



Analysis of 2021 CAT test results

November 2021

All Year 7 students complete Cognitive Abilities Tests (CAT) in September. These are used as baseline tests to help understand the ability of our students. This is then used to help set targets and to monitor progress. CAT tests measure Verbal, Quantitative, Non-Verbal and Spatial skills.

The four skills scores are combined to give the mean CAT Standard Aged Scores (SAS); a SAS comes from comparing a pupil's raw score with the national standardisation sample, taking chronological age into account. This shows how each pupil is performing compared to the national average for their age. The national average SAS is 100 and the Standard Deviation is 20.

Executive Summary

- Results from the 2021 cohort are consistent with previous years.
- CAT results are less consistent than in previous years.
- 7 students have been recognised as Exceptionally Able.
- The majority of our PPG students are in the lower third of the CEM scores.
- CAT and CEM results show a positive correlation (PMCC 0.60).
- Verbal, Quantitative and Non-Verbal continue to be our highest performing skills.
- SEN students are being monitored and are not outliers in CAT or CEM.
- Indian is now our largest ethnicity.

Skills Analysis

Reviewing the data on a skills basis this cohort reflect previous years with the strongest skills being Verbal, Quantitative and Non-Verbal and a notable difference in the average attainment for Spatial awareness.

	Mean SAS	Verbal SAS	Quantitative SAS	Non-Verbal SAS	Spatial SAS
2015 (Y13)*	126.5	131.8	126.6	127.7	119.3
2016 (Y12)	125.5	129.9	127.2	126.4	117.8
2017 (Y11)	126.4	131.6	125.9	127.9	119.9
2018 (Y10)	126.1	131.2	126.1	127.7	119.0
2019 (Y9)	125.7	130.1	126.2	127.0	119.0
2020 (Y8)**	125.8	129.9	125.9	127.2	119.8
2021 (Y7)	125.7	130.1	125.4	127.5	119.0

*2015 was the first cohort of 150 students.

**2020 was the first cohort of 180 students.

Analysis

Standard deviation

Year	S.D.
2015	6.47
2016	6.05
2017	5.44
2018	6.48
2019	6.59
2020	6.73
2021	7.41

As shown in the table the standard deviation of this year's scores is 7.41 which is significantly higher than we have seen in previous years indicating less consistent data.

Last academic year we saw an increase in the standard deviation which we had anticipated due to the increase in cohort size. The rise this year is significant again; this may be influenced by the different experiences of students during periods of remote schooling.

The spread of results are outlined below, please note that the percentage of students achieving the highest band of results is comparable with the highest we have seen in recent years. The data is less consistent than in previous years, this is apparent in the table below with increased student numbers in both the highest and lowest bands.

Mean score	2015	2016	2017	2018	2019	2020	2021
	(Y12)	(Y11)	(Y10)	(Y9)	(Y8)	(Y7)	(Y7)
130+	34	27	31	34	31	30	34
125-129	30	27	31	26	29	30	22
120-124	19	33	30	21	22	25	22
115-119	13	11	7	16	12	11	14
110-114	3	3	2	3	3	5	6
105-109	1	1	0	0	1	1	1
100-104	0	0	0	0	1	0	0
95-99	0	0	0	0	0	0	0
90-94	0	0	0	0	0	0	0
85-89	0	0	0	0	0	0	0

The data above is given as a percentage of cohort rounded to the nearest whole percentage.

(National standardised score at 100, 1 standard deviation is ± 20)

Exceptionally Able

As a result of the CAT and CEM analysis 7 students have been identified as 'Exceptionally Able' as they have performed in the top 10% for both tests. This has been shared with the Year Leader as part of the TA analysis.

SEN Students

At present we have three Year 7 SEN students and their performance has been analysed as part of this review and also during the process of TA1. These students are distributed throughout the cohort with two students in the lower 40%. One student is also pupil premium (highlighted in blue in the table below).

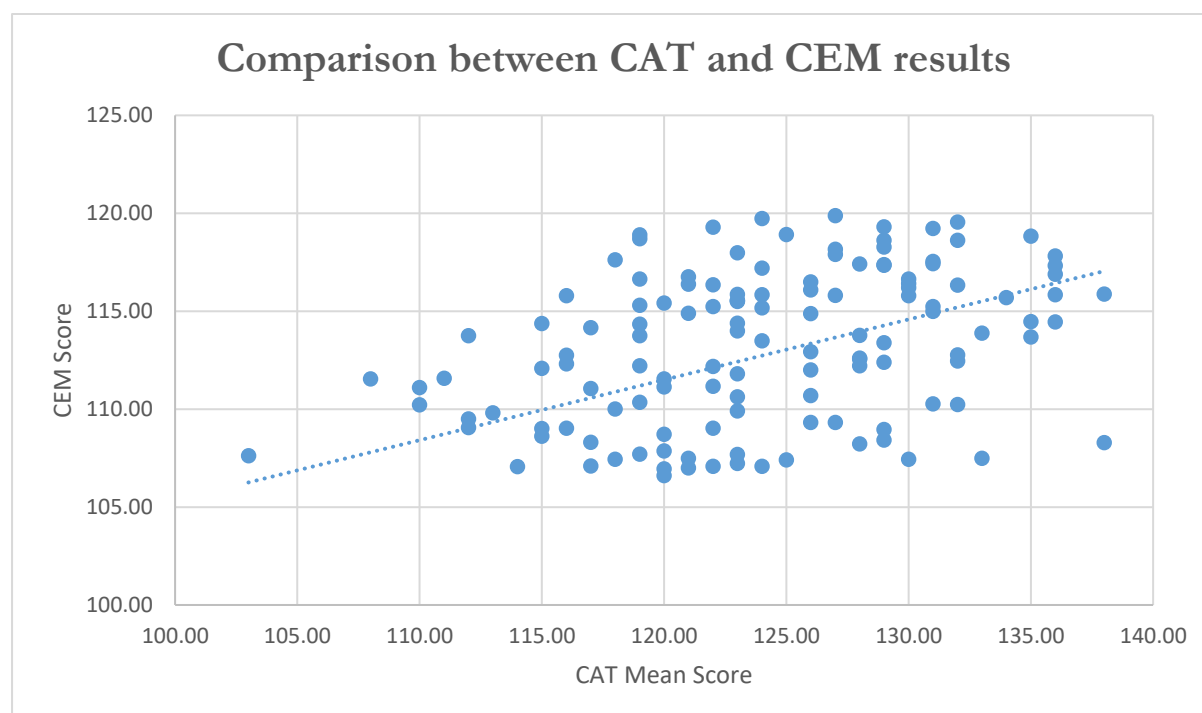
PPG students

Of the 9 PPG students 6 students fell into the lower third of both CAT and the CEM scores (individual scores are shown below). 4 of these students fell into the lowest performing 10% for both CAT and CEM assessments.

Departments have allocated time to consider research-based strategies to support these students. This student group will also be one of the key areas of focus in the new student progress discussions.

CAT Ranking	Entrance Test Score	CAT Mean SAS
84	123	127
84	116	127
108	114	123
128	96	121
128	107	121
163	95	115
168	99	114
174	98	111
176	93	110

Comparing CATs and CEM tests



The trend line added to the graph above shows a correlation between CAT score and CEM score. This bivariate data has a Product Moment Correlation Coefficient of 0.60 which indicates a positive correlation.

Although the data has a positive correlation it does not necessarily follow that students who respond favourably to one test will also respond well to the other; as in previous years we have a number of students who had different levels of attainment in the tests.

CAT4 provides analysis to highlight any natural skills bias of our students compared to the national profile. The skills analysed and proportions are outlined below:

	National	CCHS
	%	%
Extreme Verbal Bias	2	4
Moderate Verbal Bias	4	13
Mild Verbal Bias	11	22
No Bias	66	61
Mild Spatial Bias	11	1
Moderate Spatial Bias	4	13
Extreme Spatial Bias	2	0

In previous years the profile of students has been reasonably consistent, however this intake students are showing an elevated spatial bias which we have not seen previously. The moderate verbal bias is in line with previous cohorts.

The highest performers when looking at the ranked data have no overall bias, as would be expected as the mean SAS score is an average of all 4 areas. As expected students demonstrating a clear skills bias tended to fall towards the lower end of the CAT mean rank.

Ethnicity analysis

The key point to note is that Indian is now our largest ethnicity.

Ethnicity	Number of Students	Average CAT Mean Score	Average CEM Score
Bangladeshi	4	124	121
Black - Ghanaian	5	119	108
Black - Nigerian	7	122	113
Filipino	1	138	116
Hong Kong Chinese	1	116	113
Indian	70	127	117
Information Not Yet Obtained	1	126	109
Other Asian	12	128	118
Other Black African	3	123	115
Other Chinese	7	132	119
Other ethnic group	3	125	114
Other mixed background	2	128	116
Pakistani	3	125	119
Refused	2	117	109
White - British	49	125	113
White - Irish	2	116	111
White and any other ethnic group	1	116	112
White and Asian	4	122	114
White and Black African	1	134	123
White Eastern European	1	126	117
White Western European	1	121	116
Grand Total	180	126	115

Please note that drawing conclusions from any group with fewer than ten students it would not be statistically robust.

Variation between form groups

The table below shows the variation between tutor groups.

Form Group	Average CEM Score	Average CAT Mean Score	Max CAT Score	Min CAT Score
7A	115	127	138	110
7C	116	126	136	108
7F	116	126	139	112
7G	116	125	137	112
7H	114	125	139	111
7S	115	126	138	103
Grand Total	115	126	139	103

There appears to be little difference between tutor groups in terms of their CEM or CAT test mean scores. When reviewing the range in CAT score 7S is significantly different to the rest of the cohort with a range of 35 compared to an average of 28.5. (*Range – highest CAT score – lowest*).