TestMyBrain Test List - September 2025

Contact: Info@ManyBrains.net

ManyBrains.net

TestMyBrain.org

This document details the currently supported tests through TestMyBrain.org, distributed by The Many Brains Project (a nonprofit 501c3). A subset of these tests are available through our public resources (TMB Cognitive Science Toolkit and TMB Digital Neuropsychology Toolkit).

TMB Tests: For each test below, completion time reflects the average duration from start to finish (including instructions and practice) for each test, based on the normative sample. Normative samples vary across tests (up to over 100,000 participants per test). Tests have been validated for ages 10 - 89. Smartphone compatibility assumes a modern (last 3 - 4 years) smartphone or tablet. All tests are compatible with laptop/desktop devices. Note that data can vary across devices due to hardware characteristics, particularly for tests with large complex stimuli or that depend on speeded reaction times. **Ultra-brief** and **alternate forms** of tests are available for longitudinal and/or high-frequency testing, including **ecological momentary assessment (EMAs)** or measurement burst designs.

TMB Custom Studies: We work with researchers from all over the world to develop custom study infrastructure that includes one or more of the cognitive tests we have developed. These studies range from small lab-based pilot studies to longitudinal multisite clinical research studies to large genetic association studies with tens of thousands of participants. Study infrastructure can include the implementation of surveys and other measures, the development of custom APIs for integration with third party applications (e.g. Qualtrics, REDCap), custom infrastructure for data management (e.g. sending data to a central server), as well as support with data analysis and interpretation. Raw and summary score data are accessible through a password-protected data portal or through nightly data pushes. Contact us at info@manybrains.net for more info on TMB Custom Studies and to receive a quote for your project.

TMB Demos:
- Try out the standard versions of our tests through the **TMB Test Demo Page** or through the demo links in the following test descriptions.
- Visit our **TMB Custom Study Demo Page** to try out some of our Ultra-Brief measures and get a feel for the participant experience.

Tests Grouped by Primary Cognitive Construct

Processing Speed

TMB Digit Symbol Matching

TMB Choice Reaction Time

TMB Simple Reaction Time

TMB Trail-Making: Trails A & Trails B

Executive Functioning

Response Inhibition

TMB Gradual Onset Continuous Performance Task

TMB Flanker Attention

Working Memory

TMB Digit Span: Backward & Forward

TMB N-Back

TMB Paced Serial Addition Task

Set Shifting

TMB Letter / Number Switching

General Cognition

Fluid Cognition

TMB Matrix Reasoning

Crystalized Cognition

TMB Vocabulary

Short Term Memory

TMB Verbal Paired Associates Memory

TMB Visual Paired Associates Memory

Attention

TMB Multiple Object Tracking

TMB Flicker Change Detection
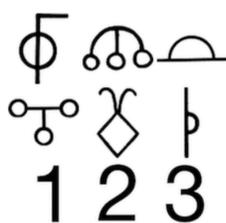
Social Cognition

TMB Multiracial Emotion Recognition

TMB Multiracial Reading the Mind in the Eyes

TMB Cambridge Face Memory Test

TMB Belmont Emotion Sensitivity Tests

Decision Making

TMB Adaptive Delay Discounting

TMB Word Association Sentence Paradigm

Other Tests

TMB Digit Symbol Matching | [Demo Link](#)

Using a symbol-number key shown on screen, match as many symbols and numbers as possible in 90 seconds. This test measures <u>processing speed</u> and <u>visual short term memory</u>.

Alternate Name: **Matching Shapes and Numbers**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N across versions): **> 100,000**
Languages: **English, Spanish, Simplified Chinese, Traditional Chinese, Finnish, Dutch, Brazilian Portuguese**

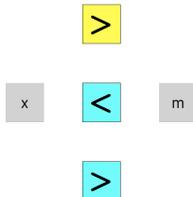| Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard	2 minutes	Unlimited
Ultra-brief	1.5 minutes	Unlimited
EMA	1.5 minutes with instructions/practice & 45 sec without	Unlimited

Description & Psychometrics

Passell, E., Dillon, D. G., Baker, J. T., Vogel, S. C., Scheuer, L. S., Mirin, N. L., ... & Germine, L. (2019). Digital cognitive assessment: Results from the TestMyBrain NIMH Research Domain Criteria (RDoC) field test battery report. https://doi.org/10.31234/osf.io/dcszr

Primary References

Chaytor, N.S., Barbosa-Leiker, C., Germine, L. T., Fonseca, L.M., McPherson, S.M., Tuttle, K.R. (2021). Construct validity, ecological validity and acceptance of self-administered online neuropsychological assessment in adults. *The Clinical Neuropsychologist*, *35*(1), 148-164. https://doi.org/10.1080/13854046.2020.1811893

D'Ardenne, K., Savage, C. R., Small, D., Vainik, U., & Stoeckel, L. E. (2020). Core neuropsychological measures for obesity and diabetes trials: Initial report. *Frontiers in Psychology*, *11*, 554127. https://doi.org/10.3389/fpsyg.2020.554127

Hartshorne, J. K., & Germine, L. T. (2015). When does cognitive functioning peak? The asynchronous rise and fall of different cognitive abilities across the life span. *Psychological Science*, *26*(4), 433-443. https://doi.org/10.1177/0956797614567339

Hawks, Z. W., Strong, R., Jung, L., Beck, E. D., Passell, E. J., Grinspoon, E., ... & Germine, L. T. (2023). Accurate prediction of momentary cognition from intensive longitudinal data. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging, 8*(8), 841-851. https://doi.org/10.1016/j.bpsc.2022.12.002

Singh, S., Strong, R. W., Jung, L., Li, F. H., Grinspoon, L., Scheuer, L. S., Passell, E. J., Martini, P., Chaytor, N., Soble, J. R., & Germine, L. (2021). The TestMyBrain Digital Neuropsychology Toolkit: Development and

Psychometric Characteristics. *Journal of Clinical and Experimental Neuropsychology, 43*(8), 786-795. https://doi.org/10.1080/13803395.2021.2002269

TMB Choice Reaction Time | Demo Link

Indicate the direction of the arrow that is a different color from the rest. This test measures processing speed, response selection/inhibition, and attention.

Alternate Name: **Fast Choices**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N across versions): **> 40,000**
Languages: **English, Spanish, Simplified Chinese, French, Dutch, Brazilian Portuguese**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard	2 minutes	Unlimited
Ultra-brief	1.5 minutes	Unlimited
EMA	1.5 minute with instructions/practice & 1 minute without	Unlimited

Description & Psychometrics
Rutter, L. A., Vahia, I. V., Forester, B. P., Ressler, K. J., & Germine, L. (2020). Heterogeneous Indicators of Cognitive Performance and Performance Variability Across the Lifespan. *Frontiers in Aging Neuroscience*, *12*, 62. https://doi.org/10.3389/fnagi.2020.00062

Primary References
Germine, L. T., Joormann, J., Passell, E., Rutter, L. A., Scheuer, L., Martini, P., ... & Kessler, R. C. (2022). Neurocognition after motor vehicle collision and adverse post-traumatic neuropsychiatric sequelae within 8 weeks: Initial findings from the AURORA study. *Journal of Affective Disorders*, *298*, 57-67. https://doi.org/10.1016/j.jad.2021.10.104

Hawks, Z. W., Strong, R., Jung, L., Beck, E. D., Passell, E. J., Grinspoon, E., ... & Germine, L. T. (2023). Accurate prediction of momentary cognition from intensive longitudinal data. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging, 8*(8), 841-851. https://doi.org/10.1016/j.bpsc.2022.12.002

Singh, S., Strong, R. W., Jung, L., Li, F. H., Grinspoon, L., Scheuer, L. S., Passell, E. J., Martini, P., Chaytor, N., Soble, J. R., & Germine, L. (2021). The TestMyBrain Digital Neuropsychology Toolkit: Development and Psychometric Characteristics. *Journal of Clinical and Experimental Neuropsychology, 43*(8), 786-795. https://doi.org/10.1080/13803395.2021.2002269

General Procedure References

Dykiert, D., Der, G., Starr, J. M., & Deary, I. J. (2012). Age differences in intra-individual variability in simple and choice reaction time: systematic review and meta-analysis. https://doi.org/10.1371/journal.pone.0045759

Maljkovic, V., & Nakayama, K. (1994). Priming of pop-out: I. Role of features. *Memory & Cognition, 22*(6), 657-672. https://doi.org/10.3758/BF03209251

TMB Simple Reaction Time | [Demo Link](#)

Press a key whenever a green square appears. This test measures basic psychomotor response speed.

Alternate Name: **Fast Reactions**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N across versions): **> 70,000**
Languages: **English, Spanish, Simplified Chinese, French**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard	1.5 minutes	Unlimited
Ultra-brief	1 minute	Unlimited

Description & Psychometrics

Rutter, L. A., Vahia, I. V., Forester, B. P., Ressler, K. J., & Germine, L. (2020). Heterogeneous Indicators of Cognitive Performance and Performance Variability Across the Lifespan. *Frontiers in Aging Neuroscience, 12*, 62. https://doi.org/10.3389/fnagi.2020.00062

Primary References

Germine, L. T., Joormann, J., Passell, E., Rutter, L. A., Scheuer, L., Martini, P., ... & Kessler, R. C. (2022). Neurocognition after motor vehicle collision and adverse post-traumatic neuropsychiatric sequelae within 8 weeks: Initial findings from the AURORA study. *Journal of Affective Disorders, 298*, 57-67. https://doi.org/10.1016/j.jad.2021.10.104

Singh, S., Strong, R. W., Jung, L., Li, F. H., Grinspoon, L., Scheuer, L. S., Passell, E. J., Martini, P., Chaytor, N., Soble, J. R., & Germine, L. (2021). The TestMyBrain Digital Neuropsychology Toolkit: Development and Psychometric Characteristics. *Journal of Clinical and Experimental Neuropsychology, 43*(8), 786-795. https://doi.org/10.1080/13803395.2021.2002269

General Procedure References

Dykiert, D., Der, G., Starr, J. M., & Deary, I. J. (2012). Age differences in intra-individual variability in simple and choice reaction time: systematic review and meta-analysis. https://doi.org/10.1371/journal.pone.0045759

TMB Gradual Onset Continuous Performance Test (GradCPT) | **Demo Link**

Press a key when a city image appears and *do not press* when a mountain image appears. Images rapidly transition from one to the next, with mountains appearing only 10 - 20% of the time. This test measures sustained attention, response inhibition, and cognitive control.

Alternate Name: **Continuous Concentration**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N across versions): **> 90,000**
Languages: **English, Spanish, Simplified Chinese, Traditional Chinese, Finnish, French**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard - 300 trials	6 minutes	Unlimited
Ultra-brief - 150 trials	4 minutes	Unlimited
Ultra-brief - 75 trials	3 minutes	Unlimited
EMA	3 minutes with instructions/practice & 1 minute without	Unlimited

Acknowledgments: Mike Esterman and Joe DeGutis, Boston Attention Lab, BVARI

Description & Psychometrics

Passell, E., Dillon, D. G., Baker, J. T., Vogel, S. C., Scheuer, L. S., Mirin, N. L., ... & Germine, L. (2019). Digital cognitive assessment: Results from the TestMyBrain NIMH Research Domain Criteria (RDoC) field test battery report. https://doi.org/10.31234/osf.io/dcszr

Primary References

Fortenbaugh, F. C., DeGutis, J., Germine, L., Wilmer, J. B., Grosso, M., Russo, K., & Esterman, M. (2015). Sustained Attention Across the Life Span in a Sample of 10,000: Dissociating Ability and Strategy. *Psychological Science, 26*(9), 1497–1510. https://doi.org/10.1177/0956797615594896

Hawks, Z. W., Strong, R., Jung, L., Beck, E. D., Passell, E. J., Grinspoon, E., ... & Germine, L. T. (2023). Accurate prediction of momentary cognition from intensive longitudinal data. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging, 8*(8), 841-851. https://doi.org/10.1016/j.bpsc.2022.12.002

Riley, E., Okabe, H., Germine, L., Wilmer, J., Esterman, M., & DeGutis, J. (2016). Gender differences in sustained attentional control relate to gender inequality across countries. *PloS One, 11*(11), e0165100. https://doi.org/10.1371/journal.pone.0165100

Riley, E., Esterman, M., Fortenbaugh, F. C., & DeGutis, J. (2017). Time-of-day variation in sustained attentional control. *Chronobiology International, 34*(7), 993-1001. https://doi.org/10.1080/07420528.2017.1308951

Singh, S., Strong, R. W., Jung, L., Li, F. H., Grinspoon, L., Scheuer, L. S., Passell, E. J., Martini, P., Chaytor, N., Soble, J. R., & Germine, L. (2021). The TestMyBrain

Digital Neuropsychology Toolkit: Development and Psychometric Characteristics. *Journal of Clinical and Experimental Neuropsychology*, *43*(8), 786-795. https://doi.org/10.1080/13803395.2021.2002269

Treviño, M., Zhu, X., Lu, Y. Y., Scheuer, L. S., Passell, E., Huang, G. C., ... & Horowitz, T. S. (2021). How do we measure attention? Using factor analysis to establish construct validity of neuropsychological tests. *Cognitive Research: Principles and Implications*, *6*(1), 1-26. https://doi.org/10.1186/s41235-021-00313-1

Vogel, S. C., Esterman, M., DeGutis, J., Wilmer, J. B., Ressler, K. J., & Germine, L. (2020). Childhood adversity and dimensional variations in adult sustained attention. *Frontiers in Psychology*, 11, 691. https://doi.org/10.3389/fpsyg.2020.00691

General Procedure References

Esterman, M., Noonan, S. K., Rosenberg, M., & DeGutis, J. (2013). In the zone or zoning out? Tracking behavioral and neural fluctuations during sustained attention. *Cerebral Cortex*, *23*(11), 2712-2723. https://doi.org/10.1093/cercor/bhs261

Rosenberg, M., Noonan, S., DeGutis, J., & Esterman, M. (2013). Sustaining visual attention in the face of distraction: a novel gradual-onset continuous performance task. *Attention, Perception, & Psychophysics, 75*(3), 426-439. https://doi.org/10.3758/s13414-012-0413-x

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```
    PERSON = ?

1. CHAIR

2. PERSUADE

3. HANDLE

4. HUMAN

5. IDENTICAL
```

TMB Vocabulary | [Demo Link (Standard - Moderate)](#)

For each word, pick which of five words is the closest in meaning (or synonym). This test measures long-term verbal memory, crystallized cognitive ability, and verbal reasoning.

Alternate Name: **Vocabulary / Opposites (Salthouse Antonyms)**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N across versions): **> 103,000**
Languages: **English, Spanish (Standard - Moderate, Ultra-brief Moderate)***

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard - Moderate	4 minutes	N/A
Standard - Hard	3 minutes	2
Ultra-brief - Moderate	1 minute	N/A
Salthouse Synonyms - Hard	3 minutes	N/A
Salthouse Antonyms - Hard	4 minutes	N/A

Primary References:

Hartshorne, J. K., & Germine, L. T. (2015). When does cognitive functioning peak? The asynchronous rise and fall of different cognitive abilities across the life span. *Psychological Science*, *26*(4), 433-443. https://doi.org/10.1177/0956797614567339

Richler, J. J., Wilmer, J. B., & Gauthier, I. (2017). General object recognition is specific: Evidence from novel and familiar objects. *Cognition*, *166*, 42-55. https://doi.org/10.1016/j.cognition.2017.05.019

Modeled after the Wordsum test used in the General Social Survey:

Smith, T. W., Marsden, P., Hout, M., & Kim, J. (2012). General social surveys. *National Opinion Research Center*. https://doi.org/10.3886/ICPSR34802.v1
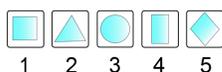
Salthouse Primary Reference:

Salthouse, T. A. (1993). Speed and knowledge as determinants of adult age differences in verbal tasks. *Journal of Gerontology*, *48*(1), 29-36.
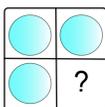
TMB Matrix Reasoning | [Demo Link](#)

Identify the image that best completes the pattern in a series, based on a logical rule. This test measures fluid cognitive ability and nonverbal reasoning.

Alternate Name: **Visual Patterns**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N across versions): **> 80,000**
Languages: **English, Spanish, Simplified Chinese, Traditional Chinese (Ultra-brief Screener), French, Finnish, Dutch, Brazilian Portuguese**

Version	Description	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard	36-item, stopping rule, colorblind friendly	7.5 minutes	N/A
Legacy	35-item, no stopping rule	9 minutes	N/A
Ultra-brief Standard	11-item, stopping rule, colorblind friendly	3 minutes	3
Ultra-brief Screener	10-item, no stopping rule, colorblind friendly	3 minutes	N/A
Ultra-brief Adaptive	8-item, no stopping rule, colorblind friendly, adaptive difficulty	3.5 minutes	N/A

Description & Psychometrics

Passell, E., Dillon, D. G., Baker, J. T., Vogel, S. C., Scheuer, L. S., Mirin, N. L., ... & Germine, L. (2019). Digital cognitive assessment: Results from the

TestMyBrain NIMH Research Domain Criteria (RDoC) field test battery report. https://doi.org/10.31234/osf.io/dcszr

Primary References

Chaytor, N.S., Barbosa-Leiker, C., Germine, L. T., Fonseca, L.M., McPherson, S.M., Tuttle, K.R. (2020). Construct validity, ecological validity and acceptance of self-administered online neuropsychological assessment in adults. *The Clinical Neuropsychologist*, *35*(1), 148-164. https://doi.org/10.1080/13854046.2020.1811893

D'Ardenne, K., Savage, C. R., Small, D., Vainik, U., & Stoeckel, L. E. (2020). Core neuropsychological measures for obesity and diabetes trials: Initial report. *Frontiers in Psychology*, *11*, 554127. https://doi.org/10.3389/fpsyg.2020.554127

Singh, S., Strong, R. W., Jung, L., Li, F. H., Grinspoon, L., Scheuer, L. S., ... & Germine, L. (2022). The TestMyBrain Digital Neuropsychology Toolkit: Development and Psychometric Characteristics. *Journal of Clinical and Experimental Neuropsychology*, 1-10. https://doi.org/10.1080/13803395.2021.2002269

Richler, J. J., Wilmer, J. B., & Gauthier, I. (2017). General object recognition is specific: Evidence from novel and familiar objects. *Cognition, 166,* 42-55. https://doi.org/10.1016/j.cognition.2017.05.019

Press 1 more number.

538

TMB Digit Span | [Forward Demo](#) | [Backward Demo](#)

Recall sequences of digits of increasing length, either in the same order as presented (TMB Forward Digit Span) or in the opposite order (TMB Backward Digit Span). This test measures <u>auditory span</u>, <u>short term memory</u>, <u>attention</u>, and <u>working memory</u> (backward version). The two tests can be administered alone/individually or together for any given project.

Alternate Name: **Memorizing Numbers**
Size of Normative Dataset (approx. N): **Forward > 27,000; Backward > 10,000**
Smartphone Compatible: **YES**
Languages: **English, Spanish, French, Dutch, Brazilian Portuguese**
Test Termination Trigger: **Stopping Rule Activated**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Backward	3.5 minutes	Unlimited
Forward	3.5 minutes	Unlimited

Description & Psychometrics

Chaytor, N.S., Barbosa-Leiker, C., Germine, L. T., Fonseca, L.M., McPherson, S.M., Tuttle, K.R. (2020). Construct validity, ecological validity and acceptance of self-administered online neuropsychological assessment in

adults. *The Clinical Neuropsychologist, 35*(1), 148-164. https://doi.org/10.1080/13854046.2020.1811893

Primary References

Germine, L. T., Joormann, J., Passell, E., Rutter, L. A., Scheuer, L., Martini, P., ... & Kessler, R. C. (2022). Neurocognition after motor vehicle collision and adverse post-traumatic neuropsychiatric sequelae within 8 weeks: Initial findings from the AURORA study. *Journal of Affective Disorders, 298,* 57-67. https://doi.org/10.1016/j.jad.2021.10.104

Hartshorne, J. K., & Germine, L. T. (2015). When does cognitive functioning peak? The asynchronous rise and fall of different cognitive abilities across the life span. *Psychological Science, 26*(4), 433-443. https://doi.org/10.1177/0956797614567339

Singh, S., Strong, R. W., Jung, L., Li, F. H., Grinspoon, L., Scheuer, L. S., ... & Germine, L. (2022). The TestMyBrain Digital Neuropsychology Toolkit: Development and Psychometric Characteristics. *Journal of Clinical and Experimental Neuropsychology*, 1-10. https://doi.org/10.1080/13803395.2021.2002269

Treviño, M., Zhu, X., Lu, Y. Y., Scheuer, L. S., Passell, E., Huang, G. C., ... & Horowitz, T. S. (2021). How do we measure attention? Using factor analysis to establish construct validity of neuropsychological tests. *Cognitive Research: Principles and Implications, 6*(1), 1-26. https://doi.org/10.1186/s41235-021-00313-1

```
        SKY – ?

  1. POT

  2. PAN

  3. BLUE

  4. DISH
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TMB Verbal Paired Associates Memory
Standard Concrete Demo: [Study](#) | [Test](#)
Standard Abstract Demo: [Study](#) | [Test](#)
Learn and then recognize a set of word pairs. Word pairs are selected to be either abstract (hard version) or concrete (easy version). This test measures <u>verbal memory</u> and <u>episodic memory</u>.

Alternate Name: **Remembering Words**
Test Note: ***This test requires a delay of approximately 2-3 minutes between the study portion and the test portion. We recommend that this test be paired with another test (2-3 min in length).***
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N across versions): **> 44,000**
Languages: **English, Simplified Chinese (Standard - Concrete, Ultra-brief - Concrete), Traditional Chinese (Ultra-brief - Concrete)*, Finnish*, Spanish (Standard - Concrete)*, French (Standard - Concrete)*, Dutch (Standard - Concrete)*, Brazilian Portuguese (Standard - Concrete)***

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard - Concrete	4.5 minutes (not including delay)	4

Standard - Abstract	5 minutes (not including delay)	2
Ultra-brief - Concrete	2 minutes (not including delay)	25
Ultra-brief - Abstract	2 minutes (not including delay)	N/A

Acknowledgments: Christopher Chabris, Geisinger Health

Primary References

Germine, L. T., Nakayama, K., Duchaine, B. C., Chabris, C. F., Chatterjee, G., & Wilmer, J. B. (2012). Is the Web as good as the lab? Comparable performance from Web and lab in cognitive/perceptual experiments. *Psychonomic Bulletin & Review*, *19*(5), 847–857. https://doi.org/10.3758/s13423-012-0296-9

Singh, S., Strong, R. W., Jung, L., Li, F. H., Grinspoon, L., Scheuer, L. S., ... & Germine, L. (2022). The TestMyBrain Digital Neuropsychology Toolkit: Development and Psychometric Characteristics. *Journal of Clinical and Experimental Neuropsychology*, 1-10. https://doi.org/10.1080/13803395.2021.2002269

Wilmer, J. B., Germine, L., Chabris, C. F., Chatterjee, G., Gerbasi, M., & Nakayama, K. (2012). Capturing specific abilities as a window into human individuality: The example of face recognition. *Cognitive Neuropsychology,* *29*(5-6), 360-392. https://doi.org/10.1080/02643294.2012.753433

General Procedure References

Wechsler, D. (1997). Wechsler Memory Scale-III. San Antonio, TX: Psychological Corporation.

TMB Visual Paired Associates Memory
Study Demo | Test Demo
Learn and then recognize a set of picture pairs (scene images). This test measures visual memory and episodic memory.

Alternate Name: **Remembering Pictures**
Test Note: ***This test requires a delay of approximately 2-3 minutes between the study portion and the test portion. We recommend that this test be paired with another test (2-3 min in length).***
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N): **> 11,500**
Languages: **English, Spanish, Simplified Chinese, Finnish, Dutch, Brazilian Portuguese**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard	5.5 minutes	N/A

Acknowledgments: Images from MIT SUN Database (Xiao et al., 2010)

Primary References

Singh, S., Strong, R. W., Jung, L., Li, F. H., Grinspoon, L., Scheuer, L. S., ... & Germine, L. (2022). The TestMyBrain Digital Neuropsychology Toolkit: Development and Psychometric Characteristics. *Journal of Clinical and Experimental Neuropsychology*, 1-10. https://doi.org/10.1080/13803395.2021.2002269

TMB Flanker Attention | [Demo Link]

<< > <<

Press a key to identify which direction the middle arrow is pointing. This is a test of cognitive control, response inhibition, and attention.

Alternate Name: **Left or Right**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N): **> 3,000**
Languages: **English, Spanish**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard	4.5 minutes	Unlimited

Primary References

Erb, C. D., Germine, L., & Hartshorne, J. K. (2023). Cognitive control across the lifespan: Congruency effects reveal divergent developmental trajectories. *Journal of Experimental Psychology: General, 152*(11), 3285–3291. https://doi.org/10.1037/xge0001429

Treviño, M., Zhu, X., Lu, Y. Y., Scheuer, L. S., Passell, E., Huang, G. C., ... & Horowitz, T. S. (2021). How do we measure attention? Using factor analysis to establish construct validity of neuropsychological tests. *Cognitive Research: Principles and Implications, 6*(1), 1-26. https://doi.org/10.1186/s41235-021-00313-1

Treviño, M., Zhu, X., Lu, Y. Y., Scheuer, L. S., Passell, E., Huang, G., ... & Horowitz, T. S. (2022). Establishing construct validity of neuropsychological tests in cancer survivors. *Psycho‑Oncology, 31*(10), 1728-1736. https://doi.org/10.1002/pon.6015

TMB Multiracial Emotion Recognition | [Demo Link]

Identify which of four emotions (anger, happiness, fear, sadness) best describes the emotion in a face. This test measures face emotion perception and emotion identification.

Alternate Name: **Guess the Emotion**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N): **> 45,000**
Languages: **English, Spanish, Simplified Chinese, Finnish**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard	3.5 minutes	N/A (but we can shuffle item order)

Acknowledgments: Actors of Boston's Company One Theatre

Description & Psychometrics

Passell, E., Dillon, D. G., Baker, J. T., Vogel, S. C., Scheuer, L. S., Mirin, N. L., … Germine, L. (2019, January 26). Digital Cognitive Assessment: Results from the TestMyBrain NIMH Research Domain Criteria (RDoC) Field Test Battery Report. https://doi.org/10.31234/osf.io/dcszr

Primary References

Deveney, C. M., Chavez, G., & Mejia, L. (2022). Trait irritability in adults is unrelated to face emotion identification. *Personality and Individual Differences, 185*, 111290. https://doi.org/10.1016/j.paid.2021.111290

Deveney, C. M., Chen, S. H., Wilmer, J. B., Zhao, V., Schmidt, H. B., & Germine, L. (2018). How generalizable is the inverse relationship between social class and emotion perception?. *PloS One, 13*(10), e0205949. https://doi.org/10.1371/journal.pone.0205949

Dodell-Feder, D., Ressler, K. J., & Germine, L. T. (2020). Social cognition or social class and culture? On the interpretation of differences in social cognitive performance. *Psychological Medicine, 50*(1), 133-145. https://doi.org/10.1017/S003329171800404X

Germine, L. T., Joormann, J., Passell, E., Rutter, L. A., Scheuer, L., Martini, P., ... & Kessler, R. C. (2022). Neurocognition after motor vehicle collision and adverse post-traumatic neuropsychiatric sequelae within 8 weeks: Initial findings from the AURORA study. *Journal of Affective Disorders*, *298*, 57-67. https://doi.org/10.1016/j.jad.2021.10.104

TMB Multiracial Reading the Mind in the Eyes (RMET) | Demo Link

Decide which of four complex emotion words describes the mental state of someone based on just the eye region of their face. This test measures theory of mind and social understanding and was adapted from the original (white faces only) Reading the Mind in the Eyes Test.

Alternate Name: **Emotion in the Eyes**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N): **> 20,000**
Languages: **English**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard	4 minutes	N/A

Acknowledgments: Actors of Boston's Company One Theatre

Description & Psychometrics

Kim, H., Kaduthodil, J., Strong, R. W., Germine, L., Cohan, S., & Wilmer, J. B. (2024). Multiracial Reading the Mind in the Eyes Test (MRMET): an inclusive version of an influential measure. *Behavior Research Methods*. https://doi.org/10.3758/s13428-023-02323-x

General Procedure References

Baron-Cohen, S., Jolliffe, T., Mortimore, C., & Robertson, M. (1997). Another advanced test of theory of mind: evidence from very high functioning adults with autism or asperger syndrome. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *38*(7), 813–822. https://doi.org/10.1111/j.1469-7610.1997.tb01599.x

Baron-Cohen, S., Wheelwright, S., Hill, J., Raste, Y., & Plumb, I. (2001). The "Reading the Mind in the Eyes" Test revised version: a study with normal adults, and adults with Asperger syndrome or high-functioning autism. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *42*(2), 241–251. https://doi.org/10.1017/S0021963001006643

C

TMB N-Back Memory** | [2-Back EMA (Medium) Demo](#)
Press a key when the letter you see is the same as the letter that appeared two letters before. This test measures <u>attention</u> and <u>working memory</u>.
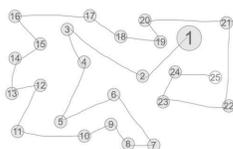
Alternate Name: **Thinking Back**
Size of Normative Dataset (approx. N): 5,000
Smartphone Compatible: **YES**
Languages: **English**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
2-Back Standard (Medium)	6 minutes	Unlimited
2-Back Standard (Hard)	6 minutes	Unlimited
2-Back EMA (Medium)	2 minutes with instructions/practice & 1 min without	Unlimited
2-Back EMA (Hard)	2 minutes with instructions/practice & 1 min without	Unlimited

*****Note:** This is a relatively new TestMyBrain test with limited normative data; it has not been validated to the same extent as our other tests. The EMA versions are being used in ongoing studies, but their data have not yet been published. Therefore, we currently recommend using this test only if a norms-based interpretation is not required.*

TMB Trail-Making Tests | [Trails A Demo](#) | [Trails B Demo](#)

Connect a series of numbers in ascending order (Trails A) or numbers and letters in alternate ascending order (Trails B). These tests measure <u>processing speed</u>, <u>task switching</u> (Trails B), and <u>cognitive flexibility</u> (Trails B). These two tests can be administered alone/individually or together for any given project.

Alternate Name: **Connect the Dots**
Smartphone Compatible: **TABLET (larger screen size needed)**
Size of Normative Dataset (approx. N): **Part A > 30,000; Part B > 27,000**
Languages: **English, Simplified Chinese (Part A only), Spanish, Estonian**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Part A	1.5 minutes	Unlimited
Part B	1.5 minutes	Unlimited

Description & Psychometrics

Singh, S., Strong, R. W., Jung, L., Li, F. H., Grinspoon, L., Scheuer, L. S., Passell, E. J., Martini, P., Chaytor, N., Soble, J. R., & Germine, L. (2021). The TestMyBrain Digital Neuropsychology Toolkit: Development and Psychometric Characteristics. *Journal of Clinical and Experimental Neuropsychology, 43*(8), 786-795. https://doi.org/10.1080/13803395.2021.2002269

Primary References

Passell, E., Strong, R. W., Rutter, L. A., Kim, H., Scheuer, L., Martini, P., ... & Germine, L. (2021). Cognitive test scores vary with choice of personal digital device. *Behavior Research Methods*, 1-14. https://doi.org/10.3758/s13428-021-01597-3

Treviño, M., Zhu, X., Lu, Y. Y., Scheuer, L. S., Passell, E., Huang, G. C., ... & Horowitz, T. S. (2021). How do we measure attention? Using factor analysis to establish construct validity of neuropsychological tests. *Cognitive Research: Principles and Implications*, *6*(1), 1-26. https://doi.org/10.1186/s41235-021-00313-1

TMB Adaptive Delay Discounting | [Demo Link](#) (Ultra-brief)

Choose between smaller, immediate rewards (hypothetical) and larger rewards at a later date. This test measures <u>temporal discounting</u>, aspects of <u>impulsivity</u>, and <u>decision-making</u>.

Alternate Name: **Now or Later**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N): **> 48,000**
Languages: **English, Spanish**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard	4 minutes	N/A
Ultra-brief	2 minutes	N/A

Description & Psychometrics

Passell, E., Dillon, D. G., Baker, J. T., Vogel, S. C., Scheuer, L. S., Mirin, N. L., ... & Germine, L. (2019). Digital cognitive assessment: Results from the TestMyBrain NIMH Research Domain Criteria (RDoC) field test battery report. https://doi.org/10.31234/osf.io/dcszr

Primary References

Stern, C. M., McPherson, I., Dreier, M. J., Coniglio, K., Palmer, L. P., Gydus, J., Graver, H., Germine, L. T., ...Plessow, F., & Becker, K. R. (2024). Avoidant/restrictive food intake disorder differs from anorexia nervosa in delay discounting. *Journal of Eating Disorders, 12*(1), 19. https://doi.org/10.1186/s40337-023-00958-x

Germine, L. T., Joormann, J., Passell, E., Rutter, L. A., Scheuer, L., Martini, P., ... & Kessler, R. C. (2022). Neurocognition after motor vehicle collision and adverse post-traumatic neuropsychiatric sequelae within 8 weeks: Initial findings from the AURORA study. *Journal of Affective Disorders*, *298*, 57-67. https://doi.org/10.1016/j.jad.2021.10.104

General Procedure References

Du, W., Green, L. & Myerson, J. Cross-Cultural Comparisons of Discounting Delayed and Probabilistic Rewards. *Psychol Rec* 52, 479–492 (2002). https://doi.org/10.1007/BF03395199

Levitt H. (1971). Transformed up-down methods in psychoacoustics. *The Journal of the Acoustical Society of America*, *49*(2), 467+. https://doi.org/10.1121/1.1912375

Myerson, J., & Green, L. (1995). Discounting of delayed rewards: Models of individual choice. *Journal of the Experimental Analysis of Behavior*, *64*(3), 263–276. https://doi.org/10.1901/jeab.1995.64-263

Odum A. L. (2011). Delay discounting: I'm a k, you're a k. *Journal of the Experimental Analysis of Behavior*, *96*(3), 427–439. https://doi.org/10.1901/jeab.2011.96-423

Yoon, J. H., & Higgins, S. T. (2008). Turning k on its head: comments on use of an ED50 in delay discounting research. *Drug and Alcohol Dependence*, *95*(1-2), 169–172. https://doi.org/10.1016/j.drugalcdep.2007.12.011
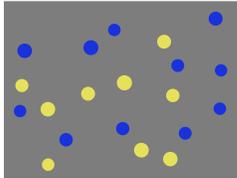
Click the dot that changes color.

TMB Flicker Change Detection | [Demo Link](#)

Given a set of flashing blue and yellow dots, find the dot that is changing color from blue to yellow. This is a test of <u>visual search</u>, <u>visual attention</u>, <u>change detection</u>, and <u>visual working memory</u>.

Alternate Name: **Spot the Difference**
Smartphone Compatible: **TABLET ONLY (larger screen size needed)**
Size of Normative Dataset (approx. N): **> 15,000**
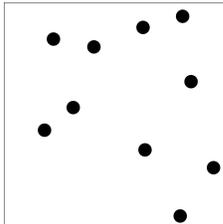Languages: **English, Simplified Chinese, Finnish, Spanish**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard	3 minutes	Unlimited
Ultra-brief	1 minute	Unlimited

Description & Psychometrics

Passell, E., Dillon, D. G., Baker, J. T., Vogel, S. C., Scheuer, L. S., Mirin, N. L., ... & Germine, L. (2019). Digital cognitive assessment: Results from the TestMyBrain NIMH Research Domain Criteria (RDoC) field test battery report. https://doi.org/10.31234/osf.io/dcszr

Primary References

Wilmer, J. B., Germine, L., Ly, R., Hartshorne, J. K., Kwok, H., Pailian, H., ... & Halberda, J. (2012). The heritability and specificity of change detection ability. *Journal of Vision, 12*(9), 1275-1275. https://doi.org/10.1167/12.9.1275

TMB Multiple Object Tracking | [Demo Link](#)

Remember and track a set of target circles as they move around the screen, among a larger set of identical distractor circles. This test measures <u>visual working memory</u> and <u>visuospatial attention</u>.

Alternate Name: **Splitting Your Attention**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N): **> 45,000**
Languages: **English, Spanish**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard	5.5 minutes	Unlimited
Ultra-brief	2.5 minutes	Unlimited
EMA	2.5 minutes with instructions/practice & 1 minute without	Unlimited

Primary References

Hawks, Z. W., Strong, R., Jung, L., Beck, E. D., Passell, E. J., Grinspoon, E., ... & Germine, L. T. (2023). Accurate prediction of momentary cognition from intensive longitudinal data. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging, 8*(8), 841-851. https://doi.org/10.1016/j.bpsc.2022.12.002

Treviño, M., Zhu, X., Lu, Y. Y., Scheuer, L. S., Passell, E., Huang, G. C., ... & Horowitz, T. S. (2021). How do we measure attention? Using factor analysis to establish construct validity of neuropsychological tests. *Cognitive Research: Principles and Implications*, *6*(1), 1-26. https://doi.org/10.1186/s41235-021-00313-1

NUMBER

1a

| 123 ABC | 789 XYZ |

TMB Letter / Number Switching | **Demo Link**

Judge whether a number is in the set 123 or 789 (number task) or whether a letter is in the set ABC or XYZ (letter task). Participants are cued regarding which task to complete before each trial. This test measures <u>response selection/inhibition</u>, <u>task-switching</u>, and <u>cognitive control</u>.

Alternate Name: **Switching Tasks**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N): **> 10,000**
Languages: **English, Spanish, Dutch, Brazilian Portuguese**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard	5 minutes	Unlimited

TMB Letter/Number Switching was adapted from the following paper:
Ophir, E., Nass, C., & Wagner, A. D. (2009). Cognitive control in media multitaskers. *Proceedings of the National Academy of Sciences, 106*(37), 15583-15587. https://doi.org/10.1073/pnas.0903620106

2

Less   More

TMB Paced Serial Addition Task | **Demo Link**

Add pairs of numbers that appear one after another and determine whether the sum is less than or greater than 10. This is a test of <u>sustained attention</u>, <u>working memory</u>, and <u>cognitive control</u>.

Alternate Name: **Quick Addition**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N): **> 5,000**
Languages: **English, Spanish, Dutch, Brazilian Portuguese**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard	5 minutes	Unlimited

Primary References

Mascarenhas Fonseca, L., Strong, R. W., Singh, S., Bulger, J. D., Cleveland, M., Grinspoon, E., ... & Chaytor, N. S. (2023). Glycemic Variability and Fluctuations in Cognitive Status in Adults With Type 1 Diabetes (GluCog): Observational Study Using Ecological Momentary Assessment of Cognition. *JMIR Diabetes, 8,* e39750. https://doi.org/10.2196/39750

TMB Belmont Emotion Sensitivity Tests (BEST)
[Happiness Demo](#) | [Anger Demo](#) | [Fear Demo](#)

Judge which of two faces is expressing more of the target emotion (happiness, anger, or fear - one test for each emotion). Each test measures sensitivity to a different face emotion. The three subtests can be administered alone/individually or together for any given project. The overall set of tests measures <u>face emotion perception</u>.

Alternate Name: **Emotion Sensitivity**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N): **> 10,000 (each)**
Languages: **English, Spanish, Dutch, Brazilian Portuguese**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Happiness	3 minutes	N/A
Anger	3 minutes	N/A
Fear	3.5 minutes	N/A

Primary References

Lebois, L. A., Palermo, C. A., Scheuer, L. S., Lebois, E. P., Winternitz, S. R., Germine, L., & Kaufman, M. L. (2020). Higher integration scores are associated with facial emotion perception differences in dissociative identity disorder. *Journal of Psychiatric Research, 123*, 164-170. https://doi.org/10.1016/j.jpsychires.2020.02.007

Rutter, L. A., Dodell-Feder, D., Vahia, I. V., Forester, B. P., Ressler, K. J., Wilmer, J. B., & Germine, L. (2019). Emotion sensitivity across the lifespan: Mapping clinical risk periods to sensitivity to facial emotion intensity. *Journal of Experimental Psychology: General, 148*(11), 1993–2005. https://doi.org/10.1037/xge0000559

Rutter, L. A., Lind, C., Howard, J., Lakhan, P., & Germine, L. (2022). Posttraumatic stress symptom severity is associated with impaired processing of emotional faces in a large international sample. *Journal of Traumatic Stress, 35,* 1263–1272. https://doi.org/10.1002/jts.22834

Rutter, L. A., Passell, E., Scheuer, L., & Germine, L. (2020). Depression severity is associated with impaired facial emotion processing in a large international

sample. *Journal of Affective Disorders, 275,* 175-179. https://doi.org/10.1016/j.jad.2020.07.006

Rutter, L. A., Scheuer, L., Vahia, I. V., Forester, B. P., Smoller, J. W., & Germine, L. (2019). Emotion sensitivity and self-reported symptoms of generalized anxiety disorder across the lifespan: A population-based sample approach. *Brain and Behavior, 9*(6), e01282. https://doi.org/10.1002/brb3.1282

TMB Cambridge Face Memory Test | [Demo Link](#)

Learn and recognize a set of 6 faces from different angles and lighting conditions. This is a test of <u>face perception</u> and <u>face recognition</u>.

Alternate Name: **Remembering Faces**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N): **> 67,000**
Languages: **English**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Real Faces	10 minutes	N/A
Computer Generated Faces	10 minutes	N/A

Acknowledgments: Brad Duchaine, Social Perception Lab, Dartmouth University and Ken Nakayama, Vision Sciences Lab, Harvard University

Primary References

Germine, L. T., Duchaine, B., & Nakayama, K. (2011). Where cognitive development and aging meet: Face learning ability peaks after age 30. *Cognition, 118*(2), 201-210. https://doi.org/10.1016/j.cognition.2010.11.002

Germine, L. T., Nakayama, K., Duchaine, B. C., Chabris, C. F., Chatterjee, G., & Wilmer, J. B. (2012). Is the Web as good as the lab? Comparable performance from Web and lab in cognitive/perceptual experiments. *Psychonomic Bulletin & Review, 19*(5), 847–857. https://doi.org/10.3758/s13423-012-0296-9

Pozo, E., T. Germine, L., Scheuer, L., & Strong, R. W. (2021). Evaluating the Reliability and Validity of the Famous Faces Doppelgangers Test, a Novel Measure of Familiar Face Recognition. *Assessment.* https://doi.org/10.1177/10731911221087746

Wilmer, J. B., Germine, L., Chabris, C. F., Chatterjee, G., Gerbasi, M., & Nakayama, K. (2012). Capturing specific abilities as a window into human individuality: The example of face recognition. *Cognitive Neuropsychology, 29*(5-6), 360-392. https://doi.org/10.1080/02643294.2012.753433

Wilmer, J. B., Germine, L., Chabris, C. F., Chatterjee, G., Williams, M., Loken, E., ... & Duchaine, B. (2010). Human face recognition ability is specific and highly heritable. *Proceedings of the National Academy of Sciences, 107*(11), 5238-5241. https://doi.org/10.1073/pnas.0913053107

General Procedure References

Duchaine, B., & Nakayama, K. (2006). The Cambridge Face Memory Test: Results for neurologically intact individuals and an investigation of its validity using inverted face stimuli and prosopagnosic participants. *Neuropsychologia, 44*(4), 576-585. https://doi.org/10.1016/j.neuropsychologia.2005.07.001

1 of 50

You make small talk with people at a wedding.

[Awkward]   [Polite]

TMB Word Sentence Association Paradigm | [Demo Link]

Given an ambiguous sentence, decide which of two words provides the best interpretation of the sentence. This test measures <u>negative interpretation biases</u> in information processing.

Alternate Name: **Interpreting Situations**
Smartphone Compatible: **YES**
Size of Normative Dataset (approx. N): **> 6,000**
Languages: **English**

Version	Average Completion Time (including instructions & practice)	# of Alternate Forms
Standard	4 minutes	N/A
Ultra-Brief	2.5 minutes	4

Acknowledgments: Courtney Beard, Cognition and Affect Research and Education (CARE) Lab, McLean Hospital

Primary References

Ferguson, I., George, G., Wu, C., Xu, I., Passel, E., Germine, L. T., & Beard, C. (2024). Evaluating the Reliability of the Word-Sentence Association Paradigm (WSAP) as an Interpretation bias Assessment across Ethnoracial Groups. *Cognitive Therapy and Research*, 1-8.

General Procedure References

Beard, C., & Amir, N. (2009). Interpretation in social anxiety: When meaning precedes ambiguity. *Cognitive Therapy and Research, 33*(4), 406-415. https://doi.org/10.1007/s10608-009-9235-0

Gonsalves, M., Whittles, R. L., Weisberg, R. B., & Beard, C. (2019). A systematic review of the word sentence association paradigm (WSAP). *Journal of Behavior Therapy and Experimental Psychiatry, 64,* 133-148. https://doi.org/10.1016/j.jbtep.2019.04.003

* While these tests have been professionally translated from our validated English versions, we have not yet validated and acquired norms for this language version of these tests. We would strongly encourage the use of a comparison or control group rather than using a norms-based interpretation for the non-English versions of TMB Vocabulary or TMB Verbal Paired Associates, as language is integral to these tests.

Other Tests

We support the following tests only through specific test development partnerships:

Abstract Art Memory
Approximate Number Sense Test
Balloon Analog Risk-taking
   Test
Corsi Spatial Span
Dillon Emotional Word Memory
Face Attractiveness Preferences
Famous Faces (Free Response
   /Self-Scoring)
Famous Faces (Doppelgangers)
Letter Cancellation Test
Letter/Number Sequencing
L/T Visual Search
Navon Local/Global Processing
Neuromyths Quiz
Novel Object Memory Test
   Numerosity Discrimination
   Task
One-Time Passcode
Probabilistic Reward Test
Queen Square Face Emotion
   Discrimination Tests
   (Identity/Emotion)
Scene Change Detection
Threat/Neutral Dot Probe Test
Threat/Neutral Sternberg Test
Trauma Implicit Association
   Test