Tracking Performance in the IB Diploma
&
CEM IBE: Student Guidance and Performance Monitoring for the IB Diploma

A joint presentation from Peter Fidczuk, Dartford Grammar School and Robert Clark, Nicola Forster, CEM, Durham University

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CEM IBE

Student Guidance and Performance Monitoring for the IB Diploma

Robert Clark, Nicola Forster
CEM (Centre for Evaluation & Monitoring), Durham University
cemibe@cem.dur.ac.uk

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Who is CEM?

Centre for Evaluation & Monitoring

- Part of Durham University
- Close links to School of Education
- Established 1983
- Not for Profit Organisation
- Nursery / Reception → Post-16
- Monitoring Systems, Research and Evaluation Projects
- UK & International
- Working in Over 50 Countries
- Informed by *Evidence* from *Research*

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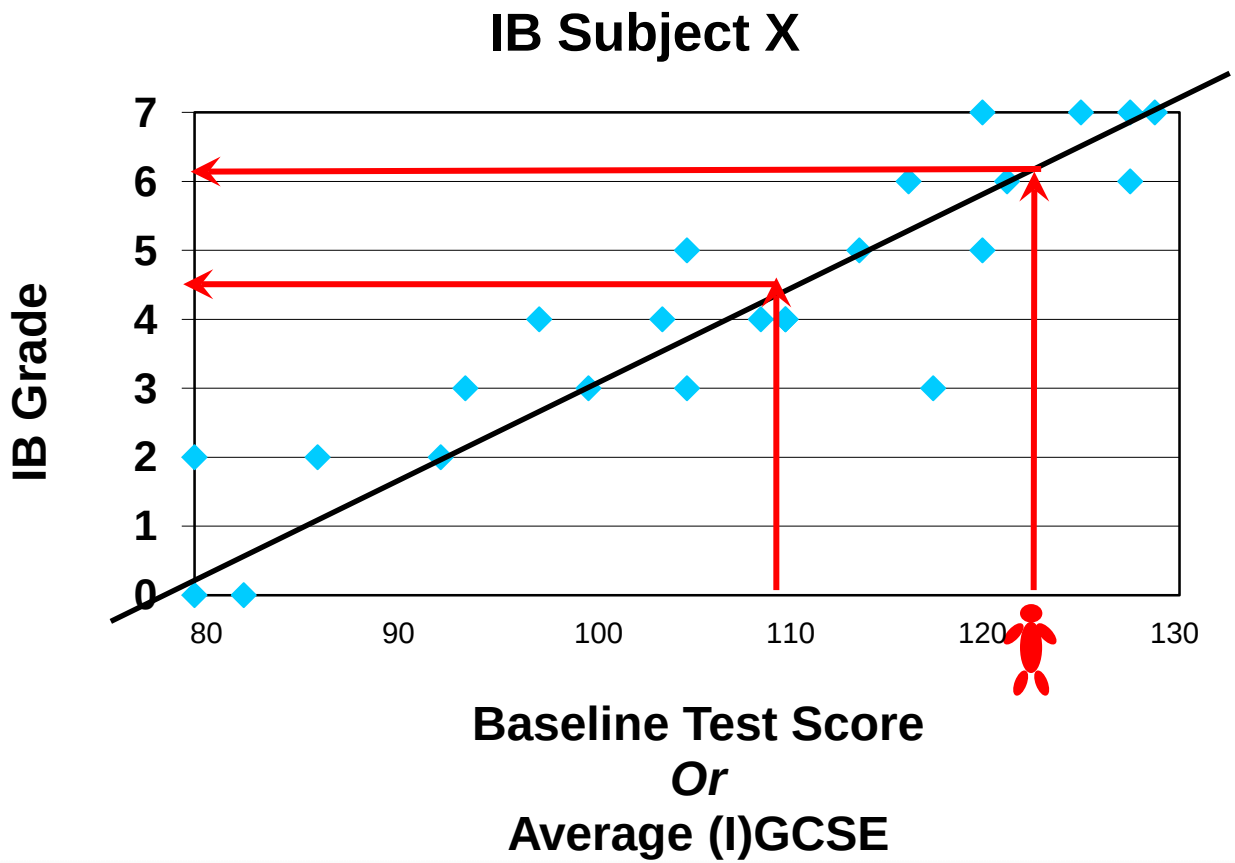
CEM IBE Methodology – 'Predictions'



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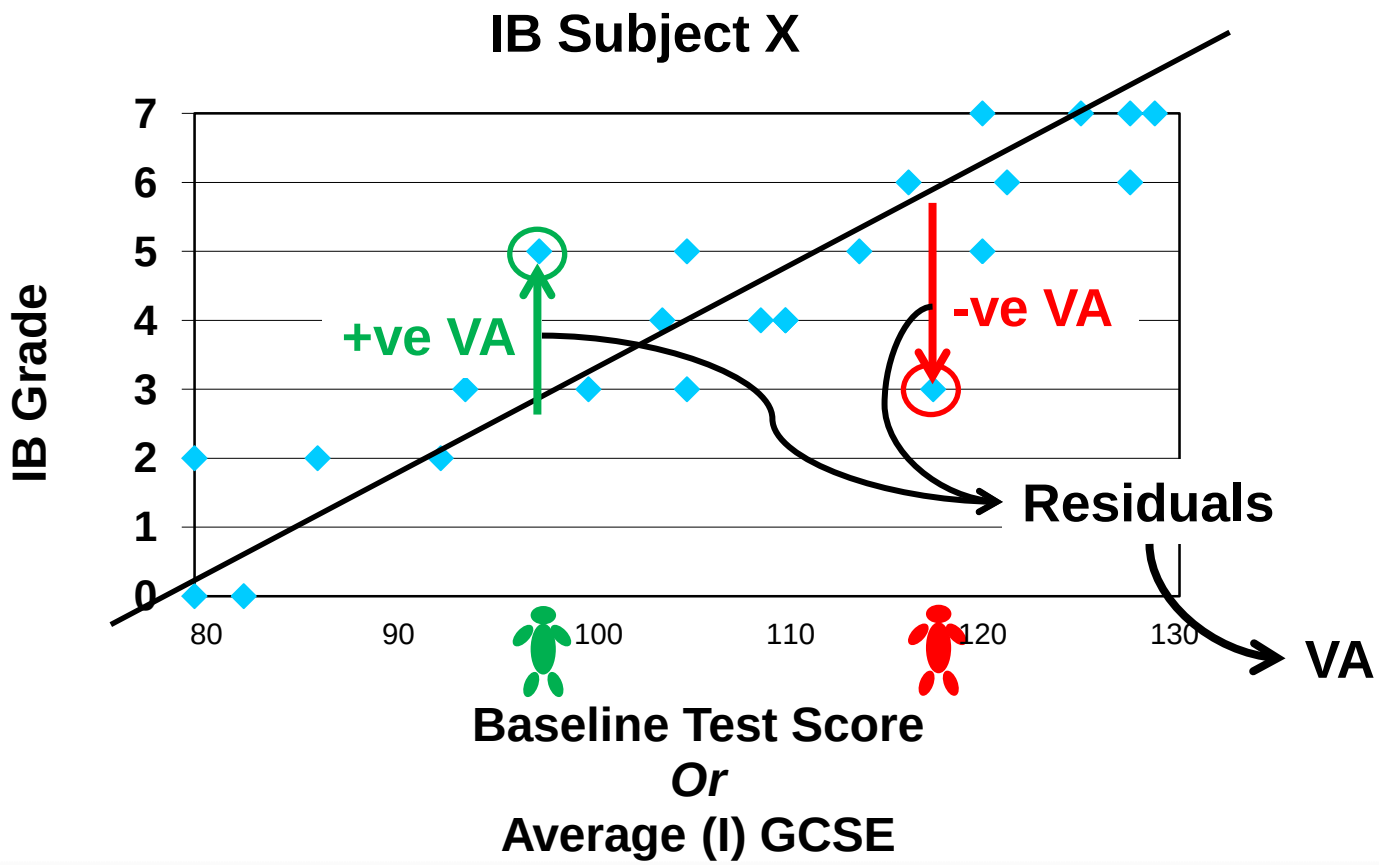
CEM IBE Methodology – Value-Added



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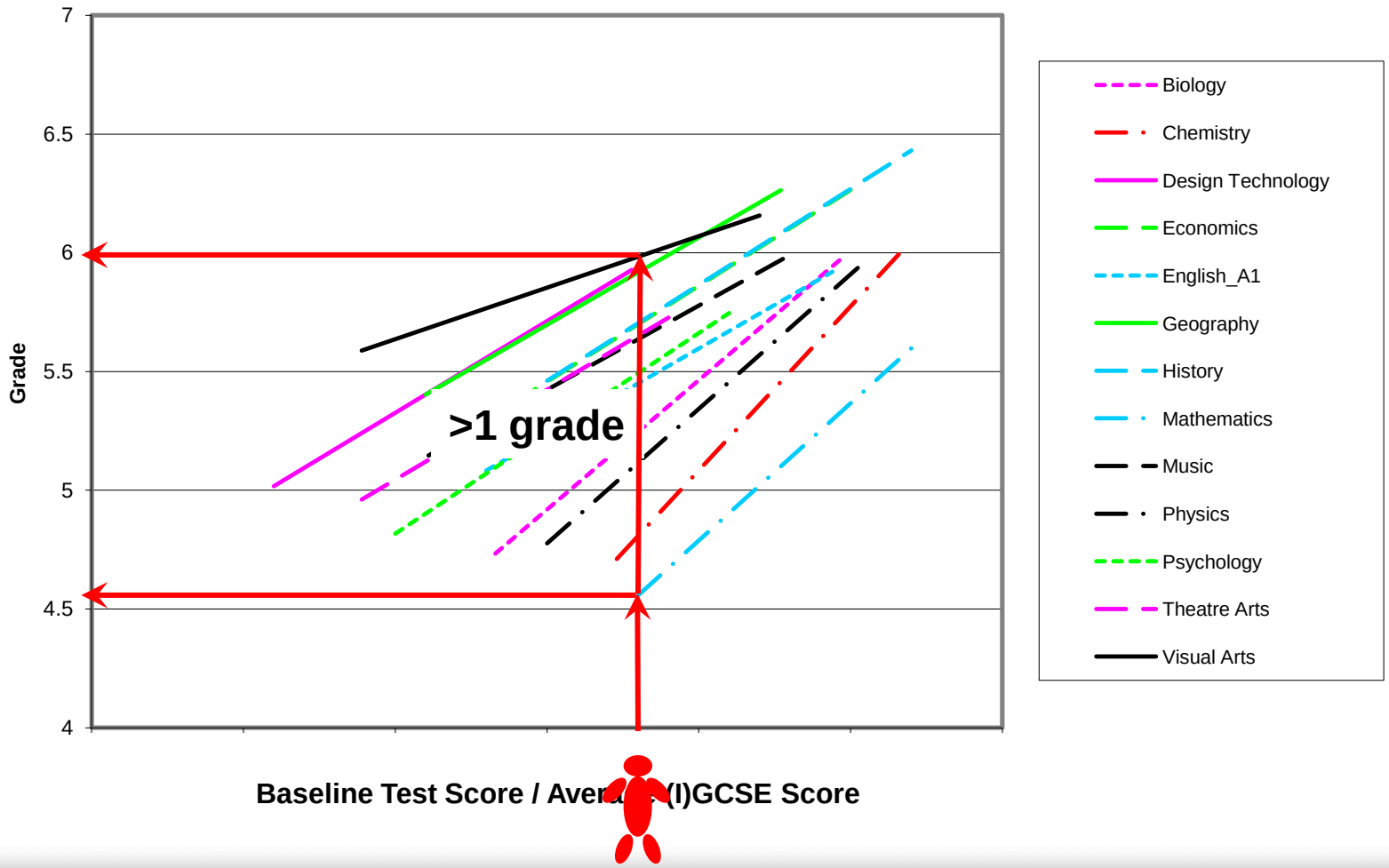
IB Higher Regression Segments (Interquartile Range)



Baseline Test Score / Aver[illegible](I)GCSE Score

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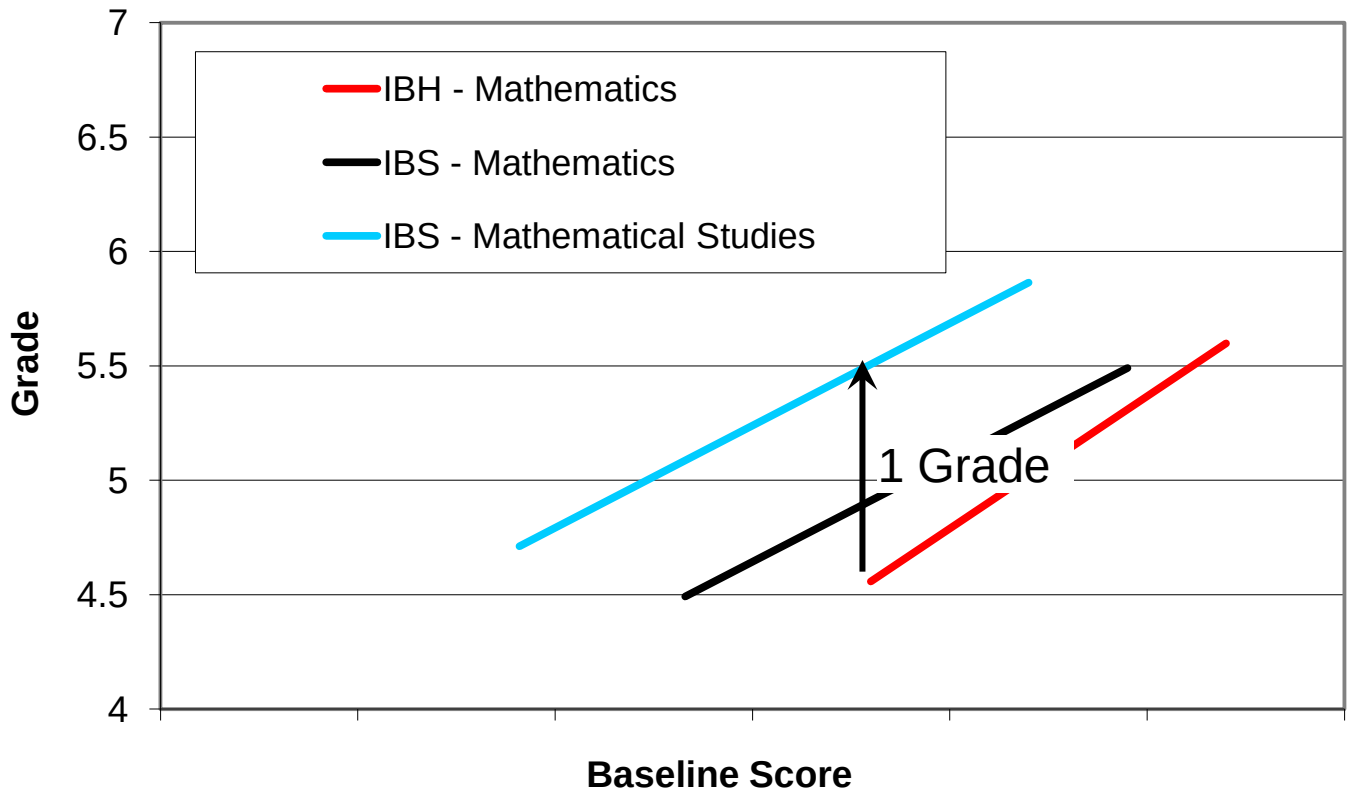
Maths Regression Segments (Interquartile Range)



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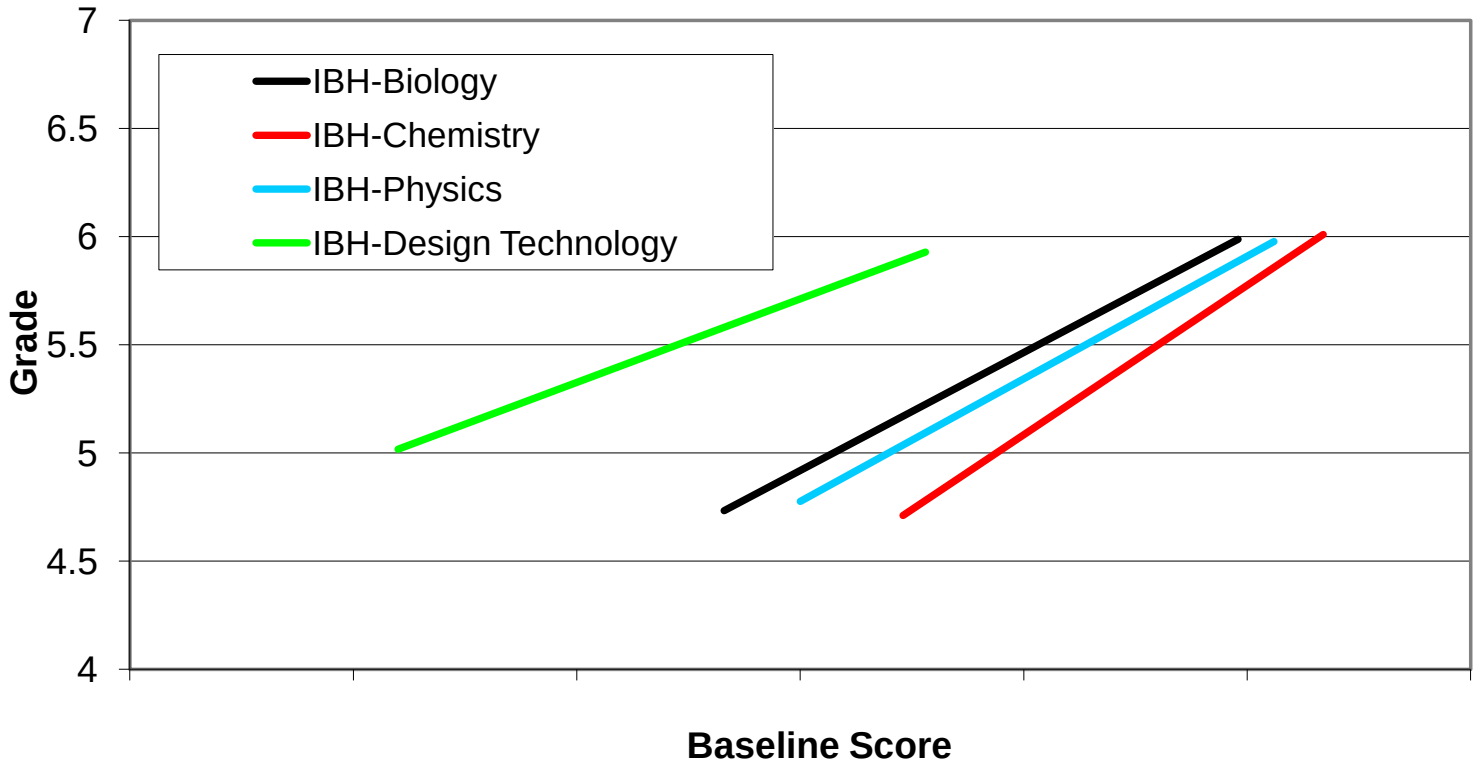
Which Group 4: Experimental Sciences ?



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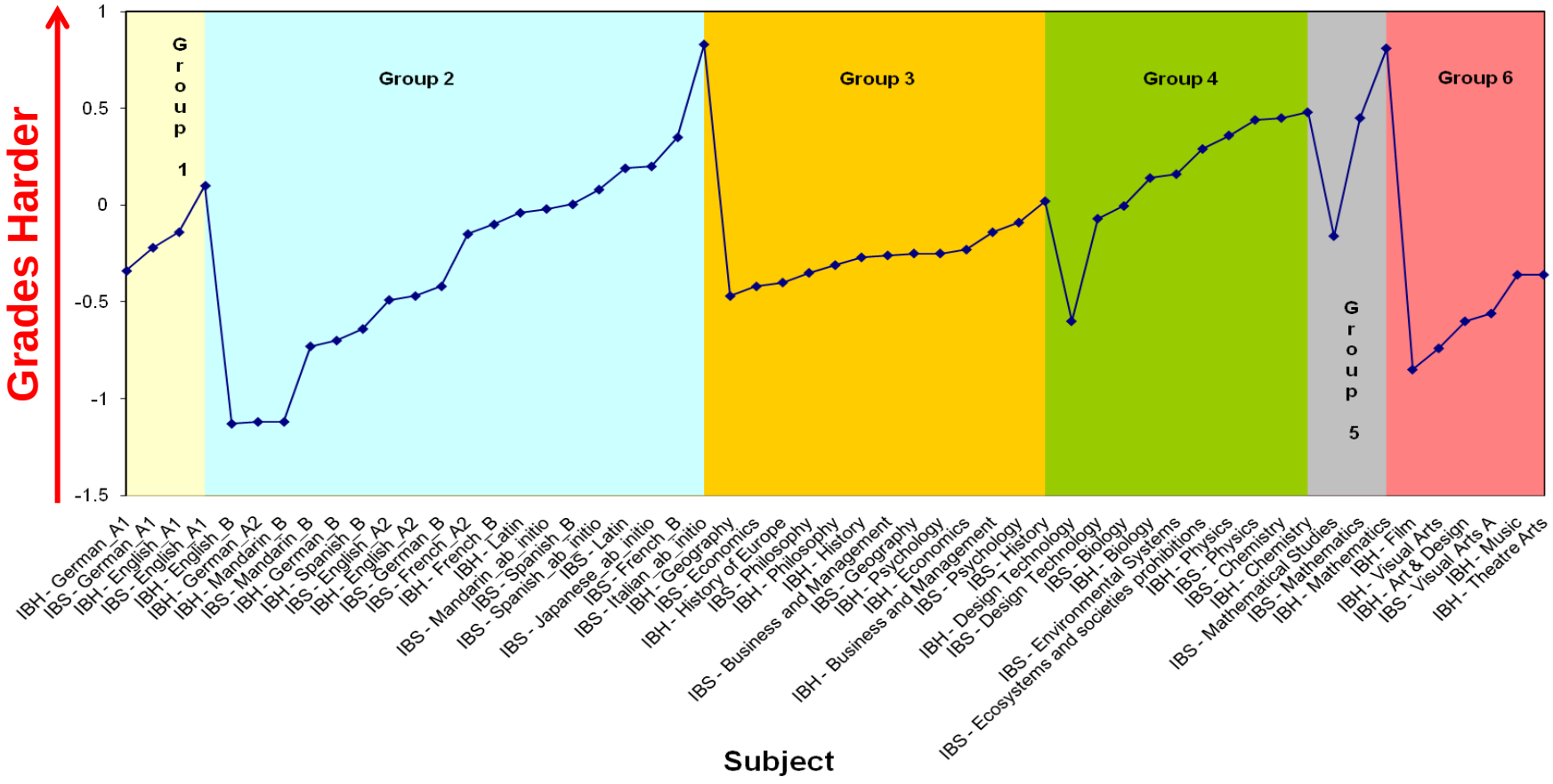
IB Relative Difficulty



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CEM IBE Feedback - IPR

Look for sections that are inconsistent

What is potential impact on teaching & learning ?

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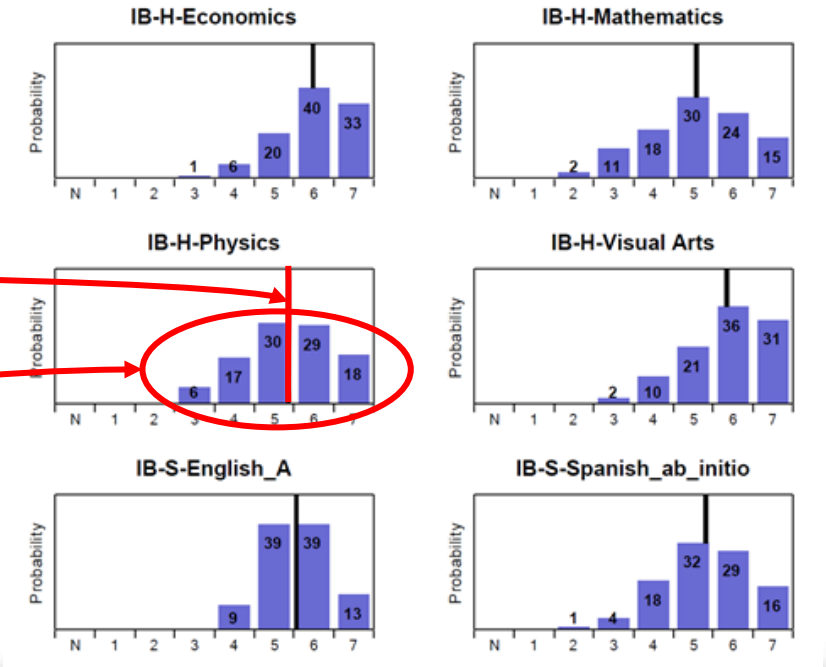
CEM IBE Feedback – 'Predictions'

Expected Grade

Probability of achieving each grade

Gender = F Date of Birth = 27/07/94 Year Group = 1
Baseline Test = Adaptive Test Baseline Score = 122.0

Subject	Predicted Points	Predicted Grade
IB-H-Economics	6	6
IB-H-Mathematics	5.1	5
IB-H-Physics	5.3	5
IB-H-Visual Arts	5.8	6
IB-S-English_A	5.6	6
IB-S-Spanish_ab_initio	5.3	5



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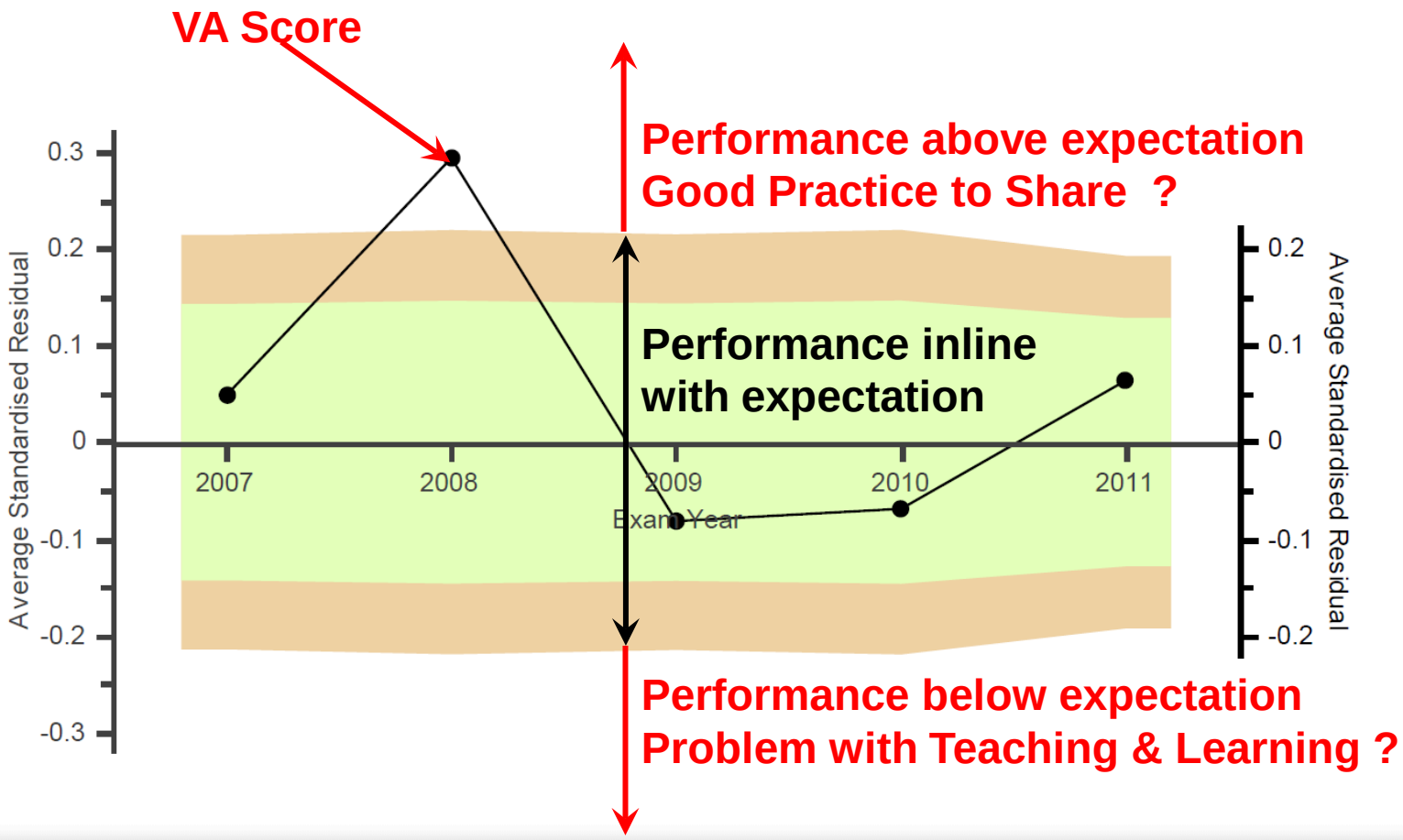
CEM IBE Feedback – Value Added



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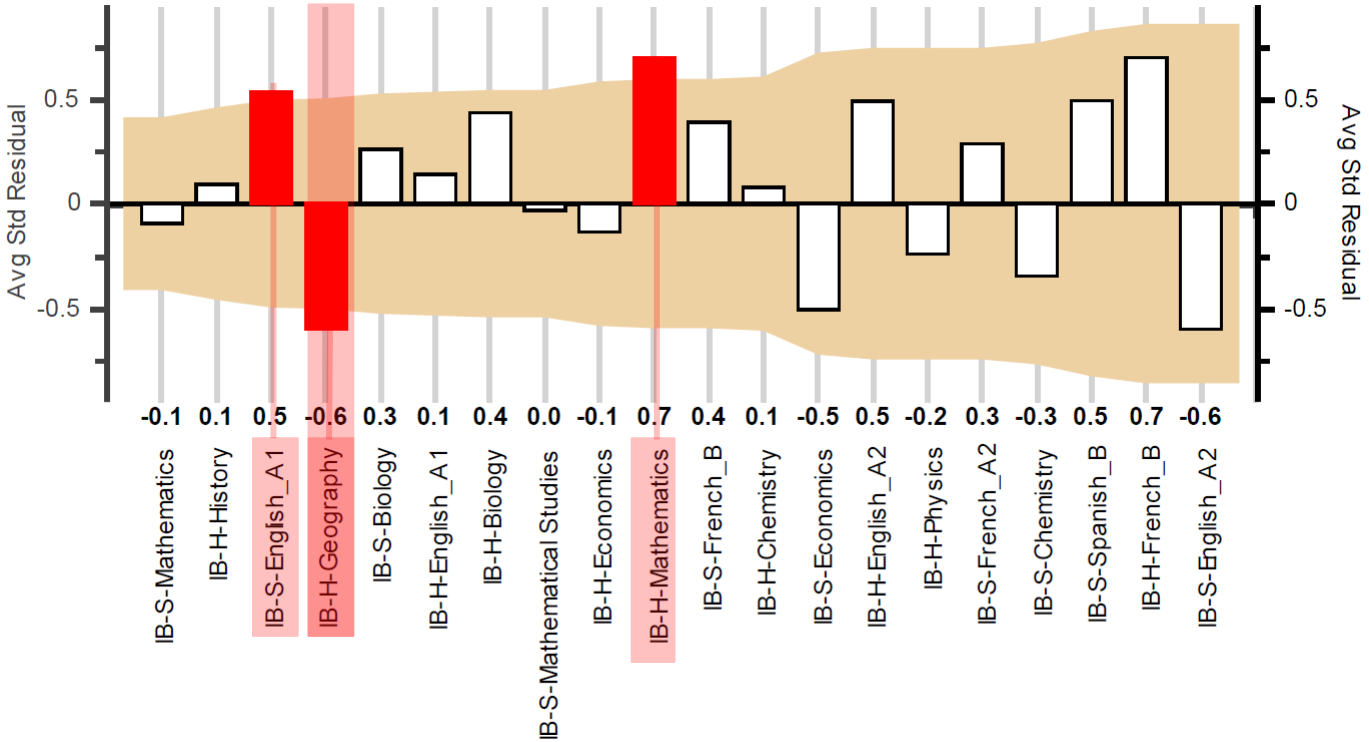
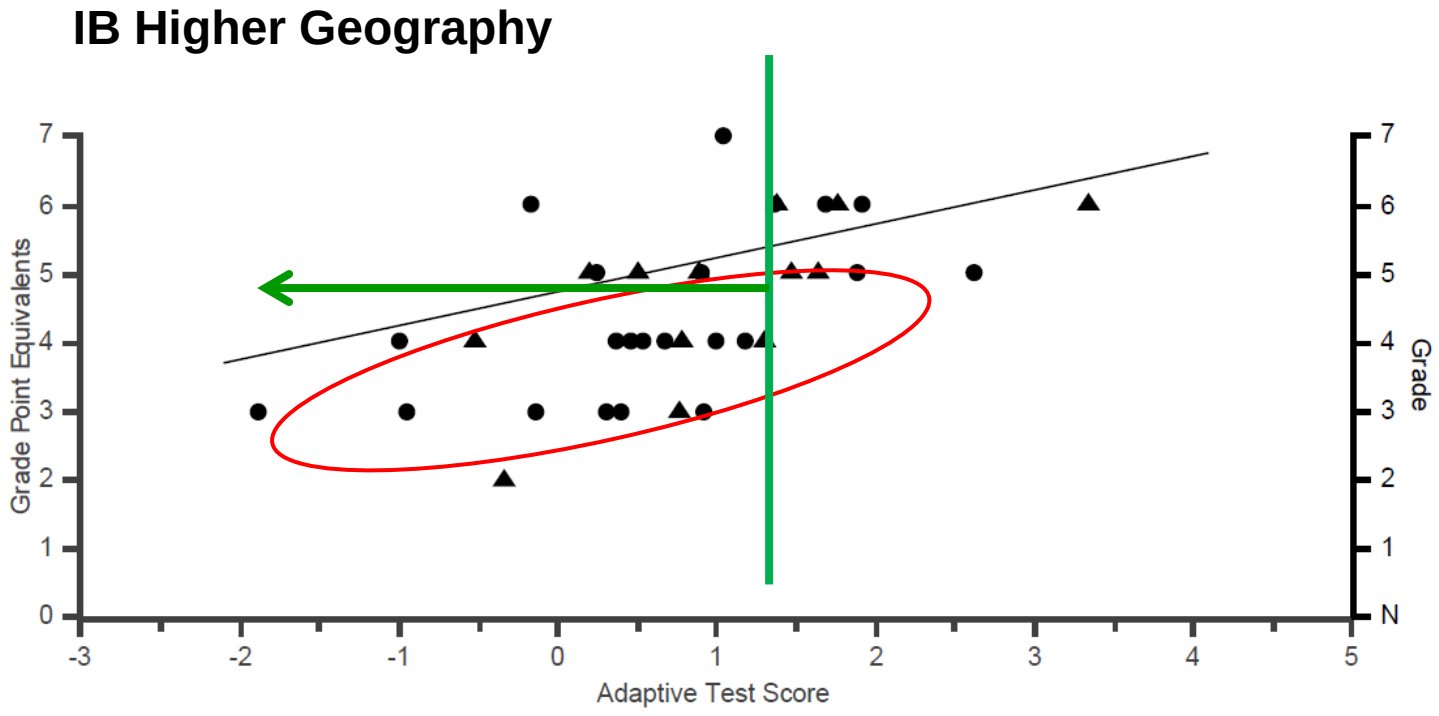
CEM IBE Feedback – Value Added



CEM IBE Feedback – Value Added



Not Supporting Weaker Students ?

Not Supporting Weaker Students ?

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CEM IBE - Summary

- Computer Adaptive Baseline Test provides information on a student's 'Ability'
- (I)GCSE can also be used
- 'Predictions' & Chances Graphs indicate typical attainment and are subject specific
- Data can support target setting and monitoring
- In depth Value Added data to support Performance Analysis
- VA data presented against confidence limits to separate chance effects
- CEM IBE is a comprehensive Information System that supports student guidance and professional performance review

Tracking Performance in the IB Diploma

Peter Fidczuk
Dartford Grammar School
pfidczuk@dartfordgrammar.kent.sch.uk

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Why track performance?

- To inform students & parents of progress
- To inform teachers if progress is as expected, and if not to trigger an intervention
- To inform the HOY if the student is performing across all subjects
- To inform the subject leader if classes are performing satisfactorily
- To inform Performance Management
- To inform the SMT of the year groups' and subjects' performance and their contribution to the whole school target
- To develop a target for the whole year group which is realistic and which allows VA and CVA.

Methodology

- All performance tracking is based on making a prediction based on the students prior attainment – usually by taking their average GCSE attainment (APS) or by using a CAT test
- Relating this to an average outcome based on previous data which is generated national – regression equations
- This is the prediction. The target is then the prediction plus some value added

Sources of Regression Data

- DfE (GCSE APS – total IB points)
- LEA
- ALIS
- ALPS
- FFT

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ALIS

Regression Statistics 2010

Predicted Points Score = (Gradient x Baseline) + Intercept

Subject	Number	Gradient	Intercept	Correlation	Standard Deviation
Mathematical Methods	777	0.67	0.55	0.47	1.15
Mathematical Studies	3,325	0.71	0.65	0.60	1.00
Mathematics	2,058	0.82	-0.61	0.50	1.14
Music	48	0.80	0.03	0.69	0.85
Philosophy	195	0.73	0.88	0.68	0.71
Physics	850	0.86	-0.79	0.73	0.93

$$4.91 = (0.71 \times 6) + 0.65$$

A grade B student's predictions – based on GCSE APS

HL Bi	(0.88 x 6) – 0.60	=	4.68
HL Ch	(1.06 x 6) – 2.16	=	4.20
HL Py	(0.70 x 6) + 0.95	=	5.15
SL MS	(0.71 x 6) + 0.65	=	4.91
SL En	(0.70 x 6) + 0.58	=	4.78
SL Fr	(0.80 x 6) – 0.49	=	4.31

Total: 28.03

Can also use the CABT to generate predictions

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A grade B student's targets

HL Bi	4.68	→	5 or 4
HL Ch	4.20	→	4
HL Py	5.15	→	5
SL MS	4.91	→	5 or 4
SL En	4.78	→	5 or 4
SL Fr	4.31	→	4

Total: 28.03

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Individual targets make the whole school target

6 subject targets → student target

Average student + Core target → whole school target

Adjust rounding until the average student target plus an allowance for the core meets the whole school target

Coherence between targets

This establishes clear links between

- individual student subject targets and the whole school target
- individual student targets and the subject targets
- individual student targets and the class targets

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Procedure

- Our data manager calculates predictions and provisional targets early in September as soon as the GCSE APS are known and the latest ALIS regression equations become available
- The targets are entered into SIMS Assessment Manager
- Staff assess students' initial performance and grade early in October
- Results are exported into Excel and the overall school target is calculated based on students' choices of subjects
- Students' targets are adjusted to bring the whole school target in line with the desired target

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Targets for a student with our minimum entry requirements: 3 As & 4 Bs

HL Bi	5.05	→	5
HL Ch	4.75	→	5
HL Py	5.44	→	5
SL MS	5.21	→	5
SL En	5.07	→	5
SL Fr	4.65	→	5

Total: 30 plus 1.8 core = 31.8

Assessment Points

Year 12	Year 13
End of October	End of October
Christmas	November after Y13 exams – grades & report
Easter	January
May after Y12 exams – grades & report	Easter – these are also the predicted grades reported to the IB
July	

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Year 12 IB Grade Sheet for xxxxxxxxxxx in form 12x

			Y12 Autumn (Interim)			Y12 Autumn			Y12 Spring			Y12 Summer			
	Higher/Standard	IB Minimum Target Grade	**Attainment**	Effort	Ind. Study	**Attainment**	Effort	Ind. Study	**Attainment**	Effort	Ind. Study	**Attainment**	Effort	Ind. Study	UCAS Prediction
Chemistry	S	6	**6**	A	A	**6**	A	A							
English	H	6	**6**	A	A	**6**	A	A							
French	H	6	**6**	A	A	**6**	A	A							
History	S	6	**6**	A	A	**6**	A	A							
Maths	H	5	**6**	A	A	**6**	A	A	**7**	A	A				
Russian	Sab	6	**7**	A	A	**7**	A	A							
Theory of Knowledge			**A**	A	A	**A**	A	A							

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Year 13 IB Grade Sheet for xxxxxxxxxx in form 13x

				Y12 Summer			Y13 Autumn (Interim)			Y13 Autumn			Y13 Spring		
	Higher / Standard	IB Minimum Target Grade	UCAS Prediction	**Attainment**	Effort	Ind. Study	**Attainment**	Effort	Ind. Study	**Attainment**	Effort	Ind. Study	**Attainment**	Effort	Ind. Study
Chemistry	H	5	7	**6**	A	A	**7**	A	A	**6**	A	A			
English	S	5	5	**5**	A	A	**5**	A	A	**6**	A	A			
Maths	H	5	5	**7**	A	A	**5**	A	A	**5**	A	A	**5**	A	A
Physics	H	5	6	**6**	A	A	**5**	A	A	**6**	A	A			
Spanish	S	5	6	**6**	A	C	**5**	A	B	**5**	B	B			
World Politics	S	6	6	**6**	A	B	**6**	A	B	**6**	A	B			
Theory of Knowledge				**A**			**B**	B	B						

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Head Of Year's Report

student	Average Residual	Average Levels	Total Levels	Tot Alis Target Levels	Tot levels - Alis Targets	Number of Subjects	Total Higher Levels	Total Standard Levels	Underachieving Subject Count
1	0.67	6.5	39	35	4	7	19	20	0
2	-0.17	4.67	28	29	-1	7	16	12	2
3	-1	4.33	26	32	-6	7	12	14	5
4	-0.5	4.5	27	30	-3	7	14	13	3
5	0	4.67	28	28	0	7	16	12	1

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Head Of Year's Report

Subject results

Subject	SL/ HL Residual	Astronomy	0.75
Arabic	0	Chinese	-2
Art	0.67	German	-0.31
Biology	0.38	Geography	0.33
Business Studies	-0.3	History	-0.09
Classics	0.5	If	0.67
Chemistry	0	Italian	3
Computer Science	0.22	Japanese	-0.12
DT	0.29	Latin	0.08
Economics	-0.73	Maths	-0.27
English	0.27	Music	-0.17
Ecosystems	-0.42	Physics	-0.53
Film	-0.29	Philosophy	-0.05
French	0.02	Spanish	-0.31
Theatre Arts	0.62	World Politics	0.5

Monitoring

Triggers:

- Total Points < 24 – for certain
- Total points < 28 – dependent on workload
- Total HL < 12
- Total of 3 or more underachieving subjects
- 2 C or D grades for effort & independent study

Interventions:

- By subject teacher
- By form tutor
- By Head of Year/Deputy Head of Year

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Key Points in the Programme

October Y12

- Initial position – HOY identifies struggling students, students in wrong subjects; tutor report/HOY report

Y12 Exams

- minimum 23 points required
- followed by interview with sixth form staff to prepare for UCAS

Y13 Exams

- Minimum 24 points/12 points HL
- Mentoring by HOY/ SLT

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Teachers' worksheet

Surname Forename	IB Ch Target Higher	IB Ch High/ Standard Flag	IB Ch UCAS Prediction IB UCAS Predictions Y13	IB Ch Attainment~4 Year 12 Summer	Ch Effort~4 Year 12 Summer	Ch Homework~4 Year 12 Summer	IB Ch Attainment Year 13 Autumn (Interim)	Ch Effort Year 13 Autumn (Interim)	Ch Homework Year 13 Autumn (Interim)	IB Ch Exam Grade Year 13
XXX	6	H	6	6	A	A	6	A	A	6
XXX	4	H	4	4	B	A	6	A	A	6
XXX	5	H	5	4	B	A	5	A	A	5
XXX	6	H	5	5	B	A	6	A	A	6
XXX	5	H	5	5	A	A	6	A	A	6
XXX	5	H	5	5	A	A	5	A	A	4
XXX	6	H	6	6	A	A	6	A	A	7
XXX	5	H	5	5	A	A	5	A	A	4
XXX	6	H	6	6	A	A	6	A	A	6
XXX	5	H	5	4	A	A	5	A	A	5
XXX	5	H	6	6	A	A	7	A	A	7
XXX	6	H	6	5	A	A	5	A	A	5
XXX	5	H	5	5	A	A	6	A	A	6
XXX	4	H	4	4	A	A	4	A	A	3

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Performance Management

September/October Planning meeting

- Targets set for the coming year
- Pupil performance target mandatory

September/October Review meeting

Targets reviewed by comparing with actual grades achieved, eg

- IB Business and Management (HL) Target IB Level 4.75; Actual 5.4; Residual +0.65
- IB Economics (SL) Target IB Level 6.0; Actual 6.0 Residual 0.0
- IB Economics (HL) Target IB Level 5.46; Actual 5.53; Residual +0.07

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Yearly Departmental Review

September Review meeting with the Head

- Subject exam performance reviewed
- Subject targets agreed for the coming year

Class / Teacher / Group size	7 %	6 %	5 %	4 %	7-4%	3 %	2-1 %	X %	Residual		Average IB Level		
13H1Ma / SCW/SEW /9	22	22	11	33	89	11			0.44		5.1		
13H2Ma / SEW/LH / 7	14	14	29	29	86	14			0.43		4.9		
									2010	**2009**	**2010**	**2009**	**2008**
Year 13 Higher	**19**	**19**	**19**	**31**	**88**	**13**			**0.44**	**0.40**	**5.0**	**5.1**	**4.8**
13S1Ma / BW / 7	14	57	14		86	14			1.00		5.6		
13S2Ma / CH / 5	40	20		40	100				0.80		5.6		
									2010	**2009**	**2010**	**2009**	**2008**
Year 13 Methods Standard	**25**	**42**	**8**	**17**	**92**	**8**			**0.92**	**-0.30**	**5.6**	**4.6**	**5.4**

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LG Faculty Review

2 year cycle – current focus Y11 and the Diploma

- **Attainment – in comparison with targets**
- **Lesson Observations**
- **Teacher feedback**
- **Student feedback – do students know their targets?**

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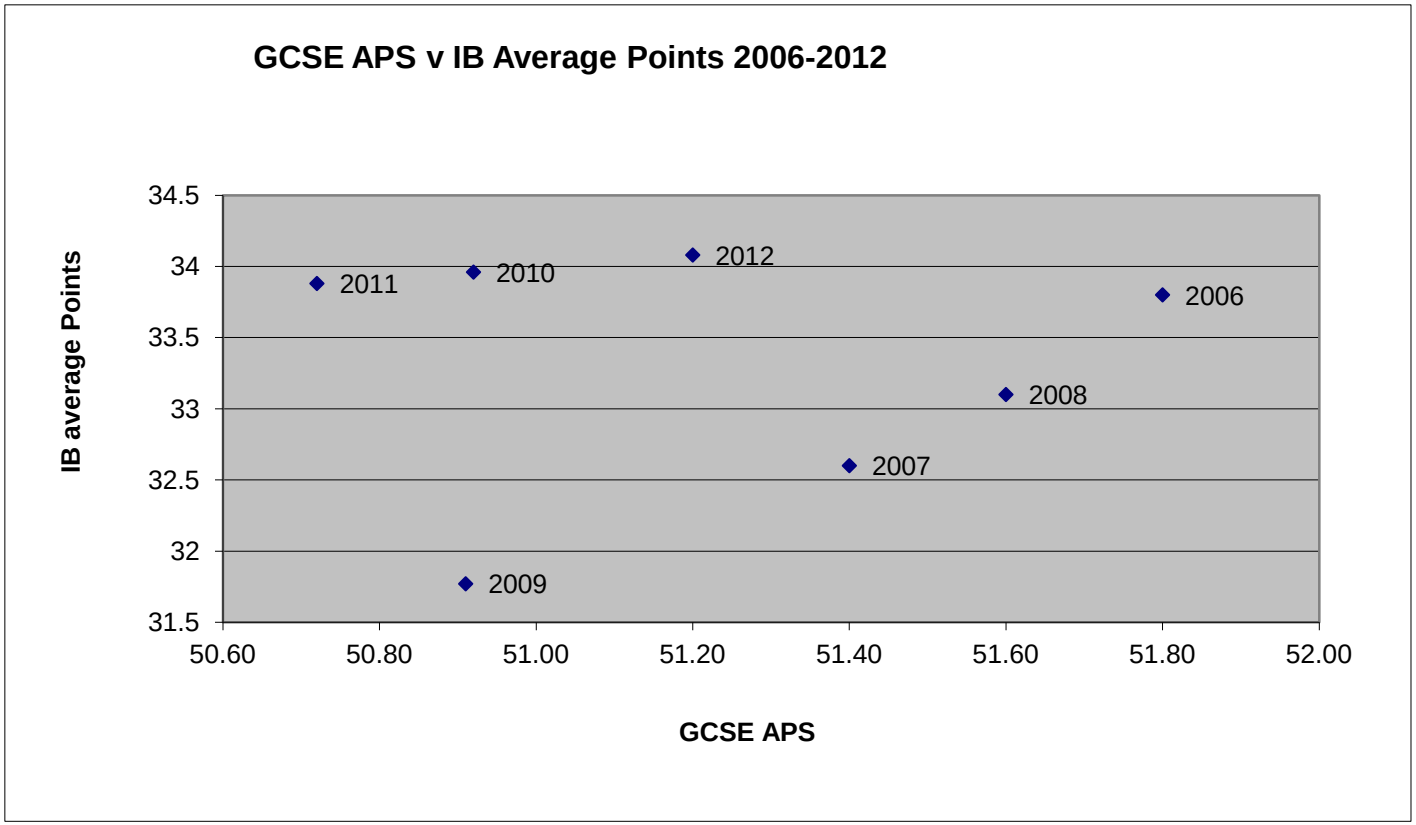
Year on Year Comparison



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TEST AND EXAMINATION POINT SCORES USED IN THE 2010 SCHOOL AND COLLEGE PERFORMANCE TABLES

International Baccalaureate Diploma Passes					
Grade	Size	Points	Grade	Size	Points
45	5.5	1518	33	5.5	1122
44	5.5	1485	32	5.5	1089
43	5.5	1452	31	5.5	1056
42	5.5	1419	30	5.5	1023
41	5.5	1386	29	5.5	990
40	5.5	1353	28	5.5	957
39	5.5	1320	27	5.5	924
38	5.5	1287	26	5.5	891
37	5.5	1254	25	5.5	858
36	5.5	1221	24	5.5	825
35	5.5	1188			
34	5.5	1155			

DfE Attainment Table points #2

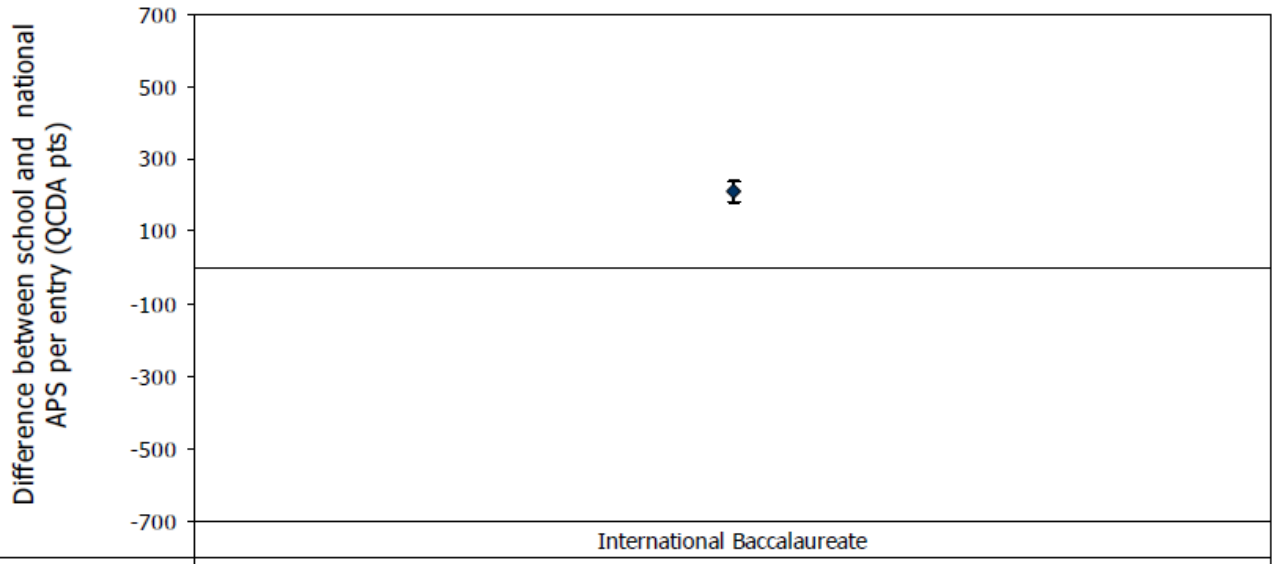
Certificate points are not in the DfE points table but are awarded except for Ab Initio languages

	H	S
7	202.5	135
6	168.75	112.5
5	146.25	97.5
4	123.75	75
3	0	0
2	0	0
1	0	0

Inconsistent with the total diploma points

Sixth Form Panda #1

Chart 2.27: Average point score per entry for the International Baccalaureate



No. Entries	230
School APS per Entry	1122.6
National APS per Entry	912.8
Diff from Nat	209.8
95% CI +/-	30.2

Source: DfE Key Stage 4 to 5 Achievement and attainment tables (October 2011) – Unvalidated data

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Sixth form Panda #2

Chart 3.4: Value added score by other qualification type in 2010/11

	International Baccalaureate	Free Standing Maths	BTEC National Award	BTEC National Certificate	BTEC National Diploma	OCR National Certificate	OCR National Diploma	OCR National Extended Diploma
No. of aims(inc fails)	225							
Aggregated VA Scores	80.98							
95% CI	15.82							
National SD	53.87							

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Sixth form Panda #3