**Calculating Reading and Writing Levels**

There are many ways to calculate the grade level of a writing sample. We are going to look at a series of methods used to determine the reading levels for different student age groups. Teachers can use these methods to determine whether new material is suitable for their class and also to determine at what grade levels their students are writing.

Writing level calculations tell us little about actual comprehension, and certainly nothing about ability. These calculations measure only an artificial metric of fluency, nothing more.

Accurate calcualtions require 100-word samples; anything shorter will not suffice. When counting syllables and words, count any proper nouns, numbers, or dates as one word. For instance, “Abraham Lincoln,” “865,460,” “March 23, 1998,” and “Connecticut” would each count as an “easy word” or a one-syllable word. The point is to test the vocabulary of the sample and things like names, numbers, and locations are usually understandable by most students above first or second grade. For example, most children know the four-syllable word “Arizona” but not the four-syllable word “vicissitude.”

These formulas can be tricky, but by carefully following the instructions one step at a time they should be easy enough to try. To help decrease complication we have rounded any decimals to one or two places. Some of the scaling formulas require using decimals up to three or four places within the system, but we have rounded the final results.

**Gunning Fog Index**

The Gunning Fog method is used to determine the readability for upper elementary reading material. Apply the following steps (you may want to use a calculator), and refer to the example for help.

1. Select a sample of 100 words and count the number of sentences in the sample.
2. Divide the number of sentences into the number of words (100) to find the average sentence length.
3. Count the number of “big words” (3 syllables or more) and divide 100 by that number to find the percentage of big words (This is easily done by adding a decimal point two digits before the number).
4. Add the average sentence length and percentage of big words together and multiply the sum by 0.4 to find the result.

**Example**

Imagine a 100-word sample with one 12-word sentence, two 10-word sentences, two 9-word sentences, three 8-word sentences, three 6-word sentences, and two 4-word sentences.

Steps 1 and 2: Count the number of sentences and find the average sentence length.

*1 + 2 + 2 + 3 + 3 + 2 = 13 sentences  
100 / 13 = 7.7 average length*

Step 3: Count the number of “big words.” Let us assume that of the 100 words in the sample, 12 of them are three syllables or longer.

*12 / 100 = 0.12, or 12%*

Step 4: Add average sentence length to percentage of big words and multiply by 0.4. (Use the percentage as a whole number and not a decimal)

*7.7 + 12 = 19.7  
(19.7)(0.4) = 7.88*

This sample would be at the 7th grade reading level, close to 8th.

**The Flesch Formula: Reading Ease and Grade Level**

The Flesch Formula is a more accurate method for measuring the readability of upper elementary texts.

1. Select a 100-word sample and count the number of sentences.
2. Divide the number of words (100) by the number of sentences and multiply the result by 1.015. Save this result and call it *x*.
3. Count the total number of syllables in the sample, divide by the total number of words (100) and multiply by 84.6 (Or just multiply the number of syllables by 0.846 — the results will be the same). Call this number *y*.
4. Add *x* to *y* and subtract the sum from 206.835. The final result is the Reading Ease Score (see table).

**Reading Ease Score Difficulty Flesch Grade Level**

* 0-29 Very Difficult Post Graduate
* 30-49 Difficult College
* 50-59 Fairly Difficult High School
* 60-69 Standard 8th to 9th grade
* 70-79 Fairly Easy 7th grade
* 80-89 Easy 5th to 6th grade
* 90-100 Very Easy 4th to 5th grade

**Example**

We’ll use the same sample used in the first example.

Steps 1 and 2: Divide number of words by number of sentences and multiply by 1.015. Call the result *x*.

*100 / 13 = 7.7  
(7.7)(1.015) = 7.8  
7.8 = x*

Step 3: Count total syllables, divide by 100 and multiply by 84.6. Call this number *y*. Let us assume the sample contains 146 total syllables.

*146 / 100 = 1.46  
(1.46)(84.6) = 123.5  
123.5 = y*

Step 4: Add *x*to *y* and subtract from 206.835.

*7.8 + 123.5 = 131.3  
206.835 - 131.3 = 75.5*

Check the table for results.

75.5 falls in the 70-79 category listed on the table above, which classifies the sample as Fairly Easy and assigns a recommended 7th grade level. Notice this result matches the result used for the Gunning Fog Index — both methods put the sample in the 7th grade level.

**Power Sumner Kearl Formula**

The Power Sumner Kearl Formula determines the readability of books for elementary school ages.

1. Find a 100 word sample and count the number of sentences and divide into the number of words (100) to find the average sentence length. Call this number *x*.
2. Count the number of syllables and call that number *y*.
3. Multiply *x* by 0.0778 and multiply *y* by 0.0455, then add the two results and call it *z*.
4. Find the grade level of the sample by subtracting 2.2029 from *z*
5. Find the reading age by adding 2.7971 to *z*.

**Example**

We’ll choose a new theoretical sample because this formula applies to a younger age group than the last two.

Step 1: Count the number of sentences and divide into 100 to find the average sentence length and call the result *x*. For this example, let us assume there are two 7-word sentences, four 6-word sentences, six 5-word sentences and eight 4-word sentences.

*2 + 4 + 6 + 8 = 20 sentences  
100 / 20 = 5 average sentence length  
5 = x*

Step 2: Count the number of syllables and call it *y*.

Let us assume this 100-word sample contains 112 syllables.

*112 = y*

Step 3: Multiply *x* by 0.0778 and multiply *y* by 0.0455, then add the two results and call it *z*.

*(5)(.0778) = 0.4  
(112)(.0455) = 5.1  
0.4 + 5.1 = 5.5  
5.5 = z*

Step 4: Find the grade level by subtracting 2.2029 from *z*.

*5.5 - 2.2029 = 3.3*

This sample should be readable to the average 3rd grader.

Step 5: Find the reading age by adding 2.7971 to *z*.

*5.5 + 2.7971 = 8.3*

This sample should also be readable to the average 8-year old.