



Analysis of 2020 CAT test results

November 2020

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 2020 cohort are consistent with previous years.
- CAT results indicate a slightly broader range in ability, this is to be expected.
- 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 0.52).
- 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.

	Mean SAS	Verbal SAS	Quantitative SAS	Non-Verbal SAS	Spatial SAS
2014 (Y13)	125.0	125.9	122.8	126.3	
2015 (Y12)*	126.5	131.8	126.6	127.7	119.3
2016 (Y11)	125.5	129.9	127.2	126.4	117.8
2017 (Y10)	126.4	131.6	125.9	127.9	119.9
2018 (Y9)	126.1	131.2	126.1	127.7	119.0
2019 (Y8)	125.7	130.1	126.2	127.0	119.0
2020 (Y7)**	125.8	129.9	125.9	127.2	119.8

*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

As shown in the table the standard deviation of the scores is 6.73 which is the highest seen in recent years, indicating an increase in spread. This would not be unexpected due to the increase in cohort size.

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 spread and attainment for Spatial awareness.

The increased cohort has not made a significant difference to the overall spread of results (please see the following table). The median being 126 which mirrors exactly our 2019 cohort.

Mean score	2014 (Y13)	2015 (Y12)	2016 (Y11)	2017 (Y10)	2018 (Y9)	2019 (Y8)	2020 (Y7)
130+	26	34	27	31	34	31	30
125-129	29	30	27	31	26	29	30
120-124	29	19	33	30	21	22	25
115-119	12	13	11	7	16	12	11
110-114	2	3	3	2	3	3	5
105-109	2	1	1	0	0	1	1
100-104	0	0	0	0	0	1	0
95-99	0	0	0	0	0	0	0
90-94	0	0	0	0	0	0	0
85-89	1	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

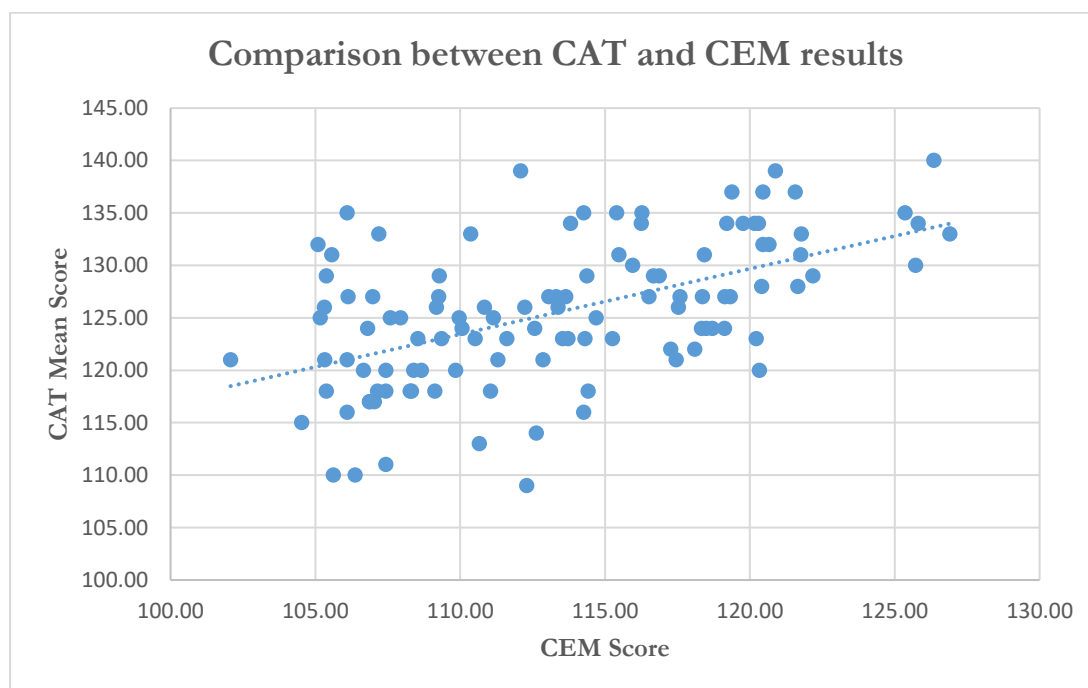
The performance of our Year 7 SEN students has been analysed as part of this review and also the TA data. At present we only have two students which limits any statistically significant analysis however they are not outliers and for both CAT and CEM sit within the upper 80% of the cohort.

PPG students

Of the 9 PPG students all but one fell into the lower third of the CEM scores and the lower 40% of CAT scores (individual scores are shown below). Departments have allocated time to consider research-based strategies to support these students.

CAT Ranking	Entrance Test Score	CAT Mean SAS
173	93	112
151	93	119
142	107	120
171	100	113
62	106	128
152	109	118
133	102	121
169	105	115
107	118	124

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 0.52 which indicates a significant positive correlation.

Although the data has a good correlation it does not necessarily follow that students who respond favourably to one test and will also respond well to the other and there are a few students who responded differently to both tests.

CAT4 provides analysis to show particular Profiles of our students compared to national data in terms of the skills tested and this is shown in the table below.

	National	Group	
	%	%	Number
Extreme Verbal Bias	2	3	6
Moderate Verbal Bias	4	9	17
Mild Verbal Bias	11	18	32
No Bias	66	66	119
Mild Spatial Bias	11	2	4
Moderate Spatial Bias	4	1	1
Extreme Spatial Bias	2	0	0

The profile of this cohort is consistent with previous years; students have a verbal bias when compared with the national average; fewer students have increased spatial aptitude.

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. In a similar way, students demonstrating a clear skills bias tended to fall towards the lower end of the CAT mean rank.

Ethnicity analysis

Ethnicity	Number of Students	Average CAT Mean Score	Average CEM Score
Any other Black background	1	117	116
Bangladeshi	4	127	119
Black - Ghanaian	1	121	102
Black - Nigerian	9	122	110
Filipino	1	131	106
Hong Kong Chinese	3	123	114
Indian	59	127	115
Other Asian	8	129	118
Other Black African	1	125	115
Other mixed background	2	128	111
Pakistani	6	131	117
Refused	2	130	119
Turkish/Turkish Cypriot	1	119	93
Vietnamese	1	140	126
White - British	69	124	110
White - Irish	1	125	120
White and any other ethnic group	1	137	121
White Eastern European	4	125	109
White Other	4	127	113
White Western European	2	125	108
(blank)		140	127
Grand Total	180	126	113

The ethnicity split above is again consistent with previous years.

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	113	125	137	116
7C	112	126	139	110
7F	112	126	139	113
7G	115	127	140	109
7H	112	125	137	110
7S	114	126	137	117
Grand Total	113	126	140	109

There appears to be little difference between tutor groups in terms of their CEM or CAT test mean scores. The greatest range occurs in 7G with both the highest and lowest CAT scores.