HELPING STUDENTS READ WORDS WEBSITE

by

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ABSTRACT

The *Helping Students Read Words* website is an online tool to assist teachers in remediating students’ weak word reading skills. The website has four key sections: Phonological Awareness, Phonics, Fluency, and From Research to Remediation. The phonological awareness section provides teachers with an overview of this reading component which has been identified as one of the strongest foundational skills necessary to learn to read (Cain, 2010; Goswami & Bryant, 1990; Kirby, Roth, Desrochers & Lai, 2008; Stanovich 1993). This section also provides a review of additional research evidence for phonological and phonemic awareness as well as information on how to assess this skill in struggling readers. Similarly, the sections on phonics and fluency also provide teachers with overviews for these reading components, reviews of research that lend support to their importance in reading, and information on how to assess phonics and fluency skills in students who struggle with word reading. The final section From Research to Remediation draws upon the information presented in the Phonological Awareness, Phonics, and Fluency sections and provides teachers with guidelines on how to create a remedial word reading program for their struggling word readers. Embedded throughout the *Helping Students Read Words* website are definitions for reading terminology and active links to other websites that offer easy-to-access videos, online reading games and activities and lesson plans for teachers to use.
ACKNOWLEDGEMENTS

Although the journey to completing my Master of Education as a part-time student has been a long and often arduous one, it has been an extraordinary learning experience. I have developed a much deeper understanding and appreciation for how students learn to read words – something I set out to do five years earlier. I know for certain that I could not have completed this journey without the unwavering strength I receive from my Lord Jesus Christ, “I can do all things through Him who strengthens me” (Philippians 4:13).

I would like to sincerely thank my project supervisor Dr. John Kirby. I appreciated his expertise in the area of reading, his guidance and support throughout this project and his vision of the website. I would also like to thank Dr. Elizabeth Lee who acted as my second reader.

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Finally, I want to acknowledge my former students who struggle with reading and who inspired me to become a better reading teacher.
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CHAPTER ONE - INTRODUCTION

*Helping Students Read Words* is an online resource that is intended for classroom teachers, special education teachers and others in the field of education, who have the responsibility of providing remedial reading instruction to children of all ages, but are at a loss for what to do.

It is an exciting time to be involved in teaching children to read, especially as research for reading acquisition continues to expand. For many children, learning to read transpires early in their schooling and with ongoing exposure to effective instruction they continue to improve in this essential life skill. For other children, learning to read does not come easily and they rely heavily upon the expertise of their teacher to determine where their weakness lies and to implement effective remedial interventions. Many teachers, both at the primary level and beyond, lack the knowledge to instruct struggling readers. Teachers with a desire to help their students read could delve into the extensive research and resources that are available, but may become overwhelmed and confused about what specific intervention will best meet their student’s need.

It is important for teachers to recognize that reading is a complex task and because of this it can be difficult to a) determine exactly where the process is breaking down for the student; b) determine what strategies should be implemented to remediate the problem. Cain (2010) describes reading ability as involving two components, *reading* or translating the printed word to sounds and *comprehending* or making meaning from the words that were read. To be sure, the goal of reading is to comprehend and to get meaning from print; however words must *first* be decoded (Rayner, Foorman, Perfetti, Pesetsky & Seidenberg, 2001). The *Helping Students Read Words* website is designed to address this first component, reading words, and is a tool to help teachers remediate students’ weak word reading.
About The Website

The *Helping Students Read Words* website focuses on three instructional components for word reading – phonological awareness, phonics and fluency. These essential components were identified by the National Research Panel's (2000) comprehensive study on reading research. If remediating reading is new to you, the entire site will be of value. Begin by visiting the Struggling Word Reader section and then move on to the Phonological Awareness, Phonics, and Fluency sections. The information in these sections provide the foundation for the From Research to Remediation section. Here teachers will find detailed information and intervention strategies that will help them create a remedial word reading program. The *Helping Students Read Words* website is also useful for teachers who currently use a ready-made reading program as the site outlines evidence based components and interventions that should be a part of an effective word reading program. Teachers will want to verify that the ready-made program they currently use includes the components and interventions recommended in the *Helping Students Read Words*. Teachers that are simply looking for additional word reading resources to supplement their existing program may wish to go directly to the page of interest.

*Figure 1.* Overview of the helping students read words website.
The site has been designed to provide busy teachers with accessible, evidence based remedial resources (see The Role of Phonemic Awareness in Reading, The Role of Phonics in Reading and The Role of Fluency in Reading). Definitions for reading terminology have been embedded and appear when the cursor is allowed to hover over a term that appears in coloured font. Definitions can also be accessed by clicking on the word which opens the Glossary page. Numerous hyperlinks have been included to allow for quick access to other pertinent online resources. The key below provides information to help visitors better understand why some letters and words look the way they do.

I hope you find the site useful and that you and your struggling word readers benefit from its content. The website can be accessed at http://helpingstudentsreadwords.weebly.com/

**Key**

Letters or words enclosed with forward and backward slashes, such as /d/ or /dog/, represent spoken letters or words.

Letters or words in italics, such as b or bat, indicate written letters or words.

There are numerous hyperlinks within the Helping Students Read Words website -- many go to other useful websites (they will open in a new Window).

Definitions for reading terms appear when the cursor is allowed to hover over the word. You can also click on the term and it will take you to the Glossary section of the website.
Struggling Word Readers

Why do some young children learn their letters and letter sounds with ease and use these skills to read words, whereas other children have such difficulty? For some children, lack of exposure to books or infrequent engagement in vocabulary rich discussions with adults in the early primary years may be at the root of their word reading difficulties. For others, ineffective instruction in phonological awareness and letter-sound correspondence may be the cause. For a small percentage of children, estimates range from 5-17% in the United States, weak word reading skills are neurobiological in nature, and are categorized as a reading disability, more specifically dyslexia (Shaywitz & Shaywitz, 2004).

The underlying reasons for weak word reading skills vary and there can be a tendency in the school system to categorize struggling readers into two groups: low achievers who struggle in most academic areas including reading, and children who have or are presumed to have dyslexia. Some believe that the reading needs of these two groups differ and as such they require different responses to their needs. The problem that arises with this course of action is that many school districts insist that a formalized assessment be completed by a medical professional to diagnose dyslexia, which can take years to transpire given the cost and the limited number of qualified personnel available within school boards. Many educators are hesitant to intervene prior to this formal diagnosis leaving many struggling word readers languishing in our schools. This delay in diagnosing dyslexia and subsequently providing reading remediation has been referred to as the wait to fail model (Cain, 2010). What is important for the reading teacher to realize is that although children with dyslexia and those without differ in cognitive profiles, in many cases they possess similar word reading deficits and as such respond to similar interventions (Stanovich, 1993). For example, weak phonological awareness skills are common for struggling word readers regardless of a dyslexic diagnosis and
both the child with dyslexia and the child without respond to phonological awareness training (see Understanding Phonological and Phonemic Awareness).

It is better for struggling word readers to be assessed early on in their schooling using simple reading diagnostic tools, such as the Yopp-Singer Test of Phoneme Segmentation, so that interventions can be put in place as early as possible. There can be significant consequences for struggling word readers who do not receive reading remediation early in their schooling. Research shows that when both younger and older children receive phonemic awareness training younger children make better gains in their reading skills (National Reading Panel, 2000). Stanovich’s (1993) idea of the Matthew effect (that the rich get richer and the poor get poorer) has been used to describe how getting off on the wrong foot in learning to read may have serious consequences for a student’s future academic achievement. When young children struggle with the foundational skills needed to read words, namely phonological awareness and the alphabetic principle, this may interfere with their ability to understand what is being read. As reading becomes an unrewarding and unpleasant school activity the child is less likely to be engaged and to seek opportunities to read. Lack of involvement in reading further undermines children’s weak reading skills as there are fewer opportunities to practice reading resulting in a downward spiral that can produce a negative attitude toward school (Stanovich, 1993).

Although it is best if struggling word readers receive remediation while in the early primary grades, many upper grade teachers have older children in their classrooms who cannot read words. Regrettably such students may not have received remediation in the earlier grades or may not have received the intensity of word reading remediation necessary for them to acquire decoding skills. Older students can and should be assessed to determine where their word reading deficits lie and how intervention strategies, such as those presented in this website, can be used.
CHAPTER TWO – PHONOLOGICAL AWARENESS

Learning Objectives

1. Be able to define and give examples for the terms phonological and phonemic awareness, and alphabetic principle.
   (Understanding Phonological and Phonemic Awareness)

2. Be able to explain to a parent or colleague the importance of phonemic awareness in relation to word reading.
   (Role of Phonemic Awareness in Reading)

3. Be able to assess phonological and phonemic awareness skills in students.
   (Assessing Phonemic Awareness)

4. Be able to design and deliver a variety of instructional activities that will help to improve phonological and phonemic awareness skills in students.
   (From Research to Remediation)

Understanding Phonological and Phonemic Awareness

For teachers wanting to remediate word reading deficits for struggling students the most perplexing part can often be where to begin. This is in part due to the complex nature of the various strands or components that are involved in reading. It can be difficult for a teacher to tease apart the specific areas related to a child’s weaknesses in learning how to read words. Reading teachers should begin with phonological awareness, and within that phonemic awareness, an area identified by the National Reading Panel (2000) as vital to the skill of word reading. The short video segment G. Reid Lyon: The Reading Process from the Reading Rockets website explains the critical role of phonemic awareness in reading.

This section of the Helping Students Read Words website focuses on phonological awareness, and within that phonemic awareness. A good starting point when discussing phonological awareness is to consider the foundational language skills that assist children in progressing from oral language to reading. Various language subsystems, such as pragmatics,
phonology, grammar, and vocabulary or word meanings, begin to develop in the early years of a child’s life (Rayner, Foorman, Perfetti, Pesetsky & Seidenberg, 2001). These subsystems allow humans to move from recognition of sounds to words, and to use this knowledge to begin communicating through speech. By the age of four, most children have developed a basic set of these language skills which will continue to expand as they mature (Rayner et al., 2001).

Speech and reading of course are two different forms of communication, yet they “share a common linguistic foundation” (Cain, 2010, p. 4). Young children’s oral language skills lay the groundwork for the development of reading skills in subsequent years (O’Connor, 2007). The phonology subsystem plays an important role in reading as it encompasses phonological awareness. While most preschool children acquire proficient oral language skills, to read they must begin to think of words as more than just having meanings but also of being composed of more than one sound unit (O’Connor, 2007). When a child asks for a drink, it is understood by the child that the word /drink/ relates to liquid of some sort that will quench their thirst. But to be phonologically aware, the child must also recognize that the word /drink/ has one syllable, that it rhymes with the word /pink/, and that it is made up of sounds or phonemes, such as /d/ at the beginning and /k/ at the end. When you consider this shift in children’s knowledge of words, it is understandable that some children will struggle in making the leap from oral language to reading words. Yet if children are to learn to read words they must first become phonologically aware.

Most educators have probably encountered the term phonological awareness at some point in their professional career; however they may not have a complete understanding of its meaning and the important role this concept plays when learning to read words. Having a good grasp of phonological awareness will better prepare teachers to remediate word reading or decoding skills. Phonological awareness can be understood as a broad set of auditory skills; it is sensitivity to sound components of words and the ability to manipulate these components
(Rayner et al., 2001). This underlying set of auditory skills is part of a child’s oral language before they learn to read. Phonological awareness is also considered to be one of the strongest foundational skills necessary to learn to read (Cain, 2010; Goswami & Bryant, 1990; Kirby, Roth, Desrochers & Lai, 2008; Stanovich, 1993). Whether struggling word readers are in grade one, grade four, or young adulthood, they must acquire good phonological awareness.

Children demonstrate phonological awareness by identifying and manipulating different sound components within words, and the manipulation can focus solely on listening and oral responses. Figure 2 depicts the sound components that range from syllables, to onsets and rimes, and then to phonemes (Cain, 2010; Kirby et al., 2008).

![Figure 2. Phonological awareness hierarchy. This figure depicts the increasing complexity of phonological awareness.](image)

In addition to these three sound components, Trehearne (2000) has recommended helping students to recognize and manipulate words. At all levels students should be able to manipulate or play with the words by segmenting, blending, deleting or substituting (see Appendix A, Phonological Awareness Activities in the From Research to Remediation section for activities that target each of the areas). Reading teachers should engage children to tap into their levels of awareness. For example, children who can clap the number of syllables they hear
in a word such as /dinosaur/ (3 syllables would result in 3 claps) demonstrates that they can identify the different syllable components, and that they are also able to segment the syllables. Children who can produce a word that rhymes with the word /cat/ (such as hat, mat or splat) demonstrate their awareness of words that rhyme (their rimes sound the same), along with their ability to substitute the onset /c/ in /cat/ with another onset (/h/, /m/, or /spl/) while maintaining the rime component /at/. Appendix A, Phonological Awareness Activities in the From Research to Remediation section of Helping Students Read Words provides a variety of different phonological awareness activities that teachers can use for remediating this area of word reading.

Within the phonological awareness hierarchy, phonemes are the area of awareness that can be the most difficult for children (Cain, 2010; Goswami & Bryant, 1990). As the sound components become smaller, less familiar, and more abstract they become more challenging to detect and to manipulate. As such, syllables are easier to identify than onsets and rimes, which in turn are easier to identify than individual sounds or phonemes (Goswami & Bryant 1990; Kirby et al., 2008). Goswami and Bryant (1990) found that young children who had not yet learned to read could identify syllables and onsets and rimes, whereas children’s awareness of phonemes did not begin to develop until instruction in letters had occurred. It is important for reading teachers to recognize this continuum of phonological awareness skills, and assessment should be completed to determine the student’s level of phonological awareness prior to beginning interventions. The Assessing Phonemic Awareness page on the Helping Students Read Words website provides explanations about assessing phonological awareness skills and includes resources that teachers can use to determine a student’s word reading deficits.
Phonemic Awareness

Phonemic awareness falls under the phonological awareness umbrella, and must be fully understood as it plays an essential role in word reading. Research shows that phonemic awareness has one of the strongest links to learning to read words (Cain, 2010; Muter, 2004). Recall the earlier statement that phonological awareness is one of the key foundational reading skills, and note that within those 3 sound components of syllables, onsets and rimes and phonemes, it is children’s awareness of phonemes that will have the greatest impact on their word reading ability.

Phonemes are “the smallest unit of speech sound, which can change the meaning of a word” (Cain, 2010, p. 250). An example of this would be that the word /hat/ changes in meaning when the initial phoneme /h/ is changed to /f/, creating the new word /fat/, and a new meaning. Humans automatically attend to the individual meanings of words, so most listeners recognize that the words hat and fat relate to two different things (Adam, Foorman, Lundberg & Beeler, 1998). However, humans have evolved to use language and not to read, so it is somewhat unnatural to attend to the sounds rather than the meaning, and in this case the change of one phoneme to another. With the example of /hat/ changing to /fat/, you must first isolate each of the initial sounds from the rime /at/ and then focus on the difference between the two phonemes /f/ and /h/ which can be challenging given that phonemes are abstract (O’Connor, 2007; Rayner et al., 2001). For example, the phoneme /d/ in the word /desk/ is the initial phoneme and is easily detected, however the phoneme /d/ in the word /lid/ is the end phoneme, and sounds different than the /d/ in /desk/; it almost blends in with the /i/ phoneme sound and is more challenging to detect. Rayner et al. noted that consonant sounds are “highly dependent” on the vowel sounds adjacent to them, resulting in more variance in the sounds they generate and more confusion for young children (2001, p. 33).
As is described in the *Role of Phonemic Awareness in Reading* section, research shows that phonemic awareness can be learned by students who struggle with word reading and by making gains in phonemic awareness they can also make gains in their word reading skills. It is critical for reading teachers to understand that phonemes and the letters of the alphabet are two different things. For starters, phonemes are sounds and letters are visual symbols. When referring to a letter or letters that represent a phoneme the term **grapheme** is often used (Cain, 2010). There are 40-44 phonemes identified in the English language, but only 26 letters in the English alphabet (National Reading Panel, 2000). Variance in the vowel sounds, for example long e and short e, are one reason why there are a greater number of phonemes than letters, but as noted in Table 5 there are additional phonemes, such as /sh/ and /ch/. Reading teachers should be familiar with the 40-44 English phonemes and ensure that all phonemes are included in their remediation program if this is a deficit area being targeted.

To further illustrate the difference between phonemes and letters consider that there are three phonemes in the word /dog/, /d/ /o/ /g/, and there are also three phonemes in the word /that/, /th/ /a/ /t/. However, when counting the number of letters, notice that there are only three letters in the word *dog* and there are four letters in the word *that*. The video segment from the Reading Rockets website *Letters vs. Phonemes* provides further distinction between phonemes and letters.

Knowledge of the different sounds develops very early - an infant at birth can distinguish all of the sounds of human speech. However, at one year of age recognition of sounds has been filtered or pruned by the brain to only include those found in the language in which the infant has been immersed (Rayner et al., 2001). For young children to shift from recognition of speech sounds to recognition of printed words, they must make the connection that speech sounds are represented by letters. This connection is known as the **alphabetic principle**, wherein “phonemic awareness and knowledge of letter-sound correspondence come together in the practical
application of reading” (O’Connor, 2007, p. 39). Some children will learn to make the connection between speech sounds and printed letters with very little instruction; however other children will require direct teaching and repeated practice (O’Connor, 2011). Research also shows that children make greater reading gains when instruction includes both phonemic awareness activities and letter-sound correspondence (Hulme, Bowyer-Crane, Carroll, Duff & Snowling, 2012; National Early Literacy Panel, 2008b; National Reading Panel, 2000;). An activity that reinforces the alphabetic principle might involve a student being asked to identify the onset heard in the word /top/, which would be /t/. The student would then be asked to select a letter tile that makes the /t/ sound, and hopefully the child will select the letter t tile (O’Connor, 2007). For children to be successful in this activity, they will have had previous opportunities to engage in simpler tasks such as locating an object whose name starts with /t/ and have had letter-sound training for some letters, in this case the letter t.

Similar to phonological awareness components, there are different ways in which phonemes can be manipulated, some of which include phoneme blending, phoneme categorization, phoneme deletion, phoneme identification, phoneme isolation, and phoneme segmentation (Hawken, n.d.; National Reading Panel, 2000; Scott, 2009). Sample activities that target various manipulations can be found in Table 1 below. O’Conner provided instruction in a phonemic awareness activity called “stretched segmenting” that assists students in hearing and identifying the different sounds within a short, one syllable word (2007, p. 26). The teacher models for the student how to stretch a word, such as /sat/, by saying the word very slowly and lingering on each of the phonemes for approximately one second, so it sounds like /ssssaaaattt/. The teacher then has the student repeat this slow pronunciation of the word /sat/ a number of times. To further emphasize the three phonemes the teacher can make a fist and ensure that the back of her hand is facing the child. The teacher raises her index finger while lingering on the initial phoneme /s/, then raises her middle finger for the phoneme /a/, and finally raises her
ring finger for the phoneme /t/. O’Connor (2007) suggested that this finger cueing also strengthens the understanding of letters being ordered from left to right for spelling words. The Balanced Literacy Diet website (2012) provides a short video clip of Slinky Segmenting which is another fun way to model stretched segmenting to students.

Depending on the type of phoneme manipulation, some tasks will be easier for children, whereas others will be more challenging. The National Reading Panel (2000, p. 2-31) cited a ranking of the varying levels of difficulty for phoneme manipulation by Schatschneider, Francis, Foorman, Fletcher, and Mehta (1999) which appears in Table 1. Beside each manipulation is a hyperlink to a video or activity that teachers may find helpful for instructing students.

Table 1

<table>
<thead>
<tr>
<th>Level of Ease</th>
<th>Phoneme Manipulation</th>
<th>Sample Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Easy)</td>
<td>isolation</td>
<td>What picture goes with this sound?</td>
</tr>
<tr>
<td>2</td>
<td>blending onset and rime (onsets can be single phonemes)</td>
<td>Onset/Rime Game</td>
</tr>
<tr>
<td>3</td>
<td>blending</td>
<td>Phonemic Awareness Read Aloud</td>
</tr>
<tr>
<td></td>
<td>blending with letters</td>
<td>Drive-Thru Blending</td>
</tr>
<tr>
<td>4</td>
<td>deletion</td>
<td>Drop and Say</td>
</tr>
<tr>
<td>5</td>
<td>segmentation</td>
<td>Phoneme Counting Sort</td>
</tr>
<tr>
<td>6 (Difficult)</td>
<td>pseudoword word blending</td>
<td>Blending Sounds 1</td>
</tr>
</tbody>
</table>

Note: Sample activity 1 and 3 are from The Balanced Literacy Diet website (http://www.oise.utoronto.ca/balancedliteracydiet/Home/index.html), sample activity 2, 4 and 5 are from the Florida Centre for Reading Research website (http://www.fcrr.org/FAIR_Search_Tool/FAIR_Search_Tool.aspx ), and sample activity 6 is from Blending Sounds 1 on YouTube (http://www.youtube.com/watch?v=Y8MqgND_gMs&feature=share&list=PL2CBBF79A7CC2185B)
The From Research to Remediation page on the Helping Students Read Words website provides a variety of different phonemic awareness activities. It is helpful to explore the different activities to consolidate your own understanding of phonemic awareness and to select a variety of activities when providing phonemic awareness remediation. It is important to bear in mind that phonemic awareness is about sound and as such a child does not need to know the letters of the alphabet or how to spell, to begin to develop, or to further develop, this essential reading skill (Savage, 2008). However, as a child acquires some phonemic awareness skills, it is advisable to begin instruction in letter-sound correspondence as discussed previously in the importance of the alphabetic principle (Hulme et al., 2012; National Reading Panel, 2000).

Extensive educational research has been conducted in relation to phonemic awareness and reading and it is worthwhile for teachers to be aware of what this evidence shows as it validates the important role it plays in word reading. To learn more about this research visit the Role of Phonemic Awareness in Reading where the findings from three meta-analyses completed in 2000, 2008 and 2012 are reviewed.

Role of Phonemic Awareness in Reading

For teachers wanting to remediate students’ weak word reading skills it is worthwhile to consider educational research findings. Time, personnel and resources for reading remediation are limited and it is therefore essential that the reading intervention struggling readers receive have proven results. This section of the Helping Students Read Words website focuses on some of the key research findings in relation to phonemic awareness and word reading.

To begin, the research reports are characterized as meta-analyses, rather than individual studies. The reasons meta-analyses were chosen are that (a) the findings of a well
designed meta-analysis draw their conclusions from numerous studies on a given topic and therefore carry significant weight with respect to that topic, in this case phonemic awareness and reading; (b) a higher number of studies results in a higher number of participants and therefore results can be better generalized to the broader population; (c) reviewing a meta-analysis can be a time saving measure for teachers rather than poring over numerous individual studies.

**National Reading Panel Meta-analysis**

When reviewing reading research, a key meta-analysis to consider is the National Reading Panel (2000), and specifically the phonemic awareness section of the report as it relates to the topic at hand. The National Reading Panel (2000) found phonemic awareness to be one of five necessary reading components (two of the other components, phonics and fluency are also reviewed in this website). The panel analyzed 52 experimental research studies published between 1976 and 2000, and from this, 96 phonemic awareness intervention comparisons were examined in detail. The participants in the studies included children of preschool age to grade 6, who were classified as normal readers, at risk readers, or reading disabled. The conclusions drawn from the National Reading Panel (2000) are worth taking note of as they can help teachers better understand the role phonemic awareness plays in an effective word reading remediation program.

The National Reading Panel Report (2000) is an extensive report that presents useful information about reading instruction and research findings. In the first part of chapter two, the researchers examined and reported on the impact of phonemic awareness training on the areas of phonemic awareness, reading and spelling. For each area, the statistical impact is expressed as an effect size, which is a numerical indicator of the differences between groups making it
easier to compare results across different studies. Table 2 shows the impact of phonemic awareness training on phonemic awareness, reading and spelling.

Table 2

National Reading Panel (2000) Effect Sizes for Phonemic Awareness Training

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Area</th>
<th>Cohen Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>phonemic awareness</td>
<td>phonemic awareness</td>
<td>$d=0.86$ (strong)</td>
</tr>
<tr>
<td></td>
<td>reading</td>
<td>$d=0.53$ (moderate)</td>
</tr>
<tr>
<td></td>
<td>spelling</td>
<td>$d=0.59$ (moderate)</td>
</tr>
</tbody>
</table>

The moderate to strong effect size found for all three areas indicates that phonemic awareness training is a worthwhile component in reading instruction, reading remediation, and spelling. Follow up measures “several months after training had ended” showed effects for both phonemic awareness and reading to be for the most part maintained (National Reading Panel, 2000, p. 2-3). Additional information from the National Reading Panel (2000) report with respect to phonemic awareness and reading is worth examining in greater detail.

The National Reading Panel (2000) meta-analysis delved deeper into the individual phonemic awareness training studies and isolated some conditions or moderators that resulted in greater gains in participants’ phonemic awareness, reading or both phonemic awareness and reading outcomes. Many of the key moderators are listed in Table 3 and are important for reading teachers to consider when designing a reading remediation program.
Table 3

*National Reading Panel (2000) Moderators That Result in Greater Phonemic Awareness Gains*

<table>
<thead>
<tr>
<th>Condition Resulting in Greater Gains</th>
<th>Phonemic Awareness</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focused, <strong>explicit teaching</strong> of one or two PA skills at one time</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Use of letters with training for typical and at risk readers</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Small group of participants (approx. 2-7 children)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5 -18 hours of treatment over the course of a school year</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Preschoolers and Kindergarten aged participants</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Blending</strong> and <strong>segmenting</strong> phonemes</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>At-risk readers versus typical and older disabled readers</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Incorporating the use of letters with training</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Mid to high socioeconomic status</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

For example, phonemic awareness training that was delivered to small groups of two-seven children produced larger gains in phonemic awareness and in reading than when training was delivered to individual students or large groups of students. This is beneficial information as it is somewhat easier for schools to allocate personnel to remediate small groups, than it is to remediate in a 1:1 teacher student ratio. Some educators might assume 1:1 instruction would outperform small group instruction, but the National Reading Panel (2000) findings show that small group instruction resulted in greater gains in phonemic awareness and reading. It is recommended that teachers carefully review the list of moderators in Table 3 and determine which conditions can best be incorporated into their remedial reading programs.
It is clear from the National Reading Panel (2000) meta-analysis that phonemic awareness training improves phonemic awareness and reading. The National Reading Panel report stated that “adding well-designed PA instruction to a beginning reading program or a remedial reading program is very likely to yield significant dividends in the acquisition of reading and writing skills” (2000, p. 2-7). Furthermore, a reading remediation program that incorporates phonemic awareness should be tailored to include some of the conditions cited in Table 3 to further increase students’ gains.

Some additional points addressed in the National Reading Panel (2000) report are useful for reading teachers. To begin, the report noted gains in phonemic awareness for all children included in the meta-analysis, preschoolers to children in grade six, who were normal developing readers, at risk readers or reading disabled. As such, teachers need to recognize that older children will benefit from phonemic awareness intervention; however their gains may be less than what might have been achieved had intervention been in place earlier in their schooling. It should be recognized that both phonemic awareness and phonological awareness are only a part of the set of skills needed to read (National Reading Panel, 2000; Rasinski & Padak, 2008). An effective word reading intervention program incorporates phonemic awareness training along with other reading components such as letter-sound correspondence, fluency, and vocabulary.

A further point for consideration is that it is important to assess children’s level of phonological and phonemic awareness to determine where their deficits lie and then to program accordingly (National Reading Panel, 2000). O’Conner (2011) noted that children will vary in the frequency and intensity of phonemic awareness training they require (see Table 1 for a ranking of phonemic awareness skills). As in any teaching activity students will be more engaged in phonemic awareness activities that they find interesting and fun. Reading teachers are encouraged to provide a variety of phonemic awareness activities that relate to the child’s area
of weakness, yet are also engaging to the child (see Appendix A, Phonological Awareness Activities and Appendix B, Phonemic Awareness Activities in the From Research to Remediation section on the Helping Students Read Words website for more suggestions on remedial programming).

National Early Literacy Panel Meta-analysis

As the National Reading Panel (2000) is now over a decade old it is reasonable to include more recent phonemic awareness research to determine if results continue to support this awareness as an integral component of word reading instruction. The National Early Literacy Panel (2008a) conducted a meta-analysis, similar to the National Reading Panel (2000), but with a focus on younger children, from birth to age five. The findings from this meta-analysis are useful for reading teachers as it provides valuable information on early literacy skills.

The National Early Literacy Panel (2008a) synthesized research findings from 234 studies that focused on young children’s skills and abilities that were predictive of future reading (decoding and comprehension) and writing (spelling) outcomes. The researchers identified six early literacy precursor skills that had medium to large correlations with participants’ future reading and writing outcomes. The skills included, alphabet knowledge, rapid automatized naming (RAN), RAN of objects or colours, writing letters or writing your name, phonological memory, and not surprisingly, phonological awareness, in which lies phonemic awareness (National Early Literacy Panel, 2008b). The panel also examined research that focused on the effectiveness of interventions and programs on the identified precursor skills, as well as reading and writing.

Phonological awareness studies were categorized as code-focused interventions and included four categories, phonological awareness only, a combination of phonological
awareness and alphabet knowledge, alphabet knowledge only, and a combination of phonological awareness and phonics training. Most of the phonological awareness intervention activities involved phoneme detection and manipulation. The mean effect sizes for the code-focused interventions on phonological awareness, alphabet knowledge and reading outcomes are presented in Table 4 (National Early Literacy Panel, 2008a).

Table 4
National Early Literacy Panel (2008a) Effect Sizes for Code-Focused Interventions

<table>
<thead>
<tr>
<th>Code-focused Intervention Type</th>
<th>Phonological Awareness Outcome</th>
<th>Alphabet Knowledge Outcome</th>
<th>Reading Outcome</th>
<th>Spelling Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>phonological awareness</td>
<td>(d=0.91) (strong)</td>
<td>(d=0.04) (weak)</td>
<td>(d=0.19) (small)</td>
<td>(d=0.59) (moderate)</td>
</tr>
<tr>
<td>awareness intervention</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>phonological awareness and</td>
<td>(d=0.70) (strong)</td>
<td>(d=0.37) (small)</td>
<td>(d=0.31) (small)</td>
<td>(d=0.50) (moderate)</td>
</tr>
<tr>
<td>alphabet knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>intervention</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>alphabet knowledge</td>
<td>(d=0.48) (moderate)</td>
<td>(not) measured</td>
<td>(d=0.52) (moderate)</td>
<td>(not) measured</td>
</tr>
<tr>
<td>intervention</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>phonological awareness and</td>
<td>(d=0.74) (strong)</td>
<td>(d=0.57) (moderate)</td>
<td>(d=0.66) (moderate)</td>
<td>(d=0.59) (moderate)</td>
</tr>
<tr>
<td>phonics intervention</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The National Early Literacy Panel concluded that, “some form of PA training, either alone or in combination with more or less complex instruction related to print knowledge (i.e., letter-name instruction, instruction in early decoding skills) is likely to yield growth in children’s skills related to later reading and writing achievement “ (2008a, p.118). Phonological awareness intervention on its own and in combination with alphabet knowledge or phonics produced strong
effects on phonological awareness outcomes, and moderate effects on spelling. Phonological awareness intervention in combination with phonics produced moderate effects on alphabet knowledge, reading and spelling outcomes. The panel recognized that phonological awareness training was boosted by incorporating letter training, such as letter names, letter sounds or blending letters (National Early Literacy Panel, 2008b). The report also noted that code-focused interventions that produced a large effect size usually involved 1:1 or small group and were teacher directed. The National Early Literacy Panel (2008a) findings lend further support for the value in incorporating phonological awareness training, in which lies phonemic awareness, along with phonics instruction in word reading remediation.

**Melby-Lervåg, Lyster and Hulme Meta-Analysis**

Up to this point two well known meta-analyses that include research related to phonological awareness have been reviewed. The final meta-analysis to be examined, conducted by Melby-Lervåg, Lyster and Hulme (2012), looked at the strength that three phonological processing skills – phonemic awareness, rime awareness, and verbal short-term memory – have on predicting word reading ability, and determined their level of importance. The researchers examined 235 studies from 1976 to 2011 in which participants ranged in age from 5 to 16 years, and included both typical readers and children with dyslexia. Although similar to the National Reading Panel (2000) meta-analysis, this more recent meta-analysis included studies with older children, with and without dyslexia, and is therefore useful when considering remedial programs for this population. Melby-Lervåg et al. (2012) found that of the three phonological skills, phonemic awareness had the strongest correlation with children’s word reading ability. Rime awareness and verbal short-term memory also showed solid correlations with word reading, but they were significantly weaker than phonemic awareness. Melby-Lervåg et al. (2012) also argued that children with dyslexia are deficient in phonemic awareness ability and as such require specific phonemic awareness training. Melby-Lervåg et al. concluded that “early
teaching of reading, as well as the remedial teaching given to children with dyslexia, should include direct teaching of phonemic skills (in addition to training letter-sound knowledge)” (2012, p. 342).

It is important to point out that combining phonemic awareness training with letter-sound activities has been suggested in all of the meta-analyses reviewed. Hulme, Bowyer-Crane, Carroll, Duff and Snowling contended that both phonemic skills and letter-sound knowledge play a causal role in learning to read words and as such “should be directly taught to all children in the early stages of learning to read” (2012, p. 576). This is a vital piece of programming information for teachers who are delivering word reading interventions. For an example of an activity that combines the two areas see blending phonemes (using letters) into real words from The Balanced Literacy Diet website.

Extensive research exists with respect to phonological and phonemic awareness and word reading acquisition. This is not always the case with educational research and literacy related issues. All reading teachers, regardless of the age of their students, must determine if their students who struggle with word reading demonstrate phonological or phonemic awareness deficits and require remediation. Reading teachers can be confident that inclusion of phonemic awareness instruction (as deemed necessary by assessment results, see Assessing Phonemic Awareness), along with letter-sound training in their remedial reading programs reflects sound research findings.
Assessing Phonemic Awareness

When a child is reading below grade level, the classroom teacher must determine what reading remediation and compensatory strategies will be put in place. With older children, compensatory strategies, such as the use of assistive technology or the use of graphic and semantic organizers are often incorporated into a student’s program. Effective reading remediation however, can be hit or miss. Often times, as discussed in the Introduction, teachers’ lack understanding about what specific areas of reading require remediation and what intervention activities should be included in a student’s reading program. If the student has been formally identified, then an Individual Education Plan (IEP) will be in place, which may provide teachers with a substantial amount of information about the student’s learning profile, including previous assessment results. However, if specific reading remediation information has not been included in the IEP, or if the student does not have an IEP, then a teacher must begin to gather data to determine the student’s specific areas of reading deficits.

Reading Rockets’ Target the Problem! is an interactive tool that provides useful information about phonological and phonemic awareness, along with the other four components of reading (phonics, fluency, vocabulary and reading comprehension). The resource is easy to use and lists specific reading behaviours that a teacher or parent might observe when a child appears to be having difficulty with phonological and phonemic awareness. The video clip Assessing Reading Skills, also from the Reading Rockets website, provides further explanation why ongoing assessment is something teachers must do to help struggling readers.

For children beyond grade one the most obvious indicator of a reading deficit is that they are unable to decode words in a fluent manner, and as such are unable to read grade level text. If the student’s strategy for reading unknown words is guessing (saying a word that starts with
the same sound as the focus word or looking around the page for picture clues as to what the word might be) this can indicate that he or she lacks letter-sound knowledge and blending skills.

Some school boards are putting early screening checklists in place for Kindergarten teachers to administer, which is a sound practice as it can help identify children with possible pre-reading deficits, and may result in early remediation. The Get Ready To Read website offers a 20 question online screening tool to determine if preschoolers demonstrate the skills necessary for learning to read including phonemic awareness skills. Kindergarten teachers may wish to use this tool at the start of the year if there is concern about a child’s level of readiness and they do not have an early screening tool to use.

Beyond screening tools, diagnostic assessment is necessary to determine exactly where an individual’s reading deficit lies. For phonemic awareness, the assessment does not have to be lengthy or time consuming. Stanovich (2000) pointed out that it can take less than ten minutes to administer a quick phonemic awareness assessment which will yield information that is predictive of a child’s success in learning to read. The assessment should be completed by the classroom teacher, or the teacher who will be providing the remedial intervention. Two reasons for this are (a) that the person administering the assessment will have firsthand knowledge of how the child responded to the assessment and be in a better position to interpret the results; (b) it is likely that if a teacher has decided to administer a phonemic awareness assessment this individual understands the important role phonemic awareness plays with respect to learning to read words. Below are two free and easy to administer phonemic awareness assessments.

The Yopp-Singer Test of Phoneme Segmentation was created to assess children’s ability to divide or segment the individual sounds that occur in a word (Yopp, 1995). The test consists of 22 words and the final score is the number of words the child can segment correctly.
out of a possible 22. For example, item 15 is the word *three* which segments into three phonemes /th/ – /r/ -/ee/, the first phoneme /th/ counts as one sound. Yopp (1995) found that the test is a reliable and valid measure of phonemic awareness, specifically phoneme segmentation, and can be administered in approximately 10 minutes. Yopp (1995) also found the test to be predictive of students’ later reading and spelling skills. An additional benefit of the Yopp-Singer Test of Phoneme Segmentation is that it can be used with young children right through to high school students (Rasinski & Padak, 2008).

The **Abecedarian Reading Assessment** is available as a free download on The Balanced Reading website and provides six non-standardized tests for Letter-Knowledge, Phonological Awareness, Phoneme Awareness, Alphabetic Principle, Vocabulary and Decoding. The authors of the site provide a flowchart for teachers to follow for administering each of the subtests, along with written instructions that explain when to administer certain subtests, and when it is not necessary to administer a subtest.

*Figure 3.* Reading assessment flowchart, adapted from the abecedarian reading assessment flowchart. The assessment contains six subtests, two of which relate to phonological and phoneme awareness and is found on The Balanced Reading website [http://www.balancedreading.com/assessment/abecedarian.html](http://www.balancedreading.com/assessment/abecedarian.html)
For teachers looking for additional phonemic awareness and pre-reading skills checklists, they should refer to the *Kindergarten Teacher’s Resource Book* (Trehearne, 2000). A phonemic awareness inventory can also be found in the Ontario Ministry of Education’s, *A Guide to Effective Instruction in Reading: Kindergarten to Grade 3* (2003). This inventory is useful as it is based upon the six phonemic awareness activities cited in the National Reading Panel’s (2000) report (see Phonemic Awareness in Understanding Phonological and Phonemic Awareness) and includes manipulating onsets and rimes. The inventory describes the area of phonemic awareness being targeted and then supplies a sample question for the teacher to use.

A more comprehensive standardized phonological awareness assessment is the *Comprehensive Test of Phonological Processing* or CTOPP 2. This assessment provides information about a student’s phonological processing skills and rapid automatized naming skills. Another standardized assessment is the Phonological Awareness Test 2 or PAT 2 (2007). A short video describing the PAT 2 and a sample of the test can be accessed on the LinguiSystems website (click for Demo). The PAT 2 test includes six subtests that measure phonological awareness, as well as phoneme-grapheme relationships, and decoding skills. The CTOPP 2 and PAT 2 assessments would be useful if a teacher decides that a child’s reading difficulties warrant a more in depth probe than what a checklist can offer. Once assessment information has been collected and scored the teacher can determine how the child compares in relation to his or her same-age peers. The teacher will need to decide if remediation is required for each of the different areas if a child achieves below what would be expected for his or her age.

For a remedial word reading program to be effective it must target each student’s individual deficits with intervention strategies that have been shown to be successful (see the *Role of Phonemic Awareness in Reading*). The first step in effective reading remediation is to obtain a good understanding of a student’s level of phonological and phonemic awareness by
completing screenings, checklists, or more comprehensive assessments like the PAT 2. If phonological and phonemic awareness deficits are evident then the next step is to decide on what instruction and phonological awareness activities will be put in place to remediate the area of weakness. The From Research to Remediation section of the Helping Students Read Words website offer guidelines for remedial programming and Appendix A, Phonological Awareness Activities and Appendix B, Phonemic Awareness Activities provide a variety of activities for getting started.
CHAPTER THREE - PHONICS

Learning Objectives

1. Be able to define and give examples for the terms phonics, letter-sound relationships and alphabetic principle. (Understanding Phonics)

2. Be able to explain to a parent or colleague the importance of phonics in relation to word reading. (Role of Phonics in Reading)

3. Be able to assess phonics skills in students. (Assessing Phonics)

4. Be able to design and deliver a variety of instructional activities that will help to improve phonics skills in students. (From Research to Remediation)

Understanding Phonics

This section of the Helping Students Read Words website focuses on phonics, another important instructional component in word reading that was identified by the National Reading Panel report (2000). Just as it is important for remedial reading teachers to have a good understanding of the role phonological awareness plays in word reading, it is equally important to understand phonics. Some teachers may not understand the distinction between phonics and phonological awareness; it is perhaps easiest to remember that phonics involves letters, whereas phonological awareness involves sounds. It is necessary for reading teachers to understand what is meant by the term phonics as it plays such a significant role in word reading.

Trehearne describes phonics as "an understanding of the sound-letter relationships in language, involving matching sounds and symbols" (2000, p. 554). Teachers should be aware that other terms may be used to describe the relationship between sounds and letters including letter-sound correspondence, sound-symbol associations or grapheme-phoneme.
correspondences. For students to have knowledge of letter-sound relationships they must initially understand that a letter, such as s represents the sound /s/ as in the word /sing/. Students must then further their understanding of letter-sound relationships and learn that not all sounds in English have one to one correspondence with letters, rather there are some letter-sound relationships that involve multiple letters and can represent varying sounds, such as the letters ea which can make the sound /ea/ as in /break/, /ea/ as in /eat/ and /ea/ as in /spread/. Variability in letter-sound relationships is also due to surrounding letters and where the letters are in a word, for example the letters gh make the sound /g/ when they appear at the beginning of the word /ghost/, but make the sound /f/ when they appear at the end of the word /tough/. What is critical is that reading teachers understand that letter-sound relationships play a crucial role in reading words as this knowledge allows students to shift from recognition of speech sounds to recognition of printed words. Kirby, Desrochers, Roth and Lai contend that "phonological processing of print" is necessary for beginning readers to read the extensive number of new words they encounter” (2008, p. 106). As students begin to develop phonemic awareness skills they are then ready to learn some simple letter-sound correspondences which further prepares them to learn or refine their phonemic awareness skills, which in turn allows for building of more letter-sound correspondences. These early reading building blocks lay the foundation for the alphabetic principle, which is the understanding that speech sounds are represented by letters. O’Connor explains that the alphabetic principle can be understood as “Any word that we say can be broken into speech sounds. Any speech sounds can be represented with a letter or collection of letters from the alphabet“ (2007, p. 39). For example, students use phonemic awareness to identify that they hear the phoneme /b/ at the beginning of the word /ball/; however they must also make the connection that the sound /b/ is represented by the letter b when asked to choose a letter tile that represents this sound.
A common initial step in phonics is learning the letters of the alphabet and most adults will recall learning the ABC song in childhood, or perhaps have since heard a trendier version of the song, such as the ABC Hip Hop found on Youtube. However, it is important to point out that phonics is more than the 26 letters in the alphabet, as it is knowledge of letters and their sounds that will aide children in learning to read words. In the Alphabet in My Mouth! video clip from The Balanced Literacy Diet website, young children are learning to connect the visual letter with both its name and the sound that it makes (and in this case along with an associated gesture). The Starfall website also provides an activity that promotes letter-sound training.
To properly instruct students in phonics it is necessary for teachers to know the 44 English phonemes or sounds and their associated graphemes or symbols. Table 5 lists the 44 phonemes chart, along with related grapheme or graphemes. Once again, the tricky part

Table 5
44 English Phonemes, adapted from Reithaug, 2002 and Vaughn & Linan-Thompson, 2004

<table>
<thead>
<tr>
<th>Phoneme/Phonemes</th>
<th>Key Word/Example</th>
<th>Common Graphemes</th>
<th>Phoneme/Phonemes</th>
<th>Key Word/Example</th>
<th>Common Graphemes</th>
</tr>
</thead>
<tbody>
<tr>
<td>/b/</td>
<td>bin</td>
<td>b, bb</td>
<td>/a/</td>
<td>hat</td>
<td>a, au</td>
</tr>
<tr>
<td>/d/</td>
<td>dog</td>
<td>d, dc, ed</td>
<td>/e/</td>
<td>elm</td>
<td>e, ea</td>
</tr>
<tr>
<td>/f/</td>
<td>fish</td>
<td>f, ph</td>
<td>/i/</td>
<td>if</td>
<td>i</td>
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<td>g, gg</td>
<td>/o/</td>
<td>on</td>
<td>o, a, a, au, aw, ough</td>
</tr>
<tr>
<td>/h/</td>
<td>hot</td>
<td>h</td>
<td>/u/</td>
<td>up</td>
<td>u, o</td>
</tr>
<tr>
<td>/j/</td>
<td>jar</td>
<td>j, g, ge, dge</td>
<td>Long Vowels</td>
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<tr>
<td>/k/</td>
<td>kit</td>
<td>k, ck, ch, cch, que</td>
<td>/A/</td>
<td>bacon</td>
<td>a, a, e, ai, ay, ea</td>
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<td>l, ll</td>
<td>/e/</td>
<td>me</td>
<td>e, e, ea, ee, ey</td>
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<td>mad</td>
<td>m, mm, mb</td>
<td>/i/</td>
<td>find</td>
<td>i, i, e, igh, y, ie</td>
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<tr>
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<td>nose</td>
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<td>/o/</td>
<td>no</td>
<td>o, o, e, ow, oa, oe</td>
</tr>
<tr>
<td>/p/</td>
<td>pie</td>
<td>p, pp</td>
<td>/u/</td>
<td>use</td>
<td>u, u, e, ew, ue</td>
</tr>
<tr>
<td>/r/</td>
<td>rat</td>
<td>r, rr, wr</td>
<td>Other Vowels</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| /s/              | see             | s, se, ss, c, cce, sc | /å/         | book             | oo, u, ou, oul,
| /t/              | tip             | t, tt, ed        | /oa/             | soon             | oo, u, o, u, e, ow, ue |
| /v/              | vet             | v, ve            | Vowel Diphthongs |                 |                  |
| /w/              | wet             | w, w2            | /ow/             | cow              | ow, ou           |
| /y/              | yet             | y, i             | Vowel Diphthongs |                 |                  |
| /z/              | zoom            | z, z2, z2, s, s, x | Vowels influenced by r |         |                  |
| Consonant Digraphs | /a(r)/r | car, ar         |                   |                 |                  |
| /th/ (not voiced)| thumb           | th                | /a(r)/r          | fair             | air, ear, are    |
| /th/ (voiced)    | this            | th                | /i(r)/r          | mirror           | iir, eir, eir    |
| /ng/             | song            | ng, n            | /a(r)/r          | for              | or, ore, oir     |
| /sh/             | ship            | sh, s, ch, t, ci | /a(r)/r          | turn             | ur, ir, ear, or, ar |
| /ch/             | chip            | ch, ich          |                   |                  |                  |
| /zh/             | garage          | gs, s            |                   |                  |                  |
| /wh/ (with breath)| what            | wh                |                   |                  |                  |

Adapted from Reithaug, 2002; Vaughn & Linan-Thompson, 2004

In learning (and instructing) letter-sound relationships is that some phonemes can be represented by a different grapheme(s). For example, the phoneme /j/ can be represented by the graphemes j as in jump, g as in wage, and dge as in nudge. Given the variability in the connections between phonemes and graphemes, it is essential that phonics instruction be comprehensive and include all of the phonemes and one or two most common associated
graphemes. Possessing good phonics knowledge enables students to produce the correct sound associated with the letter or letters being viewed, or to state the correct grapheme when listening to a phoneme. Having good phonics knowledge can also greatly assist students in reading unknown words that follow typical letter-sound relationships. How students go about applying this knowledge is discussed in the section below.

**Phonics and Word Reading**

There are several different ways readers can use their knowledge of phonics to read unknown words; these include decoding, analogy, prediction from context and sight words or sight word memory (Ehri, 2005, National Reading Panel, 2000). Given the complexity of letter-sound relationships in English, as previously discussed, it is valuable if students have multiple strategies to draw upon when faced with reading words that are new to them. When teaching students to apply their knowledge of phonics to read words it is advisable to begin with decoding, also referred to as phonological decoding (Kirby et al., 2008).

Decoding involves pronouncing the sound for each letter in a word and then blending the individual sounds together to read the whole word, or producing sounds for chunks or parts of a word, and then blending these larger units together. This method of decoding is known as sounding out (Spear-Swerling, 2011). Sounding out is a good starting point for beginning readers as it allows them to read simple one syllable words and begin to identify themselves as readers. Modeling and providing explicit instruction in sounding out for students will help struggling readers to learn to decode. For example to sound out the word map step one is to say the individual phonemes, /m/ /a/ /p/. Step two is stretching out the three sounds so they overlap /mmmaapp/. Finally, step three is saying the word in its entirety and quickly, /map/. Struggling readers should practice the three steps for sounding out over and over again, until it becomes a reading habit. The Balanced Literacy Diet website provides an example of Drive-thru Blending that young students may find fun and reinforces sounding out and blending.
Similarly, a student can sound out the word *drink*, but will focus on larger sound units, such as **onsets** and **rimes**, which are the basis for **word families**, as well as **word parts** or **letter patterns**. The student would first say the onset /dr/ and then say the rime /ink/. The next step is to blend the two parts together, saying them faster without pausing, /dr/… /ink/, and then finally saying the whole word /drink/. For a better idea of sounding out larger units, the Florida Center for Reading Research provides a video sample of **blending onset and rime**. For sounding out to be successful students must receive instruction in all 44 sounds, which includes: learning the multiple sounds represented by vowels, shown in the **Short and Long Sounds** video clip from The Balanced Literacy Diet website, learning vowel **digraphs** (such as *ea, ou, ai*), shown in **Introducing the Sound of the Week** video clip from the same site, as well as learning the sounds for consonant **digraphs** (such as *sh and th*) and the sounds for common spelling patterns (such as *igh, and ough*). Specific information on instructing sounding out can be found in **Targeting Phonemic Awareness, Phonics and Fluency** in the From Research to Remediation section of the website.

The second method for reading words is by **analogy** which requires students to use words that they are already familiar with to help them read unknown words (Ehri, 2005; National Reading Panel, 2000). An example of reading a word by analogy would be when students are able to read a new word like *clink* because they are familiar with and can read the word *drink*. Students are taught to examine the new word for familiar letter patterns, in this case the rime unit *ink*, and to then identify this familiar sound unit in the new word. Students would then be instructed to focus on and identify the part of the word that was new, in this case /cl/. Finally students would blend the /cl/ with the /ink/ to produce the new word /clink/. Although reading unknown words by analogy can begin at the early stages of learning to read words, students will need to have had some training in sounding out, and will need to have a repertoire of words that they are familiar with and can read accurately (Cain, 2010).
A third method for reading new words is by prediction from context (Ehri, 2005). Students using prediction might look at some of the letters in the word, or they might use what they already know about the topic of the text being read or they might use the context of what has been read up to the point of the unknown word to help them guess at what the unknown word might be. For instance, if the word being attempted was *elephant* and the text contained information about animals in Africa, or the reader had previous knowledge about the different kinds of animals in Africa, then such clues might help in predicting that the word beginning with the letters *el* was *elephant*.

Prediction is a strategy that even skilled readers may employ along with other strategies such as sounding out, when they come upon a new word. However, a few points must be raised in regards to prediction from context. Cain notes that “Predicting or guessing the most likely next word is not a successful reading strategy” independent of other word reading strategies (2010, p. 73). Some teachers may instruct students to use the prediction strategy in place of using their sounding out skills. If students rely more on prediction to help them read unknown words rather than attempting to use their knowledge of letter-sound relationships and blending they will not be progressing in their ability to sound out, which may impact their word recognition skills. As such, instructing struggling word readers in the prediction strategy may be helpful as a complementary word reading strategy when used with other strategies such as sounding out, but may not be highly successful on its own (Cain, 2010).

The final method for reading words is sight word reading and is really the ultimate goal for word reading skills. Unlike reading words by sounding out, using analogy, or predicting from context, sight word reading does not require that the reader consciously attend to each word (Ehri, 2005). Ehri describes sight word reading as “when readers eyes alight on a word known by sight, the word's identity is triggered in memory very rapidly” (2005, p. 168). Sight word reading is critical for reading as it allows students to devote their cognitive attention to
comprehension, rather than to decoding the word (Spear-Swerling, 2011). As word reading develops and readers are exposed to more and more words these words are committed to memory and become recognizable by sight. Ehri describes this reading process as being contingent on the reader's knowledge of letter-sound relationships, phonemic awareness, and spelling patterns so that "when readers learn a sight word, they look at the spelling, they pronounce the word, they distinguish separate phonemes in the pronunciation, and they recognize how the graphemes match up to phonemes in that word" (2005, p. 170). Correspondingly, Cain (2010) notes that an individual's memory for a word can also include the word's meaning. Due to this proficient mapping technique word readers are able to store a word in memory after decoding it several times. The result is that a vast number of familiar words are stored in memory that allows readers to automatically and efficiently read these words when they come upon them in text. Individuals who lack good letter-sound correspondence and phonemic awareness skills will be less successful at committing words to memory, resulting in less automaticity in their word reading. Some students may possess good phonics knowledge, yet have other difficulties such as orthographic processing, impinging on their ability to learn sight words.

If you are at all doubtful that good readers are able to read words without conscious effort, then you may wish to try this Interactive Stroop Effect Experiment (Chudler, 2013). This short, but insightful activity requires the reader to disregard the word being presented and instead focus on identifying the color of the letters or the name of the object. For example the word red is written in the colour green and the reader must say the colour of the letters (green) rather than reading the word (red). This is a challenging task as readers' automaticity in word reading attempts to supersede conscious effort to state the font colour, rather than the word.

A final comment relative to sight word reading is that the discussion thus far has related to the process by which readers commit words to memory which then allows them to read
familiar words automatically. Many reading teachers use the term sight words, but are referring to a method of teaching children to read words (National Reading Panel, 2000). This method usually involves a student being presented with a series of flashcards with individual words that cannot be easily sounded out, such as the word the, (often referred to as irregular words) printed on them. The intent of the sight word method is that with enough repetition the student will learn to read these words as a whole unit (rather than by sounding out or analogy). It is important for reading teachers to recognize that the process of sight word reading is essential and is what makes a skilled word reader.

### Sight Word Reading Development

So what path does a student follow when progressing from being a nonreader to a reader who has committed many words to memory and can read most words with automaticity? Ehri (2005) has identified four phases of word reading through which children advance; these are the pre-alphabetic, partial alphabetic, full alphabetic, and consolidated alphabetic phases and are displayed in Figure 4. In the initial phase of pre-alphabetic students rely on global visual features (not letters) from a word to read it, as they have yet to learn letter-sound relationships. Environmental print, such as logos for fast food restaurants, stop signs, cereal brands, or names of soft drinks, can be recognized by nonreaders, not because they can read the names of the products, but because they have learned to connect the visual non-letter cue with the name (Cain, 2010; Ehri, 2005). Typically preschoolers and children in the early months of kindergarten would be expected to demonstrate pre-alphabetic behavior (Spear-Swerling, 2011).
The next phase of development is partial alphabetic and includes students who have some understanding of letters and phonemes, but may still be weak with the uncertainty that occurs with vowels (Ehri, 2005). In the partial alphabetic stage students use their imperfect knowledge of letter-sound correspondence to read some words and retain word parts. In this phase students recognize that the sounds they hear map onto the letters they see. Cain explains that “Initial and final letters of words are the more salient cues in this phase” (2010, p. 82). Because young students may not know all of the phonemes and graphemes, and vowels tend to be more problematic, there can be confusions when reading words like *big* and *bag* that have the same initial and final letters. Students in the partial alphabetic phase tend to rely on pictures and context clues to help offset the weaknesses they have with phonics knowledge. Students in kindergarten and the early part of grade one tend to be partial alphabetic readers (Spear-Swerling, 2011). However, Ehri (2005) notes that older students who have a reading disability may also be considered to be in the partial alphabetic stage.

The third phase entitled full alphabetic includes students who are able to read some well-known words from sight because they have formed connections by looking at the spelling
of the words and attending to the pronunciation (Ehri, 2005). Unlike the partial alphabetic phase, where gaps may exist in students' phonics knowledge, in this phase students have a solid understanding of phonemes and their corresponding graphemes. In addition to the solid understanding, Ehri (2005) also explains that students in this phase are able to "segment pronunciations into phonemes that match up to the graphemes they see" (2005, p. 175). In the full alphabetic phase students are able to read unknown words, although not all are from sight, and reading these new words may take time as students must cognitively attend to the word (Spear-Swerling, 2011). Readers in the full alphabetic phase are usually in late grade one and grade two.

The final development phase for word reading is consolidated alphabetic (Ehri, 2005). Students demonstrate consolidated word reading when they can read many words automatically that only require sight to read. Assisting them in this process is their ability to chunk groups of letters, syllables and entire words; a process Ehri refers to as unitized (2005). Unitizing can make reading larger words and adding them to memory simpler for readers. Morphological awareness (being able to reflect on and manipulate morphemes, which are the smallest units in a word that have meaning) is considered beneficial in helping students’ efficiently chunk words into smaller units (Cain, 2010). Research has shown that instruction in morphological awareness can improve word reading skills in weak readers and in both younger and older students (Bowers, Kirby, & Deacon, 2010). For example, to read the word remarkable using morphological awareness requires that the student recognize the prefix re, followed by the base mark, and then the suffix able. Not only does morphological awareness assist students in chunking morphemes to assist in word reading, each morpheme or part also contributes to the meaning of the word, which further assists students in comprehending what they read (Bowers et al., 2010). Students generally demonstrate the ability to read words from sight at seven to nine years of age or in the latter part of grade two or grade three (Cain, 2010; Spear-Swerling, 2011).
Reading teachers should recognize that there is no clear line between each of the four phases; rather students may exhibit some characteristics in one phase as they are developing characteristics from the succeeding phase. As such, the phases may be best understood as a continuum (Ehri, 2005; Spear-Swerling, 2011). For example, as skilled adult readers we may still need to fall back to the full alphabetic stage and attend cognitively to words that are new to us in order to read them.

With an understanding of phonics and how students use phonics to read words it is now time to look at educational research relative to phonics and its role in word reading. This research is discussed in the Role of Phonics in Reading page where the findings from two meta-analyses completed in 2000 and 2008, along with a systematic review completed in 2008 are reviewed.

The Role of Phonics in Reading

This section of the Helping Students Read Words website focuses on research findings that support the importance of phonics and word reading. Realizing why phonics is important in word reading will help to ensure reading teachers incorporate this important instructional component into their remedial word reading programs.

As noted in the Role of Phonemic Awareness in Reading section, meta-analyses, rather than individual studies have been selected for review. The reasons for this are (a) the findings of a well-designed meta-analysis draw their conclusions from numerous studies on a given topic and therefore carry significant weight with respect to that topic, in this case phonics and reading; (b) a higher number of studies results in a higher number of participants and therefore results can be better generalized to the broader population; (c) reviewing a meta-analysis can be a time saving measure for teachers rather than poring over numerous individual studies.
National Reading Panel Meta-analysis

The first meta-analysis to be examined is by the National Reading Panel (2000) which determined phonics to be one of five essential reading components (the others being phonemic awareness, fluency, vocabulary and reading comprehension). The second half of chapter two in the report, entitled Alphabetics, is devoted to phonics instruction. The panel investigated the effectiveness of systematic phonics instruction (compared to nonsystematic phonics instruction or no phonics instruction) on participants’ ability to decode real words, read pseudowords, identify single words or word recognition, spell words, comprehend text, and read orally. These six outcomes were considered to be representative of reading (National Reading Panel, 2000). To fully appreciate the panel’s findings it is important to understand what is meant by the term systematic phonics.

Systematic phonics instruction can be described as instruction in letter-sound correspondence that includes: methodical (not incidental) instruction in a specific or predetermined set of letters and sounds or letters and phonograms, an emphasis on the instruction in vowels (given the variation between phonemes and graphemes representative of a, e, i, o, u and sometimes y), and a thoroughness such that students receive explicit instruction in the most common letter-sound correspondences they will be exposed to when reading English words (National Reading Panel, 2000; Cain, 2010). The letter-sound correspondences focused upon may vary between different programs, however teachers will want to review the letter-sound to ensure that the most common correspondences are included. The Open Court Reading Sound Spelling Card Alphabet Chant from Youtube is an example of letter-sound correspondence training that would be considered comprehensive in that it contains many of the common phoneme-graphemes that early readers will need to know. Systematic phonics instruction also includes sounding out, where students are taught to say the sounds of letters in
the word and then to blend the sounds together to read the word (National Reading Panel, 2000). Unsystematic phonics instruction is not delivered in such a preplanned way; rather instruction in letter-sound correspondence occurs in a more ad hoc fashion as the need presents itself (Cain, 2010). Unsystematic phonics instruction can often times be found in classrooms where a whole language approach to reading is delivered (National Reading Panel, 2000). An example of phonics instruction in a whole language program might take place during a read aloud where the word rain appears in the text and the teacher draws the students’ attention to rain, and points out that the letters ai makes the long sound /a/. With a better understanding of what systematic phonics is it is now time to review the report.

The panel looked at 38 studies relative to systematic phonics interventions with the majority of the studies being conducted in the United States and Canada, from 1990 to 2000 (National Reading Panel, 2000). From those 38 studies, 66 phonics instruction intervention comparisons were analyzed. The participants in the studies were children in kindergarten through grade six with close to 40% being in grade one and over half of the participants being described as at risk or reading disabled readers. Generally, studies included in the meta-analysis were carried out within one school year or less. For each of the 66 phonics intervention comparisons an effect size, which is a numerical indicator of the differences between groups that makes it easier to compare results across different studies, was calculated (if not already present in a study’s data). When the statistical impact of an intervention is expressed as an effect size it is usually understood that 0.80 represents a large or strong effect of the intervention in comparison to the control, whereas 0.50 is understood as moderate and 0.20 would be considered small (Hattie, 2009).

When the 66 intervention effect sizes were averaged, an overall effect size of 0.41 in relation to the six outcomes that represented reading was determined (National Reading Panel, 2000). This overall effect size is noteworthy, however further investigation into the results are
needed. Given the emphasis of the *Helping Students Read Words* website, the three measures of decoding words, reading pseudowords and word identification are presented in Table 6 and are discussed below.

Table 6
*National Reading Panel (2000) Effect Sizes for Systematic Phonics Intervention*

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Area</th>
<th>All Participants</th>
<th>Kindergarten and Grade 1</th>
<th>Grade 2 - 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>systematic phonics</td>
<td>decoding</td>
<td><em>d</em>=0.67</td>
<td><em>d</em>=0.98</td>
<td><em>d</em>=0.49</td>
</tr>
<tr>
<td></td>
<td>(all participants)</td>
<td>(moderate)</td>
<td>(strong)</td>
<td>(moderate)</td>
</tr>
<tr>
<td></td>
<td>reading</td>
<td><em>d</em>=0.60</td>
<td><em>d</em>=0.67</td>
<td><em>d</em>=0.52</td>
</tr>
<tr>
<td></td>
<td>pseudowords</td>
<td>(moderate)</td>
<td>(moderate)</td>
<td>(moderate)</td>
</tr>
<tr>
<td></td>
<td>word</td>
<td><em>d</em>=0.59</td>
<td><em>d</em>=0.45</td>
<td><em>d</em>=0.33</td>
</tr>
<tr>
<td></td>
<td>identification</td>
<td>(moderate)</td>
<td>(moderate)</td>
<td>(small)</td>
</tr>
</tbody>
</table>

The meta-analysis found moderate effect sizes for all three areas (see All Participants column) which indicate that systematic phonics instruction is a worthwhile instructional component for word reading. Perhaps most impressive is that when the participant data were further divided into younger students (kindergarten and grade one) and older (grade two to grade six), a strong effect size of *d*=0.98 was found for the impact of phonics intervention on decoding real words for younger students. This is very meaningful information for reading teachers in that younger students, who appear to be struggling with foundational reading skills, should be considered a priority for receiving remedial intervention. Although older participants also showed moderate effect sizes for phonics intervention on decoding real words and pseudowords, the effect size for word identification was smaller for this particular group. The report does not indicate why this might be, however it does say that 78% of the older participants were characterized as low achieving or as having reading disabilities (National Reading Panel, 2000). Given this, participants in grades two to six may have required more
intense intervention to make gains in word identification than was provided in the studies reviewed in the meta-analysis. Reading teachers need to recognize that older children can still benefit from remediation in phonics; but gains in word reading may take longer and programming may need to be of greater intensity.

As with the National Reading Panel (2000) report on phonemic awareness (see the Role of Phonemic Awareness in Reading), moderators were also identified in the report dedicated to phonics. The authors cautiously stated that "Moderator findings are no more than correlational" (National Reading Panel, 2000, p. 2 – 113). In other words, if a condition such as one-to-one systematic phonics instruction resulted in a strong effect size on reading, this does not mean that the one-to-one instruction caused the positive effect outcome in reading, but rather that a relationship appears to exist between the two. Moderators can be useful to remedial programming however, as they can provide useful suggestions that may aide in students' achievement gains. Table 7 lists some of the key moderators in the report.

Table 7
National Reading Panel (2000) Moderators Resulting in Greater Gains in Reading

<table>
<thead>
<tr>
<th>Condition Resulting in Greater Gains</th>
<th>Reading (6 measures)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students in Kindergarten and in Grade 1</td>
<td>✔</td>
</tr>
<tr>
<td>Synthetic phonics approach</td>
<td>✔</td>
</tr>
<tr>
<td>One to one, small group or whole class instruction</td>
<td>✔</td>
</tr>
</tbody>
</table>

Already discussed is the moderator of younger students benefiting greatly from receiving phonics intervention. An additional moderator to be considered is the type of phonics approach, in this case synthetic phonics which is useful information for programming, and also if decisions have to be made around purchasing a phonics program. Synthetic phonics is one type of systematic phonics instruction where the emphasis is on teaching letter-sound relationships and the blending of these sounds to read words. All types of student arrangement be it one to one,
small group or whole class for intervention appeared to be conducive for phonics intervention to improve reading, which is good information for both remedial reading teachers and classroom teachers to consider when programming.

The National Reading Panel (2000) meta-analysis showed that systematic phonics intervention yields positive outcomes in relation to word reading. Of importance is that the phonics instruction must be *synthetic*, where explicit teaching of the most common letter-sound correspondence, with an emphasis on vowels, as well as on *blending* is included. Vaughn & Linan-Thompson also stress that effective phonics programs also “include books and stories that contain a lot of words for children to decode” (2004, p. 31). In light of the moderate to strong outcomes that were found for phonics intervention remedial teachers should recognize that phonics knowledge is one of the foundational skills underlying accurate word reading.

The National Reading Panel (2000) also included some important considerations for phonics instruction and reading. Most importantly, systematic phonics instruction should be recognized as one *part* of a comprehensive reading program. Phonics does not stand alone and cannot be considered a balanced reading program. In addition to systematic phonics instruction, programming for struggling word readers should also include phonemic awareness training, access to *just right* books that allow for independent practice of decoding and *fluency* skills, as well as teacher read alouds that can further develop struggling readers vocabulary and comprehension skills.

Finally, the National Reading Panel (2000) noted that many phonics programs come with teacher scripts that make the programs easy to deliver however some teachers will find this monotonous and boring. It makes sense that teachers will want to add their personal input when instructing, however it is important that they be knowledgeable about phonics instruction so that delivery is effective (see *From Research to Remediation* for more detailed explanations of instructing phonics and suggested activities).
National Early Literacy Panel Meta-analysis

Given the age of the National Reading Panel (2000) report it is prudent to review supplementary research that further supports the importance of phonics intervention for word reading. The National Early Literacy Panel (2008a) conducted a meta-analysis, similar to the National Reading Panel (2000), but focused on children from birth to age five. They reviewed the results from 234 research studies that focused on skills and abilities that were predictive of young children’s future reading (decoding and comprehension) and writing (spelling) abilities. Six early literacy precursor skills that had medium to large correlations with participants’ future reading and writing outcomes were identified and included: alphabet knowledge, rapid automatized naming (RAN), RAN of objects or colours, writing letters or writing your name, phonological memory, and phonological awareness (National Early Literacy Panel, 2008a). The panel also examined research that focused on the effectiveness of interventions and programs on each of the identified precursor skills, as well as on reading and writing.

Of the 234 studies examined by the National Early Literacy Panel (2008a), 83 studies related to code-focused interventions which included four categories (phonological awareness only, a combination of phonological awareness and alphabet knowledge, alphabet knowledge only, and a combination of phonological awareness and phonics or early decoding training). Of particular interest were the Panel’s findings for phonics training (which incorporated phonological awareness training). The report stated that “Often, this phonics training involved teaching children about letters and simple decoding tasks involving the use of letter sounds” (2008a, p. 108). The phonological awareness and phonics training yielded a mean effect size of $d=0.66$ on participants’ reading outcomes (decoding and comprehension), and was based upon 17 studies. Interestingly, positive effect sizes were also found for phonological awareness and phonics training on phonological awareness outcomes ($d=0.74$ from 19 studies), for alphabet knowledge outcomes ($d=0.57$ from nine studies), for oral language outcomes ($d=0.68$ from four
studies), and for spelling outcomes ($d=0.59$ from eight studies) which indicates that phonics and phonological awareness training influences for young children impact numerous areas related of reading.

Overall, the National Early Reading Panel (2008a) report indicates that phonics training, in combination with phonological awareness training, positively impacts young children’s reading. Although the present study does not isolate the impact of phonics alone, it is important to reiterate that research shows that children make greater reading gains when instruction includes both phonemic awareness activities and letter-sound correspondence (Hulme, Bowyer-Crane, Carroll, Duff & Snowling, 2012; National Reading Panel, 2000). For additional information on phonemic awareness as a component of phonological awareness see Figure 2, Phonological Awareness Hierarchy in Understanding Phonological and Phonemic Awareness). A final point from the National Early Literacy Panel (2008a) report is that code-focused interventions that produced a large effect size usually involved 1:1 or small group and were teacher directed which is useful programming information for remedial reading teachers.

A Systematic Review of the Research Literature on the Use of Phonics in the Teaching of Reading and Spelling

The third research report to be discussed is a systematic review conducted by Torgerson, Brooks & Hall (2006). A systematic review is very similar to a meta-analysis, and was explained by Torgerson et al. as “a review where explicit methods have been used to identify, select and include studies fitting pre-specified criteria, in order to minimize bias in the review” (2006, p. 15). It should be noted that the authors refer to their systematic review as a meta-analysis and also to the National Reading Panel (2000) report as a systematic review, indicating that the two terms are somewhat interchangeable. The authors identified the main difference of their review as being that they only included studies of randomized control trials,
which means that an experiment involved two groups created by random selection, thereby eliminating bias during selection (Torgerson, 2006).

The focus of the Torgerson et al. (2006) review was on the impact of phonics instruction on reading and spelling results for children aged five to 11 years, with the majority falling between the ages of five and seven. They reviewed 12 studies conducted between 1971 and 2004 that included a total of 587 participants. Given the emphasis on word reading in *Helping Students Read Words*, the findings for the impact of phonics instruction on reading accuracy (measured by calculating the mean of word recognition and word attack results) will be examined.

Torgerson et al. (2006) determined that the evidence provided from the 12 studies was of moderate quality and found effect sizes ranging from small to moderate to strong, with an overall mean effect size of 0.27. The authors found that systematic phonics instruction does allow for superior progress in word reading for typically developing readers as well as struggling readers in comparison to non-systematic phonics instruction or no phonics instruction. An interesting note for the Torgerson et al. (2006) review is that the researchers investigated whether findings from the studies supported synthetic phonics instruction over analytic phonics instruction, however only three studies in the review focused on this comparison and no significant difference was found.

Both the Torgerson et al. (2006) review and the National Reading Panel (2000) report, determined small to moderate effects for systematic phonics instruction resulting in improved word reading. Similarly, the National Early Literacy Panel (2008a) found positive outcomes for young children’s word reading skills with phonics instruction, along with phonemic awareness instruction. From this it is evident that phonics instruction plays a critical role in learning to read words and remedial reading teachers are encouraged to determine if their students who struggle with word reading demonstrate phonics deficits and require remediation in this area.
Research to Remediation section on the Helping Students Read Words website provides a variety of different phonics activities that teachers can use for remediating this area of word reading.

As mentioned earlier, teachers will want to ensure that all instructional components are addressed in their remedial reading program in accordance with each student’s word reading deficits. The importance of combining phonics letter-sound training with phonemic awareness is stated more than once in the Helping Students Read Words site mainly because many teachers do not make the connection between these two instructional components and as such instruct them separately. A recent study conducted by Hulme et al. (2012) further analyzed data from a large scale study that compared the effect of letter-sound knowledge and phonemic awareness interventions on literacy (which was measured with word and nonword reading, as well as spelling). Two key findings from Hulme et al. are worth noting (a) “that directly taught letter-sound knowledge and phoneme awareness produced significant improvements in these two skills and in early word-level literacy skills” (2012, p. 576); (b) that weak phonemic awareness and letter-sound knowledge skills can be considered causal factors in failure to acquire word reading skills. As such, it is important that students who struggle to read words be assessed for both letter-sound knowledge deficits and phonemic awareness deficits and if warranted remediation should include interventions in both.

Assessing Phonics

Students who demonstrate phonics and word reading skills below their current grade level require reading remediation and compensatory strategies to be put in place. With older children, use of assistive technology or the use of graphic and semantic organizers (compensatory strategies) is often a part of their school programming. Given cutbacks in
educational funding, as well as a shortage of teachers who possess specific training in word reading instruction, remedial programming is not always provided, and if it is it can be haphazard or ineffective. The website’s Introduction explains that teachers sometimes lack understanding about the areas of reading that require remediation and what effective intervention strategies can be put in place. Students who are formally identified should have an Individual Education Plan (IEP) that includes important information about their learning profile, along with previous formal and informal assessment results. Unfortunately, not all IEPs contain information that is specific to a student’s word reading deficits, or in many cases a student does not have an IEP, which means that the teacher must collect the necessary data to better understand the student’s specific areas of reading deficits. Ideally, assessment should be administered by the classroom teacher or the teacher providing remediation. Two reasons for this are (a) that the person administering the assessment will have firsthand knowledge of how the student responds to the assessment and be in a better position to interpret the results; (b) it is likely that if a teacher has decided to administer a phonics assessment there is some understanding of the important role phonics plays with respect to reading. Initial data collection could look like a beginning of the year screening or informal classroom assessment, such as those listed in the downloadable chart on the Reading Rockets website. However, if additional information about a student’s reading difficulties is warranted then diagnostic or formal assessment, such as a Woodcock Johnson may be required.

A good starting point for teachers when there are questions about a student’s level of phonics knowledge is the interactive tool Target the Problem! found on the Reading Rockets website. This easy-to-use resource provides useful information about phonics, as well as the other four components of reading (phonological and phonemic awareness, fluency, vocabulary and reading comprehension), and lists reading behaviours that a teacher or parent might observe when a child is suspected of having weak reading skills. The Reading Rockets website also offers a video clip entitled Assessing Reading Skills, which discusses the importance of
ongoing assessment in order to help struggling readers. Some school boards have put early screening checklists in place for kindergarten and early primary teachers to administer, such as the screening tool located on the Get Ready To Read website. This site offers a 20 question screening tool to help determine if preschoolers demonstrate the skills necessary for learning to read.

Young children in kindergarten and grade one may possess limited ability to consistently and quickly produce sounds associated with letters, even when instruction and review has taken place. Research has shown that weaknesses in letter-sound correspondences “are consistently found in children with developmental dyslexia” (Cain, 2010, p. 125). With older students, the most obvious indicator may be that they have difficulty decoding words larger than one syllable, or are unable to read words in a fluent manner. Before effective phonics intervention can occur, teachers must assess students to determine their degree of phonics knowledge. Spear-Swerling (2011) suggests that phonics assessment should tap into a student’s knowledge of letter sounds, word parts, and syllable types, along with pseudowords.

Letter-sound assessment can be done fairly quickly, and a simple Letter Sound Assessment can be used for the 26 letters of the alphabet. Typically these simple assessments include measurement of both the letter names and their sounds. It is important for reading teachers to recognize that students must identify the name or sound accurately and quickly, any hesitation on their part indicates that they require further practice. Additionally, as there are 44 phonemes and numerous corresponding graphemes (see Table 5) it is important to also assess struggling readers’ knowledge of letter-sound relationships beyond the single letters of the alphabet. O’Connor (2007) notes that the English language can be difficult to read, but research shows that within the language there are consistent letter patterns that with exposure readers come to recognize. When remediating struggling word readers they may require extra practice in learning these common letter patterns. Providing instruction in morphological awareness is
one method that may help students to learn common morphemes, such as, *un*, *ing* and *tion*, and research has shown students to demonstrate motivation in learning about morphemes (Bowers et al., 2010).

Given that word readers must know letter patterns it is necessary to also assess their knowledge of these patterns, such as consonant digraphs (such as *th* and *sh*), consonant blends (such as *bl* and *tr*), vowel digraphs (such as *ee* and *oa*), split digraphs (such as *i* and *e* in the word *kite*), diphthongs (such as *oi* and *au*), knowledge of syllables (such as *tion*) and knowledge of morphemes (such as the prefix *re* and the suffix *ness*). The Phonics Inventory is a more comprehensive phonics assessment that includes common letter and word patterns and would be appropriate to use with students in grade one and beyond. Additionally, this site offers Phonemic Awareness Assessment Tools which should also be utilized given that phonemic awareness can be a part of underlying decoding weaknesses (Spear-Swerling, 2011).

In addition to letter-sound knowledge, struggling word readers should also be assessed on their underlying phonics knowledge that helps them to decode words. To decode, a reader must pronounce the sound for each grapheme in a word and then blend the individual sounds together to read the whole word, or produce sounds for chunks or parts of a word, and then blend these larger units together. This method of saying the sounds and then blending them together is also known as sounding out (Spear-Swerling, 2011). A free Word Analysis Test can be found on the Literacy Information and Communication Systems website, as well as in the Decoding section of the Abecedarian Reading Assessment booklet. It is also advisable to include pseudowords when assessing students’ single word decoding skills as this will ensure that decoding is being measured, rather than the possibility that students may recognize the word from memory. Pseudowords in word reading assessments truly assess the students’ ability to use their knowledge of letter-sound relationships to decode. Examples of pseudowords and their importance in reading assessment can be found on the Reading Rockets website. A
Youtube video, [Blending Sounds 1](#) provides a pseudoword blending activity and a [pseudoword assessment](#) can be found on the BalancedReading.com website.

To effectively help struggling word readers it is necessary to monitor their progress by frequently checking in to assess what growth has occurred in their phonics knowledge and skill set. [Progress monitoring](#) can simply involve re-administering some of the assessments discussed above. If results from progress monitoring indicate that there has been little improvement since interventions have been put in place, it may be necessary to administer a more comprehensive and standardized reading assessment such as the [Woodcock Reading Mastery - III](#) or WRM-III (Woodcock, 2011). The WRM-III test is made up of a nine subtests including: phonological awareness, language comprehension, letter identification, [word identification](#), [rapid automatic naming or RAN](#), oral reading fluency, word attack, word comprehension and passage comprehension. Following assessment, a report can be generated that provides scores that allow for comparison of students’ reading abilities with their same-aged peers. A [sample report](#) of a seven year old gives a better idea of the extensive information that can be gathered about a particular student’s reading abilities. A standardized reading assessment, such as the WRM-III is usually administered if the teacher and special education resource teacher or reading specialist decide that a student’s reading difficulties warrant a more in depth probe than an informal assessment can offer.

Once phonics assessments have been completed reading teachers are now in a better position to determine where specific phonics deficits lie and what form of intervention will need to be put in place. The [From Research to Remediation](#) section of [Helping Students Read Words](#) website provides both guidelines and resources for remedial phonics programming.
CHAPTER FOUR - FLUENCY

Learning Objectives

1. Be able to define and give examples for the terms fluency, prosody and repeated reading.
   (Understanding Fluency)

2. Be able to explain to a parent or colleague the importance of fluency in relation to reading.
   (Role of Fluency in Reading)

3. Be able to assess fluency skills in students.
   (Assessing Fluency)

4. Be able to design and deliver a variety of instructional activities that will help to improve fluency skills in students.
   (From Research to Remediation)

Understanding Fluency

This section of the Helping Students Read Words website focuses on fluency, another important instructional component in reading that was identified by the National Reading Panel report (2000). Unlike phonological awareness and phonics, fluency is not directly related to translating the letters on a page into words, but rather it should be thought of as a connection between word reading and comprehension. When students can read words accurately, at an appropriate pace that aids comprehension, and with expression, they are reading fluently. Reading at an appropriate pace allows for students’ cognitive effort to be dedicated to comprehending what they are reading and also allows for key parts of the text to remain together in short term memory. Reading teachers who understand fluency and its importance in reading will be better prepared to provide effective remediation for students who struggle with fluent reading of words and text.
Many teachers have no doubt listened to students read and have determined that they lack fluency. They may have heard reading that was slow, disjointed, and with frequent pauses to sound out difficult words. When listening to disfluent readers, teachers may also have noticed the great deal of effort students put into getting the words off the page. With so much cognitive effort being placed on reading words, students have very little mental energy left for understanding what they are reading (National Reading Panel, 2000; O’Connor, 2007; Vaughn & Linan-Thompson, 2004). When readers are fluent, they read words quickly and accurately, which can assist in freeing up cognitive resources for comprehending, thus making fluency an integral part of the reading process.

Vaughn and Linan-Thompson define fluency as “accurate and rapid naming or reading of letters, sounds, words, sentences, or passages” (2004, p. 50). Given the emphasis on accuracy and rate, it makes sense that measurement of fluency is often determined by the number of words that can be read accurately within a one minute time frame (Hudson, 2011). Prosody or expression is the third component of fluency, which is the variation in pace and expression readers add to their reading and has been described as “the melodic aspects of oral reading” (Rasinski, 2008, p. 202). This discussion recognizes fluency as including the three components of accuracy, speed, and prosody. The fluency audio clip from the Kindergarten Keepers website provides a good example of what fluent reading is, and is not. For a better understanding of fluency it is worthwhile taking a closer look at its subcomponents -- accuracy, speed and prosody.
**Accuracy**

For students to be accurate word readers they must possess the necessary skills of **phonological awareness**, **phonics** and the **alphabetic principle** (see Understanding Phonological and Phonemic Awareness and Understanding Phonics). Students who possess the alphabetic principle understand that the speech sounds they hear are represented by the letters that they see (O’Connor, 2007). To read unknown words students must be able to accurately identify the sounds represented by the letters and then blend these sounds together to produce words. Students then progress to identifying sounds for groups of letters or **letter patterns** which allow them to read words more efficiently than they could letter by letter. As word reading continues to develop readers are exposed to more and more words, which they then commit to memory and become recognizable by sight, a skill Ehri (2005) describes as **sight word reading** (see Understanding Phonics for additional information on the phases of sight word reading). When students read the majority of text by sight they demonstrate **automaticity**, which enables students to read words and text much quicker than they can by decoding each word (Hudson, 2011).

Struggling word readers can be slower than typical readers in learning sounds, letters and spelling patterns, blending and ultimately developing sight word reading. A breakdown can occur with any of these foundational reading skills and students will require assessment to determine their specific areas of weakness. Once these are determined interventions can be put in place to assist students in progressing in their word reading accuracy. Students who possess weak word reading skills will have difficulty reading both individual words and text accurately, resulting in weak fluency. As such, an important step to consider when improving students’ fluency is to ensure that they have accurate word reading skills. When students are receiving support and interventions to decode words accurately consideration can be given to the rate or speed at which they read.
Speed

When discussing reading speed it is helpful to relate it to the different levels of reading. Hudson (2011) identifies three levels: (a) the sublexical level, which includes knowledge of letter-sounds and letters or spelling patterns; (b) the lexical level, which includes words; (c) the connected or continuous text level, as seen in Figure 5. At the sublexical level, students learn individual letter-sound relationships, and subsequent multiple letter sounds, such as consonant and vowel digraphs, rimes and suffixes. However, students must not only demonstrate these skills so that they can choose the letter tile  when asked what letter represents the /t/ sound, and pronounce /ing/ when viewing a flip card with ing printed on it (letter-sound and multi-letter sounds relationship skills), they must also demonstrate this quickly and automatically.

Once students have learned such skills, practice should then be provided so that skills can be consolidated and the speed with which they demonstrate the skills can be increased. Practice activities should include timing students and encouraging them to improve how long it takes them to complete the activities. In the game ABC Match players can choose between Learn Mode to assist in learning the letter that represents the initial sound in a picture, and then

Figure 5. Levels of reading, Hudson, (2011). This figure depicts the three levels of reading that can be impacted by reading speed.
move onto *Play Mode* which incorporates a timer and compels players to complete each task faster as they advance through the game. It is not enough to simply instruct struggling students in foundational reading skills, reading teachers must also ensure that they provide practice opportunities where students are being encouraged to complete such tasks quickly. What is helpful for teachers to know is that most students love to “beat the clock” and incorporating a timer can turn a mundane or rote fluency activity into a game.

The term **Rapid Automatized Naming** or RAN often appears in the literature when discussing students’ ability to identify letters and sounds quickly. RAN “refers to how quickly an individual can pronounce the names of a set of familiar stimuli” (Kirby, Georgiou, Martinussen, & Parrila, 2010, p. 341). The set of stimuli usually includes digits, letters, colours and objects. In more broad assessments, such as the *Comprehensive Test of Phonological Processing* or CTOPP, rapid naming of all four stimuli is administered and scored. Reading teachers need to understand that RAN is an important component in learning to read words, specifically in relation to fluency, and that weak rapid naming skills can hinder students’ progress in becoming efficient word readers (see *Assessment of Fluency* for further discussion) (Kirby et al., 2010).

Just as students need to learn to rapidly name individual letters and sounds, they must also learn to rapidly name multiple letters or letter patterns, as seen on the *Hunks and Chunks* video and the *word family lesson* (Hudson, 2011).

Beyond fluency for letters and sounds is the lexical level, which involves reading individual words. Hudson defines lexical fluency as “reading words out of context, either automatically by sight or by slower processes such as *decoding* and *analogy*” (2011, p. 173). Readers who can read by sight have used their knowledge of visual patterns to commit words to memory. When typical readers are exposed to a word repeatedly they can eventually read the word automatically. This automaticity lends itself nicely to fluency as sight word reading occurs much faster than decoding words using sounding out or chunking strategies. Students who
demonstrate quick word reading skills are on their way to becoming fluent readers. Levy states that “the strongest predictor of text reading speed is the speed of single word reading” (2009, p. 2). In contrast, students who demonstrate slowness in word reading (and in sound or letter naming) are more likely to have difficulties with fluency. Given this, reading teachers should ensure fluency measures are administered to struggling readers so that helpful interventions, such as having students read columns of words on a word wall as quickly as possible or saying a word and having students locate the correct word card as in Fast Match can be put in place. Intervention strategies for improving word reading fluency can be found in the From Research to Remediation section of the website.

In addition to letters, sounds and words, students must also develop fluency in text reading. When reading individual words good readers are simultaneously deciphering the word’s meaning, resulting in a fairly streamlined cognitive task and much less complex than comprehending the meaning of text (Hudson, 2011). With continuous text reading, students engage in reading the words at a fast enough rate that allows for groups of words to make sense. To comprehend the meaning of text, students must use their understanding of syntax (words arranged in such an order so that the meaning is understandable). Comprehending continuous text also means that the reader must hold previously read ideas in memory so that subsequent words can be connected to these ideas. Furthering the complexity of text reading is that the reader must hold these ideas in memory while continuing to lift words off the page. Additionally, some reading researchers claim how students read the words, their prosody (or pace and expression) further assists readers in comprehending text (see the next section on prosody for more details). All in all, reading and comprehending text is a highly complex skill and although it is beyond the scope of this website, it is essential for reading teachers to understand.
The first step in helping students improve their text reading fluency is to assess their text reading rate. This is done by having the student read an [instructional level text](#) while being timed, and the accuracy and words per minute are recorded (see [Assessing Fluency](#)). To determine if students’ reading rate is weak, their results should be compared to same age level peers’ reading rates, such as the ones displayed in the [reading rate chart](#) from the Reading Rockets website.

If a reading rate deficiency is found then there are several interventions that can be put in place. One of the most common strategies is [repeated reading](#) which involves students reading a short passage at their instructional level to an adult who is noting inaccuracies and is timing the number of words students can read for one minute. Following the reading, the adult provides the student with feedback such as, words that were read incorrectly, inattention to punctuation, and prosody. The student then repeats the activity two more times. It is helpful if students plot their words per minute onto a graph so that they can visualize their progress in text reading fluency. O’Connor (2007) suggests that repeated reading should occur three times per week, and it can be incorporated into whole classes as the teacher can sit with the student when the rest of the class is reading independently. Some teachers arrange repeated readings in their classrooms and have students work in pairs (one timing the other reading), however if a student requires significant fluency remediation it will be more beneficial to have an adult carry out the repeated reading sessions to ensure feedback is precise and helpful to the struggling reader (O’Connor, White, & Swanson, (2007). Additional strategies for text reading fluency can be found in the [From Research to Remediation](#) section of the website.
Prosody

Unlike accuracy and speed, which can impact fluency at the letter, word and text level, prosody relates to text level reading only (Hudson, 2011). Students who read with expression, and who are able to read words in phrases (rather than word – by – word) are demonstrating good prosody. It is suggested that prosody “puts the speech characteristics back into print” (Levy, 2009, p. 2). Think about how we converse with others, there is expression and phrasing involved, rather than speech that resembles a robot’s voice. To read with expression means to add emotion and feeling to the text you are reading, and alternatively to read without expression is to read text in monotone fashion.

A second component of prosody is phrasing which involves grouping or chunking words together rather than reading word by word. Rasinski explains that “often meaning lies in a text’s phrases” (2010, p. 39). For example, students who read the words, the (long pause) dog (long pause) ran may have difficulty understanding that the text is about a dog that is running. Whereas students who read words with phrasing will read the dog ran and may be better able to comprehend that the text is about a dog running. It is important to note however that good fluency does not automatically result in good comprehension and a student who can read the dog ran with fluency may still have other issues that result in poor comprehension (Hudson, 2011).

When accurate phrasing and expression are a part of reading they can help the student better understand the meaning of the text. One of the best strategies is for reading teachers to model reading to their students to demonstrate prosody. For a sampling of expressive reading visit the Storyline Online website and listen to the reading of Harry the Dirty Dog and pay attention to both the phrasing and the expression the reader models.

To summarize, fluent readers are able to attend quickly to letters, sounds and spelling patterns at the sublexical level, to individual words at the lexical level and to continuous text.
Levy (2009) describes this as a developmental path, in which students progress from quick identification of letters, sounds and larger clusters of letters, to sight word reading, and then to reading continuous text fluently. Students who struggle with fluency at either the sublexical or lexical level may require remediation in accuracy and speed, whereas those who struggle at the continuous text level may also require remediation in prosody. Although not an underlying skill for decoding, fluency should be recognized as an important bridge between reading words and comprehension and should be included as a component in a remedial reading program. With a better understanding of what exactly fluency is and how it supports reading, it is worthwhile to examine the educational research regarding this reading component. Three large studies and the implications of their findings are discussed in The Role of Fluency in Word Reading.

The Role of Fluency in Word Reading

A meta-analysis, review and synthesis have been selected to look at and provide research support for the importance of fluency in reading. The reasons for choosing these studies are that (a) larger studies in which conclusions from numerous individual research reports on a given topic are analyzed carry significant weight with respect to that topic, in this case fluency and reading; (b) a higher number of studies results in a higher number of participants and therefore results can be better generalized to the broader population; (c) reviewing larger studies can be a time saving measure for teachers rather than poring over numerous individual studies.
National Reading Panel Meta-analysis

The National Reading Panel (2000) examined the research evidence surrounding fluency and its impact on reading. When reviewing the studies for the meta-analysis, the panel determined that they could be categorized into two instructional methods (a) approaches related to repeated reading and oral reading with guidance; (b) approaches related to continuous silent reading. The panel noted that although it is customary for many classroom teachers to include silent (or continuous) reading time for students in their daily schedules, there was insufficient research evidence that showed this practice resulted in reading improvement, and none of the studies measured gains in fluency. As such, this review of the National Reading Panel (2000) Fluency chapter will focus on the summary of results related to repeated reading and similar instructional interventions that were found to improve fluency.

The National Reading Panel (2000) identified 14 studies on fluency interventions that were conducted between 1970 and 1996, with the majority of studies being from the 1990s. The studies’ participants included 605 students in grades two to grade nine, with approximately half of these participants described as poor readers, and the other half as good readers. Similar to the National Reading Panel (2000) meta-analyses for phonemic awareness and alphabettics (phonics), effect sizes were calculated for 14 of the fluency intervention comparisons, (an effect size is a numerical indicator of the differences between groups that makes it easier to compare results across different studies). When the statistical impact of an intervention is expressed as an effect size it is usually understood that 0.80 represents a large or strong effect of the intervention in comparison to the control, whereas 0.50 is understood as moderate and 0.20 would be considered small (Hattie, 2009).

Although the types of interventions identified in the 14 studies varied, overall they were described as “repeated reading and other procedures that have students reading passages
orally multiple times while receiving guidance or feedback from peers, parents, or teachers” (2000, p. 3-20). With repeated reading intervention the adult (or in some cases a peer who is a strong reader) listens and times the student as he or she reads a short passage at his or her instructional level, with the number of words being read during one minute recorded. For some repeated reading sessions the adult also makes note of any errors made by the student and then provides specific feedback in relation to words that were read incorrectly, inattention to punctuation, or errors with prosody. The student then rereads the passage two or three more times, with timing and feedback again provided by the adult. It is recommended that a student with weak fluency participate in repeated readings three times per week (O’Connor, 2007).

The National Reading Panel (2000) analyzed the effectiveness of repeated reading on outcomes for word recognition, reading comprehension, and fluency, as well as outcomes for combinations of these measures. Overall, an effect size of $d=0.41$ was found for repeated reading on all three measures which indicates that repeated reading should be considered as an important instructional strategy for reading improvement (National Reading Panel, 2000). Interestingly, when this average was further divided into groupings of poor readers versus good readers, it resulted in a somewhat smaller effect for poor readers ($d=0.33$), and a larger effect for good readers ($d=0.50$). The panel concluded that the difference in favour of the good readers was probably due to the fact that studies with good readers tended to run longer than the studies with poor readers, indicating that poor readers may achieve similar results if provided with 24 to 25 total hours of repeated reading intervention. Another consideration for the difference in the effect sizes is that the poor readers may have required remediation in accuracy and decoding. Further breakdown of the results is listed in Table 8 and discussed below.
Of course the finding that is most relevant to the topic at hand is the effect size of $d=0.44$ that was found for fluency. This is important information for teachers who are looking for ways to improve their students’ fluency outcomes as it shows that repeated reading is a viable intervention that results in gains in students’ fluency. The results also show that repeated reading intervention had a moderate effect on word recognition, and as discussed in the Understanding Fluency section of Helping Students Read Words, both accurate and rapid word recognition play important roles in readers’ fluency skills. Finally, the repeated reading interventions had a positive, albeit small, impact on students’ reading comprehension outcomes.

Overall, the National Reading Panel (2000) found substantial results for the impact of repeated reading on fluency gains, in addition to gains for other reading components. An important note from the report was that fluency intervention sessions in the studies examined usually lasted for approximately 15 minutes, and were part of a more comprehensive reading program. Teachers are reminded that a balanced approach to remediation is believed to be the best approach for students who struggle with reading (National Reading Panel, 2000).

Additional research for fluency will be reviewed below that provides further support for the importance of fluency interventions to enhance students’ reading.
Fluency: A Review of Developmental and Remedial Practices

Kuhn and Stahl (2003) conducted a review of fluency studies to better understand what interventions improve fluency for students. They found 58 research studies completed between 1965 and 1997, with participants ranging from grade two through high school and college. The researchers set out to complete a meta-analysis, but were unable to do this due to a limited number of studies that included control groups, and because of the sizeable span between the calculated effect sizes (0.13-2.79), which they felt would distort an overall effect size. Although an effect size for fluency interventions was not made available, Kuhn and Stahl did conclude that “When fluency instruction was compared with the traditional instruction used with a basal reader, fluency instruction improved children’s reading fluency and comprehension” (2003, p. 17). The researchers also grouped the qualitative findings for fluency intervention so that commonalities among the studies could be identified. It is worthwhile reviewing their findings as they are helpful when examining effective fluency remediation.

Kuhn and Stahl (2000) divided the studies that focused on fluency intervention into two categories (a) studies in which intervention strategies did not include some form of assistance to participants; (b) studies in which participants received assistance in the form of modelled fluent reading. Within this second category the studies were further divided into ones that provided individual fluency intervention and others that were described as whole class intervention. The no assistance studies accounted for over half of the fluency studies examined, and 15 of these studies included control groups. The form of intervention was described as repeated reading which required participants to either repeatedly read a short passage up to seven times (the most common number of readings being three), or until they met a pre-established words per minute rate. To determine the effect non-assisted repeated reading had on fluency the researchers did a vote count. This method of analysis required tallying up the studies that found the treatment (in this case non-assisted repeated reading) “produced significantly greater
achievement than the control” (Kuhn & Stahl, 2000, p. 8). In the first count, only six studies showed significant effect, whereas eight studies did not. In the second count, which involved all comparisons (some studies included more than one comparison), only eight studies showed the treatment groups outperforming the control groups, and 21 studies where they did not. Kuhn and Stahl (2000) concluded that repeated reading without assistance did not lead to significant improvements for participants in the majority of the studies examined.

Studies that focused on individuals and provided assistance in the form of modelled fluent reading included assisted or choral reading interventions, or reading-while-listening (Kuhn & Stahl, 2003). The assisted reading intervention required both the participant and an adult or teacher to read aloud a student-selected text at the same time and at the same pace. The results for this type of fluency intervention were favourable, and were found to not only increase participants’ fluency rates, but also their comprehension results, with one study reporting a mean gain of 1.9 years (Heckelman, 1969). Another study changed the choral reading technique so that groups of ten students could listen to a taped reading rather than one on one with a teacher, and findings showed one year comprehension growth for the treatment group over one semester (Hollingsworth, 1978).

The reading-while-listening intervention required participants to listen to a book on tape or to a book on tape that emphasized phrasing, and then to select a part of the book to practice reading fluently along with the tape. Once again, the researchers noted that fluency results were positive. However Kuhn and Stahl (2003) did point out that the reading-while-listening intervention required participants to work towards being able to read the selected passage fluently, and this intervention should not be confused with classroom listening centers where students can simply listen to a book on tape, without the expectation that they will orally read the book fluently afterwards.
Fluency intervention studies that involved implementation within whole classrooms included pairing students for reading and shared-book reading. In these studies a strong reader was paired with a weak reader, or an older student with a younger student, described as cross-age and what some might refer to as book buddies. The common procedure for cross-age interventions was to have older students select a book and practice reading the book fluently by reading along with a recording of the book, or choosing a book below their grade level so that they could read it fluently for their younger partners. Several of the studies found growth in the older participants’ reading rates, as well as in their confidence in reading. In reviewing the results Kuhn and Stahl (2003) noted that struggling readers, rather than good readers, seemed to make better fluency gains with cross-age pairings, but indicated this could be due to struggling readers having to practice reading text that was described as difficult, whereas good readers read text that was described as easy. It should be noted that the text level may play an important role in the effectiveness of fluency intervention, as it was also identified in the subsequent synthesis.

The typical format for shared-book interventions included the teacher reading text aloud to the class, in some studies using a big book, followed by whole class comprehension discussion or activities, and then various rereading activities including, echo reading, choral reading, reading in pairs, and individual practice. Overall results for this type of whole class fluency intervention were inconsistent and the researchers recommended further research that includes control groups.

As noted earlier, the results from Kuhn and Stahl’s (2003) review indicated that fluency interventions improved both fluency and comprehension in comparison to reading programs that did not incorporate fluency training. However, their analysis of the studies did not show one type of intervention as being superior to another. The researchers found that practice and assistance (either taped or from an adult) appeared to be an important intervention factor for improving
fluency. They also observed stronger results for younger students up to grade two in comparison with older students, with the possibility that younger students may be in the word reading phase where they have some “knowledge about words to benefit from rereading, but are not so fluent that they cannot demonstrate improvements” (also see Understanding Phonics for a discussion of sight word development) (Kuhn & Stahl, 2003, p. 17). This observation with respect to younger students raises the question of whether or not older struggling readers can benefit from fluency training, which leads to the final research report that focuses solely on older students.

**A Synthesis of Fluency Interventions for Secondary Struggling Readers**

A synthesis conducted by Wexler, Vaughn, Edmonds and Reutebuch (2008) found that there are few fluency studies for older students and as such their focus was directed at students in grades six through twelve. The researchers located 19 studies, conducted between 1987 and 2004, which included five treatment and comparison studies that allowed for the calculation of effect sizes. For the five studies, effect sizes ranged from small, \((d=0.23)\) to large \((d=1.02)\); however these results combined both fluency and comprehension results, making it difficult to conclude the extent to which fluency interventions improved fluency scores. Similar to the Kuhn and Stahl (2003) review, the researchers also summarized the qualitative findings from each study which again lend insight into effective interventions for fluency weaknesses.

The first group of studies examined by Wexler et al. (2008) related to repeated readings with modelling in which students previewed audio tapes of fluent reading or adults or peers demonstrated fluent reading and also provided participants with feedback. The researchers concluded that both types of repeated reading interventions resulted in improved reading rates, but less consistent growth was found for participants’ comprehension. Similar to Kuhn and Stahl’s (2003) findings, inconsistent results were noted for studies in which no modelling was
provided for students during repeated reading. Wexlar et al. (2008) also looked at the results of two studies that compared repeated reading without modelling to continuous text reading, but again results were inconsistent and it was not clear if repeated reading and continuous reading had comparable levels of effect on fluency.

Further analysis of the fluency intervention studies by Wexlar et al. (2008) revealed that the number of rereads and the text level enhanced the effect of repeated reading interventions for struggling readers. When the number of times a participant was asked to reread a passage was examined it was determined that three rereads were more effective than only one read, but as effective as seven rereads. To make the most of the instructional time for remediation, it makes sense to have students reread passages three times. Wexlar et al. (2008) also identified positive effects when the text for repeated reading was above participants’ instructional reading level and again when widely used words appeared across the texts that students were reading. Overall, Wexlar et al. (2008) found positive results for older students’ fluency gains with repeated reading interventions that included modelling, when three to seven rereads occurred, and when text was above students’ instructional level and contained widely used or high frequency words.

The National Reading Panel (2000) report, along with the Kuhn and Stahl (2003) review and the Wexlar et al. (2008) synthesis provide support for the effectiveness of fluency interventions to increase students’ fluency levels. Repeated reading with modelling and feedback was identified in all three studies as being an effective means of increasing student fluency. Additionally, Wexlar et al. (2008) noted for older students that the text used for repeated reading activities should be above the students’ instructional level, in addition to the text containing high frequency words. Kuhn and Stahl (2003) also identified gains in reading comprehension with fluency interventions, as did the National Reading Panel (2000), who further identified increases in word recognition with repeated reading interventions. For whole
class fluency interventions, teachers may want to consider pairing stronger and weaker readers together; arranging book buddies with another class, incorporating choral reading activities or having students participate in reading-while-listening activities. Finally, the National Reading Panel (2000) noted that 15 minute fluency intervention sessions totalling 24-25 hours may be sufficient in remediating students who demonstrate weak fluency skills.

The From Research to Remediation page on the Helping Students Read Words website further discusses fluency intervention and a variety of fluency activities can be found in Appendix D, Fluency Activities for remediating this area of reading.

Assessing Fluency

Students who demonstrate slow and laboured word reading are often in need of fluency remediation. With older children, use of assistive technology, such as Kurzweil, can be used to help students' access text quickly and efficiently. It is important to point out however that use of assistive technology is a compensatory strategy in that it helps students' retrieve text that they cannot read independently. Students with weak fluency skills are still in need of remediation to improve their areas of deficit. Given cutbacks in educational funding, as well as a lack of teachers who possess specific training in reading instruction, remedial programming is not always provided, and if it is it can be haphazard or ineffective. The Helping Students Read Words Introduction explains that teachers sometimes lack understanding about the areas of reading that require remediation and have difficulty determining what effective intervention strategies should be put in place.

Students who are formally identified should have an Individual Education Plan (IEP) that includes important information about their learning profiles, along with previous formal and informal assessment results. Unfortunately, not all IEPs contain information that is specific to a
student's reading deficits. Or in many cases a student does not have an IEP, which means that the teacher must collect the necessary data to better understand the student's specific areas of reading deficits. Ideally, assessment should be administered by the classroom teacher or the teacher providing remediation. Two reasons for this are (a) that the person administering the assessment will have firsthand knowledge of how the student responds to the questions and be in a better position to interpret the results; (b) it is likely that if a teacher has decided to administer a fluency assessment there is some understanding of the important role fluency plays with respect to being a good reader. Initial data collection can look like a beginning-of-the-year screening or informal classroom assessment, such as those listed in the downloadable chart on the Reading Rockets website. However, if additional information about a student's reading difficulties is warranted then diagnostic or formal assessment, such as a Woodcock Johnson III may be required. Subtests of the Woodcock Johnson III that will provide useful information for fluency include Rapid Automatic Naming, Oral Reading Fluency, Word Identification and Word Attack. Another formal assessment that teachers may want to consider and that is quick to administer and measures Sight Word Efficiency and Phonetic Decoding Efficiency is the Test of Word Reading Efficiency or TOWRE 2.

A good starting point for teachers when there are questions about a student's level of fluency is the interactive tool Target the Problem! found on the Reading Rockets website. This easy-to-use resource provides useful information about fluency, as well as the other four components of reading (phonological and phonemic awareness, phonics, vocabulary and reading comprehension). The resource also lists reading behaviours that a teacher or parent might observe when a child is suspected of having weak reading skills. The Reading Rockets website also offers a video clip entitled Assessing Reading Skills, which discusses the importance of ongoing assessment in order to help struggling readers.
To assess fluency it is necessary to listen to students read orally from a book that is at their independent level. If their reading lacks smoothness, they frequently stop, lose their place or have difficulty reading some words then fluency may be the problem. It is advisable to complete a running record as this can provide valuable information for the teacher and will help to narrow down the possible reasons for the students’ reading problems. The Who Will Receive Remediation page in the From Research to Remediation section provides details and useful internet links for completing a running record.

Recall from the Understanding Fluency section that fluency involves reading words accurately, rapidly and with expression or prosody. To determine if students’ fluency is weak, the teacher must investigate their ability to perform each of these three skills. Data from a running record will assist in identifying students’ ability to (a) read words automatically or from sight; (b) decode unknown words; (c) read at a good pace and with phrasing; (d) read with expression; (e) attend to punctuation; comprehension questions are also a part of a running record so that this area of reading can be assessed. If students struggle with decoding and can only read a few words from memory, then accuracy is weak and it will be necessary to further assess their phonics knowledge and perhaps even their level of phonemic awareness. Extensive information about these underlying skills for accurate word reading can be found in the Phonemic Awareness and Phonics sections of Helping Students Read Words. If students seem to be able to read words accurately, but read them slowly or word by word, then speed is likely the issue. The running record can give you a good idea of the smoothness at which a student is reading; however it is not timed and therefore it is a good idea to also administer a timed word reading and continuous text assessment. If students read accurately and quickly, but lack expression, read with a monotone voice, or do not alter their voice when sentences end in question marks or exclamation marks then remediation for prosody may be necessary. As the area of word reading accuracy is addressed in other sections of this website assessing reading speed and prosody will be further examined.
It is important to recognize that reading speed needs can occur at the sublexical, lexical or connected text level of reading (see Figure 5). The sublexical level refers to letter-sound knowledge and larger letter patterns, such as the speed at which a student can produce the sound /bl/ for the letter blend bl. If there is suspicion that a student cannot identify letters and sounds quickly then reading teachers should administer the name letters and sounds and phoneme segmenting assessments found on the Easy CBM (Classroom Based Measurement) Lite Edition website. Just click on Demo or sign up for a free account to preview and access these worthwhile resources. The assessments are timed and final scores can be entered to determine if a student’s percentile ranking is above, at or below average (the 50th percentile being indicative of average performance for that grade level). The letter naming fluency video will give you a better idea of what administering a letter fluency assessment looks like. If a student scores below average then remedial activities for improving this area of fluency should be put in place (see the From Research to Remediation section of the website for activity ideas).

When examining letter-sound speed it is important to recognize the term Rapid Automatized Naming or RAN which “refers to how quickly an individual can pronounce the names of a set of familiar stimuli” (Kirby, Georgiou, Martinussen, & Parrila, 2010, p. 341). The stimuli can be digits, letters, colours and objects, with students’ ability to quickly identify letters, sounds and digits being related to their reading ability. It should be noted that poor RAN scores have been associated with dyslexia and therefore if students are not responding to remedial activities for slow letter and sound speed then a formal RAN assessment may be needed (Kirby et al., 2010). The Comprehensive Test of Phonological Processing (CTOPP), and the Woodcock Reading Mastery - III or WRM-III, include RAN subtests; however these types of assessments are usually administered by a special education resource teacher, rather than a classroom teacher. When assessment results indicate that students have efficient speed for identifying letters and sounds then teachers may need to investigate students’ fluency at the lexical or word level.
Ideally, the goal in word reading is to have students read words automatically. When students can read words by sight word reading they demonstrate automaticity, enabling them to read words and text much quicker than by decoding them. Note that some words cannot be phonetically decoded as they do not follow the typical rules for sounding out. Words such as the, said, and what, are referred to as irregular words, and many are also frequently occurring which means that students must have opportunities to practice and memorize these high frequency irregular words. Assessing how quickly a student can read individual words can be a fairly straight-forward process. Students must be given a timed assessment, such as the ones found in The Abecedarian Reading Assessment, or the word reading fluency from the Easy CBM Lite Edition website (click on Measures). Both assessments contain random words rather than a continuous text such as a story. If students score poorly and cannot read whole words quickly then remediation for word reading speed should be put in place. An example of a remedial activity is the Flash Fluency program for reading levels kindergarten through to grade six found on The Positive Engagement Project website. Other word fluency activities can be found in Appendix D, Fluency Activities in the From Research to Remediation section. If assessment results indicate that word reading fluency is good then teachers will want to assess students’ fluency for reading continuous text.

When most teachers think of assessing fluency they think of having a student complete a timed reading. However, as noted in the previous sections, fluency can be weak at the sublexical or lexical levels and therefore it may be necessary to examine fluency at the different reading levels to get a complete picture of fluency skills. It is also important to note that timed reading involves continuous text so this type of fluency assessment can only be administered to students who have some word reading skills. In most cases, students who are in kindergarten may not have acquired the level of reading ability needed to do a timed reading.
Administering a timed reading will provide information about the number of words a student can read correctly in one minute from continuous text, along with the percentage of words read accurately. Scores for timed readings may be referred to as Word Count Per Minute (WCPM), Correct Words Per Minute (CWPM) or Oral Reading Fluency (ORF) (Hudson, 2011). Before administering a timed reading it is necessary to ensure that there is (a) a quiet location for the student and teacher to read; (b) two copies of a one page text that is at the student’s independent level with only the teacher’s copy having the number of words displayed; (c) a timer, pencil and clipboard; (d) a tracking sheet or chart to record the student’s WCPM.

To administer a timed reading the teacher will explain to students that they are going to read the text aloud while being timed and that notes will be recorded about how they are reading. Let students know that if they get stuck on a word they should do their best to try and read it, but you will also help them with any words they cannot read. While students are reading the teacher should observe and note errors such as words read incorrectly or substituted and words that were skipped, in addition to paying close attention to punctuation not attended to, reading word by read rather than smoothly and with phrasing, and reading without expression. The Easy CBM Lite Edition website provides timed reading resources for Grades 1 through 8 (click on Demo or sign up for a free account to access Measures and Training), or Grades 1-4 timed reading resources can be found on the Curriculum Based Measurement for Early Literacy site.

When the student is finished reading the teacher will note the number of words read in one minute, add up the errors and calculate accuracy, which can be done by following the steps outlined in Figure 6 below. Note that if a student’s accuracy is less than 90% the text is at his or her frustration reading level, and a new text should be selected that is at the student’s independent level, which is 95% accuracy. Vaughn and Linan-Thompson (2004) recommend
that a timed one minute assessment be completed three times and the average of the three scores be calculated.

Follow the four steps below to calculate a student’s word reading accuracy.

Example: In January a Grade 4 student read 94 words in 1 minute, with 5 errors.

Step 1 → 94 (total words read)
   - 5 (errors)
   89

Step 2 → 89 ÷ 94

Step 3 → 0.946

Step 4 → 0.946 x 100 = 95%

The student can read 94 WCPM with 95% accuracy.

**Figure 6.** Word reading accuracy. This figure depicts the four steps for calculating the percentage of words read accurately from a one minute timed reading assessment.

Once the word count per minute is determined the score will need to be compared to grade level fluency norms, such as those listed on the Fluency Norms Chart based upon the work of Hasbrouck and Tindal (2006). If we compare the student’s wcpm score depicted in Figure 6, he or she is well below the average score of 112 wcpm for a grade four student at midyear and should therefore receive fluency remediation. In this video, a grade three teacher shares her practice timed readings and phrasing activities used to assist her students in improving in their continuous text fluency levels. Other activities for continuous text fluency can be found in the From Research to Remediation section of the Helping Students Read Words website.

With accuracy and speed of continuous text reading examined, the final fluency assessment consideration is prosody. As noted in the Understanding Fluency section prosody
occurs when a student reads with phrasing and expression and can be thought of as putting “the speech characteristics back into print” (Levy, 2009, p. 2). The first part of this video shows examples of students who read with prosody and those who do not. To assess prosody teachers will want to listen to students read and score them on the four areas listed in this multidimensional fluency rubric from Timothy Rasinski’s website. The four by four rubric allows for a total score of 16 signifying that a student has read smoothly, with varied volume and expression, good phrasing and at an appropriate pace. Scores below 10 would indicate that a student is in need of fluency instruction.

A second way of assessing prosody is to complete a running record as is shown in this running record video from the Balanced Literacy Diet website (the Who Will Receive Remediation page in the From Research to Remediation section provides details and useful internet links for completing a running record). If assessment results indicate a weakness in prosody teachers may want to investigate the poetry and reader’s theatre videos on the Scholastic’s Fluency Strategies Videos for fun activities for improving expression when reading.

As with phonological awareness and phonics assessments, if results from fluency testing at the sublexical, lexical or continuous text level indicate a weakness or deficit then remediation should occur. It is important to also remember that students’ progress with fluency should be monitored once interventions are put in place. Progress monitoring can be done by administering timed readings on a regular basis and tracking students’ progress. Finally, students who struggle with fluency may lose interest in reading which in turn will hinder their growth in fluency as they will get less reading practice resulting in what Hudson calls a “vicious cycle” (2011, p. 177). Providing struggling readers with a program that is balanced, meaning that it addresses the five components of reading (phonemic awareness, phonics, fluency, vocabulary and comprehension) and provides interventions specific to a student’s individual needs is essential. For further information about fluency remedial programming for struggling
readers visit Appendix D, Fluency Activities and Appendix E, Sample Remedial Reading Lesson in the From Research to Remediation section of the Helping Students Read Words website.
CHAPTER FIVE – FROM RESEARCH TO REMEDIATION

Learning Objectives

1. Be able to design and deliver a word reading remediation program that will help to improve phonological and phonemic awareness skills, phonics, and/or fluency in students who require remediation. (From Research to Remediation, Quality Instruction)

2. Be able to explain to a parent or colleague the underlying reasons for a word reading remediation program for a struggling word reader. (Who Will Receive Word Reading Remediation, Targeting Phonemic Awareness, Phonics and Fluency, Scheduling Remediation)

3. Be able to monitor progress of students receiving word reading remediation. (See Monitoring Progress)

4. Be able to design and deliver a variety of instructional activities that will help to improve phonological and phonemic awareness, phonics and fluency skills in students. (Appendix A, Appendix B, Appendix C, Appendix D, Appendix E)

From Research to Remediation

This section of the Helping Students Read Words website focuses on providing effective remedial instruction for struggling readers so that improvements in word reading can occur. Providing effective word reading instruction requires some important background work and planning on the part of the reading teacher. Teachers must have a good understanding of the instructional components underlying word reading; those being phonological awareness, phonics (see Understanding Phonological and Phonemic Awareness, and Understanding Phonics) and the bridging role fluency plays between word reading and comprehension (see Understanding Fluency). Teachers should also be aware of why these three components are essential for improving reading ability (see The Role of Phonemic Awareness and Reading, The Role of Phonics and Reading and The Role of Fluency and Reading). Reading teachers must also know how to assess struggling word readers to fully understand where specific
weaknesses lie (see Assessing Phonemic Awareness, Assessing Phonics, and Assessing Fluency) so that effective interventions can be put in place.

When establishing a remedial reading program teachers need to take five points into account:

1) **Who** the remedial participants are and what are their specific word reading needs. (See Who Will Receive Remediation)

2) **What** intervention activities will be taught to meet their learning needs. (See Targeting Phonemic Awareness, Phonics and Fluency and appendices for activities)

3) **When** will remediation take place and for how long. (See Scheduling Remediation)

4) **How** will interventions be taught. (See Quality Instruction)

5) **How** will student progress be tracked. (See Monitoring Progress)

Careful consideration of these five areas will ensure word reading remediation is effective.

Students who have difficulty reading will require a comprehensive intervention program, rather than a program that emphasizes only one area of reading such as phonics. Students who struggle with word reading require direct intervention specific to areas of deficits, but must continue to receive instruction in other reading activities such as vocabulary and reading comprehension to ensure they are receiving a balanced reading program. As such, it is assumed that the remedial suggestions presented here will be part of a larger reading program.

**Who Will Receive Word Reading Remediation**

If you are reading this website then the target population will likely be students who are struggling with word reading. To determine who requires word reading intervention some form of reading assessment, formal or informal, along with teacher observations must take place. A good indicator is that the student is reading below the level that is expected for his or her age
and present grade level. What may or may not be known is exactly where the reading process is breaking down for the student. As such, it may be the remedial teacher’s responsibility to review each prospective participant’s report cards and other assessment data to determine if word reading is the problem, and what specific areas of word reading are weak.

When reviewing student records, teachers will want to look for scores or comments that indicate the following: lacks phonemic awareness, has difficulty with letter-sound correspondences, has weak decoding skills, struggles to sound out or read unknown words correctly, confuses specific letters (for example b and d) when reading, has limited sight word knowledge, reads slowly or has poor or laboured fluency. Note that if the student’s assessment data indicate that word reading skills are average or at grade level, and scores or comments refer to weaknesses in understanding what is being read then the student is most likely in need of vocabulary and comprehension remedial intervention.

If assessment data are lacking, then it is important to administer screenings and informal assessments (see Assessing Phonemic Awareness, Assessing Phonics and Assessing Fluency for assessment resources). If after analyzing the student’s data it is not clear if word reading is weak, part of data collection should be to have the student read aloud. This can be an informal session, with the student reading an independent level book aloud (preferably without any distractions). An independent level book is one that students can read with 95% accuracy, meaning they will make no more than five errors for every 100 words (Vaughn & Linan-Thompson, 2004). Rather than calculate a percentage of accuracy, many teachers use the five-finger rule as a guide to helping students choose independent or just right books. In an informal session the teacher will want to pay attention to the student’s decoding and fluency skills. A more formal session involves the teacher completing a running record while the student reads aloud. A running record requires the teacher to record observations of each word while the student reads, as seen in this Running Record Video. This second video provides an example
of how a teacher would analyze or code the errors and miscues, along with other reading behaviours, to better understand a student’s reading strengths and weaknesses. If you are new to running records, it is worthwhile to visit The Reading & Writing Project website (when there, click on Directions for the Assessment) to access resources and to learn more. Following a student reading aloud it should be apparent whether or not the student’s reading weaknesses are due to weak word reading skills.

It may also be the remedial teacher’s responsibility to determine which students will receive word reading remediation, although typically there is consultation between the classroom teacher, reading teacher and perhaps a special education teacher. Sometimes there are a high number of students requiring reading remediation, but only a limited number can be accommodated in the remedial program. Keep in mind when creating a group that research has shown there to be an increase in phonological awareness gains when groups are small and consist of five to seven students (National Reading Panel, 2000), whereas with phonics remediation no significant difference was found whether it was individualized, small group or whole class training. With fluency remediation, both 1:1 repeated reading and whole class fluency activities can be beneficial.

It is also necessary to consider other student characteristics when grouping, such as age (it would not be beneficial to include a grade five student with a small group of grade one students), and specific deficits (such as grouping students who have similar deficits with phonological awareness). Creating a group of students close in age and with similar reading deficits will allow for more consistent programming.

Once participants for the remedial reading program have been determined it is time to select the intervention activities (see Targeting Phonemic Awareness, Phonics and Fluency).
Targeting Phonemic Awareness, Phonics and Fluency

Once potential participants have been selected, assessment data specific to phonemic awareness, phonics or fluency will be reviewed or if needed assessment administered. The teacher should closely examine the assessment results to determine where specific deficits lie. Knowing precisely what the deficits are will help to determine the specific intervention activities that will be needed. It is vital for remedial reading teachers to understand the importance of analyzing the student data. Too often classroom teachers will arbitrarily select a reading intervention strategy, such as sight word flashcards because they recognize that the student has difficulty with word reading. What needs to be understood is that there are key underlying skills to reading words, namely phonemic awareness, letter sound correspondence and the alphabetic principle, and failure to properly assess students and identify such underlying weaknesses can result in ineffective programming. Given this, time must be allotted to fully determine where word reading weaknesses lie. The counter argument might be that there is little time in a typical school day for poring over assessment results in addition to providing a remediation session. However, if gains in reading are to occur intervention must target the areas of deficit. If needed it would be better for teachers to delay starting their remedial program by a few days to allow for more time to closely examine student data. Ensuring that the strategies being delivered closely match the word reading deficits will increase the effectiveness of the remedial word reading program.

Phonological Awareness Activities

The sound components for phonological awareness include syllables, onsets and rimes, and individual phonemes. As the sound components become smaller they become more challenging to detect and to manipulate, see Figure 2. As such, syllables are easier to identify than onset and rimes, which in turn are easier to identify than individual sounds (Goswami & Bryant 1990;
Kirby et al., 2008). At each level a student should be able to manipulate the words by segmenting, blending, deleting or substituting, see Appendix A, Phonological Awareness Activities for examples. It should be apparent from a student’s phonological awareness assessment results what areas of phonological awareness require remediation. For example, if phonological awareness results show that the student is able to identify the number of words in sentences and the number of syllables within a word, and can identify and produce rhyming words, yet struggles with identifying individual phonemes, then interventions must target phonemic awareness. Or perhaps the data show a student is able to identify the number of words in a sentence, the number of syllables in a word and the number of phonemes in a word, but is unable to blend phonemes, such as blending the phonemes /d/ /o/ /g/ to produce the word /dog/ or to segment a word like /cat/ into its separate phonemes /c/ /a/ /t/. Phonological interventions should then target blending and segmenting phonemes.

To get started, a list of phonological interventions that correspond to the various levels of phonological awareness, and within that phonemic interventions, can be found in Appendix A, Phonological Awareness Activities and Appendix B, Phonemic Awareness Activities. Teachers can view these charts and get an idea of the types of activities that correspond to the different areas of phonological awareness. As all phonological awareness activities involve sound only, it is easy to provide activities for older struggling readers that do not involve visuals that look babyish.

There are a few key points to consider when determining intervention strategies for phonological awareness. An important one for phonemic awareness instruction is that teachers must ensure that they (the teachers) know the 44 phonemes as listed in Table 5 and ensure that they are pronouncing each phoneme correctly and confidently. This point may seem obvious, but it is not uncommon to find teachers who do not know all of the 44 phoneme sounds. If teaching the 44 phonemes is something that you have not done before, or have not done in
many years, then it is crucial that you are modelling accurate sound production. Teachers must be sure that they are not adding an additional vowel sound (known as a **schwa**) at the end of the consonant, for example they should say /d/ not /duh/ (Scott, 2009). Children will need to hear the sounds repeatedly so reading teachers must be consistent with their sound vocalization.

O’Connor states “a critical starting point for teachers to teach phonological awareness skills successfully is to ensure that individual phonemes stand tall and still in children’s minds” (2011, p. 40). Video clips of the pronunciation of **consonants** and **vowel sounds** are available from the Reading Rocket website and a more comprehensive video of **sound production** is available from the Florida Centre for Reading Research. Examples for accurate pronunciation can also be found in **Table 5, 44 English Phonemes**.

The National Reading Panel (2000) results showed greater phonological awareness gains were made when only one or two skills were targeted at a time. Remedial teachers might be inclined to target all phonological awareness weaknesses at once and then remediate other word reading weaknesses, such as phonics or fluency, at a later date. However, it is more effective to target a couple of phonological awareness deficits, and complement these activities with phonics interventions and other reading activities, such as fluency and text reading. Additionally, there is strong research evidence that supports combining phonemic awareness training with letter-sound activities (Hulme et al., 2012; National Early Literacy Panel, 2008a; National Reading Panel, 2000). Efficient word reading requires proficient knowledge of letter-sound correspondence. Suggestions for combining phonemic awareness and phonics interventions together are discussed in the following section on phonics.

Finally, Cain (2010) states that a reciprocal relationship exists between phonological awareness and literacy activities, such as word reading and spelling. She notes that training in phonological awareness can result in gains in a student’s ability to read words, and reading and
spelling activities may in turn result in gains in phonological awareness. Given this, remedial teachers are advised to include reading activities in their remedial reading sessions.

**Phonics Activities**

This discussion of phonics instruction focuses on three areas (a) **synthetic phonics**, which involves teaching students to translate letters into their phonemes or sounds, and then to blend the sounds to form words and segment spoken words to identify the sounds and letters; (b) practice reading with **decodable texts**; (c) training in high frequency **irregular words**.

As mentioned in *Understanding Phonological and Phonemic Awareness* and in *The Role of Phonics in Reading*, there is convincing evidence that instruction in letters and their sounds should occur alongside phonemic awareness instruction (Hulme et al., 2012; National Early Literacy Panel, 2008a; National Reading Panel, 2000; O’Connor, 2007). To read, students must be able to bring the two together in order to grasp the **alphabetic principle**, which is the understanding that speech sounds are represented by letters and vice versa. O’Conner (2007) suggests that once students know four or so letters and their sounds they can begin using the letters with phonemic awareness activities such as blending and segmenting. The Florida Centre for Reading Research website offers an example of a **phoneme blending and segmenting activity** which could initially be taught as a phonemic awareness activity for students who have weak blending and segmenting skills, and then extended with writing the letter that represents the initial sound below the picture. For example, if students have recently learned the letters and their sounds for *t*, *s*, *a*, and *m*, then they will be asked to identify the initial sound for pictures such as *tiger*, *toe*, *sock*, *ant* and *mat*. Once students are able to represent the initial sounds in words with letters they can move on to final and then medial sounds. **Elkonin boxes** are a useful activity for combining phonemic awareness activities with letter tiles, and for older struggling readers, Elkonin boxes can be made to look less primary. This video demonstrates
use of Elkonin boxes for sounds, and letter tiles would be the next step to make this activity incorporate phonics as well.

Phonics interventions should include instruction and practice in letter-sound relationships, in blending letter sounds together so that words can be read, and segmenting the sounds of a word to spell. With letter-sound instruction there has been deliberation about the order in which the letters should be introduced. Hawkin (n.d.) suggests that consonants should be taught first, then vowels and finally more complex phonemes like digraphs and r controlled vowels (however research to support this suggestion was not noted). Others recommend that the sequence of letters should be introduced in an order that avoids teaching easily confused letters, such as b and d, and i and e, back to back, see Word Building Sound Sequence (Beck, 2012). It is also suggested that the short vowel sounds, such as /a/ in cat and /e/ in bed, be taught before the long vowels sounds (O’Connor, 2007). What can be taken from all of these suggestions is that thought should be given to what order letters should be introduced and that letters should not be taught in alphabetical order. Remember that unlike typical developing readers, struggling readers may have difficulty differentiating the phonemes, so putting thought into the sequence in which letters are introduced will be helpful to these students. Teachers may wish to follow the letter sequence that is found on Beck’s (2013) Word Building Sound Sequence site. The activities on this site are also useful as they allow students to move from letter-sound knowledge to simple word building and decoding.

When introducing a letter and its sound to students it is important to be very explicit in the instruction, and to ensure students have multiple opportunities to practice saying the correct sound associated with the letter. Teachers must also take care to pronounce each phoneme correctly and confidently. When introducing a letter, the students are told the letter name and the sound it makes. The students should then say both the name and the sound along with the teacher, and then students should be asked to say both the name and the sound independently.
From here, individual students should be called upon to say the letter name and the sound it makes over a course of several days until it has been learned. An easy to follow letter sound introduction script is provided on the Florida Centre for Reading Research.

When instructing older struggling word readers keep in mind that they will probably know many of the single letter sounds, but may not know some of the more challenging multi-letter sounds, such as vowel digraphs (for example ee and oa) or diphthongs (such as oi and au). O’Connor (2007) suggests creating a deck of small cards with letters that include some of the letter sounds a student knows, along with one new letter sound and on a daily basis have the student practice saying the sounds while the teacher flips through the deck (it is necessary to have the student’s assessment data for letter sound knowledge). Along with an understanding of how to instruct letter sounds, remedial reading teachers should also be knowledgeable about teaching students to blend.

It is important to recognize that blending sounds to read words can be problematic for some struggling readers. O’Connor (2007) identifies two reasons why students may find blending challenging (a) students can have difficulty remembering all of the sounds in a word so that they can then state the word in its entirety; (b) if stop consonants (consonants that are pronounced quickly and cannot be held) are pronounced with an additional vowel sound (known as a schwa) it is hard to blend the consonant sound with a subsequent vowel. For example, if a student is attempting to blend the word keep, but says /kuh/, /ee/, p rather than /k/, /ee/, /p/, he or she may not be able to correctly identify the word keep. Teaching students to continuously blend sounds without pausing can help them learn to blend accurately.

The first step to blend without pausing between the sounds is to choose words with two or three letters that begin with a vowel, or a consonant that is not a stop consonant, words like as, it, sit, no, mat or fan (after students become proficient with blending these types of words
they can progress to blending words that begin with stop consonants such as *bed, dog, or kin*). The teacher selects the word and writes it on a card or on the board and then models holding the initial sound (for at least 2 seconds) and then without stopping moves to the next sound (O’Connor, 2007). Once the sounds have been blended the next step is to read the word. This video shows several examples of **continuous blending** and also explains common errors that students may make. Note that correcting students’ errors is critical and it should be done quickly so they get immediate feedback. Often teachers will stop students when they have made an error and ask them to identify what they did incorrectly. This is a misuse of valuable remediation time and it is better to clearly state the correction, have students repeat the correction and then have them blend the word correctly. A final note for continuous blending is that some reading programs may have students identify each letter sound as a first step before they begin saying the sounds without stopping, such as in this [Decoding Instruction Kindergarten](#) video. O’Connor’s (2007) *Teaching Word Recognition* is a useful resource for teaching word reading as it also provides strategies for teaching students to blend multi-syllabic words.

Teaching students to segment the sounds they hear in words is another important phonemic awareness activity, and when letter tiles are added the segmentation activity becomes a phonics activity and helps students to understand the alphabetic principle (O’Connor, 2011). For this activity it is useful to provide students with a blank Elkonin box handout that has three boxes on one side and four boxes on the opposite side, along with six or seven letter tiles that can be used to create several different words. Prior to beginning this activity the teacher may wish to have students identify the letter tiles and say their sounds. To instruct segmenting the teacher says the word first, such as /sat/, and then asks the students to repeat the word, then the teacher instructs the students to stretch out the word /ssssaaattt/. Next the teacher asks the students to watch while she segments the sounds for the word /sat/ and points to the first box and says /s/ and then takes the letter tile s and places it in the first box.
Then she points to the middle box and says /a/ and places the letter tile a in this box, and finally she points to the last box and say /t/ and places the letter tile t in the box. As a final check the last step would be to say the word in its entirety, /sat/. Figure 7 provides a visual of what the set up would look like for this activity.

![Elkonin Box Phonics Activity](image)

**Figure 7.** Elkonin box phonics activity. This figure depicts the collection of letter tiles and a three square Elkonin box that students would use to segment words into their sounds and corresponding letters.

An additional component that should be included with phonics instruction is building in time for students to practice their blending skills while reading **decodable texts**. Some will argue that decodable books are too boring for students to read, and they should be exposed to richer, engaging text that is appropriate for their grade level. The answer to this argument is simple, struggling readers need access to both! They absolutely should be exposed to interesting grade level texts through teacher read alouds and with the use of text to speech software such as **Kurzweil**, yet they also require daily practice with decodable texts if their word reading skills are to improve. The National Reading Panel notes that “educators must keep the end in mind and ensure that children understand the purpose of learning letter-sounds and are able to apply their skills in their daily reading and writing activities” (2000, p. 2-96). Struggling readers, of all ages, need to have access to books that contain words that they can read by blending. Unfortunately,
too many older students do not have access to books they can read because although they may be reading at a primary level, they do not want to be seen reading from a primary book. If older struggling readers are part of a remedial reading group, this is a good opportunity to provide them with a book that they can practice decoding. It is the remedial reading teacher’s responsibility to ensure that students have access to texts that contain words that are made up of letter sounds already learned, books that are sometimes referred to as controlled or decodable texts. In this video from the Balanced Literacy Diet, the students are reading from a book that emphasizes the more complex letter sounds /ee/ and /ea/. It may be difficult to locate decodable texts within your school that contain words made up of letters covered in your remedial class, but there are many online resources available that are designed with this in mind. A free resource for online books is the Starfall website, and three sites that offer easy to read free books, free reading and Dolch books that can be printed. The Reading A-Z site also has an enormous supply of books that can be trialled for free, or a yearly license can be purchased for less than $100, and Reading Mastery is an even more comprehensive phonics program that includes decodable books. Even with decodable texts, students will still face words that cannot be decoded using synthetic phonics, which leads to the final point in phonics instruction -- teaching irregular, high frequency words.

Some English words cannot be accurately decoded by blending their sounds, such as the words the, to, said, and from. It is important to help struggling readers learn to read such words, especially as many of the words like the, appear so frequently in text (Vaughn & Linan-Thompson, 2004). There are many resources available that provide lists of commonly occurring irregular words, such as on the free reading site, as well as Dolch words. O’Connor (2007) suggests that common irregular words are best taught with “frequent, small doses” to struggling readers (2007, p. 82). Words should be taught cumulatively and teachers should realize that
students will require repeated practice. Previewing the decodable texts that students will be reading is a good way to identify what specific irregular words should be included in instruction.

As students’ assessment information drives remedial programming, letter-sound relationships, blending, segmenting or high frequency irregular word reading may or may not be part of the phonics instructional component. Remedial teachers will need to select those activities that will best support students’ individual needs. For additional phonics activity suggestions see Appendix C, Phonics Activities and Appendix E, Sample Remedial Reading Lesson.

**Fluency Activities**

Fluency remediation may include interventions for accuracy, speed and prosody. If it has been determined that word accuracy remediation is needed you will want to visit Appendix A, Phonological Activities, Appendix B, Phonemic Awareness Activities and Appendix C, Phonics Activities for suggestions. This section of fluency remediation will focus on speed and prosody.

Readers move along a developmental path for fluency, where they progress from quick identification of letters, sounds, and larger clusters of letters, known as the sublexical level, to sight word reading, known as the lexical level, and then to reading continuous text rapidly (Levy, 2009). Given this, students who have weak reading speed may require remediation at the sublexical, lexical or continuous text level. It should be apparent from students’ fluency assessment results at what level they require remediation. For example, if students can read most words as a whole, in that they do not have to sound out a word, but there is significant delay in how quickly they say each word then they probably require remediation in word reading speed. A fun intervention strategy that teachers may want to consider is to have students sing. Rasinski states that “the use of songs and singing in the classroom is ideal for teaching reading fluency” (2010, p. 134). Just remember that while students’ are singing they must also be
viewing the letters or words. An example of using song to improve word fluency is the **First 24 High Frequency Words** video.

Other considerations teachers will want to be aware of when remediating reading speed will the use of timers and graphing. Adding a timer to a fluency activity allows for the activity to support reading speed growth. Timers are relatively inexpensive to purchase and it is a good idea to have several available for students to use with fluency activities in small group interventions. There are also free timer downloads such as **Snap Timer** to add to classroom computers and laptops, and interactive whiteboard timers such as the **firecracker** that can help motivate students to read quickly. In addition to timing students’ reading it is also a good idea to have them track or graph their results. In the **Quick Words** word fluency activity students can graph how many words they read correctly their first try, second try and so on. This data provides useful feedback to students as they will want to read more words each try and also for the teacher as it allows for easy monitoring of students’ progress. Timers and graphing are also incorporated into **repeated reading**, a popular continuous text fluency activity that research shows can have a positive impact on students’ fluency outcomes (Kuhn & Stahl, 2003; National Reading Panel, 2000; Wexler, Vaughn, Edmonds & Reutebuch, 2008).

Repeated reading involves students reading a short passage at their **instructional level** to an adult who has a copy of the text and notes inaccuracies while timing the number of words read for one minute. If fluency remediation is for students in grade six or above, research indicates that students may perform better if text is above their instructional level (Wexler et al., 2008). If working with an older student it might be wise to try both instructional level text and text that is slightly above to see how the student performs. Two key components that should be part of a repeated reading intervention are (a) that an adult reads the passage to the student first and models fluent reading; (b) that the student receives feedback from the adult following each reading. While the adult is modelling reading the student should be following along with his or
her copy of the text. The feedback, which can be related to words read incorrectly or perhaps ignoring punctuation, is immediate and as such students can then incorporate these changes during their next read.

Additional guidelines for the repeated reading intervention are that three re-reads during one session can produce similar results to seven rereads (Wexler et al., 2008). As time is usually of the essence when it comes to remediation, it makes sense to have a student read the passage three times during one repeated reading session. Keep in mind that some students may tire after three rereads and their words per minute may actually decrease. It is important that the repeated reading session end on a positive note so three rereads should be sufficient. When students have read the passage three times they can then record their words per minute onto a graph which allows them to visualize their progress in text reading fluency, and again provides data for teachers. O’Connor (2007) suggests that repeated reading should occur three times per week, and it can be incorporated into small group instruction as the teacher can sit with one student while the remaining students read independent level text or listen and read along to books on tape. Outside of small group instruction, some teachers will arrange repeated readings in their classrooms where students work in pairs (one timing the other reading), however if a student requires significant fluency remediation it would be more beneficial to have an adult carry out the repeated reading sessions to ensure feedback is precise and helpful to the struggling reader (O’Connor, White, & Swanson, 2007). This video provides some ideas of different ways to do timed reading within a small group (depending on your students you may need to space them around the room so that they can better concentrate on their reading).

The final area of fluency remediation to be discussed is prosody, which impacts text level reading only (Hudson, 2011). Students who read with prosody read with expression and phrasing, meaning that they read groups of words together resulting in their reading sounding more like speech (Levy, 2009). One way teachers can instruct prosody is modelling it through
oral reading. During this read aloud of *Me and My Cat?* the reader demonstrates both expression and phrasing, resulting in an interesting story to listen to. As the reader reads the first sentence he demonstrates phrasing. He reads “Late one night” (pause) “an old lady in a pointed hat” (pause) “came in through my bedroom window.” Note how his reading is very similar to how we talk and how phrasing groups of words lends to better understanding of what is being read. Compare this to reading words individually “Late” (pause) “one” (pause) “night” which is more difficult to understand and uninteresting. Research suggests that the components of prosody, phrasing and expression, may help readers better *understand* what they are reading (Hudson, 2011). For students to move from single word reading to reading in phrases they must not only be exposed to good modelling, but also learn that punctuation can assist them in reading with phrasing. Rasinski notes that with reading phrasing “tends to be marked by punctuation” (2010, p. 40). This [Fluency with Poetry](#) video provides an example of using punctuation throughout the poem to assist with phrasing. The lesson [Phrase Haste](#) is another example of a phrasing activity that may help struggling readers improve in this area of fluency (note this activity includes timing which also addresses reading with speed).

For students to improve the prosody in their reading they must also read with expression. There are many different kinds of fun activities that can help teach students to read with expression. A [poetry club](#) is a good example of a weekly fluency activity in which individual students can participate and practice reading with expression. Poetry reading can also be done in pairs or as a [choral reading](#) with the whole class. Another activity for promoting expression is [reader’s theatre](#). Similar in nature to repeated readings, students must *rehearse their lines* repeatedly so that they can say them at the right speed and with the appropriate expression. Rasinski and Padak describe reader’s theatre as an authentic task in that “The invitation to perform gives students a natural reason for practicing” (2008, p. 206). Part of the authenticity is to allow students time to perform what they have been practicing; the performance can be as [simple](#) (click on Readers’ theatre) or as [sophisticated](#) as teachers wish to make it. One final
note in regards to fluency remediation is to remember to choose carefully the texts students will be reading. Poems, scripts, story books and stories with repeating lines or phrases work well for fluency practice. Additional strategies for all of the components of fluency can be found in Appendix D, Fluency Activities and Appendix E, Sample Remedial Reading Lesson.

Finally, it is also necessary to stress the importance of ensuring struggling readers have time every single day to practice reading books at their independent level, sometimes referred to as just right books. Remedial reading teachers will want to have a collection of books at various levels for students to readily access. Reading A-Z requires a yearly subscription, but is a fantastic resource for levelled books, in both fiction and nonfiction. If students need to select books on their own they should be instructed on how to use the five-finger rule so that they are choosing books that they can actually read. Classroom teachers and support personnel should also be made aware of the level of book a particular student is reading so that they can assist in selecting books and in monitoring the student’s choice. When struggling readers have books at their reading level they can practice all of the great skills they have been learning during remedial reading sessions. Too often struggling readers attempt to read books that are far too difficult and they can become frustrated and give up on trying to read the words altogether. If reading younger-looking books is difficult for older students to do at school make arrangements for books to go home so students can practice their daily reading with a parent or older sibling.

This section of Helping Students Read Words discussed the various activities that should be considered for phonological and phonemic awareness, phonics and fluency. Once you know the type of activity that can be used as an intervention you will want to access the numerous reading resources available, both online and in print, as they provide a vast amount of fun activities that students will enjoy. Some of the websites used as resources for this site, such as the Florida Centre for Reading Research and Balanced Literacy Diet are great starting points as they have activities categorized for ease of use and provide both videos and lesson
plans. As well, be sure and check out resources available at your school now that you have a better idea of what you are looking for.

With intervention strategies covered, remedial teachers will want to turn their attention to the timing of their program. Visit the Scheduling Remediation page to learn more about what this should include.

**Scheduling Remediation**

At this stage in the remedial planning it will have been determined who is receiving remediation and what word reading remedial activities will be implemented. Usually remedial reading intervention sessions are of short duration, 20 – 60 minutes, with a frequency of 2-4 times per week. Determining which reading components (phonological awareness, phonics, and fluency) will be included in a word reading intervention session will be dependent on the participants' areas of weakness. However, if students have very weak phonological awareness skills, they may have not had much success with decoding, which in turn will impact their word reading and fluency skills. For participants with this profile it would be wise to divide up a remedial session into three equal parts, for example a 45 minute session would look like 15 minutes for phonological awareness activities, 15 minutes for letter-sound instruction and blending, and 15 minutes for fluency, with reading text built into the second or third component. For students who have good phonological awareness and fairly good letter-sound knowledge, a 45 minute session may look like 20 minutes on blending and segmenting activities and 25 minutes on fluency activities. After a few sessions the allocated times may need to be adjusted due to the students’ rate of progress. To get a better idea of what timing might look in an intervention session see Appendix E, Sample Remedial Reading Lesson that shows how instructional components may be organized.
Two additional points in regards to scheduling remediation are pacing of instruction and coordinating times with regular classroom teachers. It is very important for reading teachers to deliver their instruction at a pace that is not frustrating for the students, yet ensures that maximum ground is being covered so that progress in word reading is occurring. Teachers must also allow for repetition and review of skills so that students demonstrate their word reading skills on numerous occasions. Some programs incorporate hand signals that minimize unnecessary talking on the teacher’s part and cue students to a particular activity to save time. For example, when it is time for students to pay close attention to the teacher’s modelling, it might be useful to raise one hand in a stop motion that signals *my turn* to students. If using hand signals they should be introduced to students on the very first day of instruction, and practiced repeatedly until students’ compliance is quick.

Reading teachers should also be in consultation with the school resource teacher or reading specialist and the classroom teacher(s) when determining when remedial reading intervention is to occur. It seems logical that the intervention sessions would take place during a literacy block, however it is important to keep in mind that remediation will focus mainly on word reading skills. Given this, participants will also require instruction in vocabulary and in comprehension to ensure they are receiving a balanced reading program. As such, times must be coordinated with the regular classroom teacher(s) to ensure that students are not missing out on other important literacy instruction. Once times for remediation programming have been determined, reading teachers need to turn their attention to the quality of instruction (see Quality Instruction page).
Quality Instruction

Reading teachers must be vigilant in regards to the quality of their remedial instruction. Students struggling with learning to read words require explicit and direct instruction. Often time’s children who struggle with word reading have not had instruction that was explicit enough, or have experienced lessons that have moved at a pace that does not allow for the additional time or extended practice they may require. For students with weak word reading skills or dyslexia, Shaywitz and Shaywitz state that explicitness of phonological training is necessary, but note that due to the print-to-language deficiency “instruction must be relentless and amplified in every way possible so that it penetrates and takes hold” (2004, p. 23). As such, reading teachers should ensure that their remedial reading program incorporates the level of explicit instruction that struggling students so desperately need. Note that for some students, especially those beyond the primary grades, participation in your remedial reading program may be their last opportunity to receive specific word reading instruction. Given that, quality instruction must be a priority for the remedial reading teacher.

Scott (2009) noted that it is important for teachers to model phonological awareness skills for their students. Modelling is a good idea for all instructional components, and this is especially true for struggling students who may have difficulty understanding the task if just oral instructions are given. In the video clip Drumming Out Syllables from The Balanced Literacy Diet website the teacher models how to identify the number of beats (syllables) in a student’s name prior to asking individual students within the group to demonstrate this phonological awareness skill. As each student then has the opportunity to try to identify the number of syllables in his or her name student modelling provides numerous examples for weaker children to observe. Teachers should always begin instruction in new activities with modelling. It is quite easy to make short videos using an iPod or iPad, of the steps necessary for phonological awareness activities (such as rhyming), phonics activities (blending and segmenting) and
fluency (accuracy, speed and prosody). Having videos available that model important word reading skills allows students to revisit the steps over and over again.

In addition to modelling, it is not enough to simply have struggling students repeat the same activities again and again, but rather more effective instruction occurs when teachers are able to coach students in their learning. McGee and Ukrainetz (2009) offer teachers useful information about scaffolding phonemic awareness instruction. The instruction is divided into three levels, ranging from intense, to moderate, to minimal, such that feedback is differentiated for each child based upon their need. An example of intense feedback for an activity that focuses on initial phonemes would be to isolate the initial sound, by telling students that the first sound in /hat/ is /h/. Then the teacher would emphasize the sound, /h/ /h/ /h/ /h/ /hat/, along with reminding students to pay attention to her mouth when she is saying it. Finally, the teacher models the correct response by stating that the first sound in the word /hat/ is /h/. Moderate feedback may include everything but the modelled response, whereas minimal feedback would be emphasizing the first sound when pronouncing the word, for example, what is the first sound in the word /David/? The researchers found that teachers incorporating scaffolding into their instruction felt less frustration and significant gains were made by the participants in their phonemic awareness skills (McGee & Ukrainetz, 2009). In this initial sound video clip a teacher provides effective phonemic awareness instruction to a small group of young children. The teacher demonstrates effective modelling, scaffolds her instruction for the young students, and paces the activity so that all children can follow along in the activity.

It is important to also keep in mind that reading disabled and older children may require more intensive instruction. This would require more time being spent on modelling activities for students, providing a greater number of examples for students to practice, or spending more time guiding students in manipulations before requiring them to demonstrate skills independently.
Although time is always at a premium when it comes to providing remediation and teachers are anxious to incorporate many different strategies and activities it is essential that reading teachers ensure they are delivering quality instruction in the most efficient manner possible.

The final remedial programming component to be considered is monitoring students’ progress. Visit the Monitoring Progress page to learn more.

**Monitoring Progress**

Just as initial assessment is integral in determining the types of word reading interventions students may need, so too is ongoing tracking of students’ progress. Remediating small groups of five to seven students allows for easier progress monitoring. Sufficient time for instructing and skill consolidation must be granted, however progressing on to more complex skills is also important. Close monitoring of progress will provide information that will help remedial teachers determine when skills have been acquired, and when more practice is needed. A hierarchy exists in relation to phonological awareness skills, see Figure 2, and becomes even more precise with phonemic awareness skills; see Table 1 which ranks phonemic awareness skills from easiest to difficult. The Reading Rocket website also offers a chart that identifies the average age for acquisition of the different phonological awareness skills. Reading teachers will want to move students along a continuum of phonological awareness skills, ultimately leading to proficiency in blending and segmenting phonemes in two and three syllable words.

Similarly with monitoring progress in phonics, students need to learn simple letter-sound relationships, such as individual letter sounds (a, d, s) and consonant digraphs and blends (th,
ch, tr), and then move on to more complex letter sounds like vowel digraphs (ee, oa) and diphthongs (au, oi). An example of a monitoring checklist for phonics can be found on the Florida Centre for Reading Research site (there are also checklists for phonological awareness and fluency). Within phonics there are also phases of sight word reading development, see Figure 4, to which teachers will want to pay close attention to ensure students have acquired the necessary skills before moving on to more complex skills.

Monitoring progress in fluency is fairly straightforward and can be as easy as administering timed readings on a regular basis (see Assessing Fluency for complete instructions). This will provide measurements of students’ words per minute (speed), along with their accuracy. Teachers can also be observing and recording students’ prosody during timed readings.

Progress monitoring is an important component in remedial programming. It is critical that interventions are targeted at student’s individual needs. It is poor use of time if students continue to complete activities that relate to skills they have already acquired. To better understand the importance of monitoring the Reading Rockets site offers a letter-sound video that demonstrates progress monitoring towards the end that may be helpful for determining how it best fits into remedial sessions.

There has been a significant amount of information offered in this section of Helping Students Read Words about the instructional strategies for the components underlying word reading; those being phonological awareness and phonics, along with fluency. Each of the three components plays a very important role and must be considered if word reading remediation is to be effective. For some reading teachers, this information will be helpful in setting up a program that is evidence based and that provides struggling readers with foundational word reading skills. Other reading teachers may already have access to a word reading program in
their school, or perhaps they have been given funds to invest in a program. In both scenarios, the information presented here provides teachers with the knowledge of what should be included in an effective program, and can be used to determine the value of a ready-made program. If necessary, some programs that are purchased may require some tweaking on the part of the reading teacher to ensure that the programs are complete and the students are receiving the best reading intervention possible.
CONCLUSION

The Helping Students Read Words website was created as an online resource tool to assist teachers in remediating students’ weak word reading skills. As research for reading acquisition continues to expand it offers a wealth of information about word reading as well as evidence-based interventions that can be used with struggling readers. The Helping Students Read Words website focuses on three key components of reading: phonological awareness, phonics and fluency and offers teachers the necessary guidelines for creating a remedial reading program that incorporates these components. The website has been designed to be an easy-to-use resource that links what research shows to be effective in helping students read with the plethora of online reading games, activities and lesson plans that are available for teachers’ to access. It is hoped that teachers with a desire to help their students read will find this site a valuable resource.
REFERENCES


Running records http://www.youtube.com/watch?v=votEntroeLQ


Scholastic Teaching Resources (2013). Boom, boom ain’t it great to be crazy? Perfect Poems With Strategies for Building Fluency: Grades 5-6. Retrieved from http://printables.scholastic.com/printables/detail/?id=28924&FullBreadCrumb=%3Cdiv%3E2617+%3Ca+href%3D%22http%3A%2F%2Fwww.scholastic.com%2Fbrowse%2Fteacher%3FNlx%3Dmode%2Bmatchallpartial%26_N%3Dfff%26Ntt%3DSCHL30_SI%26query%3Dchocal%26N%3D0%26Ntt%2525


<table>
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<th>Reading Instruction Component</th>
<th>Unit</th>
<th>Target Skill</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phonological Awareness</strong></td>
<td>Word</td>
<td><strong>Segment</strong> the number of words heard in a sentence.</td>
<td><strong>Sentence Segmentation</strong></td>
</tr>
<tr>
<td>Syllable</td>
<td>Segment the number of syllables heard in a word.</td>
<td><strong>Syllable Clapping</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Blend</strong> syllables together to form a familiar word.</td>
<td><strong>Starfall's Chunk That Word</strong></td>
<td></td>
</tr>
<tr>
<td>Onset - Rime</td>
<td>Student will recognize that two words rhyme by choosing words with the same rime, but different onsets.</td>
<td><strong>What Rhymes With This Picture?</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student will produce a word that rhymes with a given word by deleting the onset and substituting a new onset.</td>
<td><strong>Phonic Rhyming Words (Rap)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student will <strong>blend</strong> onset and rime together to form a word.</td>
<td><strong>Make a Word</strong></td>
<td></td>
</tr>
</tbody>
</table>
# APPENDIX B: Phonemic Awareness Activities

<table>
<thead>
<tr>
<th>Reading Instruction Component</th>
<th>Individual Phoneme</th>
<th>Target Skill</th>
<th>Suggested Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phonemic Awareness</td>
<td>Identification</td>
<td>Student will <em>identify</em> the beginning, end or middle sound in a one syllable and/or two syllable word.</td>
<td>Phoneme Matching</td>
</tr>
<tr>
<td></td>
<td>Isolation</td>
<td>Student will <em>isolate</em> the sound in a word.</td>
<td>Teaching Isolation</td>
</tr>
<tr>
<td></td>
<td>Categorization</td>
<td>Student will compare words and determine what word does not belong based on the missing phoneme.</td>
<td>Phoneme Matching: One Card Out</td>
</tr>
<tr>
<td></td>
<td>Blending</td>
<td>Student will <em>blend</em> 2-3 sounds together and say the word.</td>
<td>Phonemic Awareness Read Aloud (Blending Sounds)</td>
</tr>
<tr>
<td></td>
<td>Segmentation</td>
<td>Student will <em>segment</em> a word into its phonemes.</td>
<td>Phonemic Segmentation</td>
</tr>
<tr>
<td></td>
<td>Deletion</td>
<td>Student will be able to produce a new word when a phoneme is <em>deleted</em>.</td>
<td>Phoneme Deletion Activities</td>
</tr>
</tbody>
</table>

Phonemic Awareness Lesson Sampler program that can be purchased from SRA/McGraw-Hill that offers ready-made activities at: [https://www.mheonline.com/assets/sra_download/SRAPhonemicAwareness.SampleLessons/Phonemic%20Awareness%20Sampler_web.pdf](https://www.mheonline.com/assets/sra_download/SRAPhonemicAwareness.SampleLessons/Phonemic%20Awareness%20Sampler_web.pdf)
# APPENDIX C: Phonics Activities

<table>
<thead>
<tr>
<th>Reading Instruction Component</th>
<th>Target Skill</th>
<th>Suggested Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phonics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter-Sound Relationship</td>
<td>Students will identify individual letter sounds.</td>
<td>Toss the Letter Cube</td>
</tr>
<tr>
<td></td>
<td>Students will identify more complex letter sounds.</td>
<td>Two Letters That Work Together2</td>
</tr>
<tr>
<td>Blending</td>
<td>Students will blend sounds and letters together to produce short three letter words.</td>
<td>Blending CVC Words</td>
</tr>
<tr>
<td>Segmenting</td>
<td>Student will segment a word into its phonemes and corresponding letter.</td>
<td>Sound Segmentation with Lively Letters</td>
</tr>
<tr>
<td>High frequency Irregular words</td>
<td>Student will read irregular words.</td>
<td>Word Crazy</td>
</tr>
</tbody>
</table>
### APPENDIX D: Fluency Activities

<table>
<thead>
<tr>
<th>Reading Instruction Component</th>
<th>Target Skill</th>
<th>Suggested Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fluency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>Student will improve in their accurate word reading (this requires phonemic awareness and/or phonics intervention).</td>
<td>See Appendix A and Appendix B for activities.</td>
</tr>
<tr>
<td>Speed</td>
<td>Student will increase the rate at which they complete phonemic awareness, letter-sound knowledge and/or letter or spelling patterns.</td>
<td>Double Phonics Chant, Word Family Zoom</td>
</tr>
<tr>
<td></td>
<td>Student will increase the rate at which they read words.</td>
<td>Bump-A-Word Game, High Frequency Word Speed</td>
</tr>
<tr>
<td></td>
<td>Student will increase their words per minute rate while reading continuous text.</td>
<td>Timed Repeated Reading</td>
</tr>
<tr>
<td>Prosody</td>
<td>Student will improve in phrasing and expression while reading continuous text.</td>
<td>Reading Text With Appropriate Phrasing and Expression</td>
</tr>
<tr>
<td></td>
<td>Student will participate in readers' theatre to practice proper phrasing and expression.</td>
<td>Readers' Theatre</td>
</tr>
</tbody>
</table>
APPENDIX E: Sample Remedial Reading Lesson

This is a sample 35 minute remedial word reading and fluency lesson. Assume that the activities included are based upon students’ needs as identified by assessment data.

Lesson Date: ___________________ Students: ________________________________________

<table>
<thead>
<tr>
<th>Word Reading Component</th>
<th>Target Skills</th>
<th>Activity</th>
<th>Steps to follow…</th>
</tr>
</thead>
</table>
| **Phonemic Awareness** *(10 minutes)* | deleting initial phonemes | Student will play Drop and Say, by picking a card - drop the initial phoneme - put marker on picture that represents the new word. | 1. Prepare Phoneme Manipulating: Drop and Say materials.  
2. Divide students into pairs.  
3. Review game rules and set timer to 5 minutes. |
| **Phonics** *(15 minutes)* | letter-sounds | Students will review letters flipped, (letter cards - b, tr, ee, u, sh, x), and will be introduced to the new letter sound, /ai/. | 1. Shuffle letter cards.  
2. Instruct students in the sound /ai/, make sure each student can produce the sound (extra practice for student – y).  
3. Flip card and ask student for sound – rotate through group of students. |
| | blending | Student will practice their blending skills with 3-4 letter words. (If time, additional ai words –rail, aid, hail, paid, wail, snail) | 1. Model the steps for blending pail.  
2. Write ai (rain, sail, wait, aim) word on whiteboard/Smartboard and ask a student to blend. Continue for all.  
(5 letter word – Spain for student – x). |
| | high frequency words | Student will practice reading high frequency words. | 1. Project Sight Word Harry video.  
2. Select one student at a time to use wand to pick out the word Harry says. |
| **Fluency** *(10 minutes)* | Word Level | Student will practice reading high frequency words while being timed. | 1. Time and record individual students reading the same high frequency words as in Sight Word Harry. |
| | Continuous Text | Student will practice reading a poem about rain (ai letter sound) with expression and phrasing. | 1. As a group practice reading Rain Poem together focusing on phrasing and expression.  
2. Have students then practice individually with their copy to prepare for next session’s recording of poem reading. |
| Practice | Text | Student will practice fluency by reading text at their instructional level. | Decodable Text |