



# New Rickstones Academy

## A parent's guide to CATS - Cognitive Abilities Tests





## CATS – What are they?

The Cognitive Abilities Test (CAT) is an assessment of a range of reasoning skills. The tests look at reasoning with three types of symbols: words, numbers and shapes or figures, i.e. verbal, quantitative and non-verbal reasoning.

The **verbal reasoning** element assesses reasoning processes using the medium of words. Such processes include: identifying relationships between things (e.g. 'big' is the opposite of 'small'); creating correlates of such relationships (e.g. 'big' is to 'small' as 'thick' is to 'thin'); identifying classes ('hat', 'gloves,' \_\_\_\_\_?': pyjamas, slippers, scarf), and reasoning deductively ('A' is taller than 'B' and 'B' is taller than 'C'; therefore 'A' is taller than 'C'). It is not therefore an assessment of reasoning with words, nor wider language skills such as speaking, listening or writing.

The **quantitative** tests look at the same processes but use numbers as the symbols. For example determining rules by analogy and applying these to new cases (2->3, 9->10, 6->\_? (7)), determining patterns and relationships in series (1, 4, 7, \_? (10)), or combining elements to form number sentences (e.g., by combining the following elements you can make one of these answers (2 3 4 + -: 0 2 4 5 7)).

The **non-verbal** tests again look at reasoning processes but use shapes and figures. Because these questions require no knowledge of English language, or the number system, they are particularly useful when assessing children with poor English language skills, or disaffected pupils who may have failed to achieve in academic work for motivational reasons.



## **Is CAT a measure of innate ability? Are CAT results in any way affected by teaching?**

There is no such thing as a measure of 'innate ability'. The quality of prior teaching, opportunities to learn, parental support and pupils' educational experience will undoubtedly affect pupils' performance on all educational tests. However tests of the taught curriculum - reading, mathematics, spelling etc. - are likely to be influenced to a greater degree than reasoning tests. Attainment tests, such as National Curriculum tests, are designed to measure outcomes of specific learning and instruction, and the content is drawn directly from the taught curriculum. In contrast, reasoning tests tap a general set of prior experience by assessing the perception and manipulation of relationships and content that is not generally part of the taught curriculum.

Non Verbal Reasoning (NVR) tests, with their relatively low language demands, are least likely to be influenced by the quality of teaching issues.

## **Can CAT be used to identify 'underachieving' pupils?**

CAT scores are less likely to be affected by school experience than attainment tests. Comparisons between a pupil's CAT scores and their attainment in school subjects such as English and mathematics can therefore be helpful. This can identify pupils whose reasoning ability is average or above but whose attainment in curriculum-related subjects is low. Such pupils may be characterised as underachieving, and may benefit from targeted intervention.



## **Can I use CAT every year to monitor my child's progress?**

Reasoning test scores tend to be more stable over time than attainment test scores. The regular attainment assessment at the Academy is therefore more typical for reading, spelling or mathematics tests, which assess how well children are performing in relation to the curriculum that has been delivered.

However, reasoning scores can and do change over time. For a minority of pupils, these changes may be quite substantial. The mean scores for a group of pupils or even a whole school can also change substantially, for example where there has been an intervention such as the National Literacy or Numeracy Strategies (NLS/NNS), Cognitive Acceleration through Science (CASE) or Philosophy in the Classroom thinking skills approaches.

For these reasons, it is advisable to re-test pupils when key educational decisions are to be made. This is why pupils are tested in Year 7 and re-tested during Y9 when important decisions about examination targets are being considered.



## **What change in scores over time represents a significant improvement or decline in CAT scores?**

For individual pupils you should remember that any test is based on performance on one day and may be affected by a wide range of motivational or other influences (e.g., the pupil may have been distressed or upset by an incident at home earlier that day). It is important that the score is placed within a 'confidence interval' so you do not over-interpret small changes in standard scores. As a rule of thumb with the CAT batteries, there will need to be a change of 10 or more standard score points before you would say a pupil had a 'significant' change in their CAT score.

What about change in the mean scores for groups of pupils? We should remember that when using standardised age scores, a consistent score over time indicates the expected amount of progress. For example if a group achieved a mean standard score of 102.5 in Y7, and the same group achieved a mean score of 102.5 two years later in Y9, then the group would have made the appropriate amount of progress for their age. You would also need to place 'confidence intervals' around the group mean scores, which would depend upon the number of pupils in the group. Again, a rule of thumb, in order to be significant a change would need to be at least 2 standard score points for a group size of 100 or more pupils. For a smaller group the change would need to be larger to be significant.



## **When is the difference in a pupil's standard scores on the three batteries considered 'significant'?**

In most cases the three standard age scores (verbal, quantitative and non-verbal) will be broadly in-line with each other. Scores will rarely be exactly equal and there has to be a difference of 10 or more standard age score (SAS) points between a pupil's score on any two tests before the difference would be considered statistically significant. The implications of any score differences will depend on the particularly batteries where the differences exist, and whether they indicate relative strengths or relative weaknesses..

It is rarely advisable to give advice based on test scores in isolation. Test scores are only a small part of the picture and you need to know the whole pupil in order to interpret the results in an appropriate context. Test scores should feed into a broader assessment, bringing to bear knowledge of the pupil's achievements in school subjects, their personal background and their attitudes, motivation and behaviour. For this reason a pupil's teacher will be best placed to interpret the implications, if any, of the CAT scores of any individual pupil.



**What conclusions can be drawn from patterns of test results for year groups (e.g., pupils tending on average to score better in one battery than in another)?**

First, you would need to determine whether any score differences are significant. If yes there may be general implications. For example, where the mean VR score for a year group is lower than the mean NVR score, this may indicate a need for specific interventions to address low verbal skills. This is how the Academy identifies strategies for a particular group to ensure that their needs are addressed. We always make sure that though that any difference in the mean scores for the group will be a generalisation and will not necessarily apply to all individual pupils, so will need to look at each individual pupil's scores in order to identify those who might benefit most from any intervention.



**To what extent is the reliability of CAT results affected by children with dyslexia, dyscalculia or specific learning difficulties in regard to following multiple instructions?**

The great benefit of the CAT is in the diagnostic use that can be made of the pupil's profile of performance across the three different tests. For example, a specific language difficulty (e.g. Dyslexia) might be manifested in a low score on the VR test in contrast to the QR and NVR test. A specific arithmetic difficulty may show as an uneven profile with a low QR score relative to VR and NVR. In either case, it is probably appropriate to follow up the CAT results for such pupils with further one-to-one assessment. CAT is likely to be the starting point for hypotheses and questions which will require further detailed investigation.

**Want to know more?**

**Please contact New Rickstones Academy or Email**

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