

OCTOBER 2007 GRADE 3 READING TEST ADMINISTRATION

STATISTICAL SUMMARY

These statistics describe the entire population of Ohio 3rd-grade public school students (including community schools) tested during the October 2007 administration.

N-count	129127
Max Raw Score	49
Raw Score Mean	30.48
Raw Score Standard Deviation	9.17
Raw Score SEM	3.03
Max Scaled Score	518
Scaled Score Mean	407.61
Scaled Score Standard Deviation	27.86
Scaled Score SEM	9.21
Reliability	0.89

Cut Score Points for Basic, Proficient, Accelerated, and Advanced Standards

Standard	Raw Score	Scaled Score
Limited	Below 23	Below 385
Basic	23	385
Proficient	29	400
Accelerated	34	415
Advanced	39	432

Percentage of Students by Performance Levels

Standard	Percent
Limited	21.13
Basic	16.37
Proficient	18.14
Accelerated	22.82
Advanced	21.54

Equating and Scaling: How Raw Scores Are Converted Into Scaled Scores

Test Form Construction

The October 2007 Grade 3 Reading Achievement Test contained items that have been field-tested, but not previously used in an operational test form. Item difficulty estimates from the field test administration were used to pre-equate operational forms during form construction.

Common Item Equating

Following administration of the October 2007 grade 3 reading achievement test, we re-estimated item difficulty values using an early return sample. The early return sample is selected to be statistically representative of all Ohio grade 3 public school students. Because we already had item difficulty estimates from the previous field test administrations, all the operational items can potentially serve as anchor items in the equating process. AIR uses a stepwise deletion procedure to calibrate the early return sample data and calculate the linking constant needed to bring the set of operational items back to the reference scale for each grade and subject. First, the current difficulty values (from the early return sample) are computed and compared with the “bank” or reference difficulty values. The mean difference between the current and the bank difficulties of the anchor items is called the equating constant. The equating constant is added to each difficulty value for items on the current test so that the mean item difficulties are equal. We then compare the “linked” current values with the original bank values to identify the item with the largest absolute difference between the two values. If the absolute value of the difference is greater than 0.3, the item is eliminated as an anchor item. This procedure is repeated until the largest difference between a linked current value and bank value is less than 0.3. This procedure ensures that the items used to anchor the operational test to the reference scale are stable. When the equating process is complete, item difficulties from the current administration are directly comparable with those from the bank.

Scaling

Because the meaning of raw scores changes across test forms and test administrations, scaled scores are usually used in place of raw scores.

As previously noted, after administering the October 2007 operational test, test items are calibrated and equated on the basis of the early return sample, and Rasch ability estimates (θ) are computed for each possible raw score. The Rasch ability estimates are then transformed to the Ohio Grade 3 Reading Achievement Test scale, which is scaled so that the proficient standard is equal to 400.

Ohio Rounding Rule

When transforming raw scores to scaled scores, if the scaled score nearest to a proficiency level cut score is below the cut score, then the scaled score is rounded up to equal the proficiency level cut score. Otherwise, no special rounding is done. For example, if a raw score is associated with an observed scaled score of 383.94, and 383.94 is the closest observed scaled score to the basic proficiency level cut score, this value is rounded up to 385, corresponding to the basic

proficiency standard. Conversely, if the closest scaled score value to the proficient level cut score is 401.12, no special rounding rules are invoked, because the value is greater than the cut score.

Raw Score to Scaled Score Conversion Table

Raw Score	Scaled Score	Raw Score	Scaled Score
0	261	25	391
1	280	26	393
2	298	27	396
3	310	28	399
4	318	29	401
5	325	30	404
6	331	31	406
7	336	32	409
8	340	33	412
9	344	34	415
10	348	35	418
11	352	36	421
12	355	37	425
13	358	38	428
14	362	39	432
15	365	40	436
16	367	41	441
17	370	42	445
18	373	43	451
19	376	44	457
20	378	45	463
21	381	46	472
22	383	47	483
23	386	48	500
24	388	49	518