- If the child is copying items too fast causing the items to look sloppy, say: **DO YOUR BEST ON BOTH THE EASY AND THE HARD ONES.**
- If child skips any task say: **DO NOT SKIP ANY** and redirect child to that form.



## Developmental Test of Visual-Motor Integration (cont'd)

If child is  $\leq 5$ , or of lesser ability, or if they do not copy any one of task 7, 8, and/or 9 well enough to earn a point on it, administer the imitation items.

Instructions for imitation items:

With the booklet open to page 2, start with task 4 and say: **WATCH ME. I'M GOING TO DRAW A LINE HERE.** Draw a top to bottom vertical line approximately the same size, about two inches, as the one in task 7 on page 4. Then point to your line and say: **MAKE ONE LIKE THAT. MAKE YOURS RIGHT HERE.** Point to the empty square below your drawing.

If the child does not respond successfully, make repetitive up and down vertical lines over your own first line. Then point to the child's space and say: **DO THAT. MAKE YOURS RIGHT HERE.** Whether or not, after ample opportunity, the child draws one or more vertical lines in imitation of yours, make repeated horizontal lines in the top center box on page 2 (task 5) and invite the child to imitate you in the space (empty square) below yours. Whether or not the child responds, repeat this procedure with a circle at the top right-hand box (task 6) on page 2.

If the child responds correctly on any one of the three imitation items, re-expose the child to task 7 (the 1<sup>st</sup> copy item) and allow the child to try again to copy the forms directly (the child may be making a second attempt- in this case, note which is the first and which is the second response). If the child does not mark the paper at all, try the spontaneous drawing/scribbling tasks.

Instructions for spontaneous drawing/scribbling tasks:

Turn to page 1 of the test booklet. Point to the blank box closest to the child and say: **YOU CAN DRAW ANYTHING YOU WANT INSIDE THIS BOX. GO AHEAD.** If the child scribbles or makes a mark(s) say: **GOOD FOR YOU! YOU CAN DRAW! NOW, DRAW THIS** (as you try the imitation tasks again). If child does not spontaneously scribble or mark, scribble up and down in the blank box closest to the examiner (not touching the lines) and say: **LET'S SCRIBBLE-SCRIBBLE LIKE THIS. IT'S FUN! DO YOURS IN HERE** (point to the box closest to the child). **STAY IN THE BOX – DON'T GO OUTSIDE THE LINES!** If the child scribbles or makes a mark(s), try the imitation tasks again. If the child still has not scribbled or made a mark(s), discontinue the test.

Raw Score: Total number of forms correctly copied. Give credit to all previous items, even if not administered. Discontinue after three failures (scoring only).