UMS
Awarding Qualifications within the GCSE Science 2006 Specification

INTRODUCTION

UMS stands for Uniform Mark Scale. The Uniform Mark Scale is used to convert candidates' component 'raw' marks into Uniform Mark Scale marks. This is done in order to standardise marks from year to year. For example, a candidate who just achieves an A in a unit one year will receive the same uniform mark as a candidate achieving that same level the following year, regardless of their raw marks.

THE CONVERSION PROCESS

Raw marks to Grades

Following the marking of scripts, a committee of senior examiners reviews the quality of the work submitted for each individual paper. Using their professional judgement, and statistical and technical evidence, they decide where to set the raw mark grade boundaries for each paper. Table 1, as an example, shows possible raw mark paper boundaries for GCSE Science units.

Table 1

Unit	Tier	Max Raw Mark	Raw mark boundaries							
			A*	A	B	C	D	E	F	G
5001	-	18	17	15	13	11	9	7	5	3
5002	-	30	26	23	20	17	14	11	9	7
5003	-	30	29	25	21	18	14	11	8	5
5004	-	30	27	24	21	18	15	12	9	6
5005	F	24				19	16	13	10	7
5005	H	24	21	18	15	13	12	11		
5006	F	24				18	15	12	10	8
5006	H	24	23	20	17	15	12	10		
5007	F	24				19	15	12	9	6
5007	H	24	22	19	16	14	12	11		
5008	F	24				20	16	12	9	6
5008	H	24	23	19	15	12	10	9		
5009	F	24				18	15	12	10	8
5009	H	24	21	18	15	13	10	8		
5010	F	24				17	14	12	10	8
5010	H	24	23	20	17	14	11	9		

Note: On higher tier papers, the "allowed" grade E is calculated as half a grade width.

This table shows that the minimum raw mark required to obtain each grade can vary between units, even when they are marked out of the same total.

Raw Marks to Uniform Marks

The raw mark grade boundaries and all the candidates' raw marks are entered into Edexcel's computer. The computer converts the raw marks into uniform marks.

GCSE Science is out of 400 uniform marks. These uniform marks are divided between the contributing units in a manner that reflects their weighting. For example unit 5001 contributes 10% of the GCSE and so represents 10% of the 400 uniform marks, namely 40 uniform marks. However, as GCSE Science is tiered, it is only the Higher tiered units, and coursework, which carry the maximum uniform marks. The Foundation tiered units, where the highest grade available is a C, carry a maximum uniform mark of 27.

The uniform grade boundaries for each unit are fixed and are shown in Table 2.

Table 2

Unit, Tier and percentage contribution			Maximum UMS	Uniform mark boundaries							
				A*	A	B	C	D	E	F	G
5001	-	10%	40	36	32	28	24	20	16	12	8
5002	-	10%	40	36	32	28	24	20	16	12	8
5003	-	10%	40	36	32	28	24	20	16	12	8
5004	-	10%	40	36	32	28	24	20	16	12	8
5005	F	10%	27				24	20	16	12	8
5005	H	10%	40	36	32	28	24	20	18		
5006	F	10%	27				24	20	16	12	8
5006	H	10%	40	36	32	28	24	20	18		
5007	F	10%	27				24	20	16	12	8
5007	H	10%	40	36	32	28	24	20	18		
5008	F	10%	27				24	20	16	12	8
5008	H	10%	40	36	32	28	24	20	18		
5009	F	10%	27				24	20	16	12	8
5009	H	10%	40	36	32	28	24	20	18		
5010	F	10%	27				24	20	16	12	8
5010	H	10%	40	36	32	28	24	20	18		

Note: On higher tier papers, the "allowed" grade E is calculated as half a grade width.

It is important to note that the scaling is not a single linear scale of maximum raw mark to maximum uniform mark. This is because the intervals between consecutive raw mark grade boundaries are not necessarily constant, however they are fixed for the uniform marks.

The Conversion to Uniform Marks Illustrated

The conversion below uses unit 5003 as an example. Table 3 shows the raw marks and the uniform marks. These marks have been taken from Table 1 and Table 2.

Table 3

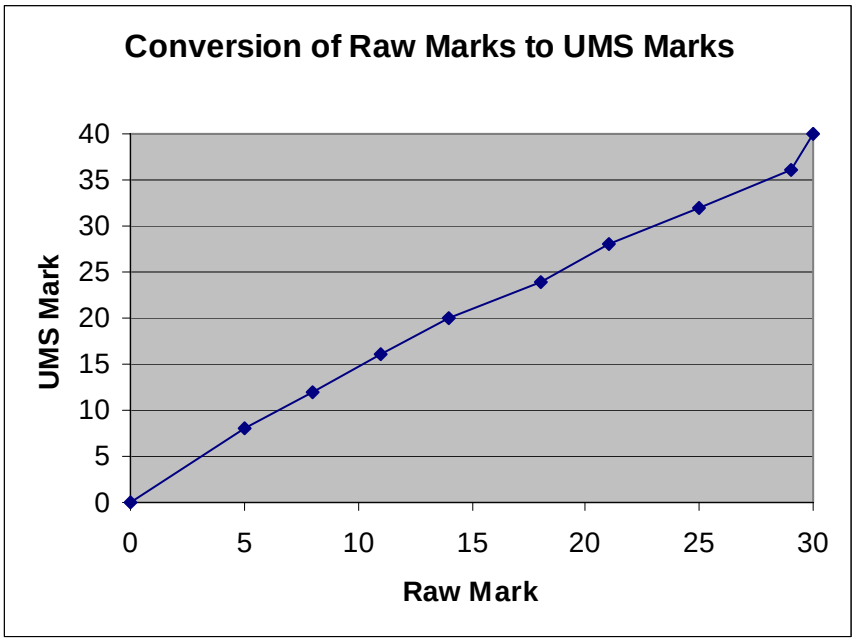
	Maximum Mark	Boundary at each grade							
		A*	A	B	C	D	E	F	G
Raw Mark	30	29	25	21	18	14	11	8	5
UMS Mark	40	36	32	28	24	20	16	12	8

Graph 1 shows the pairs of marks plotted with the raw mark on the horizontal axis against the uniform mark on the vertical axis. Straight lines join adjacent points. The line connecting the points for Grade A* and Grade A is extended to give the raw mark at which the maximum 40 uniform marks is reached.

If extending the line connecting the two top grades - A and A* (on higher tier and non-tiered units), and D and C (on the foundation tier) - results in the maximum raw mark converting to less than the maximum uniform mark then this extension is not used. Instead, a point is plotted of maximum raw mark against maximum uniform mark. A straight line is drawn from Grade A*, and Grade C, for the higher and foundation tiers respectively, to this point. The resulting line is used to read off the uniform marks in this range.

For any raw mark, the uniform mark can be read off the graph. For example, a candidate who achieves 29 raw marks will obtain 36 uniform marks and a candidate who achieves 30 raw marks would be given 40 uniform marks.

Graph 1



MAKING THE AWARD

Cashing-in

Table 4 shows the number of uniform marks required to achieve each grade. Like the unit uniform mark boundaries, these are also fixed.

Table 4

Grade	Uniform Mark Boundaries
A*	360
A	320
B	280
C	240
D	200
E	160
F	120
G	80

When a candidate 'cashes-in' for a GCSE Science award, assuming eligibility rules are satisfied, the uniform marks from each of the ten units are simply totalled to give a final subject mark.

Example

Using the earlier examples of raw grade boundaries, this example shows how candidates' raw marks for each unit convert to their overall qualification grade:

Table 5 – Cashing-in for a GCSE Science

Unit	Tier	Raw Mark	UMS Mark
5001	-	12	26
5002	-	22	31
5003	-	20	27
5004	-	16	21
5005	Higher	18	32
5006	Higher	19	31
5007	Higher	15	26
5008	Higher	16	29
5009	Foundation	17	23
5010	Foundation	13	18
		Total UMS	264

5001: A raw mark of 12 falls within the C range. The number of uniform marks available in this range are: 24-27. 12 raw marks convert to 26 uniform marks.

5002: A raw mark of 22 falls within the B range. The number of uniform marks available in this range are: 28-31. 22 raw marks convert to 31 uniform marks.

5003: A raw mark of 20 falls within the C range. The number of uniform marks available in this range are: 24-27. 20 raw marks convert to 27 uniform marks.

5004: A raw mark of 16 falls within the D range. The number of uniform marks available in this range are: 20-23. 16 raw marks convert to 21 uniform marks.

5005(H): A raw mark of 18 falls within the A range. The number of uniform marks available in this range are: 32-35. 18 raw marks convert to 32 uniform marks.

5006(H): A raw mark of 19 falls within the B range. The number of uniform marks available in this range are: 28-31. 19 raw marks convert to 31 uniform marks.

5007(H): A raw mark of 15 falls within the C range. The number of uniform marks available in this range are: 24-27. 15 raw marks convert to 26 uniform marks.

5008(H): A raw mark of 16 falls within the B range. The number of uniform marks available in this range are: 28-31. 16 raw marks convert to 29 uniform marks.

5009(F): A raw mark of 17 falls within the D range. The number of uniform marks available in this range are: 20-23. 17 raw marks convert to 23 uniform marks.

5010(F): A raw mark of 13 falls within the E range. The number of uniform marks available in this range are: 16-19. 13 raw marks convert to 18 uniform marks.

Totalling the uniform marks achieved in each unit gives 264 uniform marks. Reading off from Table 4, it can be seen that this candidate will be awarded a Grade C in Science.

OTHER QUALIFICATIONS

The above example is for a candidate taking GCSE Science. The same procedure applies to GCSE Additional Science, GCSE Biology, GCSE Chemistry and GCSE Physics.