

ACER General Ability Test

Reasoning strands and general ability band descriptions



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AGAT reasoning strands

Student performance on AGAT 2nd Edition tests can be reported according to the five reasoning strands. This can provide insight into possible strengths, gaps, and weaknesses in different reasoning skills. The strands are evenly distributed across all levels to ensure that the general ability measures are not influenced by one strand over others.

Abstract reasoning

Abstract reasoning is the ability to see patterns and logic in pictures and diagrams. Abstract reasoning questions require students to complete visual patterns that follow simple rules, deduce which rules have been applied to change the states of images, and identify the next steps in 2-Dimensional visual sequences. Abstract reasoning is de-contextualised in the sense that the problems addressed cannot be applied to any real-world context – they deal with abstract concepts.

At lower levels, students are required to spot simple rotational patterns in 2-D images and identify the next step in that sequence.

At higher levels, students must identify the rules that have been applied to transform multi-faceted shapes and apply those rules to new scenarios.

Kinetic reasoning

Kinetic reasoning is the ability to anticipate the results from the movement of objects in real-life situations. Kinetic reasoning questions require students to recognise the effects of turning gears, pulling levers and manipulating pulleys. They require students to understand the flow of water and rolling balls in simple networks, and the position of objects on a grid after a series of commands.

At lower levels, students must identify what happens when a force is applied to a lever in a simple system.

At higher levels, students are required to apply rules by tracking backwards to establish the starting point of a dynamic situation.

Numerical reasoning

Numerical reasoning items require students to recognise numerical patterns and sequences, categorise objects to match numerical quotas, link input and output from number machines, and apply rules to arithmetic puzzles.

At lower levels, students need to apply basic numerical deduction to calculate unknown values in simple word problems.

At higher levels, students must take into account multiple inter-related variables to find the outcomes of non-standard scenarios.

Spatial reasoning

Spatial reasoning is the ability to visualise the transformations of objects on a page. Spatial reasoning questions require students to identify different viewpoints when looking at 3-D objects, recognise where shapes appear in complex images, identify how shapes have been manipulated through reflection and rotation, and rearrange pieces of an image to form a complete picture.

At lower levels, students must identify how to rotate two simple objects to make them fit together.

At higher levels, students need to recognise how a set of objects has been manipulated between photographs taken from different perspectives.

Verbal reasoning

Verbal reasoning is the ability to understand how words connect to each other and how words within a sentence affect meaning. Verbal reasoning questions require students to understand the hierarchy of words, identify relationships between words, rearrange words to form a sentence, and make logic of competing sentences.

At lower levels, students need to identify specific and general words from a group of similar words.

At higher levels, students must take into account multiple sentences providing related information to specify the order in which things can be organised.

Using general ability bands

While a scale score indicates a student's general ability according to the AGAT scale and can be used to quantitatively track a student's growth, it is only in understanding what the number represents that teachers can successfully inform their practice to support students. For this reason, the AGAT scale is divided into eight general ability bands that demonstrate and describe general ability as a continuum.

Students in the same general ability band are operating at approximately the same level regardless of their school year level. Viewing student ability in terms of these bands may assist in grouping students of similar abilities. A student scoring in a particular band can be expected to have some proficiency in that band and be progressively more proficient with the knowledge, skills, and understanding outlined in lower bands.

An AGAT scale score of 115 could be considered to be at the upper end of ability Band 3 or at the lower end of Band 4. In cases like these, it is important to reference the descriptions of both bands to understand the student's abilities.

AGAT general ability bands

Band 8

148 and above

Students typically can use deductive reasoning to solve multi-step numerical problems with different variables. They can use the relative dimensions of regular shapes and a knowledge of fractions to calculate the area of a shape expressed as a fraction of the whole. They can identify the missing output from a number machine involving complex quadratic expressions.

Band 7

140–147

Students typically can find the missing output from a number machine where two undisclosed calculations are applied. They can compare multiple different combinations of rules applied to intricate patterns in abstract settings. Students can identify the path in a complex network that results in a desired outcome. They can identify the intersecting points of multiple hidden shapes on a grid. Students can unpack complicated sentences and use sophisticated deductive reasoning to determine which statements are true and false.

Band 6

132–139

Students typically can solve numerical word-based problems involving unknown variables and multiple constraints and can find the missing output in number machines involving simple quadratic relationships. They can identify the rules needed to transform one abstract pattern into another and identify the missing step in a sequence of subtle images. Students can visualise the movement of an object through 3D space and locate objects on a grid after multiple non-routine commands. Students can identify a pair of words that are related in the same way as a given pair and can compare uncommon words with very similar meanings. They can identify the rotations needed for two irregular shapes to tessellate and can visualise how paper will look after a series of irregular folds and cuts.

Band 5

124–131

Students typically can solve numerical word-based problems involving the intersection of sets or multiple unknown variables. They can mentally transpose an object onto a grid to determine its location, and can identify how an object would appear from multiple perspectives. Students can use deductive reasoning in routine sentences to make comparisons between descriptions and can distinguish between less familiar words with slightly different meanings. They can identify the next step in a sequence of complex moving images and apply different rules to a pattern to see how the pattern changes. Students can work backwards through a problem involving the movement of objects to determine the initial state. They can identify how cogs rotate in different scenarios.

Band 4

116–123

Students typically can solve simple image-based simultaneous equations and can start to answer numerical word-based problems involving more than one unknown value. They can match abstract images that have similar features and can identify the next step in a sequence of images with two rotating elements. Students can identify the turns needed for a vehicle to reach a point on a map and can follow the path of an object through a system of tunnels. They can spot changes made to the arrangements of objects when photographed from different angles and can recognise the order in which footprints were left in sand. Students can determine comparative attributes from simple sentences.

Band 3

108–115

Students typically can find the missing output in number machines involving simple linear relationships. They can identify missing numbers in a 3 x 3 table having been given the totals of rows or columns. They can recognise the order in which sheets of paper fell to the ground and can identify the position of an object from a reverse perspective. Students can order a series of simple words based on subtleties in meaning and rearrange up to seven jumbled words to form a sentence. They can identify the starting point of an object in a grid after being given a set of movements and its end point. Students can predict the outcome of a change in mass distribution on a balance and can identify the next step in a sequence of abstract patterns with a rotating element.

Band 2

100–107

Students typically can identify the missing number in a numerical sequence that increases by a small constant value. They can identify an overarching word that encompasses familiar given words and can deduce the outcome of straightforward verbal comparisons. Students can spot simple patterns in abstract images and are starting to make connections between 2D and 3D pictures. They can identify the end point of an object in a grid after a given set of movements.

Band 1

99 and below

Students typically can identify the next number in a sequence of increasing even numbers. They can make connections between simple pairs of analogous words. Students can find the missing piece in a straightforward jigsaw puzzle. They can spot the picture needed to complete an abstract shape that involves simple reflection.