




ICAR

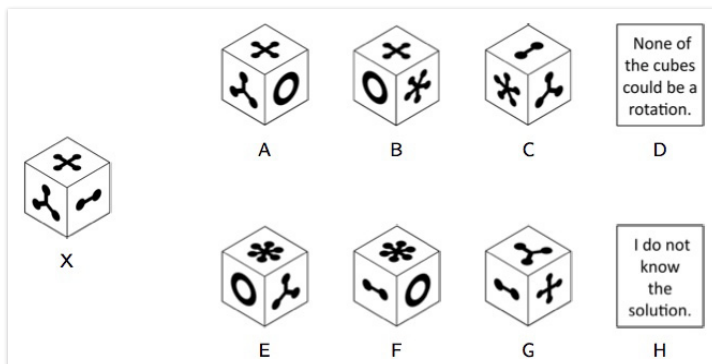
Catalogue

Version 1.0
06 | 17

1. Three-Dimensional Rotation

The 24 Three-Dimensional Rotation items present participants with cube renderings and ask participants to identify which of the response choices is a possible rotation of the target stimuli.

Sample item:



The sample item consists of a target cube 'X' and seven response options 'A' through 'G'. The target cube 'X' has a cross on the top face, a hook on the left face, and a hook on the right face. The response options are:

- A: Cross on top, hook on left, circle on right.
- B: Cross on top, circle on left, hook on right.
- C: Hook on top, hook on left, hook on right.
- D: None of the cubes could be a rotation.
- E: Asterisk on top, circle on left, hook on right.
- F: Asterisk on top, hook on left, circle on right.
- G: Hook on top, hook on left, cross on right.
- H: I do not know the solution.

This catalogue will list all ICAR measures that have been made available to qualified users on the ICAR website. Information about the item types, including both brief introduction and sample items, will be regularly updated.

2. Letter and Number Series

The 9 Letter and Number Series items prompt participants with short digit or letter sequences and ask them to identify the next position in the sequence from among six choices.

Sample item:

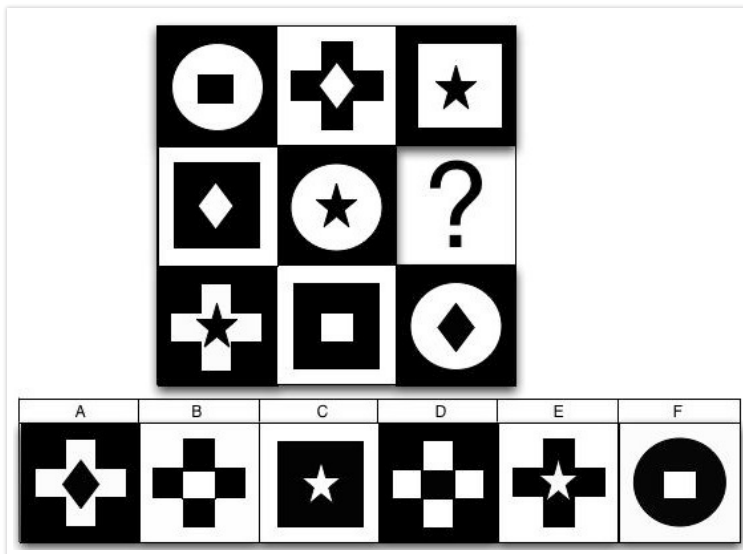
In the following alphanumeric series, what letter comes next? I J L O S

(1) T (2) U (3) V (4) X (5) Y (6) Z

3. Matrix Reasoning

The 11 Matrix Reasoning items contain stimuli that are similar to those used in Raven's Progressive Matrices. The stimuli are 3x3 arrays of geometric shapes with one of the nine shapes missing. Participants are instructed to identify which of six geometric shapes presented as response choices will best complete the stimuli.

Sample item:



4. Verbal Reasoning

The 16 Verbal Reasoning items include a variety of logic, vocabulary and general knowledge questions.

Sample item:

IF the day after tomorrow is two days before Thursday, then what day is it today?

(1) Friday (2) Monday (3) Wednesday (4) Saturday (5) Tuesday (6) Sunday

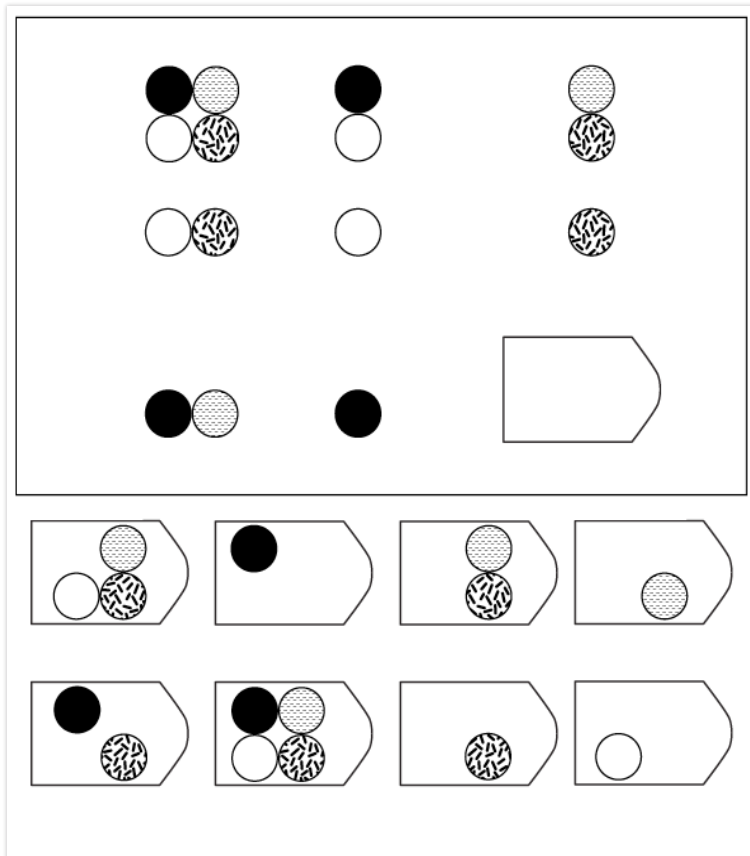
Types 1-4 taken from:

Condon, D. M. and Revelle, W. (2014). The International Cognitive Ability Resource: Development and initial validation of a public domain measure Intelligence, 43, 52–64.

5. Progressive Matrices

27 items have been designed based on similar rules followed by the Raven's Progressive Matrices. Each item has 8 distractors.

Sample item:



6. Face Detection

The newly developed Mooney-Verhallen Test (Verhallen & Mollon, 2015) comprises 140 items, divided into four sections of equal length (35 trials each), whereby each section is preceded by one practice trial (all four practice trials are unique). The presentation of the 140 items is randomised for each participant, and the performance measure of interest is the number of trials on which participants correctly click on either of the eyes of the face (not just on the correct image out of three).

further information

Verhallen, R. J., & Mollon, J. D. (2016). A new Mooney test. *Behavior research methods*, 48(4), 1546-1559.

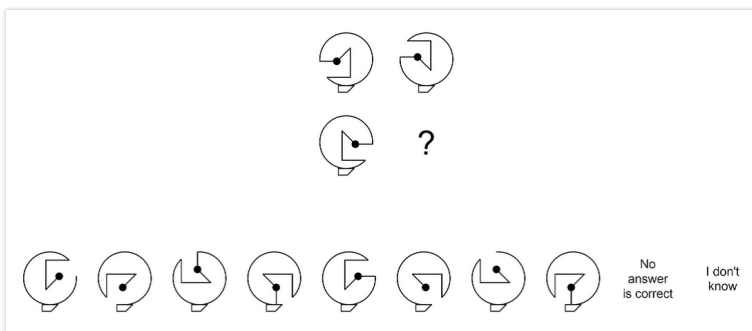
Sample item:



7. Figural Analogies

Two item sets from the Test of Figural Analogies (Blum, Holling, Galibert & Forthmann, 2016) are provided, consisting of 30 and 8 items, respectively. Each item contains a main problem and a set of options, only one option being the right answer. The main problem comprises three shapes disposed in a 2*2 array where the fourth one is missing, and the respondent is encouraged to find an option that fits better to the missing space. These shapes are related to each other by analogy.

Sample item:



8. Melodic Discrimination

A large item bank (60 items from each of the 20 item families) has been made available by Harrison, Musil, & Müllensiefen (2016), who developed an adaptive melodic discrimination test using automatic item generation. In each trial, the test-taker is played several versions of the same melody, and their task is to identify differences between these versions. This test does not require any knowledge of formal musical notation, and so is well-suited for assessing musical skills in both trained musicians and non-musicians.

further information

Blum, G.D., Holling, H., Galibert, M.S., & Forthmann, B. (2016). Task difficulty prediction of figural analogies. *Intelligence*, 56, 72-81

further information

Harrison, P. M., Musil, J. J., & Müllensiefen, D. (2016). Modelling Melodic Discrimination Tests: Descriptive and Explanatory Approaches. *Journal of New Music Research*, 45(3), 265-280.

<https://www.nature.com/articles/s41598-017-03586-z>

9. Number Series

48 number series items were created by a newly developed Automatic Number Series Item Generator (ANSIG), which is fully available as an R package “NumGen”. Participants are asked to fill in one or two numbers that follow in the sequence without time limitation.

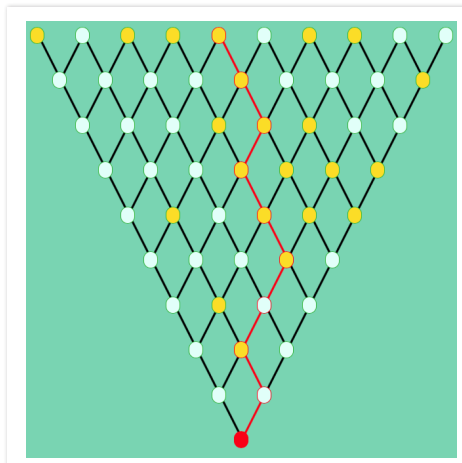
Sample item:

What follows in the sequence 10, 19, 29, 40, 52? Your answer is

10. Perceptual Maze

18 perceptual maze tasks are automatically generated using the open-sourced mazeGen R package (Loe and Sanchez, 2017). Participants have 1 minute and 30 seconds to complete each maze, and the goal is to trace through as many gold coloured dots as possible while they make their way up to the top of the maze.

Sample item:



11. Additional item types

ICAR collaborators have kindly contributed four more item sets with the ICAR community, including 180 verbal reasoning items, 180 abstract reasoning items, 180 numerical reasoning items, and 72 situational judgement items. Unfortunately, no psychometric data is available for these item sets.

further information

Loe, B. S (2017)
numGen. R package version 0.1.0.

<https://cran.r-project.org/package=numGen>

further information

Loe, B.S. & Sanchez, M. (2017).
mazeGen: Elithorn Maze Generator.
R package version 0.1.2.

<https://CRAN.R-project.org/package=mazeGen>