How to Adapt Reading Levels

1. Assess the reading level of the material you want students to read. Example 1, the reading, “How Aliens Might Work”, is appropriate for students reading at the grade 11 level or higher (i.e. according to the formula, there are about 22 words with more than three syllables for every ten lines). Detailed information to quickly check the reading level of any material is on page 2 below.

2. Select the main ideas in the reading. Underline or highlight the main ideas in the reading. This will help you shorten the material, which is necessary to keep students in a differentiated class reading for the same amount of time. See example 1(a) for the Extracted Main Points of this article.

3. Re-phrase sentences to reduce the number of 3-syllable words. See Example 2 of “How Aliens Might Live With No Sun.” There are now about 4 polysyllabic words in every ten lines, which is appropriate for students reading at the grade 6 level. Make sure when you re-type this, to emphasize important vocabulary by underlining, italicizing or putting words in bold. Also, explain new or difficult vocabulary in the article, and reduce the length of sentences.

4. Don’t forget! Enlarge the print, increase the spacing & simplify the font! As a general rule, keep the adapted reading approximately the same length as the original. Also, keep the number of visuals the same, or add to them as you adapt to lower reading levels.

5. Still too challenging? Adapt it again! See Example 3 of this article “Aliens on Earth” adapted to a grade 2 reading level. Note, when adapting high school material to this reading level, remember students can still be taught polysyllabic vocabulary when it is necessary to deliver secondary level content.

continued
QUICK & EASY READABILITY FORMULA

The following “SMOG Formula” and information was retrieved and adapted from:
http://www.health.state.mn.us/divs/hpcd/chp/hpkit/pdf/hcheck_design_ws1.PDF
It can be used to test the reading level of any materials for any audience.

Reading levels are generally higher when the structure of text (vocabulary,
sentence structure, word density) has these features:
• sentences are longer
• more words are polysyllabic (have 3 or more syllables)
This formula does not measure how "readable" a certain text is (e.g. sentence
"flow," conceptual difficulty, organization of material, accuracy or credibility).

The SMOG Readability Formula Look at the entire written work you want to
assess and:

1. Count off 10 consecutive sentences near the beginning, in the middle, and
near the end of the text. From this sample of 30 sentences, circle all of the words
containing three or more syllables (polysyllabic), including repetitions of the same
word, then total the number of words circled.

2. Count the number of polysyllabic words in your chain of 30 sentences and look
up the approximate grade level on the chart below.

SMOG Conversion Table (accurate within 1½ grade levels up or down)

<table>
<thead>
<tr>
<th>Total Polysyllabic Word Counts</th>
<th>Approximate Grade Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>(syllables in 30 sentences)</td>
<td>(syllables in 10 sentences)</td>
</tr>
<tr>
<td>0-2</td>
<td>0</td>
</tr>
<tr>
<td>3-6</td>
<td>1-2</td>
</tr>
<tr>
<td>7-12</td>
<td>3-4</td>
</tr>
<tr>
<td>13-20</td>
<td>5-6</td>
</tr>
<tr>
<td>21-30</td>
<td>7-10</td>
</tr>
<tr>
<td>31-42</td>
<td>11-14</td>
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<tr>
<td>43-56</td>
<td>15-19</td>
</tr>
<tr>
<td>57-72</td>
<td>20-24</td>
</tr>
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<td>73-90</td>
<td>25-30</td>
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<td>91-110</td>
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<td>157-182</td>
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<td>183-210</td>
<td></td>
</tr>
<tr>
<td>211-240</td>
<td></td>
</tr>
</tbody>
</table>

Note: count abbreviations and numbers by sounding out the syllables as if they
were written in full; count hyphenated words as 1 word.
Example 1(a): Extracted Main Points of Reading: “How Aliens Might Work”

- Up until about 30 years ago, it was believed that all life on Earth was dependent upon energy from the sun.
- It was thought that you would probably not find life where temperatures were extremely hot, like in geysers or hot springs, or extremely cold, like in the Antarctic desert.
- These ideas changed when oceanographers explored hydrothermal vents, openings in the ocean where water erupts from the crust.
- Hydrothermal vents are located several miles below the surface, on the ocean floor, where the surrounding water is at or near freezing, it is absolutely dark.
- Around the bases of these vents, called black smokers, scientists found clams, crabs and exotic, giant tubeworms measuring 6 feet (2 meters) long.
- How can these animals survive so far from the sunlight, under these extreme conditions?
- The tubeworms have bacteria in their tissues that help them derive energy from the water. The clams feed on the bacteria, and the crabs feed on the tubeworms.
- The discovery of hydrothermal-vent communities showed that it is possible for life to evolve in places without light from the sun, and in other worlds without sufficient light from the parent star.
- It may be possible that life exists on Europa, an icy moon of Jupiter, which scientists believe has a water ocean beneath its icy crust.
- Life has been found in other extreme environments as well. Scientists discovered lichens in rock samples of the Antarctic where temperatures often drop to 100 degrees below zero and there is little or no liquid water.
- Heat-loving bacteria have been found in hot springs where temperatures exceed the boiling point of water.
- If life can evolve in extreme environments on Earth, it seems possible that life may exist in the extreme environments of other worlds such as Mars.

Rare Earth Hypothesis

- Frank Drake and Carl Sagan, estimate the number of intelligent civilizations in the universe.
- Peter Ward and Donald Brownlee proposed the Rare Earth Hypothesis -- that life on Earth is unique.
- Their hypothesis states that a series of chance events or situations, such as living in the habitable zone of the sun, having a Jupiter-type planet to clear away comet and asteroid debris and having few mass extinctions, has allowed life to develop on Earth and would be unlikely to happen elsewhere.