


# Spatial Memory

Task Design

# Example of Settings Menu (for Researchers)

3:28 PM Fri Oct 6

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 Memory Game: Task Settings

☒ 1: Forward

2: Backward

Grid size

Grid size

☒ 2X2 ☐ 3X3 ☐ 4X4

☒ 2X2 ☐ 3X3 ☐ 4X4

# practice trials

Stimulus present time(ms)

# practice trials

Stimulus present time(ms)

Starting sequence length

Inter-stimulus interval(ms)

Starting sequence length

Inter-stimulus interval(ms)

Ending sequence length

Early termination

Ending sequence length

Early termination

☐ ON


☐ ON

# each sequence

# wrong response

# each sequence

# wrong response

 Home

Back

Edit

# Settings Menu Explained

- Grid size. We have used a 2x2 grid with preschoolers (forward block only).
- Starting sequence length: The number of squares that light up during the first trial (easiest difficulty) at the start of the game.
- Ending sequence length: The longest (highest difficulty) sequence that will be used before the game ends. This is capped by the grid size. (2x2=4, 3x3=9).
- # each sequence: For a given sequence length (difficulty), how many trials will be presented before increasing the sequence length.
- Early termination: Can the game end early after a series of incorrect responses? This was implemented to reduce frustration for participants with lower performance.
- # wrong response: Only applies if early termination is “ON.” How many incorrect responses in a row will result in the game ending early?

## Changes in the phone version

- Young children were having difficulty waiting to respond, so we implemented a change to the phone (iPhone/Android) version of this task.
- Specifically, we added an instruction saying “time to watch” during the stimulus presentation and an instruction saying “time to touch” when participants should give their response. (Please refer to the screen recording video for the phone version game flow).

12:29 PM Tue Aug 9

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# Memory Game



Go

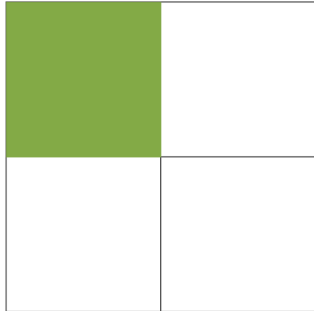


Listen to instructions

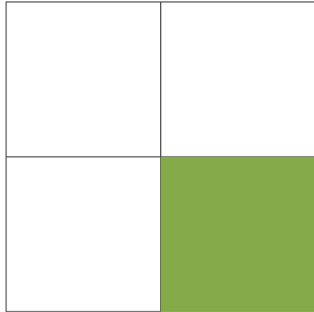
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Next

You will see  
squares light up.

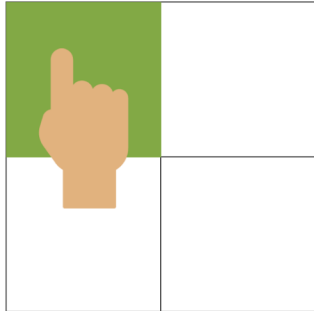


You will see  
squares light up.



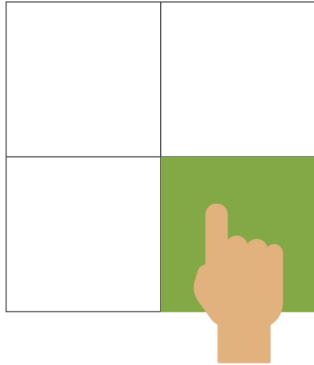


Touch the squares in the  
**same** order.



Next

Touch the squares in the  
**same** order.



Next

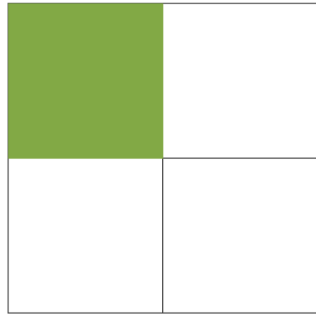


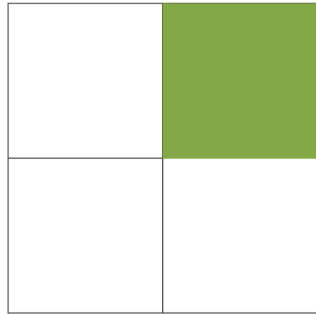
**Watch carefully!**

Try to remember the order.

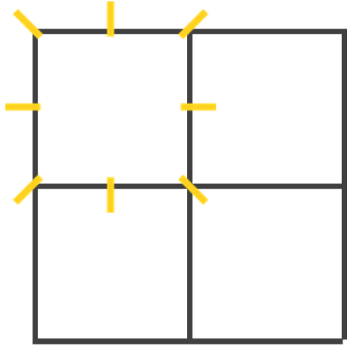
Next

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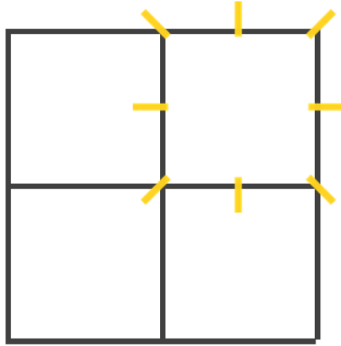




Touch the squares  
in the **same** order.



Touch the squares  
in the **same** order.



**If correct:**



**Great! That's right.**

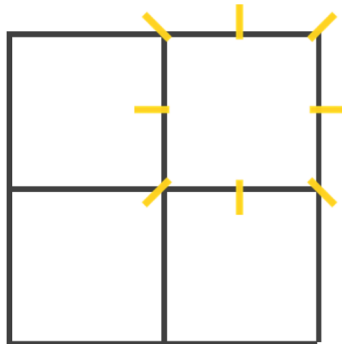




If incorrect:



Oops! That's not right.



Touch the squares  
in the **same** order.



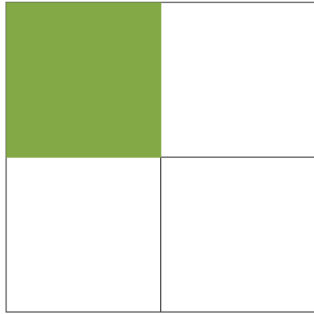


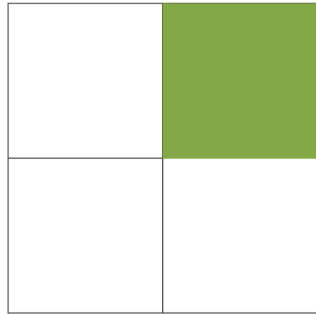
**Time to practice!**

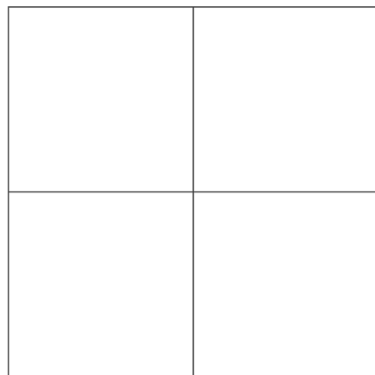
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**Go**

For the spatial memory task, we used two practice trials (regardless of performance). This is different from our implementation of hearts and flowers, which had an adaptive number of practice trials.







**If correct:**



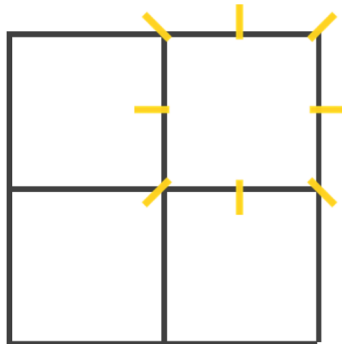
**Great! That's right.**



If incorrect:



Oops! That's not right.



Touch the squares  
in the **same** order.







Listen to instructions

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Next



This time the game  
won't tell you if  
you're right or wrong.

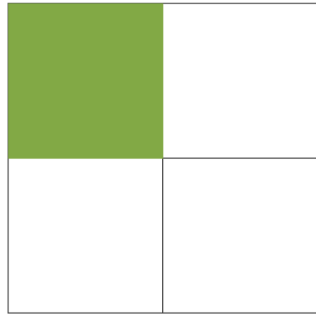
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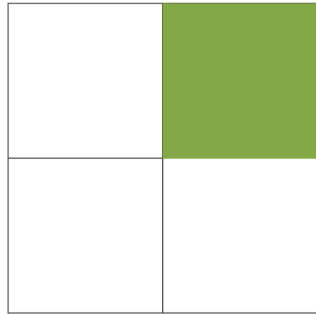
Next

If you make a mistake,  
**just keep going!**

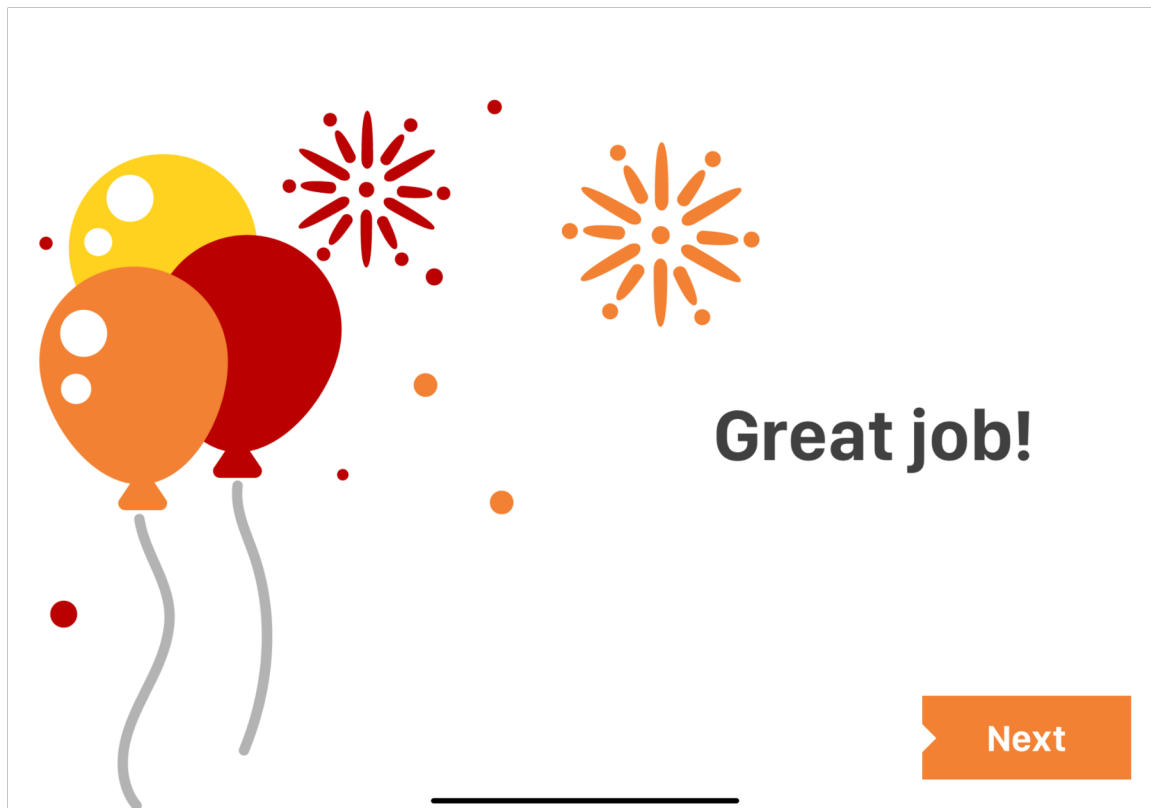


Next





**Great job!**



The backward block follows the same format  
except “backward order” replaces “same  
order”