

# MoCA-QS

## Administration and Scoring

### 1. Orientation

Instructions for the subject:

**[Examiner] “Tell me the date today”**

Administration: The examiner reads aloud the above instructions. If the subject does not give a complete answer, then prompt accordingly by saying: **“Tell me the [year, month, exact date, and day of the week].”** And then say:

**[Examiner] “Now, tell me the name of this place, and which city it is in.”**

Scoring: Give one point for each item correctly answered. The subject must tell the exact date and the exact place (name of hospital). No points are allocated if subject makes an error of one day for the day and date.

### 2. Attention:

#### Forward Digit Span:

Instructions for the subject:

**[Examiner] “I am going to say some numbers and when I am through, repeat them to me exactly as I said them”.**

Administration: The examiner reads aloud the above instructions. Read the number sequences at a rate of one digit per second. Only read number sequence once, do not repeat to subject.

#### Backward Digit Span:

Instructions for the subject:

**[Examiner] “Now I am going to say some more numbers, but when I am through you must repeat them to me in the backwards order... for example, if I say 1-3, you must say 3-1.”**

Administration: The examiner reads aloud the above instructions. Read the number sequences at a rate of one digit per second. Only read number sequence once, do not repeat to subject.

Scoring: Allocate one point for each sequence correctly repeated.

#### Tap A:

Instructions for the subject:

**[Examiner] “I am going to read a sequence of letters. Every time I say the letter A, tap your hand once. If I say a different letter, do not tap your hand”.**

Administration: The examiner reads aloud the above instructions. Read the list of letters at a rate of one per second.

Scoring: Allocate one point if there is zero to one error (an error is a tap on a wrong letter or a failure to tap on letter A).

### **Motor tapping:**

Instructions for the subject:

**[Examiner] “We are going to do a tapping task. If I tap once, I would like you to tap once (practice with subject). If I tap twice, I would like you to tap twice (practice with subject). Do as I do.”**

Administration: The examiner reads aloud the above instructions. Tap according to the sequence on the proforma. Whether the subject pass or fails, continue to the incongruent condition by saying:

**[Examiner] “Now I would like you to do the opposite of what I do. If I tap once, I would like you to tap twice (practice with subject). If I tap twice, I would like you to tap once (practice with subject). Keep doing the opposite of what I do”**

Tap the sequence again as on the proforma, this time the subject should provide the opposite response.

Scoring: Give one point if there is none or only one error.

### **Three step Luria task:**

Instructions for the subject:

**[Examiner] “Look carefully at what I’m doing”**

Administration: The examiner reads aloud the above instructions. The examiner, seated in front of the subject, demonstrates the “fist-edge-palm” sequence several times using the hand that mirrors the subject’s dominant/intact hand. Fist –make hand into fist with knuckles vertical, Edge- fingers extended making a cutting action, Palm- fingers extended with palm facing down.

**[Examiner] “Now do it with me and then do it alone”**

Encourage subject to copy sequence, one-at-a-time, five times. Do not provide any verbal prompts or cues.

**[Examiner] “Now do it alone”**

Get subject to perform sequence for five times.

Scoring: 3 points if subject is able to do it alone for >2 times, 2 points if subject can do it alone for 1 or 2 trials, 1 point if subject is able to copy accurately, 0 point if subject is unable to copy.

## **3. Language:**

### **Sentence repetition:**

Instructions for the subject:

**[Examiner] “I am going to read you some sentences. Repeat it after me, exactly as I say it”**

Administration: The examiner reads aloud the above instructions. Say the sentence one at a time and wait for the subject to respond.

Scoring: Allocate 1 point for each sentence correctly repeated. Repetition must be exact.

**Command:**

Instructions for the subject:

**[Examiner] “Do what I say, Touch your nose then open your mouth”.**

Administration: The examiner reads aloud the above instructions.

Scoring: Allocate 1 point if subject follows command completely, 0 points if subject only partially completes command or does commands in reverse order.

**4. Naming:**

Instructions for the subject:

**[Examiner] “Tell me the name of this animal”.**

Administration: Beginning on the left, point to each figure and read aloud the above instructions.

Scoring: One point each is given for the following responses: (1) lion (2) rhinoceros or rhino (3) camel or dromedary.

**5. Perception:**

Instructions for the subject:

**[Examiner] “Tell me the name of these things?”**

If the subject does not know, prompt by saying **“These are both animals; can you tell me what animals they are?”** And then **“These are both modes of transport, can you tell me what modes of transport they are?”**

Administration: Beginning on the left, point to the figures and read aloud the above instructions. If you gave prompt to subject, it is important that you record this next to the test.

Scoring: One point each is given for the following responses: fish, bird, car, aeroplane.

**6. Visual Memory – Immediate:**

Instructions for the subject:

**[Examiner] “I would like you to copy these two drawings down here and then do it again from memory”**

Administration: Fold the proforma in half, vertically. Give the subject a pen and read aloud the above instructions. Point to the two geometric shapes and the space below where the subject should copy the drawing.

Once the subject has finished copying the shape, turn the page so that the subject can see the *recall* box.

**[Examiner] “Now draw the drawings here again from memory”**

Administer the recall task even if the subject’s copy was not accurate unless if the subject was unable to copy any element of the drawing.

Scoring: One point is given for each of the two geometric shapes. Only give one point if all key elements of the shape are present – Left shape: 3 lines, intersecting diagonal line, Right shape: 4 lines, triangle, vertical line at the right apex.

## **7. Verbal Memory- Immediate:**

Instructions for the subject:

**[Examiner] “This is a memory test. I am going to read a list of words that you will have to remember now and later on. Listen carefully. When I am through, tell me as many words as you can remember. It doesn’t matter in what order you say them”.**

Administration: The examiner reads a list of 5 words at a rate of one per second, giving the above instructions.

Mark a check in the allocated space for each word the subject produces on this first trial. When the subject indicates that (s)he has finished (has recalled all words), or can recall no more words, read the list a second time with the following instructions:

**[Examiner] “I am going to read the same list for a second time. Try to remember and tell me as many words as you can, including words you said the first time.”**

Put a check in the allocated space for each word the subject recalls after the second trial. At the end of the second trial, inform the subject that (s)he will be asked to recall these words again by saying:

**[Examiner] “I will ask you to recall those words again at the end of the test.”**

Scoring: 1 point is given for each word recalled for Trials One and Two.

## **8. Processing Speed:**

### **Count 30-1:**

Instructions for the subject:

**[Examiner] “Can you count backwards from 30-1 as quickly as you can e.g.30-29-28... Go as quickly as you can because I’m going to time you”.**

Administration: The examiner reads aloud the above instructions. Start timing when the subject starts counting. Make note of any reversal (i.e. counting forwards) or omissions or sequencing errors. Do not prompt the subject if they make a mistake.

Scoring: 1 point is given for time <26secs and no errors. If subject scores 0, do not administer Months backwards.

## Months backwards:

Instructions for the subject:

**[Examiner] “Now say the months of the year backwards from December to January. Go as quickly as you can because I’m going to time you”.**

Administration: The examiner reads aloud the above instructions; start timing when the subject starts with December. Make note of any omissions or sequencing errors. Do not prompt the subject if they make a mistake.

Scoring: 1 point is given for time <25secs and <1 error.

## 9. Working Memory:

### Subtract 7:

Instructions for the subject:

**[Examiner] “Now, I will ask you to count by subtracting seven from 100, and then, keep subtracting seven from your answer until I tell you to stop.”**

Administration: The examiner reads aloud the above instructions. Give this instruction twice if necessary.

Scoring: This item is scored out of 3 points. Give no (0) points for no correct subtractions, 1 point for one correction subtraction, 2 points for two-to-three correct subtractions, and 3 points if the participant successfully makes four or five correct subtractions. Count each correct subtraction of 7 beginning at 100. Each subtraction is evaluated independently; that is, if the participant responds with an incorrect number but continues to correctly subtract 7 from it, give a point for each correct subtraction.

## 10. Executive functions:

### Fluency F:

Instructions for the subject:

**[Examiner] “Tell me as many words as you can think of that begin with a certain letter of the alphabet that I will tell you in a moment. You can say any kind of word you want, except for names of places and names of people (like Bob or Boston), numbers, or words that begin with the same sound but have a different suffix, for example, love, lover, loving. I will tell you to stop after one minute. Are you ready? [Pause] Now, tell me as many words as you can think of that begin with the letter F. [time for 60 sec]. Stop.”**

Administration: The examiner reads aloud the above instructions.

Scoring: Allocate one point if the subject generates 11 words or more in 60 sec. Record the subject’s response in the box provided.

### Similarities:

Instructions for the subject:

**[Examiner] “Tell me how an orange and a banana are alike”**

Administration: The examiner asks the subject to explain what each pair of words has in common, starting with the example: “**Tell me how an orange and a banana are alike**”. If the subject answers in a concrete manner (e.g. Banana is yellow in colour and orange is orange in colour), then say only one additional time: “**Tell me another way in which those items are alike**”.

If the subject does not give the appropriate response (fruit), say, “**Yes, and they are also both fruit.**” Do not give any additional instructions or clarification.

After the practice trial, say: “**Now, tell me how a train and a bicycle are alike**”. Following the response, administer the second trial, saying: “**Now tell me how a ruler and a watch are alike**”. Do not give any additional instructions or prompts.

Scoring: Give 1 point to each item pair correctly answered.

The following responses are acceptable: Train-bicycle = means of transportation, means of travelling, you take trips in both; Ruler-watch = measuring instruments, used to measure.

The following responses are not acceptable: Train-bicycle = they have wheels; Ruler-watch = they have numbers.

**11. Memory-delayed:**

**Verbal recall:**

Instructions for the subject:

**[Examiner] “I read some words to you earlier, which I asked you to remember. Tell me as many of those words as you can remember.”**

Administration: The examiner reads aloud the above instructions. Make a check mark ( ✓ ) for each of the words correctly recalled spontaneously without any cues, in the allocated space.

Use the following category and/or multiple-choice cues for each word, if subjects are unable to recall words without cue:

	<b>Category cue</b>	<b>Multiple Choice</b>
<b>FACE:</b>	“Part of the body”	Nose, face, hand
<b>VELVET:</b>	“Type of fabric”	Denim, cotton, velvet
<b>CHURCH:</b>	“Type of building”	Church, school, hospital
<b>DAISY:</b>	“Type of flower”	Rose, daisy, tulip
<b>RED:</b>	“A colour”	Red, blue, green

Scoring: Allocate 1 point for each word recalled with/without a cue.

**Visual recall:**

Instructions for the subject:

**[Examiner] “I asked you to copy a drawing before. Can you redraw the drawing here.”**

Administration: The examiner reads aloud the above instructions. Fold the proforma in half vertically, covering the visual recognition section, and point to the box labelled 'Visual recall'.

Scoring: Allocate 1 point for each shape correctly recalled. If subject gets full-marks, do not administer the visual recognition task.

### **Visual recognition:**

Instructions for the subject:

**[Examiner] "One of the drawings I showed you was one of these three (point to the top row). Do you remember which one? The other drawing I showed you was one of these three (point to the bottom row). Do you remember which one?"**

Administration: The examiner reads aloud the above instructions. Circle the subject's response.

Scoring: Score 1 point for each correct response.

## **12. Visuo-executive:**

### **Clock:**

Instructions for the subject:

**[Examiner] "Draw a clock. Put in all the numbers and set the time to 10 past 11".**

Administration: The examiner reads aloud the above instructions whilst pointing to the left third of the space.

Scoring: One point is allocated for each of the following three criteria:

- Contour (1 pt.): the clock face must be a circle with only minor distortion acceptable (e.g., slight imperfection on closing the circle);
- Numbers (1 pt.): all clock numbers must be present with no additional numbers; numbers must be in the correct order and placed in the approximate quadrants on the clock face; Roman numerals are acceptable; numbers can be placed outside the circle contour;
- Hands (1 pt.): there must be two hands jointly indicating the correct time; the hour hand must be clearly shorter than the minute hand; hands must be centred within the clock face with their junction close to the clock centre.

### **Cube:**

Instructions for the subject:

**[Examiner] "Copy this drawing as accurately as you can, in the space below".**

Administration: The examiner reads aloud the above instructions whilst pointing to the cube.

Scoring: One point is allocated for a correctly executed drawing.

- Drawing must be three-dimensional
- All lines are drawn
- No line is added
- Lines are relatively parallel and their length is similar (rectangular prisms are accepted)

A point is not assigned if any of the above-criteria are not met.

## **Trails-B:**

Instructions for the subject:

**[Examiner] "Please draw a line, going from a number to a letter in ascending order. Begin here [point to (1)] and draw a line from 1 then to A then to 2 and so on. End here [point to (E)]."**

Administration: The examiner reads aloud the above instructions.

Scoring: Allocate one point if the subject successfully draws the following pattern:

1 -A- 2- B- 3- C- 4- D- 5- E, without drawing any lines that cross. Any error that is not immediately self-corrected earns a score of 0.

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## **TOTAL SCORE:**

Sum all sub-scores listed on the right-hand side that is **BOLD** and **UNDERLINE** to obtain a MoCA Total Score out of 30. Add one point for an individual who has 12 years or fewer of formal education. A final total score of 25 and above is considered normal in the stroke population.

Please make note of any limitations of assessment such as dominant hand weakness or visual impairments.