



What do we mean by the word “readability”?

The term “readability” refers to all the factors that affect success in reading and understanding a text. These factors include:

- ◆ The interest and motivation of the readers
- ◆ The legibility of the print and illustrations
- ◆ The complexity of words and sentences in relation to the reading ability.

Though all of these factors combined affect the readability of a text, **the last factor is the only factor that is calculated by common “Readability Formulas.”** Detriments to readability can include material that is poorly printed, contains complex sentence structures, long words, or too much material containing entirely new ideas.

How can I calculate a “readability score” for a text that I’m reviewing?

There are many methods by which a “readability score” is determined for a text. The tests most commonly used for educational texts are described below.

Spache Readability Formula (1953) — This formula calculates the Grade level of a text sample based on sentence length and number of unfamiliar words. The Spache Formula considers “unfamiliar words” as words that 3rd Grade and below do not recognize. The Spache Formula is best used to calculate the difficulty of text that falls at the 3rd Grade level or below.

Original Dale-Chall Formula and Modified Dale-Chall Formula (1948) — This formula calculates the number of “unfamiliar” words. Unfamiliar are those not on a list of 3,000 common words. To calculate, count the unfamiliar words and the average sentence length of a sample of text (sample size will often vary; many readability tests suffer from “sampling error” – trying to estimate the whole of something by just measuring part of it) sum the two scores, add a constant, and look up the raw scores on a reading Grade-level chart.

A “**modified**” Dale-Chall score is calculated by removing proper nouns from the text sample. It is important to remember, however, that the Dale-Chall Formula, based on a list of 3,000 common words, ignores the fact that such a list is highly subjective, and, in many cases, outdated; furthermore, “common words” could differ widely depending on the region or population of any given community.

New Dale-Chall (1995) was revised by *Readability Revisited: The New Dale-Chall Readability Formula*, in 1995 expands the list of familiar words to 3000, as the original Dale-Chall Formula had a list of 763 non-hard or familiar words. The formula now results at a Grade level or Grade level range instead of the original floating decimal point score. New Dale-Chall can be run with and without a textbook glossary to have a corresponding “raw” and “modified” score.



Degrees of Reading Power (1970s) — Calculating a DRP score requires between 3 and 15 300-word samples, depending on the length of the book. DRP utilizes the two factors used in the original Dale-Chall formula and adds a third factor: word length. Again, this test does not take into account the fact that syllables and sentence length often have no connection to the readability of a passage.

Lexile (1996) — This is a number indicating the reading demand of the text in terms of the semantic difficulty (vocabulary) and syntactic complexity (sentence length). The Lexile scale ranges from 200 to 1700. Lexile is a readability test to determine how well students can comprehend materials found in the classroom—textbooks, literature, etc. Lexile assigns a number, which acts as a difficulty level of a reading passage. This level is meant to be understood at a 75% rate, so that readers are engaged and somewhat challenged by the reading passage. Students can be tested to find their optimal Lexile readability score. Schools can then match textbooks and other reading materials to students’ scores for optimal reading comprehension.

How does it work and who determines lexile scores?

Completely automated, Lexile scores have to be determined by the company MetaMetrics. Their computers randomly select up to 20 pages from the book and measure the number of words per sentence and the frequency of words in the *American Heritage Intermediate Corpus*, a collection of about 5 million words determined to be familiar to school children from the ages of 7 to 15. Lexile scores are on a 0 to 2000 point scale; the higher the score, the higher the readability.

What do the lexile scores mean?

Scores do not equal Grade levels. There is a tremendous variance in reading ability from student to student within a classroom, much less a Grade. Lexile scores allow teachers to select age-appropriate materials for varying reading abilities. Some generalities can be discerned, however.

This chart, taken from MetaMetrics, shows average student readabilities per Grade level (middle column) and average readabilities of classroom materials (right-hand column). As you can see, schools use materials tested above and below the average student readability. Please note that according to MetaMetrics, 50% of students read above and below these average ranges.

How do I use the lexile score information?

In this textbook adoption, you will review several offerings. When you analyze each program for standards coverage, assessment, student motivation, and universal access/English learners, instructional planning and support, you also need to examine the readability of each program. While not required as part of the adoption process, many textbooks have already been tested and their scores have been made public.

Where can I find more information about lexile scores? Go to www.lexile.com.

Grade	Average Reader Range	Average Materials Range
1	Up to 300L	200L to 400L
2	140L to 500L	300L to 500L
3	330L to 700L	500L to 700L
4	445L to 810L	650L to 850L
5	565L to 910L	750L to 950L
6	665L to 1000L	850L to 1050L
7	735L to 1065L	950L to 1075L
8	805L to 1100L	1000L to 1100L
9	855L to 1165L	1050L to 1150L
10	905L to 1195L	1100L to 1200L
11 and 12	940L to 1210L	1100L to 1300L



What are the drawbacks to relying solely on a readability score determined by a formula?

Readability Formulas were created in order to quickly determine the readability level of a textbook, for those times when it is impossible to review the textbook in its entirety; as such, they certainly serve a purpose. However, there are drawbacks involved in relying heavily on any readability formula to choose a textbook:

- ◆ All readability formulas are designed to calculate the readability of a text for an “average” student; as an educator, of course, it is more important to determine the readability of a text for each of your “real” students.
- ◆ Actual readability of a textbook is also affected by book length; length of a selection; peer, parent, and teacher attitudes; type of material; individual student motivation; and previous success in reading.
- ◆ Reading formulas do not take into account grammar, punctuation, clarity of writing, the repetition of certain words and phrases, the density of information, or whether the text is fiction or non-fiction.
- ◆ The information regarding word frequency in most of the readability texts is dated.
- ◆ Ease of use and incorporation of Grade-level scale (Flesch-Kincaid, Fry Index, etc.) – not a particular effectiveness – are often the sole reasons that a particular readability is chosen.

How can I, as an educator, avoid falling into the trap of judging a textbook simply by a blanket “readability score?”

Look for the following factors, which reading experts agree serve to make a text more readable for students:

1. Size of type and length of a line
2. The use of color
3. The use of diagrams or charts
4. Page layout
5. The number of concepts per paragraph
6. An “interactive” text
7. Length of text
8. Student interest

Readabilities Conversion Table:

DRP and Lexile equivalents represent the 25th to 75th percentile range of a total of 514 samples.

Some figures have been modified slightly to reflect other sources of information or to correct for very small numbers of samples in a particular Grade-level range.

Dale-Chall Grade Level	DRP Score	Lexile Score
3.0–3.5	41–50	260–470
3.6–4.0	47–51	480–640
4.1–4.5	47–51	480–660
4.6–5.0	47–53	510–690
5.1–5.5	53–55	610–750
5.6–6.0	55–56	660–840
6.1–6.5	56–58	750–930
6.6–7.0	59–60	800–1040
7.1–7.5	61–62	800–1060
7.6–8.0	63–64	900–1140
8.1–8.5	65–66	960–1140
8.6–9.0	66–67	1050–1210
9.1–9.5	68–69	1050–1350
9.6–10.0	69–70	1050–1350
10.1–10.5	70–71	1150–1400
10.6–11.0	71–72	1150–1450
11.1–11.5	72–73	1200–1450
11.6–12.0	73–74	1250–1450

**Program Readability Scores:**

Grade Level	Program Title:	New Dale Chall Score	Spache Score	Lexile Score
K-6/7	Harcourt Social Studies, A Child's View, Grade 1	NA	1.8	610
K-6/7	Houghton Mifflin Social Studies, School and Family, Grade 1	NA	1.7	540
K-6/7	Harcourt Social Studies, People We Know, Grade 2	NA	2.2	700
K-6/7	Houghton Mifflin Social Studies, Neighborhoods, Grade 2	NA	2.4	630
K-6/7	Harcourt Social Studies, Our Communities, Grade 3	3.1	NA	760
K-6/7	Harcourt Social Studies, World Communities, Grade 3-6/7	NA	NA	860
K-6/7	Houghton Mifflin Social Studies, Communities, Grade 3	NA	3.1	700
K-6/7	Harcourt Social Studies, States and Regions, Grade 3/4	4.0	NA	810
K-6/7	Houghton Mifflin Social Studies, States and Regions, Grade 4	4.8	NA	790
K-6/7	Harcourt Social Studies, Canada and Latin America, Grade 4-6/7	NA	NA	840
K-6/7	Harcourt Social Studies, The United States: Making a New Nation, Grade 4-6/7	4.5	NA	860
K-6/7	Houghton Mifflin Social Studies, United States History: Early Years, Grade 5	4.5	NA	860
K-6/7	Harcourt Social Studies, The United States, Grade 4-6/7	5.0	NA	860
K-6/7	Houghton Mifflin Social Studies, United States History, Grade 5	5.7	NA	860
K-6/7	Harcourt Social Studies, The United States: Civil War to Present, Grade K-6/7	NA	NA	890
K-6/7	Harcourt Social Studies, World History, Grade 4-6/7	6.0	NA	940
K-6/7	Houghton Mifflin Social Studies, United States History: Civil War to Today, Grade 5	5.7	NA	860
K-6/7	Harcourt Social Studies, World Regions, Grade 4-6/7	6.0	NA	960
K-6/7	Houghton Mifflin Social Studies, World Cultures and Geography, Grade 6	6.5	NA	930
K-6/7	Harcourt Social Studies, Ancient Civilizations, Grade 4-6/7	6.0	NA	940
K-6/7	Houghton Mifflin Social Studies, Western Hemisphere and Europe, Grade 6	6.5	NA	930