
# *Voyager Passport™* Vital Indicators of Progress® Passage Readability
## (Technical Report No. 6)

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# Introduction

Voyager Expanded Learning provides Vital Indicators of Progress® (VIP®) which are fluency assessment measures to conduct Universal Screening and Progress Monitoring in reading. The use of these measures enables teachers to identify students who are in need of intervention and to monitor the effectiveness of the intervention provided in a very efficient manner. Frequent progress monitoring makes it possible to target instruction appropriately for students and to be more intentional about instructional adjustments that can improve outcomes for students.

Fluency in reading refers to a level of accuracy and rate where decoding is relatively effortless and where oral reading is smooth and accurate with correct expression (Wolf, 2001). Fluency is a key component of successful reading. Fluency and comprehension, although separate processes (Wolfe & Nevills, 2004), are mutually intertwined. That is, fluency is both a cause and a consequence of comprehension.

Reading fluency measures are the foundation of the VIP. Oral reading fluency, as measured by the VIP measure Reading Connected Text (RCT), is based on the work on Curriculum-Based Measurement by Stan Deno and colleagues through the Institute for Research on Learning Disabilities, University of Minnesota and developed by Dr. Roland Good and colleagues at the University of Oregon. Oral reading fluency is a quick, reliable measure that correlates highly with reading comprehension (Deno, 1985).

This report describes the passages available to assess student oral reading fluency using the VIP RCT measure. We provide a description of how the passages were developed and the way in which readability formulas were utilized to ensure approximate consistency of passage difficulty. This report contains a list of titles and respective readability information for the passages available in Voyager Passport™. Finally, this report briefly looks at how readability is defined and calculated.

# Passage Development

Passages provided in the VIP RCT measure were designed and contracted by Dr. Roland Good and colleagues at the University of Oregon. The process described here is similar to the process reported in Technical Report No. 10 (Good & Kaminski, 2002). The passages were generated in sets 24 or 32 passages for each targeted grade level. Three passages were developed per benchmark and an additional 18 to 20 passages were developed for progress monitoring for each grade level. The VIP RCT passages were developed and refined as a group to obtain approximate equivalence across the benchmark assessments and with the progress monitoring assessments.

The VIP RCT passages were also developed to be equivalent to the DIBELS Oral Reading Fluency (DORF™) passages to aid in interpretation and so that reliability, validity, and utility information could be built jointly. An initial step was to develop 61 passages and compute an overall readability of the passages using the procedure to be described next. Passages were matched on overall readability and randomly assigned to be VIP RCT or DORF passages. All random assignment was done using the rand() function in Microsoft® Excel 2000.

The first step in developing the passages was to write appropriate short passages of approximately correct difficulty. The passages were then edited for appropriate content and grammar. Criteria for passage development included the following instructions:

1. Passages should be sensitive and respectful to all groups and subgroups.
2. Passages should be grammatically correct with mature phrasing and conventional sentence structure. That is, avoid colloquialisms, slang, dialect, and creative or unusual sentence structures.
3. Passages should flow rather than being abrupt and staccato.
4. Passages should represent a gentle, positive, friendly, moral tone (without being preachy). For example, if a passage is about bike riding, they wear a helmet. Character's try to be friendly, etc.

5. Passages that include issues of diversity in terms of SES, disability, race, ethnicity, family structure, background, culture, urban/rural, etc. are appreciated and valued (keeping in mind #6 and #9).
6. A mixture, about 60% expository and 40% narrative passages. (23-24 expository passages and 16-17 narrative passages per grade.)
7. Dates and Numbers: Many themes will naturally lead to dates and numbers. We should avoid or minimize their use.
8. Diversity: Diversity is always important to include and represent without being artificial or condescending. We should try to represent issues of disability, different family structure, urban/rural/inner city, and culture.
9. Use proper names sparsely and carefully, especially in expository passages. For example, a passage about electricity might mention Thomas Edison. In other passages proper names should represent diverse cultural, racial, ethnic groups and be pretty regular, that is, letters and letter sequences should be easily pronounceable.

In the next step, the readability of all passages was estimated using the Micro Power & Light readability software (Micro Power & Light Co, 2000a; 2002b). All readability estimates were computed, including Dale-Chall, Flesch, FOG, Powers*, SMOG, FORCAST, Frye, and Spache. The TASA DRP was available with the Micro Power & Light readability software when the passages for first through third grades were constructed. The DRP was no longer available when the passages for fourth and fifth grades were constructed. The Spache readability was used to revise and refine passages to keep the Spache readability in targeted ranges for grades 1 and 2. For grades 3 through 5, Dale-Chall was used to revise and refine passages. As will be discussed later, readabilities varied substantially and dramatically across the different readability formulas. A passage may have a Spache readability of 2.3, a Flesch readability of 1.0, and a FORCAST readability of 7.5.

When the readability of a passage being developed was lower or higher than the targeted difficulty, such as higher than 2.4 for a first grade passage, the passage was revised using one or more of several techniques that would change the readability of the passage. Such techniques included substituting a one- or two-syllable word for a multi-syllable word, substituting more

 

high frequency words for potentially difficult words, and/or breaking longer sentences into shorter sentences.

Once passages were revised to meet readability criteria, passages were assigned to be a benchmark passage or a progress monitoring passage using the following procedure. First, an average readability index was computed using all of the available readability information. First, the mean and standard deviation of all the passages were computed for each of the nine readability indices for first through third grades and eight readability indices for fourth and fifth grades. Next, an unweighted average of the readabilities was computed by transforming each readability index to a *z* score ($M = 0$, $SD = 1$). The resulting *z* scores were then averaged to obtain an overall estimate of relative readability. The resulting overall estimate of relative readability is reported in the column labeled "Average" in the Tables 1 through 10 presented later in this document.

Next, all passages in each grade level were arranged in order of increasing difficulty in terms of readability. The set of passages was then divided into three sets, an easier, medium, and harder set. Three passages were selected from the middle of each set and were randomly assigned to the first, second, and third benchmarks for grades two through five. First grade only had random assignments for the second and third benchmarks. The remaining passages were assigned to be progress monitoring passages. For each grade level, the first two progress monitoring passages were from the medium set, then the rest of the passages were filled in with triads that contained one randomly selected easier passage, one randomly selected medium passage, and one randomly selected harder passage. The triads were sequenced with the easier passage first, then the medium passage, and then the harder passage. This ensured an element of randomness to the placement of the passages within the progress monitoring passages.

 

# VIP RCT Passages

The VIP RCT passages for grades 1 through 5 are presented in the following tables, Tables 1 through 10. Each passage description includes the name of the passage, where it is used in the Use column, the *z* score for that passage or group of passages in the Average column, followed by the eight or nine readability indices. There are several rows that provide a mean of three benchmark passages, all benchmark passages, the progress monitoring passages, and all passages for that grade level. Notice that for each grade level, the mean for all passages is 0.0.

Table 1.

*Readability Estimates and Recommended use for First Grade Benchmark Oral Reading Fluency Passages*

| Passage | Use | Average | Spache | Dale-Chall | Flesch | FOG | Powers | SMOG | FORCAST | Fry | TASA DRP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| My Goldfish | BM2.1 | -0.7 | 2.2 | 4.5 | 0.9 | 3.4 | 3.6 | 4.8 | 7.3 | 1.5 | 37 |
| The Sidewalk Art Show | BM2.2 | -0.1 | 2.1 | 4.1 | 1.3 | 3.7 | 3.8 | 5.5 | 7.5 | 2.0 | 44 |
| The Library | BM2.3 | 0.6 | 2.3 | 4.1 | 2.3 | 5.7 | 3.9 | 6.5 | 7.0 | 3.0 | 41 |
| Mean Benchmark 2 | | -0.1 | 2.2 | 4.2 | 1.5 | 4.3 | 3.8 | 5.6 | 7.3 | 2.2 | 40.7 |
| Our Cat Family | BM3.1 | -0.3 | 1.9 | 4.1 | 1.5 | 4.1 | 3.7 | 4.6 | 6.9 | 2.2 | 40 |
| The Fair | BM3.2 | -0.1 | 2.0 | 4.5 | 1.6 | 4.1 | 3.8 | 5.4 | 7.5 | 2.3 | 41 |
| The Fourth of July | BM3.3 | 0.1 | 2.2 | 4.1 | 1.7 | 5.0 | 4.0 | 6.4 | 7.7 | 2.1 | 39 |
| Mean Benchmark 3 | | -0.1 | 2.0 | 4.2 | 1.6 | 4.4 | 3.8 | 5.5 | 7.4 | 2.2 | 40.0 |
| Mean All Benchmarks | | -0.1 | 2.1 | 4.2 | 1.6 | 4.3 | 3.8 | 5.5 | 7.3 | 2.2 | 40.3 |

Table 2

*Readability Estimates and Recommended use for First Grade Progress Monitoring Oral Reading Fluency Passages*

| Passage | Use | Average | Spache | Dale-Chall | Flesch | FOG | Powers | SMOG | FORCAST | Fry | TASA DRP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| My First Bike | PM1 | -0.2 | 2.1 | 4.8 | 1.8 | 3.7 | 3.9 | 4.5 | 7.8 | 2.4 | 39 |
| Visiting Grandma and Grandpa | PM2 | 0.0 | 2.3 | 4.4 | 1.7 | 3.7 | 3.9 | 5.3 | 8.0 | 2.2 | 42 |
| The Hockey Game | PM3 | 0.5 | 2.3 | 4.5 | 2.4 | 4.6 | 4.0 | 6.2 | 7.6 | 3.0 | 43 |
| A Pet for the Summer | PM4 | -0.4 | 2.2 | 4.2 | 1.0 | 4.0 | 3.6 | 4.6 | 6.5 | 1.9 | 40 |
| My Big Brother | PM5 | 0.5 | 2.3 | 4.6 | 2.2 | 5.2 | 3.9 | 6.2 | 7.1 | 2.9 | 42 |
| My Haircut | PM6 | -0.9 | 2.3 | 4.1 | 0.5 | 3.4 | 3.5 | 4.7 | 6.7 | 1.5 | 36 |
| Making Brownies | PM7 | -0.5 | 2.2 | 4.6 | 1.1 | 3.7 | 3.7 | 5.2 | 7.3 | 1.6 | 38 |
| The Starry Night | PM8 | -0.1 | 2.3 | 4.7 | 1.5 | 3.7 | 3.8 | 4.5 | 7.5 | 2.2 | 43 |
| The Lake | PM9 | -0.6 | 2.1 | 4.3 | 0.9 | 3.5 | 3.6 | 4.9 | 7.0 | 1.8 | 39 |
| My Fort | PM10 | -0.4 | 2.2 | 4.2 | 1.3 | 4.1 | 3.6 | 4.6 | 6.4 | 1.9 | 40 |
| Our Town | PM11 | 0.0 | 2.3 | 4.4 | 1.2 | 4.3 | 3.7 | 5.5 | 6.9 | 2.0 | 44 |
| My Magic Trick | PM13 | 0.6 | 2.2 | 4.7 | 2.6 | 4.6 | 4.1 | 5.3 | 8.2 | 3.1 | 43 |
| My Grandpa's Parade | PMSUP1 | 0.3 | 4.1 | 1.6 | 4.3 | 3.9 | 5.7 | 7.5 | 2.1 | 2.1 | 40 |
| Grandma's House | PMSUP2 | -0.2 | 4.1 | 1.0 | 3.1 | 3.7 | 4.0 | 7.5 | 1.8 | 2.2 | 40 |
| The Yard Sale | PMSUP3 | 0.5 | 4.6 | 2.1 | 4.9 | 3.8 | 4.6 | 6.7 | 2.9 | 2.3 | 44 |
| The Zoo Birthday Party | PMSUP4 | 0.7 | 4.6 | 2.2 | 4.0 | 4.1 | 5.7 | 8.6 | 2.7 | 2.3 | 42 |
| The Dentist | PMSUP5 | -0.2 | 4.2 | 0.8 | 3.6 | 3.5 | 4.5 | 6.7 | 0.9 | 2.3 | 40 |
| Night Crawlers | PMSUP6 | 0.5 | 4.8 | 1.9 | 4.0 | 3.9 | 4.5 | 7.4 | 2.5 | 2.2 | 45 |
| Having Company | PMSUP7 | 0.2 | 4.4 | 1.3 | 4.1 | 3.8 | 5.4 | 7.3 | 1.9 | 2.2 | 40 |
| The River Raft | PMSUP8 | 0.0 | 4.8 | 1.0 | 3.7 | 3.7 | 5.2 | 7.3 | 1.9 | 2.2 | 37 |
| Mean Progress Monitoring | | 0.0 | 3.1 | 3.3 | 2.5 | 4.0 | 4.3 | 6.0 | 5.2 | 2.2 | 40.9 |
| Mean All Passages | | 0.0 | 2.9 | 3.5 | 2.3 | 4.0 | 4.1 | 5.9 | 5.7 | 2.2 | 40.7 |
| SD All Passages | | 0.4 | 1.1 | 1.4 | 1.3 | 0.6 | 0.7 | 1.2 | 2.5 | 0.4 | 2.4 |

Table 3

Readability Estimates and Recommended use for Second Grade Benchmark Oral Reading Fluency Passages

| Passage | Use | Average | Spache | Dale-Chall | Flesch | FOG | Powers | SMOG | FORCAST | Fry | TASA DRP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| My New Glasses | BM1.1 | -0.6 | 2.6 | 4.6 | 2.4 | 4.4 | 4.0 | 5.7 | 7.4 | 3.1 | 44 |
| The Way We Got Our Pet | BM1.2 | 0.0 | 2.5 | 4.8 | 3.3 | 5.8 | 4.3 | 6.7 | 8.0 | 3.9 | 44 |
| Good Manners | BM1.3 | 0.4 | 2.7 | 4.5 | 3.9 | 5.9 | 4.5 | 6.5 | 8.5 | 4.7 | 48 |
| Mean Benchmark 1 | | -0.1 | 2.6 | 4.6 | 3.2 | 5.4 | 4.3 | 6.3 | 8.0 | 3.9 | 45.3 |
| The Guide Dog | BM2.1 | -0.3 | 2.5 | 4.5 | 2.8 | 4.9 | 4.1 | 5.3 | 7.7 | 3.5 | 47 |
| Washing Our Clothes | BM2.2 | 0.0 | 2.7 | 4.4 | 2.8 | 5.9 | 4.1 | 6.6 | 7.4 | 3.3 | 48 |
| Playing Street Ball | BM2.3 | 0.3 | 2.7 | 4.7 | 3.2 | 6.4 | 4.3 | 7.6 | 8.0 | 3.8 | 47 |
| Mean Benchmark 2 | | 0.0 | 2.6 | 4.5 | 2.9 | 5.7 | 4.2 | 6.5 | 7.7 | 3.5 | 47.3 |
| The Bakery | BM3.1 | -0.5 | 2.7 | 4.4 | 2.6 | 5.1 | 4.0 | 5.8 | 7.4 | 3.1 | 44 |
| Our Family Reunion | BM3.2 | -0.2 | 2.7 | 4.7 | 2.7 | 5.6 | 4.2 | 6.7 | 7.7 | 3.1 | 45 |
| Mornings at Our House | BM3.3 | 0.4 | 2.6 | 4.7 | 3.8 | 6.1 | 4.5 | 6.8 | 8.3 | 4.5 | 48 |
| Mean Benchmark 3 | | -0.1 | 2.7 | 4.6 | 3.0 | 5.6 | 4.2 | 6.4 | 7.8 | 3.6 | 45.7 |
| Mean All Benchmarks | | 0.0 | 2.6 | 4.6 | 3.1 | 5.6 | 4.2 | 6.4 | 7.8 | 6.7 | 46.1 |

Table 4

*Readability Estimates and Recommended use for Second Grade Progress Monitoring Oral Reading Fluency Passages*

| Passage | Use | Average | Spache | Dale-Chall | Flesch | FOG | Powers | SMOG | FORCAST | Fry | TASA DRP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| The Shopping Mall | PM1 | 0.1 | 2.7 | 5.2 | 2.9 | 5.6 | 4.2 | 7.1 | 7.4 | 3.6 | 46 |
| The Old Clothes Box | PM2 | -0.2 | 2.6 | 4.6 | 2.7 | 5.5 | 4.1 | 6.6 | 7.4 | 3.4 | 45 |
| Treasures on the Beach | PM3 | -0.4 | 2.7 | 4.3 | 2.8 | 4.6 | 4.2 | 5.9 | 7.9 | 3.4 | 45 |
| Reading the Sunday Comics | PM4 | 0.6 | 2.5 | 4.7 | 4.3 | 5.5 | 4.7 | 7.0 | 9.0 | 5.2 | 50 |
| Our Camping Trip | PM5 | 0.0 | 2.4 | 4.6 | 2.9 | 5.8 | 4.2 | 7.0 | 7.9 | 3.4 | 46 |
| Going to the Drive-In Movie | PM6 | -0.3 | 2.6 | 4.5 | 2.9 | 4.7 | 4.2 | 5.5 | 8.3 | 3.5 | 46 |
| I had the Chicken Pox | PM7 | -1.0 | 2.4 | 4.5 | 1.9 | 4.3 | 3.8 | 4.8 | 7.2 | 2.5 | 42 |
| Sleeping Over | PM8 | 0.2 | 2.7 | 4.5 | 3.3 | 5.7 | 4.3 | 6.5 | 7.9 | 4.1 | 49 |
| The Lost Wallet | PM9 | 0.1 | 2.5 | 4.3 | 3.4 | 5.9 | 4.3 | 6.5 | 8.1 | 3.9 | 47 |
| Having a Field Day | PM10 | -0.6 | 2.4 | 4.6 | 2.4 | 5.2 | 3.9 | 5.1 | 6.8 | 3.0 | 44 |
| Snowflakes | PM11 | 0.2 | 2.6 | 4.5 | 3.4 | 5.4 | 4.4 | 6.6 | 8.6 | 3.9 | 49 |
| A Rainbow of People | PM12 | 1.1 | 2.7 | 5.3 | 4.5 | 6.6 | 4.8 | 7.4 | 9.0 | 5.8 | 52 |
| My Grandma has a New Home | PM13 | 0.0 | 2.5 | 4.7 | 3.0 | 5.6 | 4.2 | 6.7 | 7.7 | 3.8 | 46 |
| Noises in the Night | PMSUP1 | -0.5 | 4.5 | 2.5 | 4.4 | 4.0 | 5.2 | 7.4 | 3.1 | 2.5 | 46 |
| I Love Women's Basketball | PMSUP2 | 0.2 | 4.9 | 3.0 | 6.2 | 4.3 | 7.5 | 7.9 | 3.2 | 2.6 | 46 |
| Leaves | PMSUP3 | -0.2 | 4.6 | 2.6 | 5.0 | 4.0 | 5.3 | 7.4 | 3.2 | 2.6 | 50 |
| The Flea Market | PMSUP4 | 0.3 | 4.6 | 3.5 | 6.5 | 4.3 | 6.9 | 7.6 | 4.1 | 2.5 | 48 |
| Story Time | PMSUP5 | -0.2 | 4.4 | 3.1 | 5.3 | 4.2 | 6.3 | 8.0 | 3.8 | 2.4 | 43 |
| Learning Kung Fu | PMSUP6 | 0.1 | 5.9 | 2.8 | 5.6 | 4.2 | 7.3 | 7.9 | 3.1 | 2.7 | 45 |
| Learning to Write Cursive | PMSUP7 | 0.6 | 4.8 | 4.2 | 5.8 | 4.6 | 6.8 | 9.0 | 4.9 | 2.5 | 49 |
| Springtime is for the Birds | PMSUP8 | 0.2 | 4.6 | 3.1 | 4.5 | 4.3 | 5.9 | 8.2 | 3.8 | 2.6 | 52 |
| Mean Progress Monitoring | | 0.0 | 3.4 | 4.1 | 4.0 | 5.0 | 5.1 | 7.0 | 6.3 | 3.3 | 47.0 |
| Mean All Passages | | 0.0 | 3.2 | 4.2 | 3.7 | 5.2 | 4.8 | 6.8 | 6.8 | 3.4 | 46.7 |
| SD All Passages | | 0.4 | 1.0 | 0.8 | 1.2 | 0.8 | 1.1 | 1.0 | 2.0 | 0.8 | 2.5 |

Table 5.

*Readability Estimates and Recommended use for Third Grade Benchmarks Oral Reading Fluency Passages*

| Passage | Use | Average | Dale-Chall | Flesch | FOG | Powers | SMOG | FORCAST | Fry | Spache | TASA DRP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Breakfast in Bed | BM1.1 | -0.7 | 4.4 | 3.9 | 5.5 | 4.5 | 6.5 | 8.3 | 4.6 | 2.8 | 50 |
| When the Power Fails | BM1.2 | -0.1 | 4.9 | 3.8 | 5.9 | 4.5 | 6.9 | 8.5 | 4.5 | 3.1 | 49 |
| Art Beneath Our Feet | BM1.3 | 0.6 | 4.7 | 4.4 | 7.2 | 4.6 | 7.9 | 8.4 | 5.2 | 3.0 | 53 |
| Mean Benchmark 1 | | -0.1 | 4.7 | 4.0 | 6.2 | 4.5 | 7.1 | 8.4 | 4.8 | 3.0 | 50.7 |
| Sick in Bed | BM2.1 | -0.8 | 4.5 | 4.0 | 6.2 | 4.5 | 6.6 | 8.3 | 4.6 | 2.8 | 45 |
| Playing Cards on the Computer | BM2.2 | 0.2 | 5.3 | 3.9 | 7.6 | 4.4 | 7.9 | 7.6 | 4.7 | 3.0 | 49 |
| The Girlfriends' Lemonade Stand | BM2.3 | 0.8 | 4.8 | 4.6 | 7.3 | 4.6 | 7.8 | 8.4 | 5.5 | 3.1 | 51 |
| Mean Benchmark 2 | | 0.1 | 4.9 | 4.2 | 7.0 | 4.5 | 7.4 | 8.1 | 4.9 | 3.0 | 48.3 |
| The Fall Festival | BM3.1 | -0.8 | 5.1 | 3.4 | 5.9 | 4.2 | 6.3 | 7.7 | 4.0 | 3.1 | 48 |
| I'm the Big Sister | BM3.2 | -0.2 | 4.6 | 4.1 | 6.7 | 4.5 | 7.5 | 8.2 | 4.9 | 2.8 | 50 |
| Summer Art Class | BM3.3 | 0.6 | 5.0 | 4.6 | 6.7 | 4.6 | 7.1 | 8.5 | 5.2 | 3.0 | 52 |
| Mean Benchmark 3 | | -0.1 | 4.9 | 4.0 | 6.4 | 4.4 | 7.0 | 8.1 | 4.7 | 3.0 | 50.0 |
| Mean All Benchmarks | | 0.0 | 4.8 | 4.1 | 6.6 | 4.5 | 7.2 | 8.2 | 4.8 | 3.0 | 49.7 |

Table 6.

*Readability Estimates and Recommended use for Third Grade Progress Monitoring Oral Reading Fluency Passages*

| Passage | Use | Average | Dale-Chall | Flesch | FOG | Powers | SMOG | FORCAST | Fry | Spache | TASA DRP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Our Family has Two Cell Phones | PM1 | -0.4 | 4.5 | 4.1 | 7.1 | 4.4 | 7.2 | 7.7 | 5.0 | 2.9 | 48 |
| The Train Ride | PM2 | 0.2 | 4.7 | 4.3 | 6.6 | 4.5 | 6.7 | 8.1 | 5.1 | 3.1 | 52 |
| Time for Spring | PM3 | -0.9 | 4.9 | 3.4 | 6.1 | 4.3 | 6.9 | 7.9 | 4.1 | 2.8 | 49 |
| The Family Reunion | PM4 | 0.3 | 4.8 | 4.2 | 6.5 | 4.6 | 7.3 | 8.3 | 5.0 | 3.1 | 51 |
| Camping in our Backyard | PM5 | 0.5 | 5.0 | 4.4 | 6.2 | 4.7 | 7.6 | 8.7 | 5.4 | 2.8 | 52 |
| Making Snow Ice Cream | PM6 | -1.7 | 4.9 | 3.1 | 5.8 | 4.1 | 5.6 | 7.1 | 3.9 | 2.9 | 46 |
| Sleeping in a Tent | PM7 | -0.3 | 4.8 | 4.0 | 5.7 | 4.4 | 6.0 | 8.3 | 4.8 | 3.0 | 52 |
| The Skateboard Park | PM8 | 0.4 | 5.3 | 4.1 | 7.3 | 4.6 | 8.0 | 8.3 | 4.9 | 2.8 | 50 |
| The Miniature Golf Party | PM9 | 0.3 | 5.4 | 4.2 | 6.9 | 4.5 | 7.2 | 7.8 | 5.0 | 3.0 | 50 |
| How Animals Get Ready for Winter | PM10 | 1.1 | 5.1 | 4.7 | 7.0 | 4.7 | 7.4 | 8.7 | 5.8 | 3.0 | 55 |
| Playing Soccer on Our School Team | PM12 | -0.5 | 5.3 | 3.7 | 6.4 | 4.3 | 6.7 | 7.6 | 4.5 | 2.9 | 49 |
| A Weekend with Grandma and Grandpa | PM11 | -0.3 | 4.7 | 3.7 | 5.9 | 4.4 | 6.6 | 8.3 | 4.5 | 3.1 | 50 |
| The Clubhouse | PM10 | 0.5 | 5.1 | 4.4 | 6.1 | 4.6 | 7.0 | 8.6 | 5.0 | 3.1 | 51 |
| The White River | PMSUP1 | -0.8 | 5.4 | 3.3 | 5.9 | 4.2 | 6.3 | 7.8 | 4.0 | 3.0 | 47 |
| Fossil Collection | PMSUP2 | 1.4 | 5.2 | 5.1 | 8.1 | 4.7 | 8.2 | 8.3 | 6.3 | 3.0 | 51 |
| We Recycle at Our House | PMSUP3 | 1.0 | 5.5 | 4.4 | 7.5 | 4.6 | 8.4 | 8.3 | 5.0 | 3.1 | 50 |
| The Food Drive | PMSUP4 | 0.8 | 4.7 | 4.8 | 6.8 | 4.7 | 7.9 | 8.3 | 6.1 | 2.9 | 53 |
| Collecting Rocks | PMSUP5 | -0.6 | 4.9 | 3.6 | 6.1 | 4.3 | 6.5 | 7.8 | 4.4 | 3.0 | 49 |
| The Homeless Kitty | PMSUP6 | 0.0 | 4.8 | 4.2 | 6.7 | 4.5 | 7.4 | 7.9 | 5.0 | 2.9 | 50 |
| Beachcombing | PMSUP7 | -0.4 | 4.9 | 3.6 | 6.1 | 4.4 | 6.7 | 7.9 | 4.1 | 3.0 | 52 |
| Looking at the Sky | PMSUP8 | -0.4 | 5.2 | 3.8 | 6.6 | 4.4 | 7.3 | 7.8 | 4.7 | 2.8 | 48 |
| High Tea (The Ladies Tea Party) | PMSUP9 | 0.3 | 4.9 | 4.2 | 5.9 | 4.6 | 7.3 | 8.7 | 5.0 | 3.1 | 49 |
| Mean Progress Monitoring | | 0.0 | 5.0 | 4.1 | 6.5 | 4.5 | 7.1 | 8.1 | 4.9 | 3.0 | 50.2 |
| Mean All Passages | | 0.0 | 5.0 | 4.1 | 6.5 | 4.5 | 7.1 | 8.1 | 4.9 | 3.0 | 50.0 |
| SD All Passages | | 0.7 | 0.3 | 0.5 | 0.6 | 0.2 | 0.7 | 0.4 | 0.6 | 0.1 | 2.1 |

Table 7.

*Readability Estimates and Recommended use for Fourth Grade Benchmarks Oral Reading Fluency Passages*

| Passage | Use | Average | Dale-Chall | Flesch | FOG | Powers | SMOG | FORCAST | Fry | Spache |
|---|---|---|---|---|---|---|---|---|---|---|
| Sales Clerk | BM1.1 | -0.3 | 5.2 | 5.8 | 11.8 | 5.0 | 8.2 | 9.0 | 6.7 | 3.4 |
| What a Librarian's Day Is Like | BM1.2 | 0.0 | 5.3 | 6.2 | 13.1 | 5.2 | 9.0 | 9.1 | 7.1 | 3.3 |
| Elisha Otis, Inventor | BM1.3 | 0.9 | 6.5 | 6.3 | 14.1 | 5.4 | 9.2 | 9.9 | 7.8 | 3.4 |
| Mean Benchmark 1 | | 0.2 | 5.7 | 6.1 | 13.0 | 5.2 | 8.8 | 9.3 | 7.2 | 3.4 |
| The Hollywood Wax Museum | BM2.1 | -0.5 | 5.5 | 5.1 | 11.8 | 5.0 | 7.9 | 9.9 | 6.1 | 3.3 |
| The Farmer and the Travelers | BM2.2 | 0.0 | 5.5 | 6.5 | 13.9 | 5.1 | 9.4 | 8.7 | 7.4 | 3.2 |
| Classical Music | BM2.3 | 1.1 | 6.5 | 6.3 | 17.2 | 5.5 | 9.6 | 10.5 | 8.0 | 3.2 |
| Mean Benchmark 2 | | 0.2 | 5.8 | 6.0 | 14.3 | 5.2 | 9.0 | 9.7 | 7.2 | 3.2 |
| The Pentathlon | BM3.1 | -0.5 | 6.7 | 5.0 | 11.8 | 4.9 | 8.0 | 9.1 | 6.3 | 3.2 |
| The Mystery of Stonehenge | BM3.2 | -0.1 | 6.0 | 5.7 | 12.4 | 5.1 | 8.3 | 9.5 | 6.9 | 3.3 |
| Country Music | BM3.3 | 1.1 | 6.1 | 6.6 | 14 | 5.6 | 8.9 | 10.8 | 8.2 | 3.4 |
| Mean Benchmark 3 | | 0.2 | 6.3 | 5.8 | 12.7 | 5.2 | 8.4 | 9.8 | 7.1 | 3.3 |
| Mean All Benchmarks | | 0.2 | 5.9 | 5.9 | 13.3 | 5.2 | 8.7 | 9.6 | 7.2 | 3.3 |

Table 8.

*Readability Estimates and Recommended use for Fourth Grade Progress Monitoring Oral Reading Fluency Passages*

| Passage | Use | Average | Dale-Chall | Flesch | FOG | Powers | SMOG | FORCAST | Fry | Spache |
|---|---|---|---|---|---|---|---|---|---|---|
| The Three Rules | PM1 | -1.6 | 5.1 | 4.8 | 9.3 | 4.6 | 7.5 | 8.2 | 5.3 | 3.2 |
| Swimming with Dolphins | PM2 | -0.3 | 6.4 | 6.2 | 9.8 | 5.1 | 7.1 | 9.7 | 7.1 | 3.2 |
| China's Great Wall | PM3 | 0.1 | 5.7 | 5.8 | 12.3 | 5.1 | 8.8 | 9.4 | 6.8 | 3.4 |
| Kari and the Jet-Pack Flyers | PM4 | -1.2 | 6.4 | 4.7 | 8.2 | 4.7 | 6.9 | 8.9 | 5.5 | 3.2 |
| The First Step toward Mars | PM5 | -0.2 | 6.0 | 5.5 | 9.2 | 5.0 | 7.2 | 9.8 | 6.6 | 3.5 |
| What Is an Estuary? | PM6 | 0.1 | 6.2 | 5.8 | 10.4 | 5.2 | 8.8 | 9.6 | 7.1 | 3.3 |
| The Mayan Pyramids | PM7 | -0.7 | 5.9 | 4.7 | 10.1 | 4.8 | 7.8 | 9.3 | 5.5 | 3.4 |
| A Day with a Nature Guide | PM8 | -0.2 | 5.1 | 6.1 | 12.5 | 5.1 | 8.6 | 9.2 | 7.0 | 3.3 |
| Fish Schools | BM9 | 0.1 | 5.4 | 6.1 | 12.7 | 5.2 | 8.6 | 9.3 | 7.3 | 3.4 |
| Mesa Verde National Park | PM10 | -0.5 | 6.0 | 5.4 | 9.4 | 5.0 | 7.6 | 9.7 | 6.2 | 3.3 |
| A Day in Colonial Williamsburg | PM11 | -0.2 | 5.3 | 5.7 | 13.8 | 5.1 | 9.0 | 8.8 | 6.9 | 3.3 |
| The Henry Ford Museum | PM12 | 0.3 | 5.8 | 5.9 | 12.6 | 5.2 | 8.7 | 9.6 | 7.2 | 3.4 |
| My Robot | PM13 | 0.4 | 6.1 | 5.8 | 13.7 | 5.1 | 9.0 | 9.1 | 7.0 | 3.5 |
| The Space Age | PMSUP1 | 1.4 | 6.4 | 7.2 | 13.9 | 5.6 | 9.3 | 10.7 | 8.5 | 3.4 |
| Exploring the Great Barrier Reef | PMSUP2 | -1.1 | 6.0 | 4.5 | 10.8 | 4.8 | 7.8 | 9.0 | 5.0 | 3.2 |
| What Is a Democracy? | PMSUP3 | 1.2 | 6.8 | 6.6 | 17.5 | 5.6 | 9.8 | 9.8 | 8.5 | 3.2 |
| My First Concert | PMSUP4 | -0.7 | 5.4 | 5.5 | 10.7 | 4.9 | 7.9 | 8.7 | 6.6 | 3.3 |
| Jonah's Strange New Home | PMSUP5 | -0.3 | 6.4 | 5.6 | 10.5 | 5.0 | 7.8 | 9.3 | 6.7 | 3.3 |
| The Band | PMSUP6 | -0.2 | 6.2 | 6.1 | 10.6 | 5.0 | 8.1 | 8.6 | 6.9 | 3.4 |
| Keegan Reilly: An Everyday Hero | PMSUP7 | 0.3 | 6.5 | 5.9 | 11.7 | 5.2 | 8.2 | 9.8 | 7.1 | 3.4 |
| Local Government | PMSUP8 | 1.5 | 6.4 | 6.6 | 15.8 | 5.6 | 9.3 | 10.7 | 8.0 | 3.5 |
| Mean Progress Monitoring | | -0.1 | 6.0 | 5.7 | 11.7 | 5.1 | 8.3 | 9.4 | 6.8 | 3.3 |
| Mean All Passages | | 0.0 | 6.0 | 5.8 | 12.2 | 5.1 | 8.4 | 9.5 | 6.9 | 3.3 |
| SD All Passages | | 0.76 | 0.5 | 0.7 | 2.3 | 0.3 | 0.8 | 0.6 | 0.9 | 0.1 |

Table 9.

*Readability Estimates and Recommended use for Fifth Grade Benchmarks Oral Reading Fluency Passages*

| Passage | Use | Average | Dale-Chall | Flesch | FOG | Powers | SMOG | FORCAST | Fry | Spache |
|---|---|---|---|---|---|---|---|---|---|---|
| An Ancient System of Communication | BM1.1 | -0.3 | 5.8 | 6.4 | 12.4 | 5.3 | 8.7 | 9.4 | 7.4 | 3.7 |
| A Musical Wonder | BM1.2 | 0.2 | 6.2 | 6.7 | 14.8 | 5.3 | 9.7 | 9.2 | 7.6 | 3.8 |
| The Bill of Rights | BM1.3 | 0.5 | 6.4 | 7.2 | 16.2 | 5.6 | 10.0 | 9.9 | 8.2 | 3.6 |
| Mean Benchmark 1 | | 0.1 | 6.1 | 6.8 | 14.5 | 5.4 | 9.5 | 9.5 | 7.7 | 3.7 |
| The Best Concert Ever | BM2.1 | -0.8 | 5.5 | 6.3 | 10.4 | 5.1 | 8.0 | 8.9 | 7.1 | 3.7 |
| The Lighthouse at Alexandria | BM2.2 | 0.2 | 6.5 | 6.6 | 10.7 | 5.4 | 8.4 | 10.0 | 8.0 | 3.8 |
| Thomas Jefferson's Home Office | BM2.3 | 0.7 | 6.1 | 7.3 | 15.7 | 5.6 | 10.0 | 9.9 | 8.2 | 3.8 |
| Mean Benchmark 2 | | 0.0 | 6.0 | 6.7 | 12.3 | 5.4 | 8.8 | 9.6 | 7.8 | 3.8 |
| Chefs to the Rescue | BM3.1 | -0.6 | 6.1 | 6.0 | 13.0 | 5.1 | 8.7 | 9.1 | 6.9 | 3.6 |
| The Great Pyramid | BM3.2 | 0.0 | 6.5 | 6.5 | 14.4 | 5.2 | 9.5 | 9.2 | 7.5 | 3.7 |
| Ice Skater for Life | BM3.3 | 1.0 | 6.7 | 7.7 | 15.6 | 5.6 | 10.4 | 9.8 | 8.6 | 3.8 |
| Mean Benchmark 3 | | 0.1 | 6.4 | 6.7 | 14.3 | 5.3 | 9.5 | 9.4 | 7.7 | 3.7 |
| Mean All Benchmarks | | 0.1 | 6.2 | 6.7 | 13.7 | 5.4 | 9.3 | 9.5 | 7.7 | 3.7 |

Table 10.

*Readability Estimates and Recommended use for Fifth Grade Progress Monitoring Oral Reading Fluency Passages*

| Passage | Use | Average | Dale-Chall | Flesch | FOG | Powers | SMOG | FORCAST | Fry | Spache |
|---|---|---|---|---|---|---|---|---|---|---|
| Let's Go Crabbing | PM1 | -1.4 | 5.6 | 5.6 | 9.2 | 4.8 | 6.9 | 8.6 | 6.4 | 3.7 |
| An Ancient Community | PM2 | -0.1 | 6.1 | 6.6 | 11.0 | 5.3 | 8.6 | 10.0 | 7.6 | 3.7 |
| The Lost Temple | PM3 | 0.2 | 6.6 | 6.7 | 11.7 | 5.3 | 8.5 | 9.7 | 7.6 | 3.9 |
| Bent's Old Fort | PM4 | -0.8 | 5.3 | 5.8 | 11.0 | 5.0 | 8.2 | 9.0 | 6.8 | 3.8 |
| The Ocean Floor | BM5 | -0.1 | 6.5 | 6.9 | 11.4 | 5.3 | 8.2 | 9.6 | 7.6 | 3.7 |
| The First Grocery Cart | PM6 | 0.4 | 6.1 | 7.4 | 11.5 | 5.6 | 9.4 | 10.4 | 8.5 | 3.6 |
| No More Muddy Shoes | PM7 | -1.1 | 5.7 | 5.9 | 9.8 | 5.0 | 7.4 | 9.1 | 6.8 | 3.6 |
| The Best Career of All | PM8 | -0.1 | 6.2 | 6.6 | 14.4 | 5.4 | 9.0 | 9.6 | 7.5 | 3.6 |
| A Most Amazing Musician | PM9 | 1.0 | 6.4 | 7.3 | 15.3 | 5.6 | 9.9 | 10.1 | 8.9 | 3.9 |
| The Building that Looks Like a Snail | PM10 | 0.0 | 6.4 | 6.5 | 9.1 | 5.3 | 7.3 | 10.2 | 7.5 | 3.9 |
| The Frog Prince | PM11 | -0.7 | 5.5 | 6.9 | 10.7 | 5.2 | 7.7 | 9.1 | 7.4 | 3.6 |
| A Walk on the Moon | PM12 | 0.1 | 6.0 | 6.6 | 13.0 | 5.4 | 9.0 | 10.3 | 7.9 | 3.7 |
| A Plastic Wonder | PM13 | 2.0 | 7.6 | 8.3 | 19.4 | 5.9 | 11.0 | 10.4 | 9.7 | 3.8 |
| Trip to Green Star | PMSUP1 | -1.1 | 5.9 | 5.7 | 10.1 | 4.9 | 7.6 | 8.9 | 6.7 | 3.6 |
| Danger in the Arctic | PMSUP2 | -0.7 | 6.2 | 6.7 | 12.1 | 5.0 | 8.5 | 7.9 | 7.1 | 3.7 |
| Launching a Dream | PMSUP3 | 0.1 | 5.5 | 7.3 | 13.0 | 5.5 | 9.0 | 9.8 | 8.0 | 3.7 |
| Feeding the Rays | PMSUP4 | -1.7 | 5.7 | 5.3 | 7.5 | 4.7 | 5.6 | 8.5 | 6.2 | 3.7 |
| A Holiday Greeting | PMSUP5 | 0.4 | 6.0 | 6.8 | 14.8 | 5.5 | 9.6 | 10.0 | 7.9 | 3.8 |
| A Man with a Vision | PMSUP6 | 0.5 | 6.7 | 7.1 | 14.4 | 5.4 | 9.9 | 9.3 | 7.9 | 3.8 |
| Planning an Exhibit | PMSUP7 | 0.7 | 6.8 | 7.5 | 15.0 | 5.5 | 10.0 | 9.5 | 7.9 | 3.8 |
| The Branches of Our Government | PMSUP8 | 1.6 | 6.5 | 7.6 | 17.8 | 5.9 | 10.4 | 10.6 | 9.5 | 3.9 |
| Mean Progress Monitoring | | 0.0 | 6.2 | 6.7 | 12.5 | 5.3 | 8.7 | 9.6 | 7.7 | 3.7 |
| Mean All Passages | | 0.0 | 6.2 | 6.7 | 12.9 | 5.3 | 8.8 | 9.5 | 7.7 | 3.7 |
| SD All Passages | | 0.8 | 0.5 | 0.7 | 2.8 | 0.3 | 1.2 | 0.6 | 0.8 | 0.1 |

# Readability Formulas

The intent of sequencing the passages in the manner described above was to create a set of probes that were approximately equivalent to each other so that increases in student scores can be tied to an increase in student skill, rather than to differences in relative difficulty of the passages. Readability formulas have been criticized since the 1920s (Fry, 2002) and explain only about 30% of the variance in student performance (Good & Kaminski, 2002). A brief description of readability formulas illustrates the difficulties of determining text difficulty.

Generally, three different aspects of text are used in readability formulas, sentence complexity, word length, and word frequency or rare words. Sentence complexity includes things such as the words per sentence; number of characters per sentence; number of syllables per sentence; number of words with 7 or more letters per sentence, and so on. Word length can include things such as characters per word; proportion of words with 3, 6, or 7 or more characters; syllables per word; proportion of words with 2, 3, or more syllables, and so on. Word frequency or rare words uses the concept of the number of words, such as text with lots of low frequency words will be harder or the number words that are rare or not found on a particular word list will mean the text is more difficult. Table 1 shows which aspects are used in the most of the readability formulas used with the VIP RCT passages.

Table 11.
*Readability Formulas Use of Passage Aspects*

| | Sentence Difficulty | | Word Length | | | Word Frequency | |
|---|---|---|---|---|---|---|---|
| Readability Formulas | Words per sentence | # of syllables per sentence | Syllables per word | Proportion of words with 2 or more syllables | Proportion of words with 3 or more syllables | Word Frequency | Proportion of rare words |
| Dale-Chall | X | | | | | | X |
| Flesch | X | | X | | | | |
| FOG | X | | | | X | | |
| Powers | X | | X | | | | |
| SMOG | | | | | X | | |
| FORCAST | | | | X | | | |
| Fry | X | X | | | | | |
| Spache | X | | | | | | X |

Adapted from *Understanding Text Difficulty in Measuring Students' Fluency and Comprehension* (Good, 2006).

There are other things that cannot be accounted for in readability formulas. These include things that are remarkably difficult to count, such as the proportion of decodable words in a passage. Decodable words are defined differently at different points in a particular curriculum and differently for various curricula making it even more difficult to absolutely define. Other features of text that are very hard to count include how well the text "behaves," whether sentences flow and build meaning, predictability, whether new words and concepts are explained or illustrated, and whether the text is choppy and disjointed or not.

There are also things about readability of a passage that just cannot be counted. These include, but are not limited to, background knowledge; experience with the passage topic; vocabulary knowledge; curriculum emphasis that may provide unintended information about the passage; context of reading the passage; and, perhaps most import, student interest in the passage topic.

For these reasons and others, it is understandable why readability formulas account for only 30% of the variance in student performance (Good & Kaminski, 2002). Using the process described in this report for the development and assignment of passages for the VIP RCT measures, however, provides a pragmatic approach to controlling for text difficulty when developing passages used to measure oral reading fluency.

# Conclusion

This report provides specific information regarding the development of the 147 VIP RCT passages used to measure oral reading fluency in Voyager Passport. Even though the use of readability formulas in the process of creating passages and controlling for text difficulty may be questioned, the use of multiple readability formulas provided a means of comparing text. The method used to place passages into the benchmark and progress monitoring positions further ensured an element of randomness, leading to passages that will show actual growth in student reading ability.

 

# References

Deno, S. L. (1985). Curriculum-based measurement: The emerging alternative. *Exceptional Children, 52*(3), 219-232.

Fry, E. (2002). Readability versus leveling. *The Reading Teacher, 56*(3), 286-291.

Good, R. H. (2006, June). *Understanding text difficulty in measuring students' fluency and comprehension* [PowerPoint Slides]. Presented at the Lexile National Reading Conference, Atlanta, GA.

Good, R. H., & Kaminski, R. A. (2002). *DIBELS oral reading fluency passages for first through third grades* (Technical Report No. 10). Eugene, OR: University of Oregon.

Micro Power & Light Co. (2000a). *Readability calculations according to Dale-Chall, Frye, et al.* (Version 3.7e). Dallas, TX: Author.

Micro Power & Light Co. (2002b). *Readability calculations according to the Spache Formula* (Version 3.7s). Dallas, TX: Author.

Wolf, M. (Ed.). (2001). *Dyslexia, fluency, and the brain.* Timonium, MD: York Press.

Wolfe, M., & Nevills, P. (2004). *Building the reading brain, preK-3.* Thousand Oaks, CA: Corwin Press.

 