



# **Analysis of 2023 CAT test results**

**November 2022**

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 2023 cohort are consistent with previous years.
- CAT results are less consistent than in previous years.
- 7 students have been recognised as Exceptionally Able based on being within the top 18 rank for both CAT and CEM scores.
- The majority of our 13 PPG students are in the lower third of the CEM and CAT scores: this might be expected as per our fair access policy which lowers the overall required score by 10%: 9 of the 13 students ranked better in the CAT test than in CEM though any analysis here is limited due to shared ranking in the CAT tests.
- CAT and CEM results show a positive correlation.
- Verbal, Quantitative and Non-Verbal continue to be our highest performing skills.
- SEN students are being monitored, those with a specific SEND code (not SF or SF+) currently fall in the lower half of CAT and CEM scores.
- Indian is once again our now our largest ethnicity with 38.9% of students being identified as Indian the next largest cohort is White (all) making up 29.4%.

## **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.

Worth noting that the distribution remain fairly stable year on year.

	Mean SAS	Verbal SAS	Quantitative SAS	Non-Verbal SAS	Spatial SAS
<b>2017 (Y13)</b>	<b>126.4</b>	131.6	125.9	127.9	119.9
<b>2018 (Y12)</b>	<b>126.1</b>	131.2	126.1	127.7	119.0
<b>2019 (Y11)</b>	<b>125.7</b>	130.1	126.2	127.0	119.0
<b>2020 (Y10)**</b>	<b>125.8</b>	129.9	125.9	127.2	119.8
<b>2021 (Y9)</b>	<b>125.7</b>	130.1	125.4	127.5	119.0
<b>2022 (Y8)</b>	<b>125.2</b>	128.2	125.5	126.8	119.7
<b>2023 (Yr 7)</b>	<b>125.5</b>	<b>130.2</b>	<b>124.5</b>	<b>127.0</b>	<b>120.0</b>

\*\*2020 was the first cohort of 180 students.

## Analysis

### Standard deviation

Year	S.D.
2017	5.44
2018	6.48
2019	6.59
2020	6.73
2021	7.41
2022	7.15
2023	7.43

As shown in the table the standard deviation of this year's scores is 7.43 which continues the higher trend seen since 2021 this suggests a greater spread in the data possibly due to our continued larger cohort size.

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 students featuring in the lower bands.

Mean score	2017	2018	2019	2020	2021	2022	2023
	(Y13)	(Y12)	(Y11)	(Y10)	(Y9)	(Y8)	(Y7)
<b>130+</b>	<b>31</b>	<b>34</b>	<b>31</b>	<b>30</b>	<b>34</b>	<b>28</b>	<b>31</b>
<b>125-129</b>	<b>31</b>	<b>26</b>	<b>29</b>	<b>30</b>	<b>22</b>	<b>27</b>	<b>24</b>
<b>120-124</b>	<b>30</b>	<b>21</b>	<b>22</b>	<b>25</b>	<b>22</b>	<b>23</b>	<b>28</b>
<b>115-119</b>	<b>7</b>	<b>16</b>	<b>12</b>	<b>11</b>	<b>14</b>	<b>12</b>	<b>8</b>
<b>110-114</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>5</b>	<b>6</b>	<b>8</b>	<b>6</b>
<b>105-109</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>3</b>
<b>100-104</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>95-99</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>90-94</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>85-89</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

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  $\pm 20$ )

## 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 eight Year 7 SEN Students and these students are distributed throughout the cohort. 6 of these students sit within the lower 40% for both CAT and CEM scores. One student is also pupil premium (highlighted in blue in the table below). One student (SF+) is at the very top and has been highlighted as exceptionally able.

## PPG students

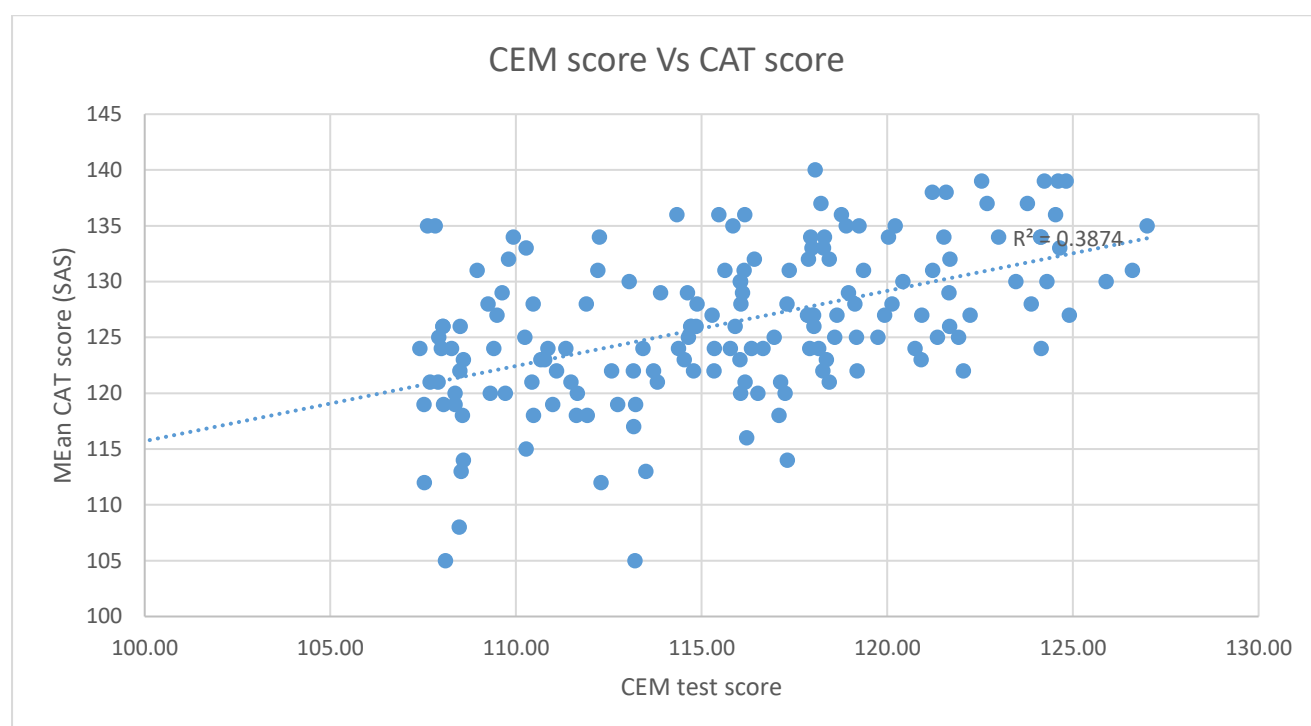
Of the 13 PPG students 12 students fell into the lower third of both CAT and the CEM scores (individual scores are shown below). Most of these students are also at the bottom of the Cem ranking (as would expect if they have passed in by being in the lower tranche that gets through.

CAT Ranking	Entrance Test Score	CAT Mean SAS
56	109.63	129
123	98.77	122
123	96.48	122
143	111.65	120
150	98.88	119
163	116.21	116
167	99.03	113
167	91.40	113
171	97.75	112
174	94.06	111
176	90.31	107
177	95.03	106
180	92.23	104

Mean SAS Score: 125.53

Mean CEM Score: 114.59

## 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 0.62 which indicates a positive correlation and is consistent with previous cohorts.

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 2022	CCHS 2023
	%	%	%
<b>Extreme Verbal Bias</b>	2	1.1	4
<b>Moderate Verbal Bias</b>	4	9.5	8
<b>Mild Verbal Bias</b>	11	16.2	18
<b>No Bias</b>	66	70.4	69
<b>Mild Spatial Bias</b>	11	2.8	-
<b>Moderate Spatial Bias</b>	4	-	-
<b>Extreme Spatial Bias</b>	2	-	-

## Ethnicity analysis

The key point to note is that Indian and white British are our largest cohorts.

Row Labels	Count of Ethnicity	Average of Weighted CEM score	Average of mean SAS
Bangladeshi	10	113.13	126.00
Black - Ghanaian	4	111.44	124.00
Black - Nigerian	11	115.84	125.00
Filipino	1	113.05	130.00
Greek/Greek Cypriot	1	107.82	135.00
Hong Kong Chinese	3	110.22	118.33
Indian	70	117.15	126.23
Other Asian	6	113.93	127.17
Other Black African	3	110.42	116.67
Other Chinese	7	119.64	128.29
Other ethnic group	3	112.81	126.00
Other mixed background	2	118.67	135.00
Pakistani	2	115.92	126.00
Refused	3	116.78	129.00
Turkish/Turkish Cypriot	1	115.63	131.00
White - British	35	111.02	124.77
White - Irish	3	117.84	120.00
White and Asian	8	114.67	127.13
White and Black Caribbean	1	97.75	112.00
White Eastern European	3	101.98	115.67
White Other	3	112.59	125.67
<b>Grand Total</b>	<b>180</b>	<b>114.59</b>	<b>125.53</b>

*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
7A	113.68	124.10
7C	115.04	124.67
7F	113.65	125.60
7G	114.51	125.43
7H	114.40	127.17
7S	116.29	126.23
<b>Grand Total</b>	<b>114.59</b>	<b>125.53</b>

There appears to be little difference between tutor groups in terms of their CEM or CAT test mean scores.