Most readability indices consist of two factors. One factor relates to sentence structure and is most generally a measure of the average number of words per sentence. The other factor generally relates to word structure and is usually based on either the proportion of easy words determined with reference to word list (Dale and Chall, 1948) or the average number of syllables per word (Flesch, 1951).

Flesch Reading Ease Readability

206.835 – 1.015 \* (Average Sentence Length) – 84.6 \* (Average number of Syllables per Word)

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 understood by 8th and 9th graders.

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

# Flesch-Kincaid Grade Level Readability

An update of Flesch Reading Ease.

The resulting score approximates the school grade for kids.

0.39 \* (Average Sentence Length) + 11.8 \* (Average number of Syllables per Word) - 15.59

# Automated Readability Index

**The Automated Readability Index** (ARI) is a readability test designed to assess the understandability of a text. Like other popular readability formulas, the ARI formula outputs a number which approximates the grade level needed to comprehend the text. For example, if the ARI outputs the number 10, this equates to a high school student, ages 15-16 years old; a number 3 means students in 3rd grade (ages 8-9 yrs. old) should be able to comprehend the text.

**the formula to calculate the Automated Readability Index:**

4.71 \* (n\_characters / n\_words) + 0.5 \* (n\_words / n\_sentences) - 21.43

SMOG Index

The SMOG Index was created by clinical psychologist G. Harry McLaughlin. He wanted to create a simple readability formula. One which included polysyllabic words - words with multiple syllables. He made it his mission to find the most reliable calculation. He called his own formula “laughably simple”.

SMOG estimates the years of education the average person needs to understand any piece of writing. This is known as the SMOG Grade. McLaughlin suggested calculating this by using a piece which is 30 sentences or longer and doing the following:

1. Counting ten sentences near the beginning of the text, 10 in the middle and ten near the end, totalling 30 sentences
2. Counting every word with three or more syllables
3. Square-rooting the number and rounding it to the nearest 10
4. Adding three to this figure

The final figure indicates the reading level.

**Another way around:**

To calculate the SMOG reading level, begin with the entire written work being assessed and follow these steps:

1. Count off 10 consecutive sentences near the beginning, in the middle, and near the end of the text. If the text has fewer than 30 sentences, use as many as are provided.
2. Count the number of words containing 3 or more syllables (polysyllabic), including repetitions of the same word.
3. Look up the approximate grade level on the SMOG conversion table below:

|  |  |
| --- | --- |
| **Total Polysyllabic Word Count** | **Approximate Grade Level**  **(+1.5 Grades)** |
| 1-6 | 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 |