WorkKeys®

Job Aid Series

Reading for Information: Estimating Grade-Level Equivalents

ACT®

We are sometimes asked what grade levels the WorkKeys® assessment, *Reading for Information,* parallels. People often want to know whether it is appropriate to administer the assessment to an individual with limited reading skills, or they may want to know how to use a WorkKeys *Reading for Information* score to offer an individual appropriate instructional materials. The following information is designed to help WorkKeys clients understand more about readability, so they can determine how the *Reading for Information* assessment, skill scale, and scores can be meaningful in their own circumstances.

The readability of the test is affected by the readability of the stimulus text passages and by the related test questions.

The stimulus **text passages** at the lowest levels of the WorkKeys *Reading for Information* assessment are simple and direct. The passages become more complex as the test levels go up, with the most complex at the highest levels. By design, the readability of the passages represents a range of skill levels, so setting a readability level for the test as a whole would not be productive.

The **test questions** that refer to the text passages also grow more complex from level to level. Questions at the lowest levels relate to basic comprehension skills such as identifying main ideas and significant details, while those at the highest levels require substantial amounts of inference, generalization, synthesis, and evaluation. However, because the readability of the passages is not calculated according to the complexity of the test questions, estimates of the overall difficulty of the test (if based on the questions) could be too low. In other words, the complexity of the task required (responding to test items) is separate from the reading level of the passage.

It should be clear from the information provided in this document, that administering the WorkKeys *Reading for Information* assessment may not be a worthwhile use of assessment resources for individuals who are known to read below the fifth-grade level. In addition, care should be taken in administering this assessment to individuals who read below about an eighth-grade level, as their assessment experience may be more frustrating than fruitful.

The "Readability" section in the *Encyclopedia of Educational Research*[1] provides a helpful overview of readability issues, stressing that "readable" means "understandable," and readability can be determined using judgment, measures, and readability formulas. Information derived from all three approaches is included here.

Judgment. When constructing the WorkKeys skill scales and assessments, WorkKeys staff did not use grade-level readability information such as guidelines for vocabulary or sentence length and complexity. Our focus was on providing a clear definition of the skill scale levels as they relate to jobs and employer expectations. We did not focus on linking the scales to school-based considerations such as grade level. However, an operational WorkKeys *Reading for Information* assessment was reviewed by an expert (a university professor of reading curriculum) who indicated that Level 3 (the lowest level) is approximately at grades five or six, and Level 7 (the highest level) would challenge many college graduates.

Measures. The most common way to measure the readability of assessments is to use the grade-equivalent scale. This is a norm-based scale most typically arrived at in one of two ways:

- by administering the assessment to a sample of students at each grade level and averaging their scores (in some way) to set a score equivalent to each grade level; or
- by testing a sample of students at a sample of grade levels and developing a formula relating their performance to their grade levels. This formula can then be used to estimate grade levels for grades at which students have not actually been tested.

In each case, the accuracy of the method depends on (a) the adequacy of the sampling process, (b) the appropriateness of the norm group, and (c) the method of calculation.

While the WorkKeys *Reading for Information* assessment is criterion-based and does not have national norms or norm-based scores, the WorkKeys database of all examinees tested in the 1998–99 academic year includes significant numbers of high school students. Table 1 reports the distribution of the level scores of these students. Keep in mind that this is a sample of convenience, and is not nationally representative. WorkKeys assessments have also been administered to students below grade nine, but sample sizes at lower grade levels are small.

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Table 1: Distribution of WorkKeys Skill Levels for *Reading for Information*, by Grade Level

Grade Level (number of examinees)	Grade 9 (19,751)	Grade 10 (9,727)	Grade 11 (9,173)	Grade 12 (37,843)
	Percent of Examinees Scoring			
Below Level 3	12.4	9.4	8.5	8.1
Level 3	13.0	9.6	8.9	8.2
Level 4	42.1	39.6	36.1	35.7
Level 5	22.5	26.3	28.5	28.4
Level 6	9.2	13.5	15.9	16.9
Level 7	0.8	1.6	2.2	2.6

Note: Numbers may not add to 100 percent due to rounding.

Table 2: MetaMetrics Lexile, Grade Range, and Example Texts for the WorkKeys *Reading for Information* Assessment (Form 13AA) Skill Levels[2]

Skill Level	Lexile	Grade Range of Text Passages	Sample Texts
3	832	5	William Armstrong's *Sounder;* *Girl Scout Handbook*
4	981	End of 6, beginning of 7	Robert Louis Stevenson's *Dr. Jekyll and Mr. Hyde;* Richard Bach's *Jonathan Livingston Seagull*
5	1161	11	Charles Dickens' *Oliver Twist;* *National Geographic* magazine
6	1350	13-14 (freshman and sophomore in college)	Rachel Carson's *Silent Spring;* *U.S. News and World Report* magazine
7	1721	Graduate school	Amendments to the U.S. Constitution; John Locke's *Two Treatises of Government*

Readability Formulas. Readability formulas are generally used to analyze characteristics of text samples by comparing features such as sentence length or the familiarity of words in the text samples to those found in texts used at specified grade levels. These comparisons may be augmented by considering how well students at that grade level are actually able to comprehend the text. There are many methods and formulas for estimating the appropriateness of specified texts for specified grade levels, and the results of using them often vary.

Table 2 depicts the results of a 1994 study conducted by MetaMetrics, Inc. When developing their lexile scale, MetaMetrics used information about examinees' comprehension of text (based on testing examinees using a cloze technique) to augment information about textual characteristics.

In a special study, MetaMetrics used 30 125-word samples of the stimulus text from WorkKeys *Reading for Information* Form 13AA to calculate a total-raw-score to lexile conversion table. The midpoints of the raw-score scale ranges for each WorkKeys level were then used to identify the lexile associated with that skill level.

Information about those lexile levels, as provided to ACT by MetaMetrics, is provided in Table 2. Note that Form 13AA, however, is no longer in general use.

Table 3 shows the results of a study conducted for *Reading for Information* text passages in 2001, using the two readability formulas available in Microsoft® Word. This table reflects updated information from two currently operational test forms (Forms D01AA and C01AA). ■

Table 3: Mean Readability of WorkKeys *Reading for Information* Text Passages, by Level, Using Two Formulas

Readability Indices for Form D01AA and Form C01AA		
Level	**Mean Flesch Reading Ease**	**Mean Flesch-Kincaid Grade Level**
3	75.0	6
4	77.0	6
5	68.3	8
6	29.5	12
7	33.8	12*

Note: Higher Flesch Reading Ease scores indicate greater readability. Flesch-Kincaid Grade Level scores indicate the U.S. grade-level equivalent. *No grade level higher than 12 is calculated or reported.

[1] Klare, G. R. (1982). Readability. In the *Encyclopedia of Educational Research: Vol. 3.* (5th ed., pp. 1520-1531). NY: The Free Press.

[2] Stenne, A. J. (1995). The Objective Measurement of Reading Comprehension. MetaMetrics, Inc., 1100 Perimeter Park West, Suite 112, Morrisville, NC 27560.