

Visualising student performance data and the importance of pattern making

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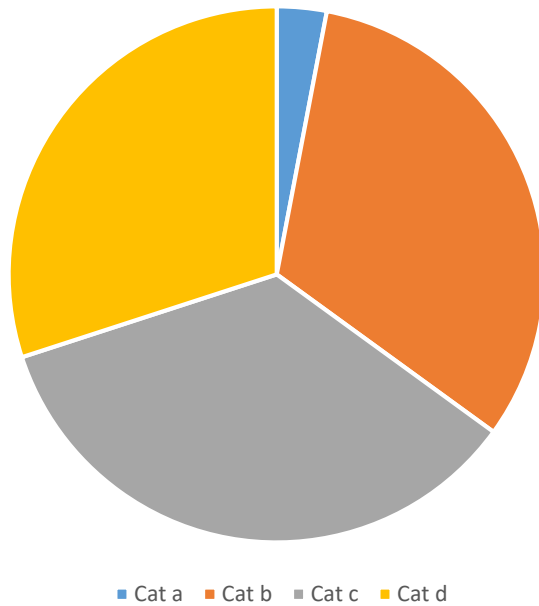


bit.ly/YouTubeMOBrien



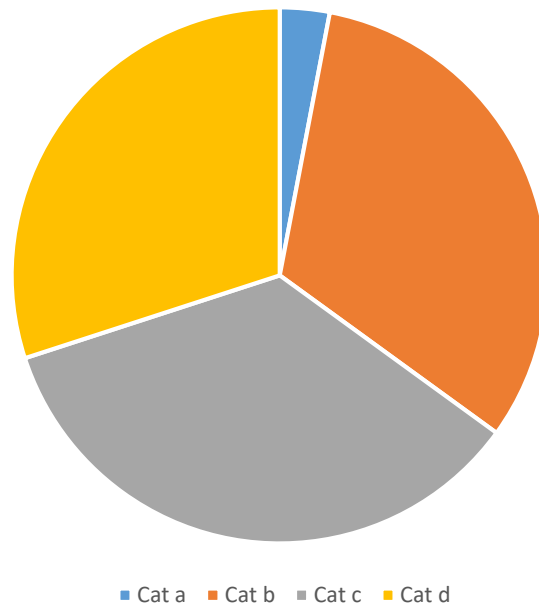
The Human Brain

Some random data.....

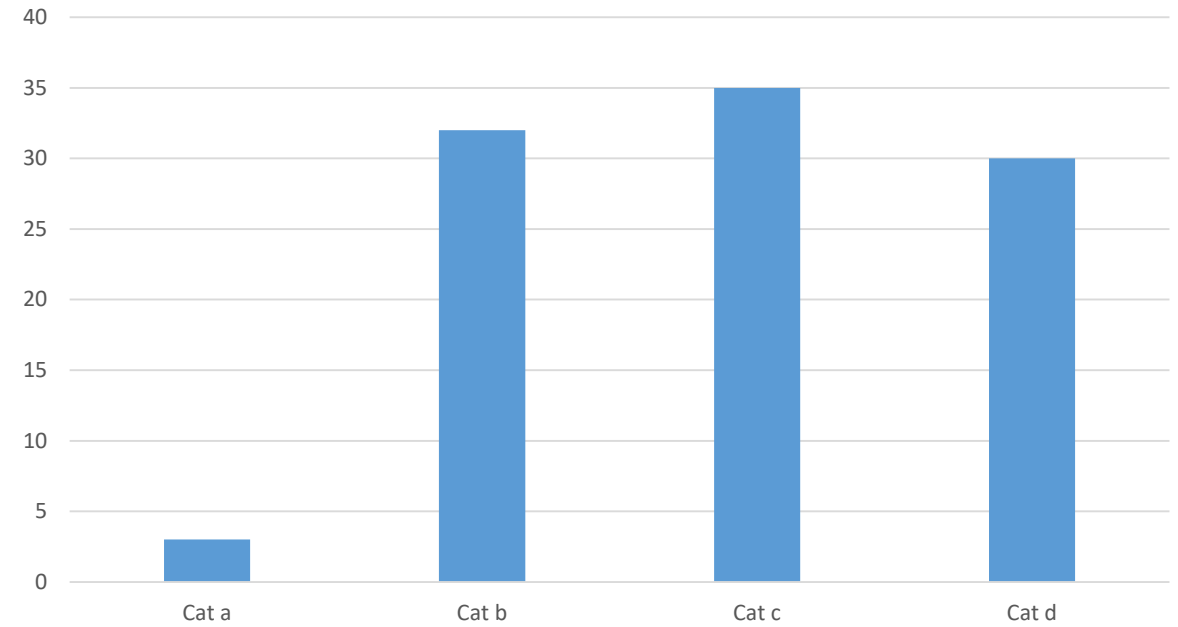


The Human Brain

Some random data.....



The same random data....



The Human Brain 2

24	31	78	9	3	91	59	62	78	21	60
30	52	43	29	87	27	62	40	110	73	35
76	63	110	120	95	117	60	65	76	25	85
4	50	56	138	62	90	65	142	71	55	38
40	110	39	75	145	128	141	116	119	97	12
97	71	91	116	82	164	125	76	115	34	7
45	108	128	115	83	117	104	104	41	98	40
68	98	59	67	96	176	149	142	58	82	43
87	24	53	142	97	118	150	128	93	60	72
13	99	110	82	156	187	81	143	101	17	55
28	17	116	81	122	159	150	54	41	82	31
15	11	46	100	113	110	111	72	110	56	99
45	37	50	147	137	169	164	56	119	97	95
48	14	35	131	84	156	129	103	78	47	42
94	57	114	106	148	187	164	93	90	105	31
50	35	109	109	137	122	111	124	39	107	45
35	10	49	117	80	96	115	104	35	85	89
95	28	94	87	58	126	62	87	69	64	99
71	84	90	97	100	69	82	32	29	35	74
36	50	11	54	81	15	95	88	81	96	11

The Human Brain 2

24	31	78	9	3	91	59	62	78	21	60
30	52	43	29	87	27	62	40	110	73	35
76	63	110	120	95	117	60	65	76	25	85
4	50	56	138	62	90	65	142	71	55	38
40	110	39	75	145	128	141	116	119	97	12
97	71	91	116	82	164	125	76	115	34	7
45	108	128	115	83	117	104	104	41	98	40
68	98	59	67	96	176	149	142	58	82	43
87	24	53	142	97	118	150	128	93	60	72
13	99	110	82	156	187	81	143	101	17	55
28	17	116	81	122	159	150	54	41	82	31
15	11	46	100	113	110	111	72	110	56	99
45	37	50	147	137	169	164	56	119	97	95
48	14	35	131	84	156	129	103	78	47	42
94	57	114	106	148	187	164	93	90	105	31
50	35	109	109	137	122	111	124	39	107	45
35	10	49	117	80	96	115	104	35	85	89
95	28	94	87	58	126	62	87	69	64	99
71	84	90	97	100	69	82	32	29	35	74
36	50	11	54	81	15	95	88	81	96	11

24	31	78	9	3	91	59	62	78	21	60
30	52	43	29	87	27	62	40	110	73	35
76	63	110	120	95	117	60	65	76	25	85
4	50	56	138	62	90	65	142	71	55	38
40	110	39	75	145	128	141	116	119	97	12
97	71	91	116	82	164	125	76	115	34	7
45	108	128	115	83	117	104	104	41	98	40
68	98	59	67	96	176	149	142	58	82	43
87	24	53	142	97	118	150	128	93	60	72
13	99	110	82	156	187	81	143	101	17	55
28	17	116	81	122	159	150	54	41	82	31
15	11	46	100	113	110	111	72	110	56	99
45	37	50	147	137	169	164	56	119	97	95
48	14	35	131	84	156	129	103	78	47	42
94	57	114	106	148	187	164	93	90	105	31
50	35	109	109	137	122	111	124	39	107	45
35	10	49	117	80	96	115	104	35	85	89
95	28	94	87	58	126	62	87	69	64	99
71	84	90	97	100	69	82	32	29	35	74
36	50	11	54	81	15	95	88	81	96	11

Test Marks

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	Out/of	Question	Lauchy N	Shaun P	Natalie W	Sophee K	Jayde S	Tyler H	Willow S	Jack C	Conner W	Mike S	Bill C	Abby S	Jess P	Meera A	Jamie B	Ella C	Oaklee P	Isabel D	Anouk M	Matt H	Jenny K	Nicola C	Liam G	Mirrante R	Ben M	Zali S
2	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1
3	1	2	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0
4	1	3	0	0	0	0	1	0	1	0	0	1	1	1	1	1	0	1	0	1	1	0	0	1	1	0	1	0
5	1	4	0	0	0	0	1	0	1	0	0	0	0	1	0	1	1	0	1	0	1	1	0	1	1	0	0	0
6	1	5	0	0	1	0	1	1	0	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1
7	1	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1
8	1	7	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0	1	0	1	1	0	0	1	0	1	0	1
9	1	8	0	0	1	1	0	0	1	1	0	1	1	1	1	1	1	1	0	1	1	0	1	0	1	0	1	0
10	1	9	0	1	1	1	0	1	1	1	1	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1	0	0
11	1	10	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1
12	1	11	0	0	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
13	1	12	0	0	0	1	0	0	0	1	1	0	0	1	1	0	0	1	1	0	0	0	1	0	1	1	1	0
14	1	13	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
15	1	14	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	0	1	0	0	0	0
16	1	15	0	1	0	0	0	0	1	1	0	1	1	1	1	1	1	1	0	1	1	0	0	0	1	0	1	0
17	4	a	1.5	4	1.5	4	4	2.5	2	1.5	3.5	4	3	3.5	4	2	4	3.5	2	4	4	0.5	3.5	4	2	2	2	4
18	4	b	2	4	2	1	0	0	1	2	1	1	1	3	4	0	2	4	1	2	0	1	1	0	4	0	0	1
19	1	c	1	1	1	1	0	0	0	0	0	1	0	1	1	0	0	1	0	1	1	1	0	0	0	0	1	1
20	1	d	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1
21	1	e	0	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	0	1	1
22	1	f	0	1	0	0	0	1	1	0	1	0	0	1	1	0	0	1	0	0	1	0	1	0	1	0	0	0
23	4	g	0	2	2	2	2	0	2	2	1	2	2	1	3	1	3	3	2	3	3	0	3	2	1	0	1	2
24	2	h	0	1	0	1	0	0	1	0	2	1	1	0	2	0	1	2	0	0	2	0	0	0	1.5	0	1	0
25	1	i	0	1	0	0	0.5	0	0	1	1	1	1	0	1	1	0	1	1	0	0	1	1	0	0	0	1	0
26	5	E1	4.5	3.5	4	3	3	4	5	3	3.5	2	3.5	5	5	4.5	3.5	4	3.5	4	5	4	4	0	0	0	4.5	0
27	5	E2	3	3	2.5	4	4	4	5	5	5	5	3	3	5	3	4	5	4	4.5	3	1	4	5	5	0	0	4

Test results – sections coloured

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	
1	Out/of	Question	Lauchy N	Shaun P	Natalie W	Sophee K	Jayde S	Tyler H	Willow S	Jack C	Conner W	Mike S	Bill C	Abby S	Jess P	Meera A	Jamie B	Ella C	Oaklee P	Isabel T	Anouk M	Matt H	Jenny K	Nicola C	Liam G	Mirrante R	Ben M	Zali S		Standardised total		
2	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1		6	
3	1	2	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0		24	
4	1	3	0	0	0	0	1	0	1	0	0	1	1	1	1	1	0	1	0	1	1	0	0	1	1	0	1	0		16		
5	1	4	0	0	0	0	1	0	1	0	0	0	1	1	0	1	1	0	1	0	1	1	0	1	1	0	0	0		15		
6	1	5	0	0	1	0	1	1	0	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1		24		
7	1	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1		30		
8	1	7	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0	1	0	1	1	0	0	1	0	1	0	1		23		
9	1	8	0	0	1	1	0	0	1	1	0	1	1	1	1	1	1	1	0	1	1	0	1	0	1	0	1	0		24		
10	1	9	0	1	1	1	0	1	1	1	1	1	1	0	1	1	0	1	0	1	1	0	1	1	1	0	1	0		27		
11	1	10	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1		34		
12	1	11	0	0	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0		16		
13	1	12	0	0	0	1	0	0	0	1	1	0	0	1	1	0	0	0	1	1	0	0	1	0	0	1	1	1		23		
14	1	13	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0		17		
15	1	14	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	0	0	0	1	0	0	1	0	0	0	0		20		
16	1	15	0	1	0	0	0	0	1	1	0	1	1	1	1	1	1	1	0	1	1	0	0	0	1	0	1	0		29		
17	4	a	1.5	4	1.5	4	4	2.5	2	1.5	3.5	4	3	3.5	4	2	4	3.5	2	4	4	0.5	3.5	4	2	2	2	4		19.125		
18	4	b	2	4	2	1	0	0	1	2	1	1	1	3	4	0	2	4	1	2	0	1	1	0	4	0	0	1		9.5		
19	1	c	1	1	1	1	0	0	0	0	0	1	0	1	1	0	0	1	0	1	1	1	0	0	0	0	1	1		13		
20	1	d	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1		22		
21	1	e	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	0	1	1		21		
22	1	f	0	1	0	0	0	1	1	0	1	0	0	1	1	0	0	1	0	0	1	0	1	0	1	0	0	0		10		
23	4	g	0	2	2	2	2	0	2	2	1	2	2	1	3	1	3	2	2	3	3	0	3	2	1	0	1	2		11.25		
24	2	h	0	1	0	1	0	0	1	0	2	1	1	0	2	0	1	2	0	0	2	0	0	0	1.5	0	1	0		8.25		
25	1	i	0	1	0	0	0.5	0	0	1	1	1	1	0	1	1	0	1	1	0	0	1	1	0	0	0	1	0		12.5		
26	5	E1	4.5	3.5	4	3	3	4	5	3	3.5	2	3.5	5	5	4.5	3.5	4	3.5	4	5	4	4	0	0	0	4.5	0		17.2		
27	5	E2	3	3	2.5	4	4	4	5	5	5	5	3	3	5	3	4	5	4	4.5	3	1	4	5	5	0	0	4		18.8		
28																																
29																																
30		MC	2	6	6	7	10	6	9	9	6	10	9	10	12	11	8	13	6	10	11	5	6	9	9	5	8	5				
31		Short	5.5	16	8.5	11	7.5	5.5	9	7.5	11.5	12	9	11.5	18	5	12	17.5	8	11	13	5.5	9.5	8	11.5	3	8	10				
32		Long	7.5	6.5	6.5	7	7	8	10	8	8.5	7	6.5	8	10	7.5	7.5	9	7.5	8.5	8	5	8	5	0	4.5	4					
33																																
34		total	15	28.5	21	25	24.5	19.5	28	24.5	26	29	24.5	29.5	40	23.5	27.5	39.5	21.5	29.5	32	15.5	23.5	22	25.5	8	20.5	19				
35																																

Test results – sorted

The screenshot shows a Microsoft Excel spreadsheet with a 'Sort' dialog box open. The spreadsheet contains test results for 40 students, sorted by their 'Standardised total' score in column AD. The 'Sort' dialog box is configured to sort by 'Column AD', 'Values', in 'Largest to Smallest' order. The spreadsheet has columns for questions (B), student names (C-AD), and scores (AE). The 'Standardised total' column (AD) is highlighted in green. The 'Sort' dialog box is open, showing the sorting criteria: Column AD, Values, Largest to Smallest. The spreadsheet has columns for questions, student names, and scores. The 'Standardised total' column (AD) is highlighted in green.

Out/of	Question	Mirrante R	Lauchy N	Matt H	Zali S	Tyler H	Ben M	Natalie W	Oaklee P	Nicola C	Meera A	Jenny K	Jayde S	Jack C	Bill C	Sophee K	Liam G	Conner W	Jamie B	Willow S	Shaun P	Mike S	Abby S	Isabel D	Anouk M	Ella C	Jess P	Standardised total
1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	5
1	4	0	0	1	0	0	0	0	0	1	1	0	1	0	1	0	1	0	0	1	0	0	0	1	1	1	1	11
1	3	0	0	0	0	0	1	0	0	1	1	0	1	0	1	0	1	0	0	1	0	1	1	1	1	1	1	13
1	11	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	5
1	13	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4
1	14	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	1	6
1	7	1	0	0	1	1	0	0	0	1	1	0	1	1	1	1	0	0	0	1	0	1	1	1	1	1	1	16
1	12	1	0	1	0	0	1	0	1	0	0	0	0	0	1	0	1	1	1	0	0	0	1	1	0	1	1	11
1	2	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	22
1	5	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	19
1	8	0	0	0	0	0	0	1	1	0	1	1	0	1	1	1	1	1	0	1	1	0	1	1	1	1	1	16
1	9	0	0	0	0	0	1	1	1	0	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	18
1	15	0	0	0	0	0	1	0	0	0	1	0	0	1	1	0	1	0	1	1	1	1	1	1	1	1	1	14
1	6	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
1	10	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
4	h	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1.5	2	1	1	1	1	0	2	2	2	4.125
4	b	0	2	1	1	0	0	2	1	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	9.5
1	f	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	10
1	g	0	0	0	2	0	1	2	2	2	1	3	2	0	0	1	1	1	1	1	1	1	1	1	1	1	1	45
1	i	0	0	1	0	0	1	0	1	0	1	1	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12.5
1	c	0	1	1	1																							

Test results – sorted

B2

✕

✓

fx

1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
1	Out/of	Question	Mirrante R	Lauchy N	Matt H	Zali S	Tyler H	Ben M	Natalie W	Oaklee P	Nicola C	Meera A	Jenny K	Jayde S	Jack C	Bill C	Sophee K	Liam G	Conner W	Jamie B	Willow S	Shaun P	Mike S	Abby S	Isabel D	Anouk M	Ella C	Jess P		Standardised total	
2	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0		5	
3	1	4	0	0	1	0	0	0	0	0	1	1	0	1	0	1	0	1	0	0	1	0	0	0	0	1	1	1	1		11
4	1	3	0	0	0	0	0	1	0	0	1	1	0	1	0	1	0	1	0	0	1	0	1	1	1	1	1	1	1		13
5	1	11	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0		5
6	1	13	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0		4	
7	1	14	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1		6
8	1	7	1	0	0	1	1	0	0	0	1	1	0	1	1	1	1	0	0	0	1	0	1	1	1	1	1	1	1		16
9	1	12	1	0	1	0	0	1	0	1	0	0	0	0	1	1	0	1	1	1	0	0	0	0	1	0	0	1	1		11
10	1	2	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1		22
11	1	5	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1		19
12	1	8	0	0	0	0	0	1	1	0	0	1	1	0	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1		16
13	1	9	0	0	0	0	0	1	1	1	0	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1		18
14	1	15	0	0	0	0	0	1	0	0	0	1	0	0	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1		14
15	1	6	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		24
16	1	10	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		24
17	4	h	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1.5	2	1	1	1	1	0	2	2	2		4.125	
18	4	b	0	2	1	1	0	0	2	1	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1		9.5	
19	1	f	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1		10	
20	1	g	0	0	0	0	2	0	1	2	2	2	1	3	2	0	1	1	1.5	2	1	1	1	1	1	1	1	1		45	
21	1	i	0	0	1	0	0	1	0	1	0	1	1	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0		12.5	
22	1	c	0	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		13	
23	4	a	2	1.5	0.5	4	2.5	2	1.5	2	4	2	3.5	4	0	0	1	1	1	1	1	1	1	1	1	1	1	1		19.125	
24	2	e	0	0	1	1	1	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		10.5	
25	1	d	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		22	
26	5	E1	0	4.5	4	0	4	4.5	4	3.5	0	4.5	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0		5	
27	5	E2	0	3	1	4	4	0	2.5	4	5	3	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0		5	
28																															
29		MC	5	2	5	5	6	8	6	6	9	11	6	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0		12	
30		Short	3	5.5	5.5	10	5.5	8	8.5	8	8	5	9.5	7.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0		18	
31		Long	0	7.5	5	4	8	4.5	6.5	7.5	5	7.5	8	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0		10	
32																															
33		total	8	15	15.5	19	19.5	20.5	21	21.5	22	23.5	23.5	24.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0		40	
34																															
35																															
36																															
37																															
38																															
39																															
40																															

Sort

+

A

2

Add Level

✕

Delete Level

📄

Copy Level

⬆

⬇

⬆

Options...

☐ My data has headers

Column

Sort by

Column AD

Sort On

Values

Order

Largest to Smallest

OK

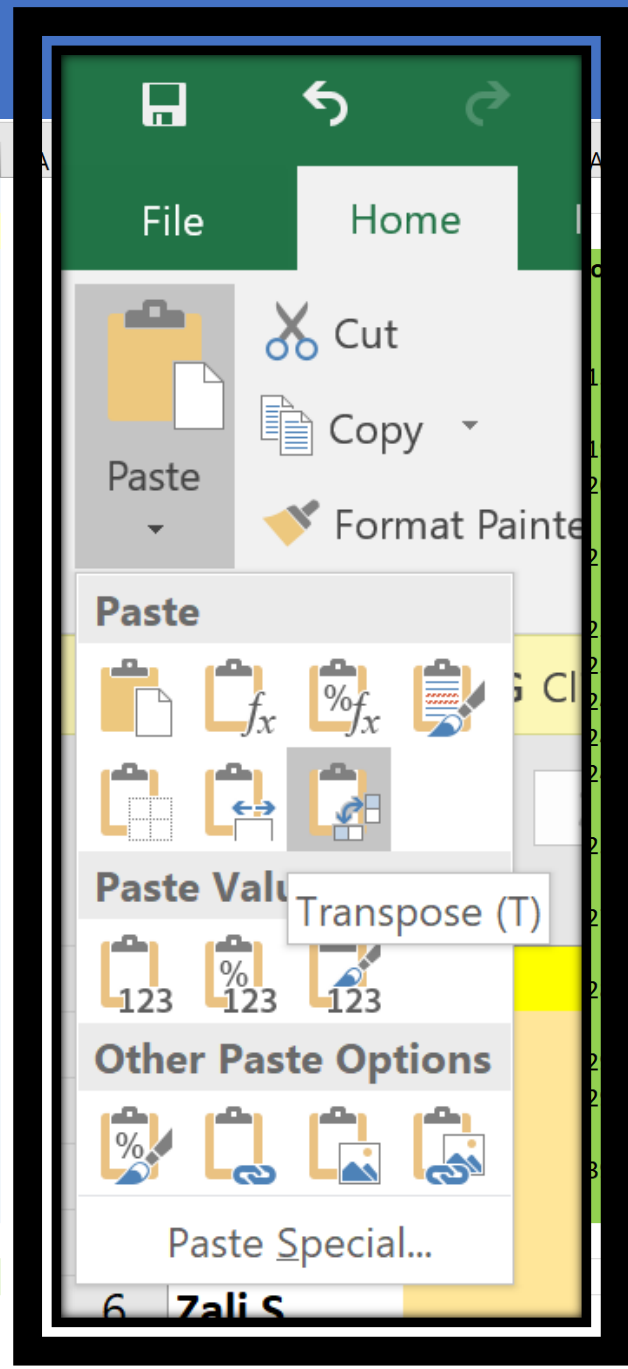
Cancel

Test results – Sort results

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
1	Out/of	Question	Mirrante R	Lauchy N	Matt H	Zali S	Tyler H	Ben M	Natalie W	Oaklee P	Nicola C	Meera A	Jenny K	Jayde S	Jack C	Bill C	Sophee K	Liam G	Conner W	Jamie B	Willow S	Shaun P	Mike S	Abby S	Isabel D	Anouk M	Ella C	Jess P		Standardised total	
2	1	6	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		24	
3	1	10	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		24	
4	1	2	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1		22	
5	1	5	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1		19	
6	1	9	0	0	0	0	1	1	1	0	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1		18	
7	1	7	1	0	0	1	1	0	0	0	1	1	0	1	1	1	1	0	0	0	1	0	1	1	1	1	1	1		16	
8	1	8	0	0	0	0	0	1	1	0	0	1	1	0	1	1	1	1	0	1	1	0	1	1	1	1	1	1		16	
9	1	15	0	0	0	0	0	1	0	0	0	1	0	0	1	1	0	1	0	1	1	1	1	1	1	1	1	1		14	
10	1	3	0	0	0	0	0	1	0	0	1	1	0	1	0	1	0	1	0	0	1	0	1	1	1	1	1	1		13	
11	1	4	0	0	1	0	0	0	0	0	1	1	0	1	0	1	0	1	0	0	1	0	0	0	0	1	1	1		11	
12	1	12	1	0	1	0	0	1	0	1	0	0	0	0	1	0	1	1	0	1	0	0	0	0	1	0	0	1		11	
13	1	14	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0		6	
14	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1		5	
15	1	11	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	0	0		5	
16	1	13	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1		4	
17	1	d	1	1	1	1	1	1	1	1	1	1	0	0	1	0	1	1	1	1	1	1	1	1	1	0	1	1		22	
18	4	a	2	1.5	0.5	4	2.5	2	1.5	2	4	2	3.5	4	1.5	3	4	2	3.5	4	2	4	4	3.5	4	4	3.5	4		19.125	
19	1	c	0	1	1	1	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	1	1		13	
20	1	i	0	0	1	0	0	1	0	1	0	1	1	0.5	1	1	0	0	1	0	0	1	1	0	0	0	0	1		12.5	
21	4	g	0	0	0	2	0	1	2	2	2	1	3	2	2	2	2	1	1	3	2	2	2	1	3	3	3	3		11.25	
22	2	e	0	0	1	1	1	1	1	1	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1		10.5	
23	1	f	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	1	1	0	1	0	1	1	1		10	
24	4	b	0	2	1	1	0	0	2	1	0	0	1	0	2	1	1	4	1	2	1	4	1	3	2	0	4	4		9.5	
25	2	h	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1.5	2	1	1	1	1	0	0	2	2		8.25		
26	5	E2	0	3	1	4	4	0	2.5	4	5	3	4	4	5	3	4	5	5	4	5	3	5	3	4.5	3	5	5		18.8	
27	5	E1	0	4.5	4	0	4	4.5	4	3.5	0	4.5	4	3	3	3.5	3	0	3.5	3.5	5	3.5	2	5	4	5	4	5		17.2	
28																															
29		MC	5	2	5	5	6	8	6	6	9	11	6	10	9	9	7	9	6	8	9	6	10	10	10	11	13	12			
30		Short	3	5.5	5.5	10	5.5	8	8.5	8	8	5	9.5	7.5	7.5	9	11	11.5	11.5	12	9	16	12	11.5	11	13	17.5	18			
31		Long	0	7.5	5	4	8	4.5	6.5	7.5	5	7.5	8	7	8	6.5	7	5	8.5	7.5	10	6.5	7	8	8.5	8	9	10			
32																															
33		total	8	15	15.5	19	19.5	20.5	21	21.5	22	23.5	23.5	24.5	24.5	24.5	25	25.5	26	27.5	28	28.5	29	29.5	29.5	32	39.5	40			
34																															

Test results - transposed

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
1		MC - Easiest to hardest																	SR - Easiest to hardest									
2	Out/of	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	4	1	1	4	2	1	4	2		
3	Question	6	10	2	5	9	7	8	15	3	4	12	14	1	11	13		d	a	c	i	g	e	f	b	h		
4	Mirrante R	1	0	1	1	0	1	0	0	0	0	1	0	0	0	0		1	2	0	0	0	0	0	0	0		
5	Lauchy N	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1		1	1.5	1	0	0	0	0	2	0		
6	Matt H	0	1	0	1	0	0	0	0	0	1	1	0	0	1	0		1	0.5	1	1	0	1	0	1	0		
7	Zali S	1	1	0	1	0	1	0	0	0	0	0	0	1	0	0		1	4	1	0	2	1	0	1	0		
8	Tyler H	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0		1	2.5	0	0	0	1	1	0	0		
9	Ben M	0	1	1	1	1	0	1	1	1	0	1	0	0	0	0		1	2	1	1	1	1	0	0	1		
10	Natalie W	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0		1	1.5	1	0	2	1	0	2	0		
11	Oaklee P	1	1	1	1	0	0	0	0	0	0	1	0	1	0	0		1	2	0	1	2	1	0	1	0		
12	Nicola C	1	1	1	1	1	1	0	0	1	1	0	1	0	0	0		1	4	0	0	2	1	0	0	0		
13	Meera A	1	1	1	1	0	1	1	1	1	1	0	1	0	0	1		1	2	0	1	1	0	0	0	0		
14	Jenny K	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0		0	3.5	0	1	3	0	1	1	0		
15	Jayde S	1	1	1	1	0	1	0	0	1	1	0	1	0	1	1		0	4	0	0.5	2	1	0	0	0		
16	Jack C	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0		1	1.5	0	1	2	0	0	2	0		
17	Bill C	1	1	0	1	0	1	1	1	1	1	0	0	0	1	0		0	3	0	1	2	1	0	1	1		
18	Sophee K	1	1	1	0	1	1	1	0	0	0	1	0	0	0	0		1	4	1	0	2	1	0	1	1		
19	Liam G	1	1	1	0	1	0	1	1	1	1	1	0	0	0	0		1	2	0	0	1	1	1	4	1.5		
20	Conner W	1	1	1	0	1	0	0	0	0	0	1	0	0	1	0		1	3.5	0	1	1	1	1	1	2		
21	Jamie B	1	1	1	0	1	0	1	1	0	0	0	1	1	0	0		1	4	0	0	3	1	0	2	1		
22	Willow S	1	1	1	0	1	1	1	1	1	1	0	0	0	0	0		1	2	0	0	2	1	1	1	1		
23	Shaun P	1	1	1	0	1	0	0	1	0	0	0	0	1	0	0		1	4	1	1	2	1	1	4	1		
24	Mike S	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0		1	4	1	1	2	1	0	1	1		
25	Abby S	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0		1	3.5	1	0	1	1	1	3	0		
26	Isabel D	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0		0	4	1	0	3	1	0	2	0		
27	Anouk M	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0		1	4	1	0	3	1	1	0	2		
28	Ella C	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1		1	3.5	1	1	3	1	1	4	2		
29	Jess P	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0		1	4	1	1	3	1	1	4	2		
30																												
31	Standardised total	24	24	22	19	18	16	16	14	13	11	11	6	5	5	4		22	19	13	13	11	11	10	9.5	8.3		
32																												



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	
1		MC - Easiest to hardest																	SR - Easiest to hardest									Extended								
2	Out/of	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1	1	4	2	1	4	2		5	5							
3	Question	6	10	2	5	9	7	8	15	3	4	12	14	1	11	13		d	a	c	i	g	e	f	b	h		E2	E1		MC	SR	Extd		total	
4	Mirrante R	1	0	1	1	0	1	0	0	0	0	1	0	0	0	0		1	2	0	0	0	0	0	0	0		0	0		5	3	0		8	
5	Lauchy N	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1		1	1.5	1	0	0	0	0	2	0		3	4.5		2	5.5	7.5		15	
6	Matt H	0	1	0	1	0	0	0	0	0	1	1	0	0	1	0		1	0.5	1	1	0	1	0	1	0		1	4		5	5.5	5		15.5	
7	Zali S	1	1	0	1	0	1	0	0	0	0	0	0	1	0	0		1	4	1	0	2	1	0	1	0		4	0		5	10	4		19	
8	Tyler H	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0		1	2.5	0	0	0	1	1	0	0		4	4		6	5.5	8		19.5	
9	Ben M	0	1	1	1	1	0	1	1	1	0	1	0	0	0	0		1	2	1	1	1	1	0	0	1		0	4.5		8	8	4.5		20.5	
10	Natalie W	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0		1	1.5	1	0	2	1	0	2	0		2.5	4		6	8.5	6.5		21	
11	Oaklee P	1	1	1	1	0	0	0	0	0	0	1	0	1	0	0		1	2	0	1	2	1	0	1	0		4	3.5		6	8	7.5		21.5	
12	Nicola C	1	1	1	1	1	1	0	0	1	1	0	1	0	0	0		1	4	0	0	2	1	0	0	0		5	0		9	8	5		22	
13	Meera A	1	1	1	1	0	1	1	1	1	1	0	1	0	0	1		1	2	0	1	1	0	0	0	0		3	4.5		11	5	7.5		23.5	
14	Jenny K	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0		0	3.5	0	1	3	0	1	1	0		4	4		6	9.5	8		23.5	
15	Jayde S	1	1	1	1	0	1	0	0	1	1	0	1	0	1	1																			24.5	
16	Jack C	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0																			24.5	
17	Bill C	1	1	0	1	0	1	1	1	1	1	0	0	0	1	0																			24.5	
18	Sophee K	1	1	1	0	1	1	1	0	0	0	1	0	0	0	0																			25	
19	Liam G	1	1	1	0	1	0	1	1	1	1	1	0	0	0	0																			25.5	
20	Conner W	1	1	1	0	1	0	0	0	0	0	1	0	0	1	0																			26	
21	Jamie B	1	1	1	0	1	0	1	1	0	0	0	1	1	0	0																			27.5	
22	Willow S	1	1	1	0	1	1	1	1	1	1	0	0	0	0	0																			28	
23	Shaun P	1	1	1	0	1	0	0	1	0	0	0	0	1	0	0																			28.5	
24	Mike S	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0																			29	
25	Abby S	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0																			29.5	
26	Isabel D	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0																			29.5	
27	Anouk M	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0																			32	
28	Ella C	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1																			39.5	
29	Jess P	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0		1	4	1	1	3	1	1	4	2		5	5		12	18	10		40	
30																																				
31	Standardised total	24	24	22	19	18	16	16	14	13	11	11	6	5	5	4		22	19	13	13	11	11	10	9.5	8.3		19	17							
32																																				

Test results – student sorted 2

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	
1		MC - Easiest to hardest																SR - Easiest to hardest								Extended											
2	Out/of	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	4	1	1	4	2	1	4	2		5	5								
3	Question	6	10	2	5	9	7	8	15	3	4	12	14	1	11	13		d	a	c	i	g	e	f	b	h		E2	E1		MC	SR	Extd		total	Students - Lowest to highest	
4	Mirrante R	1	0	1	1	0	1	0	0	0	0	1	0	0	0	0		1	2	0	0	0	0	0	0	0		0	0		5	3	0		8		
5	Lauchy N	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1		1	1.5	1	0	0	0	0	2	0		3	4.5		2	5.5	7.5		15		
6	Matt H	0	1	0	1	0	0	0	0	0	1	1	0	0	1	0		1	0.5	1	1	0	1	0	1	0		1	4		5	5.5	5		15.5		
7	Zali S	1	1	0	1	0	1	0	0	0	0	0	0	1	0	0		1	4	1	0	2	1	0	1	0		4	0		5	10	4		19		
8	Tyler H	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0		1	2.5	0	0	0	1	1	0	0		4	4		6	5.5	8		19.5		
9	Ben M	0	1	1	1	1	0	1	1	1	0	1	0	0	0	0		1	2	1	1	1	1	0	0	1		0	4.5		8	8	4.5		20.5		
10	Natalie W	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0		1	1.5	1	0	2	1	0	2	0		2.5	4		6	8.5	6.5		21		
11	Oaklee P	1	1	1	1	0	0	0	0	0	0	1	0	1	0	0		1	2	0	1	2	1	0	1	0		4	3.5		6	8	7.5		21.5		
12	Nicola C	1	1	1	1	1	1	0	0	1	1	0	1	0	0	0		1	4	0	0	2	1	0	0	0		5	0		9	8	5		22		
13	Meera A	1	1	1	1	0	1	1	1	1	1	0	1	0	0	1		1	2	0	1	1	0	0	0	0		3	4.5		11	5	7.5		23.5		
14	Jenny K	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0		0	3.5	0	1	3	0	1	1	0		4	4		6	9.5	8		23.5		
15	Jayde S	1	1	1	1	0	1	0	0	1	1	0	1	0	1	1		0	4	0	0.5	2	1	0	0	0		4	3		10	7.5	7		24.5		
16	Jack C	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0		1	1.5	0	1	2	0	0	2	0		5	3		9	7.5	8		24.5		
17	Bill C	1	1	0	1	0	1	1	1	1	1	0	0	0	1	0		0	3	0	1	2	1	0	1	1		3	3.5		9	9	6.5		24.5		
18	Sophee K	1	1	1	0	1	1	1	0	0	0	1	0	0	0	0		1	4	1	0	2	1	0	1	1		4	3		7	11	7		25		
19	Liam G	1	1	1	0	1	0	1	1	1	1	1	0	0	0	0		1	2	0	0	1	1	1	4	1.5		5	0		9	11.5	5		25.5		
20	Conner W	1	1	1	0	1	0	0	0	0	0	1	0	0	1	0		1	3.5	0	1	1	1	1	1	2		5	3.5		6	11.5	8.5		26		
21	Jamie B	1	1	1	0	1	0	1	1	0	0	0	1	1	0	0		1	4	0	0	3	1	0	2	1		4	3.5		8	12	7.5		27.5		
22	Willow S	1	1	1	0	1	1	1	1	1	1	0	0	0	0	0		1	2	0	0	2	1	1	1	1		5	5		9	9	10		28		
23	Shaun P	1	1	1	0	1	0	0	1	0	0	0	0	1	0	0		1	4	1	1	2	1	1	4	1		3	3.5		6	16	6.5		28.5		
24	Mike S	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0		1	4	1	1	2	1	0	1	1		5	2		10	12	7		29		
25	Abby S	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0		1	3.5	1	0	1	1	1	3	0		3	5		10	11.5	8		29.5		
26	Isabel D	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0		0	4	1	0	3	1	0	2	0		4.5	4		10	11	8.5		29.5		
27	Anouk M	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0		1	4	1	0	3	1	1	0	2		3	5		11	13	8		32		
28	Ella C	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1		1	3.5	1	1	3	1	1	4	2		5	4		13	17.5	9		39.5		
29	Jess P	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0		1	4	1	1	3	1	1	4	2		5	5		12	18	10		40		
30																																					
31	Standardised total	24	24	22	19	18	16	16	14	13	11	11	6	5	5	4		22	19	13	13	11	11	10	9.5	8.3		19	17								
32																																					

Test results – condition formatting – color scales

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1		MC - Easiest to hardest																SR - Easiest to hardest																		
2	Out/of	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	4	1	1	4														
3	Question	6	10	2	5	9	7	8	15	3	4	12	14	1	11	13		d	a	c	i	g														
4	Mirrante R	1	0	1	1	0	1	0	0	0	0	1	0	0	0	0		1	2	0	0	0														
5	Lauchy N	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1		1	1.5	1	0	0														
6	Matt H	0	1	0	1	0	0	0	0	0	1	1	0	0	1	0		1	0.5	1	1	0														
7	Zali S	1	1	0	1	0	1	0	0	0	0	0	0	1	0	0		1	4	1	0	2														
8	Tyler H	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0		1	2.5	0	0	0														
9	Ben M	0	1	1	1	1	0	1	1	1	0	1	0	0	0	0		1	2	1	1	1														
10	Natalie W	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0		1	1.5	1	0	2		1	0	2	0		2.5	4		6	8.5	6.5		
11	Oaklee P	1	1	1	1	0	0	0	0	0	0	1	0	1	0	0		1	2	0	1	2		1	0	1	0		4	3.5		6	8	7.5		
12	Nicola C	1	1	1	1	1	1	0	0	1	1	0	1	0	0	0		1	4	0	0	2		1	0	0	0		5	0		9	8	5		
13	Meera A	1	1	1	1	0	1	1	1	1	1	0	1	0	0	1		1	2	0	1	1		0	0	0	0		3	4.5		11	5	7.5		
14	Jenny K	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0		0	3.5	0	1	3		0	1	1	0		4	4		6	9.5	8		
15	Jayde S	1	1	1	1	0	1	0	0	1	1	0	1	0	1	1		0	4	0	0.5	2		1	0	0	0		4	3		10	7.5	7		
16	Jack C	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0		1	1.5	0	1	2		0	0	2	0		5	3		9	7.5	8		
17	Bill C	1	1	0	1	0	1	1	1	1	1	0	0	0	1	0		0	3	0	1	2		1	0	1	1		3	3.5		9	9	6.5		
18	Sophee K	1	1	1																																

Guttman progression

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	
1		MC - Easiest to hardest																SR - Easiest to hardest										Extended									
2	Out/of	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1	1	4	1	4	2	5	5									
3	Question	6	10	2	5	9	7	8	15	3	4	12	14	1	11	13		d	e	a	c	i	g	f	b	h	E2	E1		MC	SR	Extd		total	Students - Lowest to highest		
4	Mirrante R	1	0	1	1	0	1	0	0	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	5	3	0		8			
5	Lauchy N	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1.5	1	0	0	0	2	0	0	3	4.5	2	5.5	7.5		15				
6	Matt H	0	1	0	1	0	0	0	0	0	1	1	0	0	1	0	0	1	0.5	1	1	0	0	1	0	0	1	4	5	5.5	5		15.5				
7	Zali S	1	1	0	1	0	1	0	0	0	0	0	0	1	0	0	0	1	4	1	0	2	0	1	0	0	4	0	5	10	4		19				
8	Tyler H	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	2.5	0	0	0	0	1	0	0	4	4	6	5.5	8		19.5				
9	Ben M	0	1	1	1	1	0	1	1	1	0	1	0	0	0	0	0	1	2	1	1	1	1	0	0	1	0	4.5	8	8	4.5		20.5				
10	Natalie W	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	1	1.5	1	0	2	0	2	0	0	2.5	4	6	8.5	6.5		21				
11	Oaklee P	1	1	1	1	0	0	0	0	0	0	1	0	1	0	0	0	1	2	0	1	2	0	1	0	0	4	3.5	6	8	7.5		21.5				
12	Nicola C	1	1	1	1	1	1	0	0	1	1	0	1	0	0	0	0	1	4	0	0	2	0	0	0	0	5	0	9	8	5		22				
13	Meera A	1	1	1	1	0	1	1	1	1	1	0	1	0	0	1	0	0	2	0	1	1	0	0	0	0	3	4.5	11	5	7.5		23.5				
14	Jenny K	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	3.5	0	1	3	1	1	0	0	4	4	6	9.5	8		23.5				
15	Jayde S	1	1	1	1	0	1	0	0	1	1	0	1	0	1	1	0	0	4	0	0.5	2	0	0	0	0	4	3	10	7.5	7		24.5				
16	Jack C	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0	0	1	1.5	0	1	2	0	2	0	0	5	3	9	7.5	8		24.5				
17	Bill C	1	1	0	1	0	1	1	1	1	1	0	0	0	1	0	0	0	3	0	1	2	0	1	1	1	3	3.5	9	9	6.5		24.5				
18	Sophee K	1	1	1	0	1	1	1	0	0	0	1	0	0	0	0	0	1	4	1	0	2	0	1	1	1	4	3	7	11	7		25				
19	Liam G	1	1	1	0	1	0	1	1	1	1	1	0	0	0	0	0	1	2	0	0	1	1	4	1.5	2	5	0	9	11.5	5		25.5				
20	Conner W	1	1	1	0	1	0	0	0	0	0	1	0	0	1	0	0	1	3.5	0	1	1	1	1	2	0	5	3.5	6	11.5	8.5		26				
21	Jamie B	1	1	1	0	1	0	1	1	0	0	0	1	1	0	0	0	1	4	0	0	3	0	2	1	1	4	3.5	8	12	7.5		27.5				
22	Willow S	1	1	1	0	1	1	1	1	1	1	0	0	0	0	0	0	1	2	0	0	2	1	1	1	1	5	5	9	9	10		28				
23	Shaun P	1	1	1	0	1	0	0	1	0	0	0	0	1	0	0	0	1	4	1	1	2	1	4	1	1	3	3.5	6	16	6.5		28.5				
24	Mike S	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	4	1	1	2	0	1	1	1	5	2	10	12	7		29				
25	Abby S	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	1	3.5	1	0	1	1	3	0	0	3	5	10	11.5	8		29.5				
26	Isabel D	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	4	1	0	3	0	2	0	0	4.5	4	10	11	8.5		29.5				
27	Anouk M	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	1	4	1	0	3	1	0	2	2	3	5	11	13	8		32				
28	Ella C	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	1	3.5	1	1	3	1	4	2	2	5	4	13	17.5	9		39.5				
29	Jess P	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	4	1	1	3	1	4	2	2	5	5	12	18	10		40				
30																																					
31	Standardised total	24	24	22	19	18	16	16	14	13	11	11	6	5	5	4		22	21	19	13	13	11	10	9.5	8.3	19	17									
32																																					

A reminder – the starting test results

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	Out/of	Question	Lauchy N	Shaun P	Natalie W	Sophee K	Jayde S	Tyler H	Willow S	Jack C	Conner W	Mike S	Bill C	Abby S	Jess P	Meera A	Jamie B	Ella C	Oaklee P	Isabel D	Anouk M	Matt H	Jenny K	Nicola C	Liam G	Mirrante R	Ben M	Zali S
2	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1
3	1	2	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0
4	1	3	0	0	0	0	1	0	1	0	0	1	1	1	1	1	0	1	0	1	1	0	0	1	1	0	1	0
5	1	4	0	0	0	0	1	0	1	0	0	0	1	0	1	1	0	1	0	1	1	1	0	1	1	0	0	0
6	1	5	0	0	1	0	1	1	0	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1
7	1	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1
8	1	7	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0	1	0	1	1	0	0	1	0	1	0	1
9	1	8	0	0	1	1	0	0	1	1	0	1	1	1	1	1	1	1	0	1	1	0	1	0	1	0	1	0
10	1	9	0	1	1	1	0	1	1	1	1	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1	0	0
11	1	10	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1
12	1	11	0	0	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
13	1	12	0	0	0	1	0	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	0	0	1	1	1	0
14	1	13	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
15	1	14	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	0	0	0	1	0	0	1	0	0	0	0
16	1	15	0	1	0	0	0	0	1	1	0	1	1	1	1	1	1	1	0	1	1	0	0	0	1	0	1	0
17	4	a	1.5	4	1.5	4	4	2.5	2	1.5	3.5	4	3	3.5	4	2	4	3.5	2	4	4	0.5	3.5	4	2	2	2	4
18	4	b	2	4	2	1	0	0	1	2	1	1	1	3	4	0	2	4	1	2	0	1	1	0	4	0	0	1
19	1	c	1	1	1	1	0	0	0	0	0	1	0	1	1	0	0	1	0	1	1	1	0	0	0	0	1	1
20	1	d	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1
21	1	e	0	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	0	1	1
22	1	f	0	1	0	0	0	1	1	0	1	0	0	1	1	0	0	1	0	0	1	0	1	0	1	0	0	0
23	4	g	0	2	2	2	2	0	2	2	1	2	2	1	3	1	3	3	2	3	3	0	3	2	1	0	1	2
24	2	h	0	1	0	1	0	0	1	0	2	1	1	0	2	0	1	2	0	0	2	0	0	0	1.5	0	1	0
25	1	i	0	1	0	0	0.5	0	0	1	1	1	1	0	1	1	0	1	1	0	0	1	1	0	0	0	1	0
26	5	E1	4.5	3.5	4	3	3	4	5	3	3.5	2	3.5	5	5	4.5	3.5	4	3.5	4	5	4	4	0	0	0	4.5	0
27	5	E2	3	3	2.5	4	4	4	5	5	5	5	3	3	5	3	4	5	4	4.5	3	1	4	5	5	0	0	4

Now what can you see?

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1		MC - Easiest to hardest																SR - Easiest to hardest										Extended								
2	Out/of	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1	1	4	1	4	2	5	5								
3	Question	6	10	2	5	9	7	8	15	3	4	12	14	1	11	13		d	e	a	c	i	g	f	b	h	E2	E1		MC	SR	Extd		total		
4	Mirrante R	1	0	1	1	0	1	0	0	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	5	3	0		8		
5	Lauchy N	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1.5	1	0	0	0	2	0	3	4.5	2	5.5	7.5		15			
6	Matt H	0	1	0	1	0	0	0	0	0	0	1	1	0	0	1	0	1	1	0.5	1	1	0	0	1	0	1	4	5	5.5	5		15.5			
7	Zali S	1	1	0	1	0	1	0	0	0	0	0	0	0	1	0	0	1	1	4	1	0	2	0	1	0	4	0	5	10	4		19			
8	Tyler H	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	2.5	0	0	0	1	0	0	4	4	6	5.5	8		19.5				
9	Ben M	0	1	1	1	1	0	1	1	1	0	1	0	0	0	0	0	1	2	1	1	1	0	0	1	0	4.5	8	8	4.5		20.5				
10	Natalie W	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	1	1.5	1	0	2	0	2	0	2.5	4	6	8.5	6.5		21				
11	Oaklee P	1	1	1	1	0	0	0	0	0	0	1	0	1	0	0	0	1	2	0	1	2	0	1	0	4	3.5	6	8	7.5		21.5				
12	Nicola C	1	1	1	1	1	1	0	0	1	1	0	1	0	0	0	0	1	4	0	0	2	0	0	0	5	0	9	8	5		22				
13	Meera A	1	1	1	1	0	1	1	1	1	1	0	1	0	0	1	0	0	2	0	1	1	0	0	0	3	4.5	11	5	7.5		23.5				
14	Jenny K	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	3.5	0	1	3	1	1	0	4	4	6	9.5	8		23.5				
15	Jayde S	1	1	1	1	0	1	0	0	1	1	0	1	0	1	0	1	1	4	0	0.5	2	0	0	0	4	3	10	7.5	7		24.5				
16	Jack C	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0	0	1	1.5	0	1	2	0	2	0	5	3	9	7.5	8		24.5				
17	Bill C	1	1	0	1	0	1	1	1	1	1	0	0	0	1	0	0	0	3	0	1	2	0	1	1	3	3.5	9	9	6.5		24.5				
18	Sophee K	1	1	1	0	1	1	1	0	0	0	1	0	0	0	0	0	1	4	1	0	2	0	1	1	4	3	7	11	7		25				
19	Liam G	1	1	1	0	1	0	1	1	1	1	1	0	0	0	0	0	1	2	0	0	1	1	4	1.5	5	0	9	11.5	5		25.5				
20	Conner W	1	1	1	0	1	0	0	0	0	0	1	0	0	1	0	0	1	3.5	0	1	1	1	1	2	5	3.5	6	11.5	8.5		26				
21	Jamie B	1	1	1	0	1	0	1	1	0	0	0	1	1	0	0	0	1	4	0	0	3	0	2	1	4	3.5	8	12	7.5		27.5				
22	Willow S	1	1	1	0	1	1	1	1	1	1	0	0	0	0	0	0	1	2	0	0	2	1	1	1	5	5	9	9	10		28				
23	Shaun P	1	1	1	0	1	0	0	1	0	0	0	0	1	0	0	0	1	4	1	1	2	1	4	1	3	3.5	6	16	6.5		28.5				
24	Mike S	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	4	1	1	2	0	1	1	5	2	10	12	7		29				
25	Abby S	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	1	3.5	1	0	1	1	3	0	3	5	10	11.5	8		29.5				
26	Isabel D	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	4	1	0	3	0	2	0	4.5	4	10	11	8.5		29.5				
27	Anouk M	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	1	4	1	0	3	1	0	2	3	5	11	13	8		32				
28	Ella C	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	1	3.5	1	1	3	1	4	2	5	4	13	17.5	9		39.5				
29	Jess P	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	4	1	1	3	1	4	2	5	5	12	18	10		40				
30																																				
31	Standardised total	24	24	22	19	18	16	16	14	13	11	11	6	5	5	4		22	21	19	13	13	11	10	9.5	8.3	19	17								
32																																				

Marks book - formatted

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1																								
2			Type	Exam	Assign	Assign	Exam	Assign	Exam	Exam	Exam													
3			Weight	10	10	20	5	10	30	10	5													
4			Difficulty	1	2	3	4	5	6	7	8	Overall			Science Inquiry Skills (SIS)			Scientific Understanding (SU)			Communication			
5	Name	St Code	Criteria	SIS display- interpret data	SU - recall & explanation	SIS - exp design	Comm	SIS - display data	SU - recall, explanation	SU - maths	SIS - exp design, review	Total weighted	Total avg	Overall grade	SIS weighted	SIS avg	SIS grade	SU weighted	SU avg	SU grade	com weighted	Com avg	Com Grade	
6	Student 11	10011		13	12	13	0	12	11	14	4	1120	11	B	530	12	B+	590	12	B+	0	0	E-	
7	Student 19	10019		14	14	11	8	11	10	12	6	1100	11	B	500	11	B	560	11	B	40	8	C	
8	Student 20	10020		14	14	14	5	14	7	12	1	1060	11	B	565	13	A-	470	9	C+	25	5	D	
9	Student 2	10002		11	10	11	14	9	11	6	14	1050	11	B	490	11	B	490	10	B-	70	14	A	
10	Student 22	10022		11	11	9	6	9	11	14	5	1015	10	B-	405	9	C+	580	12	B+	30	6	D+	
11	Student 4	10004		12	12	12	14	11	8	8	6	1010	10	B-	500	11	B	440	9	C+	70	14	A	
12	Student 14	10014		7	12	13	8	12	10	8	3	1005	10	B-	465	10	B-	500	10	B-	40	8	C	
13	Student 21	10021		12	11	11	14	8	9	9	6	990	10	B-	450	10	B-	470	9	C+	70	14	A	
14	Student 15	10015		11	14	9	12	11	8	4	6	910	9	C+	430	10	B-	420	8	C	60	12	B+	
15	Student 7	10007		13	13	9	12	8	6	8	6	870	9	C+	420	9	C+	390	8	C	60	12	B+	
16	Student 1	10001		15	7	11	12	6	7	3	10	850	9	C+	480	11	B	310	6	D+	60	12	B+	
17	Student 13	10013		9	11	7	8	6	8	9	9	815	8	C	335	7	C-	440	9	C+	40	8	C	
18	Student 3	10003		14	6	9	8	8	8	5	6	820	8	C	430	10	B-	350	7	C-	40	8	C	
19	Student 12	10012		11	8	7	15	8	6	5	6	745	7	C-	360	8	C	310	6	D+	75	15	A+	
20	Student 18	10018		11	7	7	12	5	7	6	9	745	7	C-	345	8	C	340	7	C-	60	12	B+	
21	Student 5	10005		10	11	1	12	9	9	6	6	740	7	C-	240	5	D	440	9	C+	60	12	B+	
22	Student 9	10009		9	0	9	6	6	9	5	8	720	7	C-	370	8	C	320	6	D+	30	6	D+	
23	Student 8	10008		6	8	8	8	7	6	7	4	680	7	C-	310	7	C-	330	7	C-	40	8	C	
24	Student 17	10017		8	8	10	8	6	5	4	6	680	7	C-	370	8	C	270	5	D	40	8	C	
25	Student 6	10006		9	5	5	5	4	7	10	6	645	6	D+	260	6	D+	360	7	C-	25	5	D	
26	Student 10	10010		9	3	6	6	3	6	6	5	565	6	D+	265	6	D+	270	5	D	30	6	D+	
27	Student 16	10016		3	2	3	6	6	8	4	3	495	5	D	165	4	D-	300	6	D+	30	6	D+	
28																								
29			Count	22	22	22	22	22	22	22	22	22	22		22	22		22	22		22	22		
30			Average	10.55	9.05	8.86	9.05	8.14	8.05	7.50	6.14	846.82	8.45		394.77	8.82		406.82	8.09		45.23	9.05		
31			St Dev	2.92	4.01	3.24	3.85	2.83	1.79	3.25	2.71	179.94	1.87		103.37	2.34		98.87	2.09		19.24	3.85		
32			Median	11	10.5	9	8	8	8	6.5	6	835	8.5		412.5	9		405	8		40	8		

Marks book - formatted 2

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1																								
2			Type	Exam	Assign	Assign	Exam	Assign	Exam	Exam	Exam													
3			Weight	10	10	20	5	10	30	10	5													
4			Difficulty	1	2	3	4	5	6	7	8	Overall			Science Inquiry Skills (SIS)			Scientific Understanding (SU)			Communication			
5	Name	St Code	Criteria	SIS display- interpret data	SU - recall & explanation	SIS - exp design	Comm	SIS - display data	SU - recall, explanation	SU - maths	SIS - exp design, review	Total weighted	Total avg	Overall grade	SIS weighted	SIS avg	SIS grade	SU weighted	SU avg	SU grade	com weighted	Com avg	Com Grade	
6	Student 11	10011		13	12	13	0	12	11	14	4	1120	11	B	530	12	B+	590	12	B+	0	0	E-	
7	Student 19	10019		14	14	11	8	11	10	12	6	1100	11	B	500	11	B	560	11	B	40	8	C	
8	Student 20	10020		14	14	14	5	14	7	12	1	1060	11	B	565	13	A-	470	9	C+	25	5	D	
9	Student 2	10002		11	10	11	14	9	11	6	14	1050	11	B	490	11	B	490	10	B-	70	14	A	
10	Student 22	10022		11	11	9	6	9	11	14	5	1015	10	B-	405	9	C+	580	12	B+	30	6	D+	
11	Student 4	10004		12	12	12	14	11	8	8	6	1010	10	B-	500	11	B	440	9	C+	70	14	A	
12	Student 14	10014		7	12	13	8	12	10	8	3	1005	10	B-	465	10	B-	500	10	B-	40	8	C	
13	Student 21	10021		12	11	11	14	8	9	9	6	990	10	B-	450	10	B-	470	9	C+	70	14	A	
14	Student 15	10015		11	14	9	12	11	8	4	6	910	9	C+	430	10	B-	420	8	C	60	12	B+	
15	Student 7	10007		13	13	9	12	8	6	8	6	870	9	C+	420	9	C+	390	8	C	60	12	B+	
16	Student 1	10001		15	7	11	12	6	7	3	10	850	9	C+	480	11	B	310	6	D+	60	12	B+	
17	Student 13	10013		9	11	7	8	6	8	9	9	815	8	C	335	7	C-	440	9	C+	40	8	C	
18	Student 3	10003		14	6	9	8	8	8	5	6	820	8	C	430	10	B-	350	7	C-	40	8	C	
19	Student 12	10012		11	8	7	15	8	6	5	6	745	7	C-	360	8	C	310	6	D+	75	15	A+	
20	Student 18	10018		11	7	7	12	5	7	6	9	745	7	C-	345	8	C	340	7	C-	60	12	B+	
21	Student 5	10005		10	11	1	12	9	9	6	6	740	7	C-	240	5	D	440	9	C+	60	12	B+	
22	Student 9	10009		9	0	9	6	6	9	5	8	720	7	C-	370	8	C	320	6	D+	30	6	D+	
23	Student 8	10008		6	8	8	8	7	6	7	4	680	7	C-	310	7	C-	330	7	C-	40	8	C	
24	Student 17	10017		8	8	10	8	6	5	4	6	680	7	C-	370	8	C	270	5	D	40	8	C	
25	Student 6	10006		9	5	5	5	4	7	10	6	645	6	D+	260	6	D+	360	7	C-	25	5	D	
26	Student 10	10010		9	3	6	6	3	6	6	5	565	6	D+	265	6	D+	270	5	D	30	6	D+	
27	Student 16	10016		3	2	3	6	6	8	4	3	495	5	D	165	4	D-	300	6	D+	30	6	D+	
28																								
29			Count	22	22	22	22	22	22	22	22	22	22		22	22		22	22		22	22		
30			Average	10.55	9.05	8.86	9.05	8.14	8.05	7.50	6.14	846.82	8.45		394.77	8.82		406.82	8.09		45.23	9.05		
31			St Dev	2.92	4.01	3.24	3.85	2.83	1.79	3.25	2.71	179.94	1.87		103.37	2.34		98.87	2.09		19.24	3.85		
32			Median	11	10.5	9	8	8	8	6.5	6	835	8.5		412.5	9		405	8		40	8		

Marks book – now what can you see?

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1																								
2			Type	Exam	Assign	Assign	Exam	Assign	Exam	Exam	Exam													
3			Weight	10	10	20	5	10	30	10	5													
4			Difficulty	1	2	3	4	5	6	7	8	Overall			Science Inquiry Skills (SIS)			Scientific Understanding (SU)			Communication			
5	Name	St Code	Criteria	SIS display- interpret data	SU - recall & explanation	SIS - exp design	Comm	SIS - display data	SU - recall, explanation	SU - maths	SIS - exp design, review	Total weighted	Total avg	Overall grade	SIS weighted	SIS avg	SIS grade	SU weighted	SU avg	SU grade	com weighted	Com avg	Com Grade	
6	Student 11	10011		13	12	13	0	12	11	14	4	1120	11	B	530	12	B+	590	12	B+	0	0	E-	
7	Student 19	10019		14	14	11	8	11	10	12	6	1100	11	B	500	11	B	560	11	B	40	8	C	
8	Student 20	10020		14	14	14	5	14	7	12	1	1060	11	B	565	13	A-	470	9	C+	25	5	D	
9	Student 2	10002		11	10	11	14	9	11	6	14	1050	11	B	490	11	B	490	10	B-	70	14	A	
10	Student 22	10022		11	11	9	6	9	11	14	5	1015	10	B-	405	9	C+	580	12	B+	30	6	D+	
11	Student 4	10004		12	12	12	14	11	8	8	6	1010	10	B-	500	11	B	440	9	C+	70	14	A	
12	Student 14	10014		7	12	13	8	12	10	8	3	1005	10	B-	465	10	B-	500	10	B-	40	8	C	
13	Student 21	10021		12	11	11	14	8	9	9	6	990	10	B-	450	10	B-	470	9	C+	70	14	A	
14	Student 15	10015		11	14	9	12	11	8	4	6	910	9	C+	430	10	B-	420	8	C	60	12	B+	
15	Student 7	10007		13	13	9	12	8	6	8	6	870	9	C+	420	9	C+	390	8	C	60	12	B+	
16	Student 1	10001		15	7	11	12	6	7	3	10	850	9	C+	480	11	B	310	6	D+	60	12	B+	
17	Student 13	10013		9	11	7	8	6	8	9	9	815	8	C	335	7	C-	440	9	C+	40	8	C	
18	Student 3	10003		14	6	9	8	8	8	5	6	820	8	C	430	10	B-	350	7	C-	40	8	C	
19	Student 12	10012		11	8	7	15	8	6	5	6	745	7	C-	360	8	C	310	6	D+	75	15	A+	
20	Student 18	10018		11	7	7	12	5	7	6	9	745	7	C-	345	8	C	340	7	C-	60	12	B+	
21	Student 5	10005		10	11	1	12	9	9	6	6	740	7	C-	240	5	D	440	9	C+	60	12	B+	
22	Student 9	10009		9	0	9	6	6	9	5	8	720	7	C-	370	8	C	320	6	D+	30	6	D+	
23	Student 8	10008		6	8	8	8	7	6	7	4	680	7	C-	310	7	C-	330	7	C-	40	8	C	
24	Student 17	10017		8	8	10	8	6	5	4	6	680	7	C-	370	8	C	270	5	D	40	8	C	
25	Student 6	10006		9	5	5	5	4	7	10	6	645	6	D+	260	6	D+	360	7	C-	25	5	D	
26	Student 10	10010		9	3	6	6	3	6	6	5	565	6	D+	265	6	D+	270	5	D	30	6	D+	
27	Student 16	10016		3	2	3	6	6	8	4	3	495	5	D	165	4	D-	300	6	D+	30	6	D+	
28																								
29			Count	22	22	22	22	22	22	22	22	22	22		22	22		22	22		22	22		
30			Average	10.55	9.05	8.86	9.05	8.14	8.05	7.50	6.14	846.82	8.45		394.77	8.82		406.82	8.09		45.23	9.05		
31			St Dev	2.92	4.01	3.24	3.85	2.83	1.79	3.25	2.71	179.94	1.87		103.37	2.34		98.87	2.09		19.24	3.85		
32			Median	11	10.5	9	8	8	8	6.5	6	835	8.5		412.5	9		405	8		40	8		

Visualising student performance data and the importance of pattern making

Matthew O'Brien

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