

## Flesch-Kincaid Readability Tests

[http://en.wikipedia.org/wiki/Flesch%E2%80%93Kincaid\\_readability\\_tests](http://en.wikipedia.org/wiki/Flesch%E2%80%93Kincaid_readability_tests), 1/16/2015

"The Flesch–Kincaid" (F–K) Reading grade level was developed under contract to the United States Navy in 1975 by J. Peter Kincaid and his team.<sup>[1]</sup> Other related United States Navy research directed by Kincaid delved into high tech education (for example, the electronic authoring and delivery of technical information);<sup>[2]</sup> usefulness of the Flesch–Kincaid readability formula;<sup>[3]</sup> computer aids for editing tests;<sup>[4]</sup> illustrated formats to teach procedures;<sup>[5]</sup> and the Computer Readability Editing System (CRES).<sup>[6]</sup>

The F-K formula was first used by the [United States Army](#) for assessing the difficulty of technical manuals in 1978 and soon after became the [Department of Defense military standard](#).

The [Commonwealth of Pennsylvania](#) was the first state in the United States to require that [automobile insurance](#) policies be written at no higher than a [ninth grade](#) level (14 to 15 years of age) of reading difficulty, as measured by the F-K formula. This is now a common requirement in many other states and for other legal documents such as insurance policies.<sup>[9]</sup>

### Flesch Reading Ease<sup>[edit]</sup>

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In the Flesch Reading Ease test, higher scores indicate material that is easier to read; lower numbers mark passages that are more difficult to read. The formula for the Flesch Reading Ease Score (FRES) test is

$$206.835 - 1.015 \left( \frac{\text{total words}}{\text{total sentences}} \right) - 84.6 \left( \frac{\text{total syllables}}{\text{total words}} \right) .$$

Scores can be interpreted as shown in the table below.

Score	Notes
90.0–100.0	easily understood by an average 11-year-old student
60.0–70.0	easily understood by 13- to 15-year-old students
0.0–30.0	best understood by university graduates

*Reader's Digest* magazine has a readability index of about 65, *Time* magazine scores about 52, an average 6th grade student's (a 12-year-old) written assignment has a readability index of 60–

70 (and a reading grade level of 6–7), and the [Harvard Law Review](#) has a general readability score in the low 30's. The highest (easiest) readability score possible is around 120 (e.g. every sentence consisting of only two one-syllable words; "The cat sat on the mat." scores 116). The score does not have a theoretical lower bound. It is possible to make the score as low as wanted by arbitrarily including words with many syllables. The sentence "This sentence, taken as a reading passage unto itself, is being used to prove a point." has a readability of 74.1. The sentence "The Australian platypus is seemingly a hybrid of a mammal and reptilian creature." scores 24.4 as it has 26 syllables and 13 words. While [Amazon](#) calculates the text of [Moby-Dick](#) as 57.9,<sup>[9]</sup> one particularly long sentence about sharks in chapter 64 has a readability score of -146.77.<sup>[9]</sup> One sentence in the beginning of "[Swann's Way](#)", by Marcel Proust, has a score of -515.1.<sup>[10]</sup>

[The U.S. Department of Defense](#) uses the Reading Ease test as the standard test of readability for its documents and forms.<sup>[11]</sup> Florida requires that [life insurance](#) policies have a Flesch Reading Ease score of 45 or greater.<sup>[12]</sup>

Use of this scale is so ubiquitous that it is bundled with popular [word processing](#) programs and services such as [KWord](#), [IBM Lotus Symphony](#), [Microsoft Office Word](#), [WordPerfect](#), and [WordPro](#).

Polysyllabic words affect this score significantly more than they do the grade level score.

## Flesch–Kincaid Grade Level<sup>[edit]</sup>

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These readability tests are used extensively in the field of [education](#). The "Flesch–Kincaid Grade Level Formula" instead presents a score as a [U.S. grade level](#), making it easier for teachers, parents, librarians, and others to judge the readability level of various books and texts. It can also mean the number of years of education generally required to understand this text, relevant when the formula results in a number greater than 10. The grade level is calculated with the following formula:

$$0.39 \left( \frac{\text{total words}}{\text{total sentences}} \right) + 11.8 \left( \frac{\text{total syllables}}{\text{total words}} \right) - 15.59$$

The result is a number that corresponds with a U.S. grade level. The sentence, "The Australian platypus is seemingly a hybrid of a mammal and reptilian creature" is a 13.1 as it has 26 syllables and 13 words. The different weighting factors for words per sentence and syllables per word in each scoring system mean that the two schemes are not directly comparable and cannot be converted. The grade level formula emphasises sentence length over word length.

The lowest grade level score in theory is -3.40, but there are few real passages in which every sentence consists of a single one-syllable word. [Green Eggs and Ham](#) by [Dr.](#)

[Seuss](#) comes close, averaging 5.7 words per sentence and 1.02 syllables per word, with a grade level of -1.3. (Most of the 50 used words are [monosyllabic](#); "anywhere", which occurs 8 times, is the only exception.)