

Quick Start Guide

Using the **Cognitive Abilities Test (CAT4)®** in your school

- What is CAT4?
- Benefits of using the CAT4 data
- Analysing your data – the basics
- Using CAT4 data: a teacher perspective
- Using CAT4 data: a leadership perspective
- Next steps
- Top tips for getting the most out of CAT4

WHAT IS CAT4?

The **Cognitive Abilities Test: Fourth Edition (CAT4)** is a suite of diagnostic assessments of developed ability and likely academic potential.

By measuring a student’s ability to reason with different types of material, CAT4 allows you to assess the way a student thinks and how they will learn best, and in turn, enables you to adapt teaching accordingly.

CAT4 provides a unique profile of students’ strengths and weaknesses across four batteries: **Verbal, Non-Verbal, Quantitative and Spatial Reasoning**. The test is not based on any curriculum or dependent on prior learning, so offers a fair assessment of ability regardless of a student’s prior schooling.

Because three of the four batteries are not reliant on knowledge of the English language, the test is ideal for assessing EAL students.



**Brian Cooklin, Principal,
Nord Anglia International
School, Hong Kong**

Quick reference guide

- Age range: 6.0 years to 17+ years
- Suitable for: Teachers, Senior Leaders, Assessment Co-ordinators, SENCOs
- Test duration: For Levels A -G, 40 - 45 minutes for each of the three parts, 120 - 135 minutes in total.
Levels Pre-A and X, 30 mins for each of two parts, 60mins in total
- Format: Digital (Paper available, but scored in the UK)

[**Download the CAT4 Digital Administration Guide**](#)

The CAT4 levels

CAT4 is available at nine different levels of difficulty. The tests have been developed in an overlapping, progressive format and are referred to as levels, from Level X and pre-A through to level G

The target year group/grade and age range covered by the norms for each test level are shown in the table below:

Age	CAT4	Year (UK)	Grade (US)	Grade (Indian)	Grade (IB Programme)
6:00 - 7:11	X	2	1st	1st	1st PYP
6:06 - 8:11	Pre-A	3	2nd	2nd	2nd PYP
7:06 - 9:11	A	4	3rd	3rd	3rd PYP
8:06 - 10:11	B	5	4th	4th	4th PYP
9:06 - 11:11	C	6	5th	5th	5th PYP
10:06 - 12:11	D	7	6th	6th	6th MYP
11:06 - 13:11	E	8	7th	7th	7th MYP
12:06 - 15:11	F	9	8th	8th	8th MYP
	F	10	9th (Freshman)	9th	9th MYP
14:06 - 17:00+	G	11	10th (Sophomore)	10th	10th MYP
	G	12	11th (Junior)	11th	11th DP (Junior)

BENEFITS OF USING THE CAT4 DATA

Feedback

CAT4 will support you in providing rich student feedback. The **Group Report for Teachers** and **Individual Report for Teachers** provide standardised scores and statistical analysis of each of the four reasoning batteries, allowing you to understand better how your students learn and if there are any barriers that are masking their true potential. **The Individual Report for Teachers** provides tailored strategies that you can use to support your learners in the classroom.

Meta-cognition

Along with feedback, meta-cognition is shown to have one of the largest impacts on student progress. CAT4 will help learners think about their own learning more explicitly, enabling them to understand how they can learn best and where their development areas lie. The **Individual Report for Students** includes a student-friendly explanation of each student's CAT4 results, with informative narrative to help them become aware of their strengths and weaknesses and take ownership of their learning.

Parental engagement

Each student's CAT4 report can be used to aid discussion and target-setting with parents. The **Individual Report for Parents** offers a parent-friendly overview of a student's scores, allowing the parent to see their child's strengths and areas for improvement. This supports understanding of how their child learns, with useful suggestions for how to offer support at home.

Formative evaluation

The CAT4 reports are designed to be used as part of a teacher's formative assessment practices. By utilising the data together with teacher judgement, schools can provide a personalised learning experience that reinforces students' strengths but also addresses areas that need support. Knowing each student's reasoning abilities and any potential learning barriers enables teachers to effectively and efficiently differentiate classroom activities.

Target grades

CAT4 includes indicator tables for KS2-4, GCSE, AS and A-Level in addition to indicators for CBSE Class X and XII, and pointers for the IB MYP and DP. This supports in helping to set targets for future attainment and can inform intervention strategies and future subject choices.

School improvement

The CAT4 data can be used to identify key areas for development and support whole school improvement. The reports can also be used as part of any inspection or accreditation processes your school may go through.

Value-added

By using the CAT4 data together with subsequent external examination data (currently GCSE, iGCSE and IB DP only) you have the opportunity to use our value-added service to measure the impact of your school's teaching and intervention programmes. See <https://gl-education.com/content-pages/gl-education-value-added-service/> to find out more and sign up.

Go to www.gl-education.com/news-hub/case-studies/ to read a selection of case studies that explore how other schools internationally are using CAT4 to support teaching and learning.

ANALYSING YOUR DATA - THE BASICS

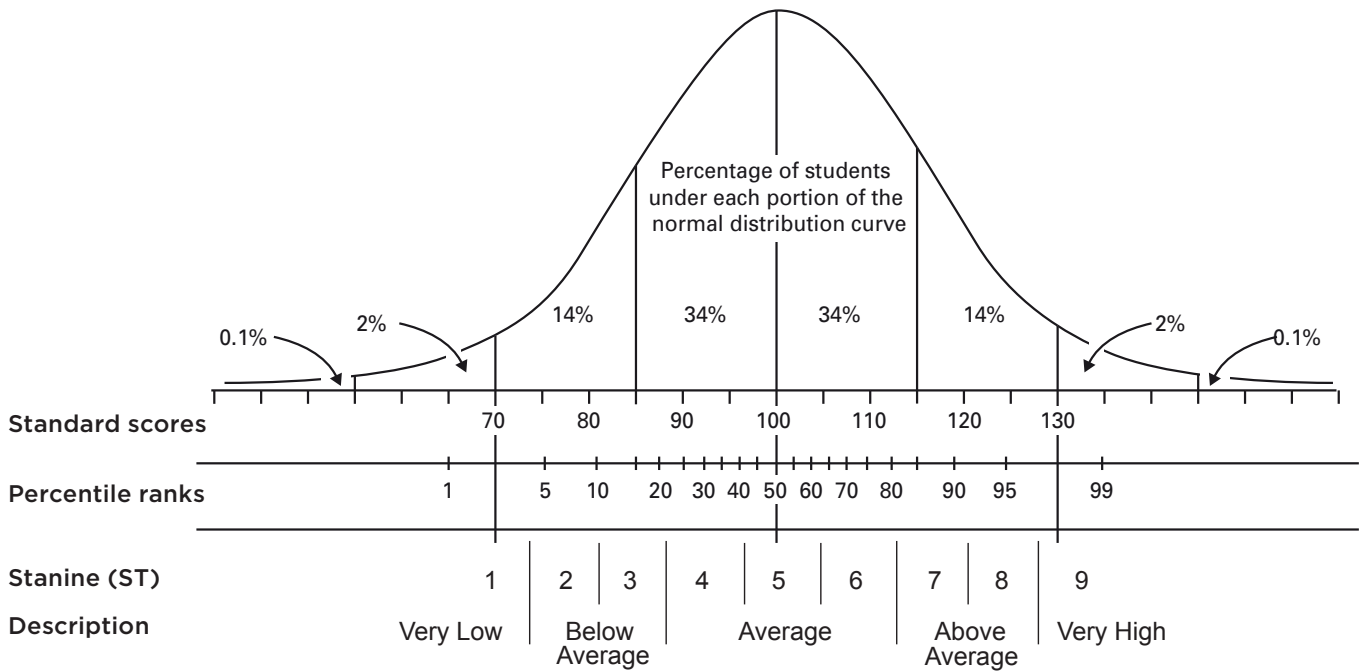
The detailed CAT4 reports provide you with a unique student profile, including a series of narratives that explain and interpret test outcomes.

Here's some suggestions to get started in analysing your data:

1. Ensure that you and your staff understand what each of the scores in the reports mean about your students' CAT4 results. See the diagram opposite for more details.
2. Allocate roles to your staff, identifying who will 'own' the CAT4 data and who will be responsible for analysing and acting on the different reports.
3. Generate the **Group Report for Teachers**, based on the segment that you want to look at - it can be run by year group, class or tutor group.
4. Take note of the number of questions attempted in each section, as this will impact the Standard Age Score (SAS).
5. Calculate:
 - a. the **Verbal Deficit** (the difference between the verbal and non-verbal SAS) to see if any of your students are at risk of underachieving due to low English language ability.
 - b. the **Maths Car**, a term coined by Matthew Savage that is the difference between the quantitative and spatial SAS, can be used to identify students who have an imbalance in their mathematical ability. These students may require further support in understanding some mathematical content.
6. Use the scatter graph to identify students with a **Spatial Bias**, then read the Individual Reports for Teachers to see how you can support these students with targeted, in-class strategies.
7. Identify key students and read their **Individual Reports**. These students may be those who have scored very low across each battery and require SEN screening, or they could be students who have a high Verbal Deficit for whom further English language assessment should be carried out. Choose from the given teaching strategies and recommendations to develop strengths and provide support or intervention where necessary.
8. Create an action plan:
 - a. Short term: what can you do in the next week?
 - b. Medium term: what will you do in the next term/year?
 - c. Long term: what will you do over the next 2 - 5 years?

★ **Download the reports in Excel to manipulate the data further**

UNDERSTANDING THE RELATIONSHIP BETWEEN THE CAT4 SCORES



What is a Standard Age Score?

The Standard Age Score (SAS) is the most important piece of information derived from CAT4.

The SAS is based on the student's raw score which has been adjusted for age and placed on a scale that makes a comparison with a representative UK sample of students of the same age. The average score is 100.

The SAS is key to benchmarking and tracking progress and is the fairest way to compare the performance of different students within a year group or across year groups. International School SAS averages are available at, www.gl-education.com/content-pages/international-benchmarking-with-cat4/.

What is a Stanine?

The Stanine places the student's SAS score on a scale of 1 (low) to 9 (high) and offers a broad overview of his or her performance.

What is the National Percentile Rank?

National Percentile Rank (NPR) relates to the SAS and indicates the percentage of students obtaining a particular score. An NPR of 50 is average. An NPR of 5 means that the student's score is within the lowest 5% of the standardisation sample. An NPR of 95 means that the student's score is within the highest 5% of the standardisation sample.

USING CAT4 DATA: A TEACHER PERSPECTIVE

Class analysis

Scores for the group (by overall mean SAS)

Student name	Tutor group	Verbal			Quantitative			Non-verbal			Spatial			Overall	
		No. attempted (/48)	SAS	GR (/60)	No. attempted (/36)	SAS	GR (/60)	No. attempted (/48)	SAS	GR (/60)	No. attempted (/36)	SAS	GR (/60)	Mean SAS	GR (/60)
Enuri Shafiq	EM	48	130	1	36	120	=3	48	119	3	36	126	=2	124	1
Natasha Aransola	EM	47	108	=14	31	120	=3	41	124	1	36	120	=4	118	2
Jenny Coyle	MCO	48	101	=25	36	118	5	48	115	=5	36	131	1	116	=3
Samera Kan	DK	48	113	9	34	116	6	43	115	=5	32	120	=4	116	=3
Lara Sandford	DK	48	97	36	33	111	=9	48	121	2	36	126	=2	114	=5
Mia Shimizu	DK	48	123	=4	36	109	13	43	103	=25	36	120	=4	114	=5
Mia Shimizu	MCO	48	122	6	29	111	=9	48	112	=8	31	112	13	114	=5
Anthony Jameson	MCO	48	120	7	36	108	14	48	106	=21	36	118	7	113	8
Paisley McSeveney	MCO	48	112	=10	32	111	=9	46	112	=8	34	114	=9	112	9
Gabriel Bester	DK	48	125	2	20	98	=29	37	101	30	30	114	=9	110	=10
Petya Kan	EM	48	100	=28	35	123	=1	46	108	=16	36	108	=17	110	=10
Khan Kareena	DK	48	105	=19	34	114	7	43	105	=23	36	110	=14	109	12
Nick Watt	EM	48	124	3	24	99	=27	34	102	=27	26	108	=17	108	13
Zaynab Ashfaiq	MCO	48	95	=39	24	101	=24	48	115	=5	36	116	8	107	=14
Chloe Bullock	DK	48	102	24	36	123	=1	40	107	=18	36	95	=44	107	=14
Johanna Howles	DK	48	119	8	36	103	=17	48	94	=38	36	110	=14	107	=14
Liz Price	DK	47	108	=14	28	103	=17	40	109	=14	34	109	16	107	=14
Elise Kelly	MCO	48	112	=10	32	111	=9	47	99	=31	36	103	=29	106	=18
Susan McGregor	EM	48	108	=14	35	103	=17	41	106	=21	34	106	=22	106	=18
Connor Gibson	DK	48	96	=37	18	93	=41	42	117	4	35	113	=11	105	20
Morrison Kirsty	MCO	48	108	=14	36	112	8	48	111	=10	36	84	=53	104	21
Neil Dawes	DK	47	110	12	18	93	=41	45	111	=10	23	98	=38	103	=22
Rob Reagan	DK	48	100	=28	26	101	=24	40	111	=10	36	98	=38	103	=22
Peter Adetunde	MCO	48	95	=39	32	98	=29	48	109	=14	36	106	=22	102	=24
Teodora Dunec	EM	48	100	=28	19	92	47	48	111	=10	36	104	=27	102	=24
Kunza Mohammad	MCO	48	103	23	26	98	=29	42	108	=16	36	100	=35	102	=24

Exploring the Group Report for Teachers

A Spatial Bias profile

Observations:

Jenny's verbal score is average at 101, quantitative is above average at 118, non-verbal is above average at 115 and spatial is very high at 131. Jenny demonstrates a strong spatial bias.

Questions:

Is Jenny a native English speaker? If she's an EAL student, are her verbal reasoning scores lower because she's being tested in English? What kind of learner is she in the classroom? Does she participate in class? Given her spatial bias, what strategies are suggested in her Individual Report to support Jenny in her learning?

Go to www.gl-education.com/videos/identifying-spatial-thinkers/ to read more on Recognising Spatial Intelligence

A Verbal Bias profile

Observations:

Morrison's verbal score is average at 108, quantitative is just above average at 112, non-verbal is also just above average at 111 and spatial is below average at 84. Morrison has a spatial score that is significantly below his scores in the other three batteries.

Questions:

Does Morrison's strong verbal bias affect his science and maths attainment scores? Is he able to problem solve and confidently apply his knowledge to previously unseen content? Would other students benefit from being sat next to Morrison and given the opportunity to communicate with him about the work to aid their own understanding? How can you support Morrison to utilise his strong verbal skills in his academic work?

An EAL profile

Observations:

Zaynab's verbal score is average at 95, quantitative is average at 101, non-verbal is above average at 115 and spatial is above average at 116. Zaynab has a quite high developed ability and should be performing at an above average level in her academic subjects.

Questions:

Is Zaynab an EAL student? What are Zaynab's attainment scores like for each subject? Are her language skills stopping her from fully accessing the curriculum? Does her low verbal score prevent her from demonstrating her true potential in her school work? Do we need to look at further literacy analysis for this student? The New Group Reading Test (NGRT) can generate a reading age for further insights.

An unbalanced Maths Car

Observations:

Petya's verbal score is average at 100, quantitative is above average at 123, non-verbal is average at 108 and spatial is average at 108. Petya, with a high quantitative score and lower spatial score has an unbalanced 'maths car'.

Questions:

Whilst her other scores were average, Petya was top in the group in quantitative reasoning – does her maths attainment data match this? Is she achieving her full potential in maths? Are there particular topics or content areas that Petya finds more difficult than others? Is her low spatial score holding her back in maths, but also in other subjects across the curriculum?

An SEN profile – more diagnosis necessary (not shown on table)

Observations:

Robert's verbal score is below average at 82, quantitative is below average at 75, non-verbal is below average at 79 and spatial is below average at 80. Rob has only answered 26 out of 36 quantitative questions.

Questions:

Does the fact that the student hasn't answered all the questions mean that there is a hidden special need, e.g. memory processing or dyscalculia? What are Robert's attainment scores like? How does he engage in class? Does Robert often need personalised intervention and additional support in the classroom? Robert's low scores across all four batteries suggest further screening needs to be carried out to assess if he has special educational needs. Once more diagnosis has been done, then teaching can be adjusted to help this student reach his potential.

★ Once you have analysed your data in the Group Report, select key students' Individual Reports and plan your interventions to support their learning needs

USING CAT4 DATA: A TEACHER PERSPECTIVE

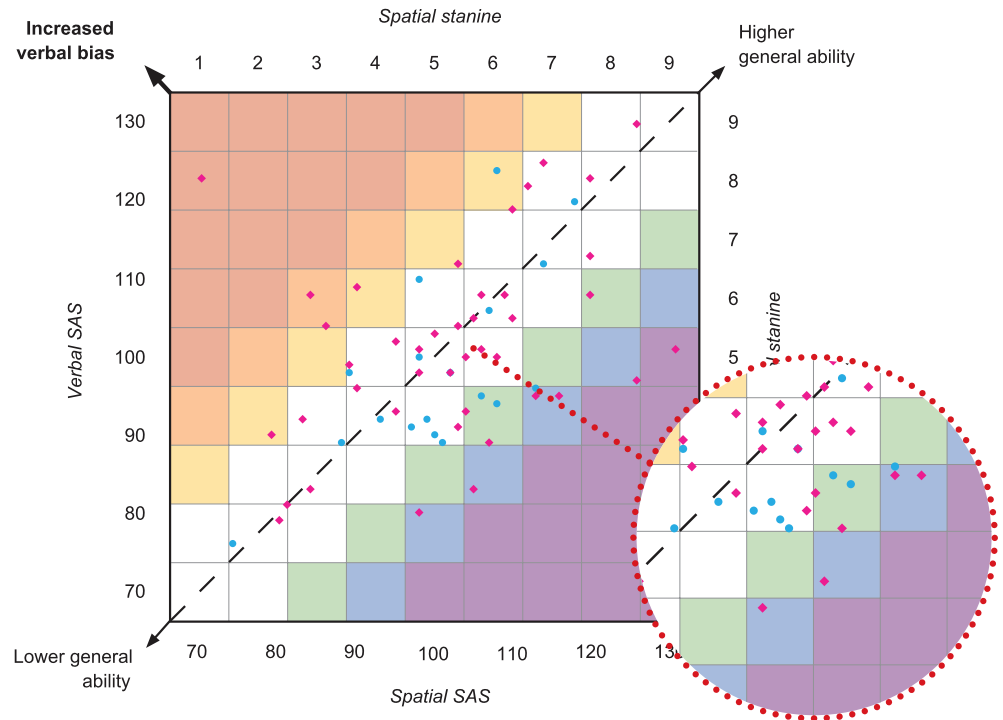
Personalisation

Student profiles

The analysis of CAT4 scores allows all students to be assigned a profile; that is they are assigned to one of seven broad descriptions of their preferences for learning. The Verbal Reasoning and Spatial Ability Batteries form the basis of this analysis and the profiles are expressed as a mild, moderate or extreme bias for verbal or spatial learning or, where no bias is discernable (that is, when scores on both batteries are similar), as an even profile.

The diagram shows the distribution of students across the seven profiles which are indicated by the coloured bands.

- Extreme verbal bias
- Moderate verbal bias
- Mild verbal bias
- No bias
- Mild spatial bias
- Moderate spatial bias
- Extreme spatial bias
- Males
- Females



Student Profiles

This colour-coded chart plots the distribution of the group across seven profile types, indicating whether they are a more verbally biased or spatially biased learner.

This supports you in understanding your class and getting to know your learners, helping to inform planning and classroom strategies at a group level.

Questions to consider:

- Do you have a high proportion of students with a specific bias?
- Do you have a spread of different student profiles?
- Do you have a high number of EAL students?
- Are your students' profiles skewed by their English language ability?
- How will this information impact your classroom teaching?

Name: Connor Gibson
 School: Test School
 Group: Year 7
 Date of test: 13/09/2011 Level: D Age: 11:11 Sex: Male

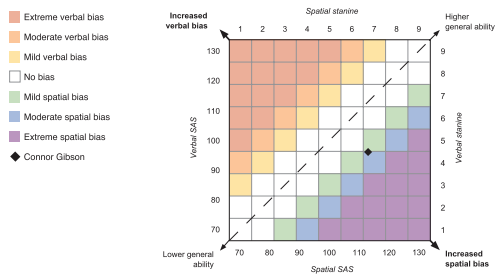
Scores

Battery	No. of questions attempted	SAS	NPR	ST	GR (90)	SAS (with 90% confidence bands)				
						60	70	80	90	
Verbal	48/48	96	40	4	=37					
Quantitative	18/36	99	32	4	=41					
Non-verbal	42/48	117	67	7	4					
Spatial	35/36	119	80	7	=11					
Mean	-	105	-	-	-					

Profile summary

The analysis of CAT4 scores allows all students to be assigned a profile; that is they are assigned to one of seven broad descriptions of their preferences for learning. The Verbal Reasoning and Spatial Ability Batteries form the basis of this analysis and the profiles are expressed as a mild, moderate or extreme bias for verbal or spatial learning or, where no bias is discernable (that is, when scores on both batteries are similar), as an even profile.

The black diamond shows Connor's profile, which is indicated by the coloured band.



Name: Connor Gibson
 School: Test School
 Group: Year 7
 Date of test: 13/09/2011 Level: D Age: 11:11 Sex: Male

Moderate spatial bias

- This profile demonstrates a moderate preference for spatial over verbal learning.
- Connor's performance should be markedly better when engaged in tasks that require visualisation and he will learn well when working with pictures, diagrams, 3D objects, mind maps and other tangible methods.
- His weaker verbal skills suggest he will perform at a low average level when learning through written texts, writing and discussion.
- Connor is likely to prefer active learning methods such as modelling, demonstrating and simulations, but should also be able to engage with most written material.
- Connor's attainment should be average or above in subjects that make the most of his spatial ability such as science, technology, design and geography, but may find language-based subjects such as English, humanities, history and modern foreign languages more challenging unless teaching methods are adapted to suit his profile.

Implications for teaching and learning

- A lack of relative progress in verbal reasoning may be preventing Connor from accessing key areas of the curriculum.
- A test to establish a reading age is recommended to ascertain whether Connor is able to access the curriculum.
- Connor may benefit from some targeted additional support, with a focus on strategies to develop greater verbal ability.
- This may include opportunities for discussion, support with specialist vocabulary, and opportunities to develop presentational skills.
- Pairing Connor with someone who is stronger in this area may support his progress.
- Paired work is likely to be more beneficial than group work.
- Connor is likely to perform better where both spatial and visual approaches to learning are used.
- Connor should be encouraged and helped to use his better spatial ability in subjects which depend on verbal skills. So encourage him to use visual material (pictures to support text, videos, etc), create visual representations of events in history, use mind maps as an aid to remembering the key events and characters in a text in English and annotate text to reinforce key facts and information in science.
- Connor may find extended pieces of writing easier to do if he plans them using flow charts, putting down ideas in note form and then deciding how to sequence these before starting the actual writing.

The Individual Report for Teachers

This provides an in-depth analysis of each individual student's results, along with a focus on how they can be supported to achieve their potential.

How can I use this report?

- Look at the scores of the four batteries and then read the summary about what these say about each student.
- Utilise the Implications for Teaching and Learning. This section offers a personalised analysis of how to support the student - providing practical activities for your teachers to implement. Newly qualified and less experienced teachers can use the ideas for differentiating classroom activities.
- Individual Student Learning Plans, if applicable, can have extracts of the CAT4 report copied and pasted into them.

Using the Individual Report for target setting

The table includes indicator grades that this student is likely to achieve in each subject, and the grade that he/she could reach with additional effort and challenge. These indicators are statistical probabilities that can be useful when discussing and setting targets - engaging the learners and supporting them in owning their own targets.

★ Create a long term action plan that details how you are going to use each part of the Individual Report to support every learner in your classroom over the academic year

USING CAT4 DATA: A LEADERSHIP PERSPECTIVE

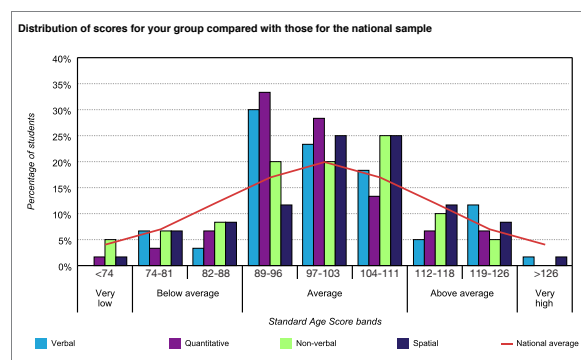
Senior leaders can use the reports for:

- Cohort analysis and understanding
- Forward planning of resourcing and extra-curricular needs
- School development planning
- School evaluation including accreditations and inspections

What are the characteristics of this cohort?

Observations: The spatial scores have a right skew, showing that this is a group with a strong spatial ability. There are several students who have received above average or very high scores in at least one of the four batteries; this demonstrates that this cohort has many able students.

Questions: Have you identified the most able learners within the group? Are you doing enough to engage and motivate them? For example, do you have an after-school STEM club or a gifted and talented programme? Have you shared this information with your teachers? Are they doing enough to challenge them in lessons?



Observations: The verbal reasoning and quantitative reasoning scores have a left skew; this cohort may benefit from a whole school literacy and numeracy programme. The other batteries suggest that these students should be attaining good results, but unless their development areas are addressed then the students are unlikely to reach their full potential.

Questions: Are you aware of what the students reading ages are? Do you have a high proportion of EAL students who need support in their English language learning? Who is responsible for promoting whole school literacy and numeracy? Core departments? An SLT lead? All staff?

Group indicator tables show the likely distribution of levels/grades and the percentage of the cohort that are expected to obtain certain levels/grades.

This can help set whole school targets and highlight areas that need intervention.

NEXT STEPS

To get the best results from using CAT4, your school should consider the following key questions:

- **How are you going to train your staff to fully understand and utilise the data?**

Consider the roles and responsibilities within your school – allocate someone to be responsible for analysing and using the data.

Give your staff the time to read the reports, share best practice and ask questions.

Look at who will carry out internal training to support the use of data by all staff.

- **When will you share the reports with students and parents? (if appropriate)**

If you decide to share the reports with parents, consider how you will ensure that they fully understand them.

We recommend that you talk to parents and students before giving them the reports.

The Individual Report for Students and the Individual Report for Parents can aid discussions about necessary intervention and support that the school will provide in addition to how learning can be supported at home.

- **How can you use the data to support your school self-evaluation or school development plans?**

Highlight any trends in the data that could indicate a specific development area for the school. The analysis in the senior leader report can really help with this.

Use the grade indicators to determine whether additional intervention is needed on a whole school level.

Think about how the reports can be used to support inspections or accreditations.

- **How can the CAT4 data be used within specific streams within the school?**

Explore how the data can be used to identify SEN, highly able, literacy issues etc

Decide how and when you will address the needs of these groups.

Delegate responsibility to someone for identification, monitoring and support of each stream.

- **How will you use CAT4 to ensure progress towards potential?**

Combination reports can be accessed when CAT4 is used alongside the Progress Tests and / or NGRT, supporting your data triangulation practices.

Alongside your teacher judgement, by combining data from CAT4 with Progress Test in English (PTE), Progress Test in Maths (PTM), New Group Reading Test (NGRT), New Group Spelling Test (NGST) and PASS, you will get the whole-student view of each student and an assessment model that:

- compares ability levels against current attainment to identify under-achievers and the factors influencing this
- identifies barriers to learning and informs intervention strategies at the earliest opportunity

Use the Pupil Attitudes to Self and School (PASS) survey to get a richer understanding of your students' attitudes and identify if attitudinal barriers are affecting their ability to reach their potential.

Go to www.gi-education.com/news-hub/case-studies/identifying-fragile-learners-at-gems-wellington-primary-school-with-pass/ to read how GEMS Wellington are using PASS and CAT4 to identify fragile learners

TOP TIPS FOR GETTING THE MOST OUT OF CAT4

Top tips for getting the most out of CAT4

Use the data!

- Prioritise which parts of the report are the most useful and relevant to your school context
- Identify key students who may require further assessment, eg SEN screening or a reading age check
- Use the results to target whole groups and specific individuals to support learning
- Ensure teachers implement the suggested teaching and learning strategies to maximise teacher impact

Engage and involve your staff!

- Share the results with your teachers!
- Appoint somebody who will be responsible for owning and sharing the data
- Run training sessions to support staff understanding
- Ensure all data users understand the assessment reports and how to use them
- Provide opportunities for staff to ask questions, share ideas and act on the results
- Ensure that all those who engage with parents can communicate information about the test, the results and the reports effectively

Create an action plan!

- Run your plan forward for the next year, 2 years, 3 years...
- Ensure everyone understands their roles and that you have allocated clear responsibilities within your school
- Share your action plan with your staff body

Data Triangulation!

- Use the CAT4 data together with attainment data to identify if a gap exists between attainment and ability
- Use the CAT4 data together with attitudinal data (eg from our PASS survey) to address any attitudinal barriers to learning
- Plan how you can address any areas of concern from the different pieces of data you have
- Create student trackers to ensure progress made each year is on track with expectation and to assess whether any subsequent interventions are having an impact

★ Record student assessment data in one place and monitor student progress over time.

Don't underestimate the power of this data in raising your school's profile.