

Step by step approach to allocating grades using ASCL approach

These are some initial notes on the steps required to implement the ASCL approach whereby in the interests of fairness to the whole cohort of Year 11, the overall national outcomes are in line with previous (and future) cohorts. This means that individual schools need to submit CAGs (Centre Assessed Grades) which are "non-inflationary" i.e. that they take into account in a clearly quantified way:

- expected grade distributions at national level
- results in previous years at individual centre level
- the prior attainment profile of students at centre level

These notes give clear guidance on how to do this using available data. Allowing schools to submit grades in this way will mean that centres will be able to get the right grades to the right pupils (e.g. allowing for clustering or exceptional pupils) whilst staying within the national constraints. Exam boards have set the deadline for the submission of grades and ranks as 12 June 2020, which gives time to consider the grades to be submitted.

The national DfE subject Transition Matrices (TMs) methodology outlined in the previous ASCL documents (links at end) underpins these decisions made at a school level and is consistent with the existing methodology used by exam boards to ensure that outcomes each year are similar to previous years.

These are the steps a centre can take to do the initial calculations and then make adjustments at an individual pupil level to ensure accuracy and fairness whilst adhering to national requirement for consistency with previous and future cohorts. Ofqual issued a blog, [Making grades as fair as they can be: advice for schools and colleges](#) on Friday 16 May about how schools should take "results in previous years" into account.

"For GCSEs, it will consider data from 2018 and 2019, except where there is only a single year of data from the reformed". So, the average of the results in VA terms for the two previous years will be used. The blog continues:

"If a centre's centre assessment grades are judged to be more generous than expected in a subject, some or all of the grades will be adjusted before being issued (although the rank order won't change). And it will also make sure that, at a national level, grade distributions are broadly in line with other years."

There are some detailed technical points included in the Annex regarding each stage. The ASCL spreadsheet (or similar from provider) would form a formal statement by the Centre summarising and giving the key figures on how the grade distributions had been arrived at, incl the amount of VA, and then adjusted for individual pupil fairness.

Overall steps for each subject

1. From the KS2 prior attainment of those entered, use the 2019 DfE Subject Transition Matrices to calculate a "starting grade distribution" for June 2020, with its average grade and % 9-4
2. The school would state the subject VA for 2018 and 2019, giving details of the methodology / provider, and then take the average to use in the 2020 calculations. This figure is entered manually in the spreadsheet.
3. The spreadsheet then calculates what the distribution of grades would be for June 2020 which would give that specified subject VA figure (assuming uniform VA across the prior attainment range). The average grade increases by the VA figure

- The school can modify the grade distribution to fit the exact pattern of its pupils, PROVIDED that the average grade and the % 9-4 remain the same. This will maintain the necessary national consistency. Schools should consider the % 9-7.

Compliance with Ofqual guidance

The Ofqual guidance states [with explanation in square brackets of matching with the steps]:
"We are working with technical experts within exam boards and others to develop this model, which will combine a range of evidence including

- expected grade distributions at national level - [Step 1 - Transition Matrices]*
- results in previous years at individual centre level [Steps 2 and 3 - use of VA from previous years]*
- the prior attainment profile of students at centre level " - [Step 1 - Transition Matrices]"*

Calculating a starting grade distribution for a given subject for June 2020

KS2 results: we know already that the KS2 results in 2015 were very similar to those in 2014 at a national level. This means that we can use the national DfE subject transition matrices for June 2019 as the basis for starting the estimation process for current Year 11 using their KS2 scores from 2015. See Annex about obtaining the KS2 scores and using the correct calculation to match that for the Transition Matrices

"In line with national" distribution: The process for calculating a starting grade distribution (and by that we mean one exactly in line with the national distribution by prior attainment - i.e. with zero VA) for a given subject for June 2020 is described in [ASCL Guidance - Centre Assessed Grades](#) with a worked example for English Language in a sample school where there are 218 pupils in the cohort and 200 of them have a KS2 score. The calculations show that for the 200 with a KS2 score, the most likely distribution is:

grade	9	8	7	6	5	4	3	2	1	U		ave pt score	% 9-4
no. pupils with KS2	3	7	13	28	40	39	46	16	6	2	200	4.36	64.7%
no. pupils without KS2	0	1	0	8	1	3	1	3	1	0	18	4.61	72.2%
Total	3	8	13	36	41	42	47	19	7	2	218	4.38	65.3%
<i>cumulative</i>	3	11	24	60	101	143	191	209	216	218			

NB there may be rounding errors to the nearest whole pupil (see below to 1 d.p.)

Pupils without KS2 grades: importantly, it also lets us make fair estimates for those pupils without KS2 grades because we will have an overall mark (and hence ranking) for every pupil doing a particular subject in our school. First, we use the grade estimate process for those pupils with KS2 scores and assign a GCSE grade to each of those pupils in ranked order. Grades can then be assigned to those without a KS2 score by using the grades of the adjacent pupils with KS2 scores.

Taking into account the results in previous year

How to calculate new grade distribution with uniform VA increase for pupils with KS2 score

Let's assume that the school had had a subject VA of 0.3 in 2018 and 0.2 in 2019, so the average of those is **0.25**. So, we need to amend the grade distribution from the "in line with national" i.e zero VA. See ASCL spreadsheet described on p.9 with formulae together with this explanation.

The expected numbers of pupils are calculated figures so we will highlight that by displaying all figures to 1 d.p., with adjustment back to whole numbers at a later stage.

grade	9	8	7	6	5	4	3	2	1	U	Tot	ave pt score	% 9-4
no. pupils with KS2 if in line (i.e. 0 VA)	2.8	6.7	13.1	28.1	39.8	39.0	46.8	16.1	5.6	2.0	200	4.36	64.7%
reduce by number getting increase from grade to next grade up		1.7	3.3	7.1	10.1	9.9	11.9	4.1	1.4	0.5	50		
raise by no getting increase from grade below	1.7	3.3	7.1	10.1	9.9	11.9	4.1	1.4	0.5		50		
no. pupils with KS2 with VA added	4.5	8.3	16.9	31.1	39.6	40.9	39.0	13.5	4.7	1.5	200	4.61	70.7%

Explanation of the calculation

- A value-added figure of 0.25 means that pupils for a given prior attainment on average gain 0.25 grades more than comparable pupils.
- You can only have whole number grades, so that is equivalent to saying that 25% of pupils gain one grade higher than they would have done.
- So, of the pupils who did get a grade 8, 25% get a grade 9 instead. In the example above, for grade 8, 25% of 6.7 = 1.7, so 1.7 pupils gain a grade 9 instead of a grade 8. How many grade 8a are there? Well, 1.7 fewer, BUT, 25% of grade 7 pupils gain a grade higher, i.e. a grade 8, so the number rises by 25% of 13.1 = 3.3. This gives a final number getting grade 8 of 6.7 - 1.7 + 3.3 = 8.3

The outcomes of those calculations are given in the "Total" row with 4.5 grade 9s etc, and an average grade of 4.61 and % 9-4 of 70.7%

Non-inflationary grade adjustments by school

Now, the school can look at the mark distribution from its calculations and fit the pupils to the grades allocated. Placing the pupils in mark order will give the ranking and allow an initial allocation of grades to take place: i.e. the first 5 (4.5) get grade 9, next 8 (8.3) and so on.

However, a closer scrutiny of the mark distribution might show clustering, i.e. the 12th, 13th, 14th, 15th pupil might have almost identical marks, and so it would seem fair to also allocate the 14th and 15th pupils to grade 8 rather than grade 7. But you then need to look for a similar clustering in the opposite direction so that overall, as many pupils were moved up as down. So, if there was a gap after 28 pupils, then you might allocate the 29th and 30th pupil to grade 6 rather than grade 7. A possible outcome is shown in the table below:

grade	9	8	7	6	5	4	3	2	1	U	Tot	ave pt score	% 9-4
Total from "with VA" calculation	4.5	8.3	16.9	31.1	39.6	40.9	39.0	13.5	4.7	1.5	200	4.61	70.7%
school proposal	6	10	12	31	36	46	42	12	3	2	200	4.61	70.5%

In all of this, it is essential that the average and the %9-4 remain the same.

Final distribution as submitted

Those pupils without KS2 scores would be allocated grades according to their place in the rankings and the grades of adjacent pupils with KS2 scores.

grade	9	8	7	6	5	4	3	2	1	U		ave pt score	% 9-4
no. pupils with KS2	6	10	12	31	36	46	42	12	3	2	200	4.61	70.5%
no. pupils without KS2	0	1	0	8	1	3	1	3	1	0	18	4.61	72.2%
Total	6	11	12	39	37	49	43	15	4	2	218	4.61	70.6%
<i>cumulative</i>	6	17	29	68	105	154	197	212	216	218			

So, the above table represents the results pupils attending that school would have expected to get in June 2020 using the assumptions in the Ofqual advice cited at the beginning.

The figures above have a value-added of 0.25 i.e. a quarter of a grade on average rather than those in the table on the previous page based on zero value-added, i.e. they have taken previous years' results into account.

Summary

The great advantage of the method outlined above is that it gives schools a way in which they can calculate the grade distribution to use knowing that it will fit with the national picture and they are doing the right thing by allocating grades which when aggregated will be exactly consistent with those of previous and succeeding years.

Because the Transition Matrices are available with splits by gender, SEN, disadvantaged and EAL, the method also allows schools to check whether any additional difference has crept into the allocations, thus highlighting any potential bias.

By recording the calculations as well, it provides evidence so that if for reason a national standardisation flags up the school as a concern, then the school can show clear evidence of how they have followed appropriate calculations, and the flagging up must be a statistical anomaly rather than any attempt to gain an unfair advantage.

Links to ASCL guidance and other documents

ASCL webinar

The video is available at <https://vimeo.com/413110422> and the ppt slides are attached and the ppt slides at:

<https://www.ascl.org.uk/ASCL/media/ASCL/Help%20and%20advice/Accountability/ASCL-centre-assessed-grades-Duncan-Baldwin.pdf>

ASCL Guidance - Emerging Principles

<https://www.ascl.org.uk/ASCL/media/ASCL/Help%20and%20advice/Leadership%20and%20governance/CV-Emerging-principles-and-guidance-regarding-teacher-assessed-grades,-summer-2020-30-March-2020.pdf>

ASCL Guidance – Centre-Assessed Grades

<https://www.ascl.org.uk/ASCL/media/ASCL/Help%20and%20advice/Leadership%20and%20governance/Coronavirus-Guidance-regarding-centre-assessed-grades-for-summer-2020.pdf>

ASCL: Centre-assessed Grading 2020: Technical guidance - Calculating CAGs, Tiering, Weighting components and managing missing data

<https://www.ascl.org.uk/Help-and-Advice/Curriculum-and-assessment/Examinations-and-assessment/Centre-assessed-Grading-2020-Technical-guidance>

Annex

Obtaining and calculating the KS2 scores for each pupil

Different calculations for KS2 scores

Having a single recognised KS2 score for each pupil ought to be straightforward, but is actually fraught with small but noticeable differences, even at a school level. There is a wider issue in that we believe that the KS2 input score used by the exam boards is calculated in a slightly different way, and they use prediction matrices, which are similar to DfE Transition Matrices, but are not published and would differ slightly if the KS2 score methodology differs slightly.

Key 2 success

One readily accessible concrete starting point for school is the download from DfE Key To Success through the DfE Sign In of the KS2 figures for all the pupils whose UPN are entered in the dialog box on the site. A .csv file is downloaded, which has many columns, including

- Reading - Exam Year
- Reading - Test Mark
- Reading - Test Level
- Reading - Teacher Assessed Level
- Maths - Exam Year
- Maths - Test Mark
- Maths - Test Level
- Maths - Teacher Assessed Level

However, confusingly, there is also a column called "KS2APSG" with numbers to 2 d.p around 27 - 33 which looks like the fine score used in the DfE Transition Matrices. But it is NOT!

Progress 8 and Transition Matrices (TMs) guidance link

The official DfE methodology for the calculation of KS2 figures for Progress 8 and the KS2 prior attainment groups used in the Transition Matrices is given in page 25 onwards of the Secondary Accountability guidance document:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/783865/Secondary_accountability_measures_guidance.pdf

It provides the details, and a worked example, showing how a pupil's KS2 prior attainment is calculated. For example, these calculations do not use Level 6 outcomes or the GPS scores.

These official figures are first made available to schools in the DfE Tables Checking Exercise in June of Year 11, and obviously, that has not taken place this year.

ASCL spreadsheet to calculate KS2 fine scores

In order to ensure that schools have the correctly calculated KS2 scores we have written a spreadsheet available from the ASCL website ASCL: Centre-assessed Grading 2020: Technical guidance - <https://www.ascl.org.uk/Help-and-Advice/Curriculum-and-assessment/Examinations-and-assessment/Centre-assessed-Grading-2020-Technical-guidance>

Download both this spreadsheet and the latest datafile from DfE Key 2 Success, and paste the datafile into the tab "Export from K2S", and the calculated KS2 Reading and Maths will appear in columns U and AO. These values can then be used in the ASCL Subject TM spreadsheet (as explained in the next section) or with another provider's tools.

Calculating a starting grade distribution for a given subject

It is possible to calculate a grade distribution on the assumption that the school is in line with national average, in this case for English Language (i.e. its value added is around zero). Suppose that of the 218 students in the cohort 200 of them have a KS2 score, with the following distribution:

KS2 sub-level	2	3c	3b	3a	4c	4b	4a	5c	5b	5a	
no. students	5	3	5	12	27	39	43	45	17	4	200

The DfE transition matrix for English Language is:

9	0%	1%	0%	0%	0%	0%	0%	0%	1%	2%	6%	20%	9
8	0%	0%	0%	0%	0%	0%	0%	1%	2%	6%	13%	23%	8
7	0%	1%	0%	0%	0%	1%	2%	6%	12%	20%	24%	7	
6	3%	1%	1%	1%	2%	5%	9%	16%	24%	27%	20%	6	
5	8%	3%	2%	3%	5%	8%	14%	20%	26%	27%	20%	9%	5
4	13%	6%	6%	9%	13%	18%	23%	25%	23%	17%	9%	2%	4
3	23%	17%	28%	38%	41%	43%	39%	31%	20%	10%	4%	1%	3
2	31%	24%	37%	32%	27%	20%	13%	8%	4%	2%	1%	0%	2
1	15%	33%	21%	13%	9%	6%	4%	2%	1%	1%	0%	0%	1
U	8%	13%	6%	4%	3%	2%	1%	1%	1%	0%	0%	0%	U
	W	1	2	3c	3b	3a	4c	4b	4a	5c	5b	5a	

If the school is perfectly in line with the national picture, then of the 43 students with KS2 sub-level 4a 1% would get a grade U, 1% a grade 1, 4% a grade 2, 20% grade 3 and so on. Note that there is some rounding error involved. Also note that U grades will be a normal part of this process; removing U grades, for example by withdrawing entries, will distort the centre distribution. The statistical moderation process used by Ofqual and the awarding organisations will assume that there are U grades in centre assessments.

This leads to an estimate that the students with KS2 Level 4a will gain the following grades:

grade	9	8	7	6	5	4	3	2	1	U	
no. students	0	1	2	7	11	10	9	2	1	0	43

Repeating the process for each KS2 sub-level gives an overall total grade distribution of:

grade	9	8	7	6	5	4	3	2	1	U	
no. students	3	7	13	28	40	39	46	16	6	2	200

But the Ofqual guidance specifies that you need to be taking the previous years' results into account. Their announcement on 15th May specified that it will be the average of the two previous years where possible i.e. 2018 and 2019.

Determining the VA for each subject for each of the two previous years (2018 & 2019)

Obtaining and using the DfE Transition Matrices (TMs)

A number of providers use the DfE TMs explicitly in their calculations and methodology. The matrices and other tools are available at:

<https://www.gov.uk/government/publications/ready-reckoners-and-transition-matrices-for-key-stage-4>

Please note that the Open Document Source (ods) format is the most flexible one for using to copy the Transition Matrices from. There are TMs for all pupils and also split by gender, disadvantage, EAL and SEN.

An ASCL spreadsheet for calculating the subject VA has been made available to members each year e.g. <https://www.ascl.org.uk/Help-and-Advice/Accountability-and-inspection/Using-data/KS4-transition-matrices-tools-with-2019-and-with-2>. This spreadsheet incorporates the national DfE TMs, and allows the school to do a one-off paste of its DfE Tables Checking file, and can then get an output which graphically displays the VA for each subject in a grid or snake graph format, as well as given an overall VA figure in terms of total and average pupil-grades above or below national average. The versions for June 2019 and June 2018 are both available. These will enable you to calculate the VA for each subject in each of the two previous years

Subject VA for 2018 and 2019

Ideally, the subject VA will be calculated directly using the DfE TMs and the Tables Checking datafile as that will give a standard approach.

Detailed notes are available on the ASCL website page for the TMs on how to use them, and a number of providers also offer the calculation as part of their package.

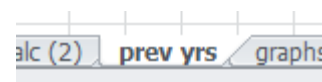
Overall method

1. Download 2018 and 2019 ASCL spreadsheets
2. Into each one, paste the DfE Tables Checking file for 2018 and 2019 respectively into the "schdata" tab.
3. The DfE TMs are already pre-loaded
4. Look at the "Front Panel" tab
5. Check that cells K3 and K4 have the columns in "schdata" for KS2 Reading and KS2 Maths fine scores
6. Check that cells D6, H6, K6 and O6 have the columns in "schdata" for Gender, Disadvantaged, SEN and EAL
7. Then in turn for each subject, into cell K5, put its column in "schdata".
8. From the dropdown in AA5, select the national subject to compare with.

9. You must leave the dropdown "all pupils" as such because national VA is calculated for all pupils
10. All the grids will update. The VA figure is in the bottom-right corner. In this example, it is a total of 176 pupil-grades for 199 entries, giving an average VA of 0.89 pupil-grades

0	1	1	
0	U	0	
5a	TOTAL	176	←
6	176		
pupils =	199	0.89	=
ave or below			

11. If you wish to keep the output as a record, you can copy and paste the whole of "Front Panel" into the Blank template also available on the ASCL website.
12. Repeat for all the subjects for both 2018 and 2019 and record the results in the tab "prev yrs" in the ASCL spreadsheet "2020 using 2019 TMs" described in the next section.



Grading calculation sheet - XXX School					
summary of subjects and previous VA					
	2019		2018		ave 2018-19
	no.	gds	no.	gds	
Art	19	-0.7	47	0.5	-0.10
Biology	26	0.04	31	-0.28	-0.12
Business St.	28	-0.48	31	-0.32	-0.40
Chemistry	26	-0.32	13	0.15	-0.09
Computing	12	0.79	30	0.12	0.46
DT	16	-0.37	26	1.13	0.38
Drama	24	1.16	26	1.13	1.15
English Lang.	111	0.46	118	0.39	0.43
English Lit.	112	0.8	118	0.52	0.66
French	12	0.71	50	-0.21	0.25
Geography	63	0.29	50	-0.21	0.04
German	16	0.49	50	-0.21	0.14
HE - Fd	16	0.49	24	1.15	0.82
History	73	0.35	58	0.29	0.32
Mathematics	112	-0.01	118	-0.08	-0.05
Music	23	0.25	25	0.4	0.33
P.E.	28	-0.61	87	0.25	-0.18
Physics	26	0.35	25	0.4	0.38
RS	16	-0.19	25	0.4	0.11
Sci - UPPER	83	-0.1	84	-0.03	-0.07
Sci - LOWER	82	-0.01	84	0.12	0.06
Spanish	16	-0.22	18	1.59	0.69

Calculating the grade distribution with VA (average of two previous years)

This is how to calculate the grade distribution for June 2020 using the 2019 TMs and adding in the average VA from the two previous year.

1. Download the ASCL spreadsheet 2020 using 2019 TMs from the [ASCL CAG web page](#). This is very similar to the standard ones used for calculating VA, but with some additional pages for this particular situation
2. In "schdata" create a grid of pupils, their KS2 scores from the KS2 spreadsheet and the initial grades for each subject on a similar but simplified version of the DfE Tables

Checking datafile (e.g. without any P8 calculations). These can be initial grade estimations for June 2020, or their Y11 Report grade etc. The grades are not used in the calculation in themselves, but identify which pupils are entered for which subjects. But having that grade information there is a useful point of comparison, and indeed you can have several sets stretching off to the right-hand side and choose whichever sets of columns you wish to look at.

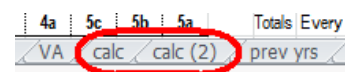
- As in "overall method" above, in "Front Panel" you then select each subject in turn, and select the national TM for comparison. You may find it helpful to have several views on the spreadsheet open at the same time.

Grade	2	3	4	5	6	7	8	9	10	11	Tot	Overall
KS2 boundary	8	0	0	0	0	0	0	0	0	0	15	1
ave GCSE pt score	2.17	2.48	2.73	3.06	3.43	3.9	4.52	5.25	6.12	7.12	4.4	4.4

- The figures on the right-hand side (in red ring) give you the grade distribution "if in line" with national

Grade	9	8	7	6	5	4	3	2	1	U	Total
9	0	0	0	0	0	0	0	0	1	1	2.8
8	0	0	0	0	0	0	1	3	2	1	6.7
7	0	0	0	0	0	1	2	5	3	1	13.1
6	0	0	0	0	1	3	7	11	5	1	28.1
5	0	0	0	1	4	8	11	12	3	0	39.8
4	0	0	1	2	6	10	10	8	2	0	39.0
3	1	1	2	6	11	12	9	5	1	0	46.8
2	2	1	1	3	4	3	2	1	0	0	16.1
1	1	0	0	1	1	1	1	0	0	0	5.6
U	0	0	0	0	0	0	0	0	0	0	2.0
Tot	2	3	5	13	27	39	43	45	17	3	200

- Then click on the tab "calc" (or calc(2) for the same calculation in a different format).



- In cells O18 and P18, type in the VA for that subject for 2018 and 2019. Cell M18 is the average of these two cells, and is the value which is used to calculate the grade

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1		Grading calculations for schools										v12b with DfE TMs for 2020 estim				
2																
3		English Language										- as at 17 May 20				
4		prior attainment of entry														
5		KS2 sub-level	2	3c	3b	3a	4c	4b	4a	5c	5b	5a	Tot	no KS2	Total	
6		no. students with KS2	5	3	5	13	27	39	43	45	17	3	200	18	218	
7																
8																
9		GCSE grades if in line with national														
10		English Language	9	8	7	6	5	4	3	2	1	0		ave gde	%9-4	
11		no. students with KS2	2.8	6.7	13.1	28.1	39.8	39.0	46.8	16.1	5.6	2.0	200	4.36	64.7%	
12		no. students without KS2	0	1	0	8	1	3	1	3	1	0	18	4.61	72.2%	
13		Total	2.8	7.7	13.1	36.1	40.8	42.0	47.8	19.1	6.6	2.0	218	4.38	65.3%	
15		cumulative	2.8	10.5	23.6	59.7	101	142	190	209	216	218				
17																
18		to add VA											ave 2018-19	2018	2019	
19			9	8	7	6	5	4	3	2	1	0	VA to add	0.250	0.30	0.20
20			9	8	7	6	5	4	3	2	1	0				%9-4
21		if in line no. students with KS2	2.8	6.7	13.1	28.1	39.8	39.0	46.8	16.1	5.6	2.0	200	4.36	64.7%	
22		reduce by no getting increase from grade		1.697	3.321	7.129	10.08	9.878	11.88	4.093	1.412	0.508	50			
23		increase by no. getting increase from grade below	1.697	3.321	7.129	10.08	9.878	11.88	4.093	1.412	0.508	50				
24		with uniform VA total number with uniform VA	4.5	8.3	16.9	31.1	39.6	40.9	39.0	13.5	4.7	1.5	200	4.61	70.7%	
26		no. students without KS2	0	1	0	8	1	3	1	3	1	0	18			
27		Total - all pupils	4.5	9.3	16.9	39.1	40.6	43.9	40.0	16.5	5.7	1.5	218			
28		cumul	4.5	13.9	30.8	69.8	110.4	154.3	194.4	210.8	216.5	218.0	436.0			
29																
30		GCSE grades from school data														
31		GCSE English Language	9	8	7	6	5	4	3	2	1	0		ave gde	%9-4	
32		no. students with KS2	6	10	12	31	36	46	42	12	3	2	200	4.61	70.5%	
33		no. students without KS2	0	1	0	8	1	3	1	3	1	0	18	4.61	72.2%	
34		Total	6	11	12	39	37	49	43	15	4	2	218	4.61	70.6%	
36		cumulative	6	17	29	68	105	154	197	212	216	218				
37																
38													check for pupils with KS2			
39													ave gde if inline	4.362		
40													VA	0.250		
41													total	4.612		

distribution WITH VA starting from the grade distribution with zero VA (i.e. "if in line" with national). The numbers in row 11 (grades of students with KS2 scores "if in line") are duplicated into row 21. The calculations are explained in the first part of the document. The outcome is the bright yellow row 24.

- These are then compared with the school's current / proposed grades. (light brown)
- You can see that the average grade is the same for those with KS2 scores as is the % 9-4

9. The tab calc(2) has the same calculations but displayed with all the key information in a single row to make it easy to copy and paste into the separate summary sheet (screenshot below the two halves of the calc(2) tab. Only the English Language has been pasted in.

Grading calculations for test schools																														
English Language																														
Instrument of entry																														
GCSE grades if in line with national																														
KS2 sub-level	2c	3c	3b	3a	4c	4b	4a	5c	5b	5a	Tot	no K2	Total	Eng																
no. students with KS2	5	3	5	13	27	39	43	45	17	3	200	18	218	in KS2																
ave	4.36	64.7%	0.30	0.20	0.250	uniform VA	4.5	8.3	16.9	31.1	39.6	40.9	39.0	13.5	4.7	1.5	200	4.6	70.7%											
2018	2019	ave	not KS2	0	1	0	8	1	3	1	3	1	0	18	4.61	72.2%	no. students without KS2	0	1	0	8	1	3	1	3	1	0	18	4.61	72.2%
to "with uniform VA"																														
cumulative																														



XXX School - for June 2020 pupils using 2019 TMs														
number of students in each KS2 sub-level + no KS2														
"if in line" 2020 distribution														
with VA from ave 2018 & 2019														
from school Y11 grades in tab "schdata"														
KS2 sub-level	2c	3c	3b	3a	4c	4b	4a	5c	5b	5a	Tot	no KS2	Total	ave %9-4
Art														
Biology														
Business St														
Chemistry														
Computing														
DT														
Drama														
English Lit	5	3	5	13	27	39	43	45	17	3	200	18	218	4.4
English Lit														0.30
English Lit														0.20
English Lit														0.25
English Lit														4.5
English Lit														8.3
English Lit														16.9
English Lit														31.1
English Lit														39.6
English Lit														40.9
English Lit														39.0
English Lit														13.5
English Lit														4.7
English Lit														1.5
English Lit														200
English Lit														4.6
English Lit														71%

Detail of calculation of grade distribution with uniform VA

- One hidden subtlety in the above statement lies in the phrase "25% of pupils gain one grade higher". The increase can only apply to grades U - 8, as 9 is top grade. So to get the total of 50 pupils getting a higher grade (i.e. 25% of 200) we need to add a scaling factor of total number of pupils / (total no. of pupils - no. grade 9s). And then all the numbers exactly match, and the average grade has gone up by exactly the VA figure.
- Under particular circumstances, you may get a negative figure in the calculated VA cells. This can occur if there is a large VA (positive or negative) and then a small number (say 1 or 2). In reality, the VA would not be uniform across each grade, and the cells would obviously remain positive. A manual adjustment will be needed depending on the precise allocation and VA

Non-uniform VA increase

The reality is that the VA differs for each KS2 sub-level of prior attainment, and that could be assimilated into the model, but whilst that would be non-inflationary as its weighted average would be the same as the uniform VA figure, it probably makes the checking calculation more difficult.

Final steps

Initially the school grade distribution may not match what is needed, or there will be adjustments to take account of clustering or individuals. Once these have been made, then the summary sheet acts a single convenient quantitative statement of the calculations undertaken by the school to produce a non-inflationary grade distribution