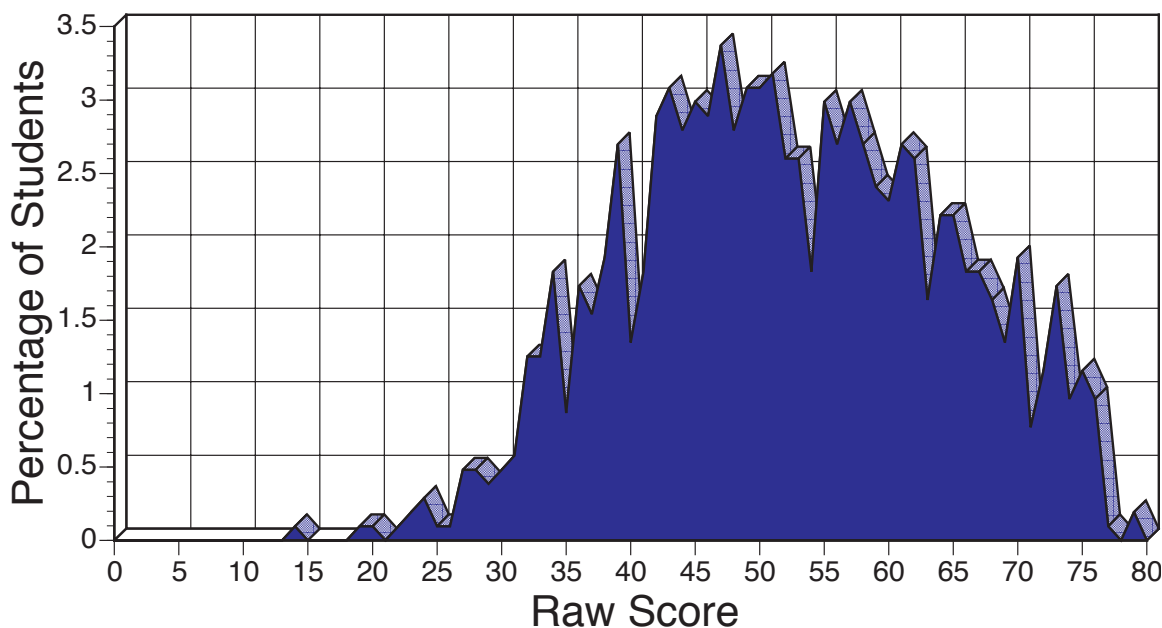


American Chemical Society Division of Chemical Education Composite Norms – High School Chemistry Form 2013

ScorePercentile	ScorePercentile	ScorePercentile
80 ----- 100	51 ----- 46	22 ----- 0
79 ----- 100	50 ----- 43	21 ----- 0
78 ----- 100	49 ----- 40	20 ----- 0
77 ----- 100	48 ----- 37	19 ----- 0
76 ----- 99	47 ----- 34	18 ----- 0
75 ----- 98	46 ----- 31	17 ----- 0
74 ----- 97	45 ----- 28	16 ----- 0
73 ----- 95	44 ----- 26	15 ----- 0
72 ----- 94	43 ----- 23	14 ----- 0
71 ----- 93	42 ----- 20	13 ----- 0
70 ----- 91	41 ----- 18	12 ----- 0
69 ----- 90	40 ----- 16	11 ----- 0
68 ----- 88	39 ----- 14	10 ----- 0
67 ----- 86	38 ----- 12	9 ----- 0
66 ----- 84	37 ----- 10	8 ----- 0
65 ----- 82	36 ----- 9	7 ----- 0
64 ----- 80	35 ----- 8	6 ----- 0
63 ----- 77	34 ----- 6	5 ----- 0
62 ----- 75	33 ----- 5	4 ----- 0
61 ----- 72	32 ----- 4	3 ----- 0
60 ----- 70	31 ----- 3	2 ----- 0
59 ----- 67	30 ----- 2	1 ----- 0
58 ----- 64	29 ----- 2	0 ----- 0
57 ----- 61	28 ----- 2	
56 ----- 58	27 ----- 1	Mean 52.09
55 ----- 56	26 ----- 1	Std. deviation 12.09
54 ----- 53	25 ----- 1	Median 51.0
53 ----- 51	24 ----- 1	KR-21 reliability 0.89
52 ----- 49	23 ----- 0	Std error/meas 4.07

Based on the scores of 1038 students in 12 high schools.



2013 High School Chemistry Item Statistics - Gray
Based on scores of 152 students at 4 schools

Item	Diff Index	Disc Index	% 1st wrong	% 2nd wrong	% 3rd wrong	Item	Diff Index	Disc Index	% 1st wrong	% 2nd wrong	% 3rd wrong
1	0.54	0.21	0.0	3.3	42.1	41	0.89	0.29	2.6	0.7	7.2
2	0.67	0.39	26.3	5.9	0.7	42	0.86	0.21	3.3	7.2	3.9
3	0.55	0.18	1.3	38.2	5.3	43	0.68	0.16	24.3	4.6	2.6
4	0.43	0.45	39.5	4.6	12.5	44	0.46	0.42	22.4	3.9	27.0
5	0.88	0.08	2.0	3.3	5.3	45	0.95	0.16	0.7	2.0	2.6
6	0.86	0.45	3.9	7.9	2.0	46	0.88	0.37	0.7	3.3	7.2
7	0.40	0.45	41.4	14.5	3.9	47	0.46	0.42	13.8	15.8	24.3
8	0.67	0.24	19.1	5.9	7.2	48	0.97	0.08	0.7	2.0	0.0
9	0.72	0.53	4.6	2.0	21.7	49	0.78	0.34	11.2	5.9	4.6
10	0.97	0.03	1.3	0.0	1.3	50	0.80	0.37	4.6	9.2	5.9
11	0.90	0.37	1.3	7.2	1.3	51	0.76	0.37	9.9	1.3	13.2
12	0.63	0.39	0.7	2.0	34.2	52	0.97	0.08	2.6	0.0	0.0
13	0.34	0.47	1.3	57.9	4.6	53	0.86	0.34	1.3	6.6	6.6
14	0.82	0.42	3.3	6.6	5.9	54	0.63	0.66	9.9	22.4	2.6
15	0.54	0.05	17.1	23.0	5.9	55	0.74	0.21	8.6	8.6	8.6
16	0.59	0.61	4.6	2.6	32.9	56	0.89	0.29	0.7	0.7	9.2
17	0.60	0.42	0.7	3.9	34.9	57	0.95	0.13	0.0	1.3	3.9
18	0.72	0.42	15.8	2.6	9.2	58	0.64	0.68	7.2	23.0	5.3
19	0.72	0.32	9.9	2.0	15.8	59	0.78	0.53	3.9	12.5	5.3
20	0.66	0.34	29.6	3.3	0.7	60	0.55	0.29	23.7	11.8	9.2
21	0.55	0.39	5.9	29.6	7.2	61	0.55	0.29	15.1	19.7	9.2
22	0.18	0.26	6.6	66.4	8.6	62	0.59	0.37	7.2	21.1	12.5
23	0.60	0.11	4.6	33.6	1.3	63	0.98	0.03	0.7	0.0	1.3
24	0.76	0.34	1.3	1.3	21.7	64	0.32	0.21	33.6	24.3	10.5
25	0.60	0.32	6.6	7.2	25.0	65	0.32	0.42	21.1	40.1	5.9
26	0.82	0.37	0.7	1.3	15.8	66	0.86	0.26	1.3	4.6	6.6
27	0.86	0.24	5.9	4.6	3.3	67	0.86	0.29	2.6	9.9	2.0
28	0.95	0.11	2.0	1.3	1.3	68	0.59	0.26	30.9	5.3	4.6
29	0.22	0.16	23.7	25.0	27.6	69	0.81	0.26	5.9	12.5	0.7
30	0.70	0.34	8.6	12.5	8.6	70	0.40	0.29	8.6	32.9	17.8
31	0.38	0.34	13.8	4.6	42.8	71	0.72	0.47	14.5	7.2	5.9
32	0.57	0.37	30.9	7.9	3.3	72	0.76	0.34	0.0	14.5	9.2
33	0.64	0.42	9.9	9.2	15.8	73	0.82	0.24	2.0	4.6	11.8
34	0.76	0.29	5.9	9.9	7.2	74	0.64	0.58	6.6	5.9	23.0
35	0.69	0.47	9.2	8.6	10.5	75	0.54	0.63	5.9	11.8	27.6
36	0.74	0.53	6.6	6.6	9.9	76	0.27	0.11	13.2	36.8	22.4
37	0.70	0.21	10.5	8.6	9.9	77	0.25	0.29	30.3	30.9	13.2
38	0.41	0.18	19.7	19.1	12.5	78	0.55	0.53	36.2	5.9	2.0
39	0.20	0.08	36.2	25.0	16.4	79	0.41	0.18	8.6	34.9	13.8
40	0.95	0.08	0.7	1.3	0.0	80	0.60	0.47	1.3	32.9	5.9

2013 High School Chemistry Item Statistics - Yellow
Based on scores of 233 students at 4 schools

<u>Item</u>	<u>Diff Index</u>	<u>Disc Index</u>	<u>% 1st wrong</u>	<u>% 2nd wrong</u>	<u>% 3rd wrong</u>	<u>Item</u>	<u>Diff Index</u>	<u>Disc Index</u>	<u>% 1st wrong</u>	<u>% 2nd wrong</u>	<u>% 3rd wrong</u>
1	0.44	0.51	1.7	36.9	16.7	41	0.27	0.56	44.2	4.3	24.0
2	0.75	0.04	2.6	0.9	21.0	42	0.71	0.11	19.7	4.7	4.3
3	0.51	0.12	46.4	3.0	0.0	43	0.85	0.26	9.0	0.0	5.6
4	0.78	0.04	5.6	0.0	15.9	44	0.88	0.28	2.6	7.3	1.7
5	0.57	0.47	8.2	33.9	0.9	45	0.50	0.53	27.9	9.9	11.2
6	0.76	0.30	9.0	6.9	8.6	46	0.91	0.21	3.9	3.9	1.7
7	0.79	0.42	5.6	11.6	3.9	47	0.89	0.16	8.2	3.0	0.0
8	0.85	0.25	3.0	3.9	8.2	48	0.78	0.54	3.4	6.4	11.2
9	0.94	0.11	0.0	5.2	0.9	49	0.97	0.07	0.0	2.6	0.9
10	0.79	0.44	4.3	15.5	0.9	50	0.66	0.51	18.5	11.6	3.9
11	0.98	0.04	0.9	0.9	0.0	51	0.95	0.16	0.4	3.0	1.7
12	0.73	0.26	5.6	6.9	13.7	52	0.76	0.51	9.0	5.2	9.0
13	0.86	0.25	6.0	6.0	1.7	53	0.69	0.37	14.2	7.3	8.6
14	0.34	0.61	5.2	58.4	1.3	54	0.82	0.33	7.3	5.6	4.7
15	0.63	0.39	2.6	0.4	33.5	55	0.60	0.56	8.6	23.2	6.0
16	0.60	0.37	15.9	3.4	20.6	56	0.96	0.12	0.0	1.7	1.7
17	0.67	0.33	16.3	5.6	9.9	57	0.86	0.23	6.4	3.9	3.9
18	0.58	0.44	0.9	39.1	1.3	58	0.59	0.75	12.9	19.3	7.3
19	0.62	0.40	32.6	1.3	4.3	59	0.61	0.58	6.4	15.0	16.7
20	0.67	0.37	6.0	20.2	5.2	60	0.63	0.47	3.4	20.6	12.9
21	0.76	0.32	18.0	3.0	2.6	61	0.56	0.63	8.6	18.5	16.3
22	0.62	0.32	2.6	26.6	7.3	62	0.95	0.11	3.4	1.3	0.0
23	0.22	0.54	15.5	54.9	6.9	63	0.55	0.47	12.4	25.8	5.2
24	0.48	0.30	24.5	15.5	9.9	64	0.18	0.39	6.4	57.9	15.0
25	0.55	0.51	12.0	6.9	25.3	65	0.37	0.33	23.6	16.3	22.3
26	0.90	0.16	3.4	6.0	0.9	66	0.54	0.14	3.0	32.6	9.4
27	0.39	0.37	15.0	29.6	15.9	67	0.72	0.32	4.3	5.6	16.7
28	0.86	0.30	3.4	5.6	4.7	68	0.70	0.49	23.2	1.7	4.7
29	0.87	0.25	9.9	1.3	1.7	69	0.73	0.68	9.4	9.4	6.0
30	0.64	0.39	12.0	4.3	18.9	70	0.67	0.51	19.3	6.0	6.0
31	0.67	0.30	9.4	11.6	9.9	71	0.47	0.37	22.3	24.0	6.0
32	0.56	0.47	13.3	13.7	16.7	72	0.41	0.51	8.6	46.8	3.4
33	0.49	0.51	8.2	9.4	33.0	73	0.75	0.49	10.3	3.4	9.9
34	0.82	0.37	7.3	6.0	3.4	74	0.56	0.70	0.9	9.0	33.5
35	0.75	0.40	7.3	6.4	9.9	75	0.24	0.33	29.6	9.4	32.6
36	0.35	0.40	11.2	28.3	24.9	76	0.74	0.47	3.0	19.3	2.6
37	0.34	0.11	13.7	23.2	25.8	77	0.38	0.35	21.0	25.3	12.4
38	0.98	0.04	2.1	0.0	0.0	78	0.49	0.47	33.9	6.9	9.0
39	0.62	0.39	10.3	18.9	7.7	79	0.76	0.33	9.0	10.3	3.4
40	0.68	0.51	10.7	12.0	8.2	80	0.35	0.28	17.2	33.0	12.0

EXPLANATIONS

The difficulty index is the percentage of students who responded correctly to an item. The discrimination index measures the performance on the item of students who did well on the test overall relative to those who did poorly. The frequencies with which incorrect responses are chosen are expressed as percentages. For additional information, obtain *Writing Tests and Interpreting Test Statistics – A Practical Guide* from the ACS DivCHED Examinations Institute.

SCHOOLS SUPPLYING DATA FOR NORMS AND ITEM STATISTICS

Cape Elizabeth High School
Germantown Academy
Hathaway-Brown School
Harrisonburg High School
John Burroughs School
Maclay School
Parkway Central High School
Pine Crest School
Somerville High School
South Warren High School
Summit Country Day School
Zionsville Community High School

Cape Elizabeth, ME
Fort Washington, PA
Shaker Heights, OH
Harrisonburg, VA
St. Louis, MO
Tallahassee, FL
Chesterfield, MO
Fort Lauderdale, FL
Somerville, MA
Bowling Green, KY
Cincinnati, OH
Zionsville, IN