

Tool 13. Assessing Readability Level Reading Formulas

Readability measures are primarily based on factors such as the complexity of the printed materials by measuring the number of words in the sentence and the number of letters or syllables per word (i.e., as a reflection of word frequency.) A “score” reflects the grade level of the printed material.

- The Flesch Reading Ease
The Flesch Reading Ease is one of the oldest and most accurate formulas. It is a simple approach to assess the grade-level of the reader.
- The Fry Graph Readability Formula
Edward Fry developed readability tests based on graph. This graph-based test determined readability through high school. In 1977, Fry extended the graph to test through the college years.
- The SMOG Readability Formula
This is a simple method used to determine the reading level of written materials. The SMOG Readability Formula was developed by Harold C. McGraw.

These formulas can be helpful but should not be your only evaluation tool because reading level is only one aspect of readability, and readability formulas are not always accurate with forms that have short sentences or phrases.

The Flesch Reading Ease Readability Formula

The specific mathematical formula is:

$$RE = 206.835 - (1.015 \times ASL) - (84.6 \times ASW)$$

RE = Readability Ease

ASL = Average Sentence Length (i.e., the number of words divided by the number of sentences)

ASW = Average number of syllables per word (i.e., the number of syllables divided by the number of words.)

The output, i.e., **RE** is a number ranging from 0 to 100. The higher the number, the easier the text is to read.

Scores between 90.0 and 100.0 are considered easily understandable by an average 5th grader

Scores between 60.0 and 70.0 are considered easily understandable by 8th and 9th graders.

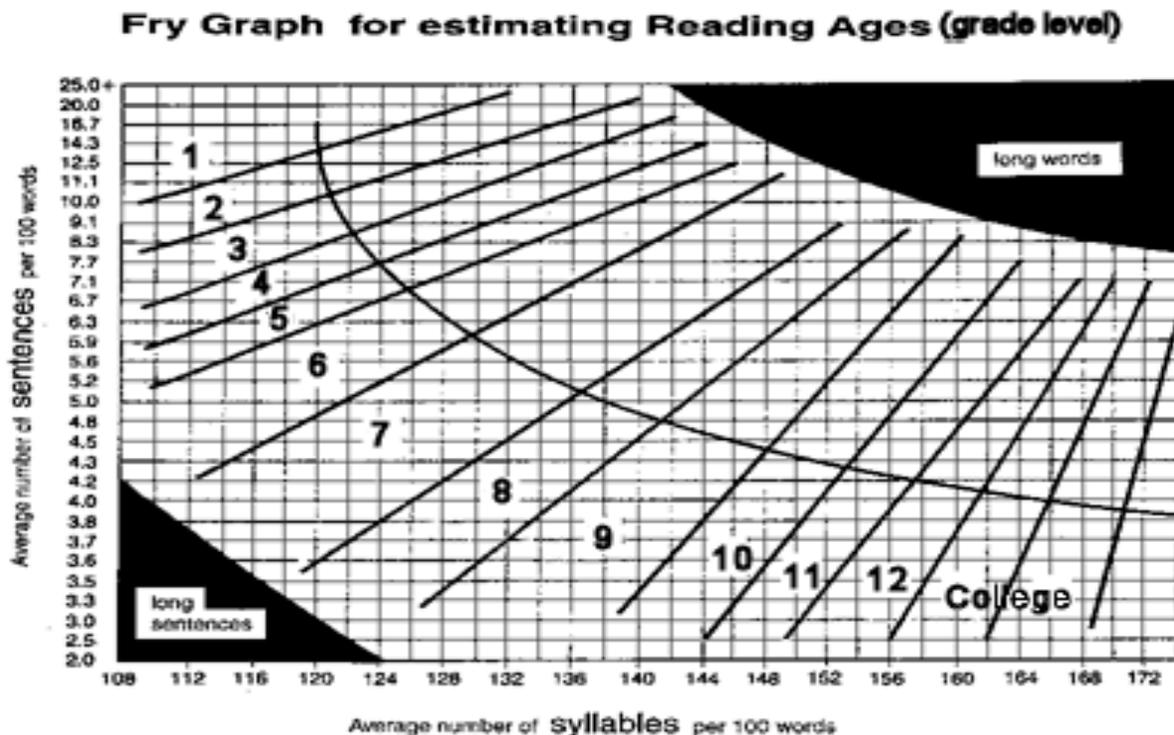
Scores between 0.0 and 30.0 are considered easily understood by college graduates.

The Fry Graph Readability Formula

- Step 1: Select 3 samples of 100-word passages randomly (eliminate the numbers from word count)
- Step 2: Count the number of sentences in all three 100-word passages, estimating the fraction of the last sentence to the nearest 1/10th.
- Step 3: Count the number of syllables in all three 100-word passages. Make a table as follows:

| | # of Sentences | # of Syllables |
|---------------------------|----------------|----------------|
| 1st 100 words | | |
| 2 nd 100 words | | |
| 3 rd 100 words | | |
| Total | | |
| Average | | |

- Step 4: Enter the graph with Average Sentence Length and Number of Syllables. Plot dot where the two lines intersect. Area where dot is plotted signifies the approximate reading grade level of the content.



Scores that appear in the dark area (long sentences and long words) are invalid.

The SMOG Readability Formula

Count 10 sentences in a row near the beginning of the material. Count 10 sentences in the middle. Count 10 sentences near the end. (30 total sentences)

Count every word with three or more syllables in each group of sentences, even if the same word appears more than once.

Add the total number of words counted. Use the SMOG Conversion Table to find the grade level.

Word Counting Rules:

- A sentence is any group of word ending with a period, exclamation point, or question mark.
- Words with hyphens count-as-one-word.
- Read numbers out loud to decide the number of syllables.
- Count abbreviations as the whole word they represent.

| SMOG Conversion Table | |
|------------------------------|-------------|
| Word Count | Grade Level |
| 0-2 | 4 |
| 3-6 | 5 |
| 7-12 | 6 |
| 13-20 | 7 |
| 21-30 | 8 |
| 31-42 | 9 |
| 43-56 | 10 |
| 57-72 | 11 |
| 73-90 | 12 |
| 91-110 | 13 |
| 111-132 | 14 |
| 133-156 | 15 |
| 157-182 | 16 |
| 183-210 | 17 |
| 211-240 | 18 |

Other Assistance in Determining Readability

Online help for checking on the readability of health education materials is available at:

<http://www.readability.info/>

This is a site which will grade your URL or Word document for readability. It provides a number of grammatical analyses as well as the following readability scores: Kincaid, ARI, Coleman-Liau, Flesch Index, Fog Index, Lix, and SMOG-Grading.

Checking Readability using Microsoft Word

- Step 1: Click on the Microsoft Word icon in the far upper left-hand side of your computer screen.
- Step 2: In the Drop down box, click "Word Options"
- Step 3: Click on "Proofing"
- Step 4: In the middle box, click on "When correcting spelling and grammar in Word"
- Step 5: Check all boxes including "Show readability statistics"
- Step 6: In the Writing style box, click on "Grammar and Style"
- Step 7: Click "Ok"

To Show Readability Statistics

- Step 1: On the Tool Bar, click on "Review"
- Step 2: On the far left-hand side of the Tool Bar, click on "Spelling and Grammar"

Your readability statistics using the Flesch-Kincaid Scale will appear.

Remember: The higher the score, the easier to read.

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Scores between 60.0 and 70.0 are considered easily understandable by 8th and 9th graders.

