

MaxScholar programs are the solution for struggling readers. Using cutting-edge <u>software</u> we provide intervention materials to improve word recognition skills, reading comprehension, fluency, and vocabulary.

Our interactive **Orton-Gillingham program** is structured, organized, and easy for students to use. The multi-sensory approach used provides visual, auditory, and tactile-kinesthetic input connecting with each student's learning strength. It provides every student the opportunity to address decoding/encoding and handwriting skills, while providing every student the opportunity to learn to read.

The **Reading Comprehension programs** are designed for students reading below grade-level, including those with Learning Disabilities, Dyslexia, ADHD, Auditory Processing Disorders, Executive Function, Working Memory, and Processing Speed Disorders, as well as for those students who are English Language Learners. In addition, the materials also present an opportunity for all students to master an important strategy which is then applicable to all content materials. Our unique reading comprehension instruction teaches students how to effectively highlight text, using a research-based strategy. It requires the student to summarize or recall what has been read. The drill and practice builds working memory and retrieval memory, while improving processing speed.

Taken together, all our programs are designed to present to the student a multi-sensory approach to reading, providing extensive drill and practice, and interactive materials. This learning environment engages the students and encourages their active participation.

For information about MaxScholar, including our blog, information about the research, and testimonials, go to

www.maxscholar.com

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OVERVIEW OF THE SOLUTION

MaxScholar programs are the solution for struggling readers, using cutting-edge **software** to improve word recognition skills and reading comprehension. The programs are for students reading below grade-level, including those with Learning Disabilities, Dyslexia, ADHD, Auditory Processing Disorders, Executive Function, Working Memory, and Processing Speed Disorders, as well as for those students who are English Language Learners. The programs can also be used for all students, providing extra drill and practice to reinforce word recognition and comprehension skills.

Our **interactive**, **multi-sensory Orton-Gillingham program** is structured and organized in a way that is easy for students to use. Our **interactive electronic Highlighting Program** teaches students to highlight properly, improving reading comprehension, oral and written language, and vocabulary.

Electronic learning, as we present it, has the ability to transform ways of learning to read words, gaining understanding through technology. The students are always able to progress at their own pace.

MAXSCHOLAR ORTON-GILLINGHAM MULTI-SENSORY PHONICS PROGRAM

Our Orton-Gillingham based method⁹ allows teachers to use a method that has been proven effective for over 70 years. Sadly, this method is rarely offered in schools due to lack of knowledge about the method by the teachers or the resource staff, and the exorbitant cost of professional development and implementation. Our program teaches the students the alphabetic principles, while increasing their fluency¹⁰, auditory processing abilities, and their recognition of sight words. The students are often reading sentences for the first time. Sometimes teachers who do try to use this method will skip steps or will not provide enough drill and practice. They may not have the option to individualize the amount of time spent on any individual letter, sound, or skill for each student. Our electronic method addresses all of these concerns. It allows a teacher, an aide, a reading coach, a tutor, a volunteer, or even a concerned parent or grandparent to present a student an easy to learn method. It involves the use of cutting-edge technology, engages the student, allows the student to proceed at his or her own pace, and is actually fun to use. Moreover, because the software is web-based, once the student has been assigned a specific username and password, it can be accessed anywhere else there is Internet connections available.

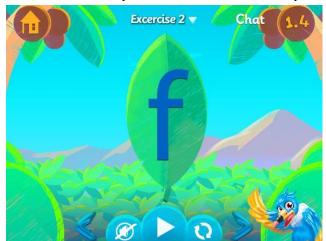
The MaxScholar Orton-Gillingham Multi-sensory Phonics Program starts by teaching the student the letters and sounds they make. It then provides drills in the auditory, visual, and kinesthetic areas to reinforce learning. The program provides everything needed to learn to read. There is no longer the need to look for different sources or gather materials to be used in teaching, a time consuming and confusing step. Our program is easy to use for teachers, tutors, parents, and grandparents.

This program introduces the structure of the English language to all beginning readers, whether they are in pre-K, Kindergarten, First Grade, Second Grade, or Third Grade, are English Language Learners, or are struggling readers in any other grade, who have not mastered the alphabetic principle. It is based on over 70 years of clinical experience, supported by a multitude of research studies, and is considered one of the best ways to teach children how to read words, sight words, and stories. This program is the first of its kind to be so extensive, thorough, and easy to use, and available in an **electronic** format.

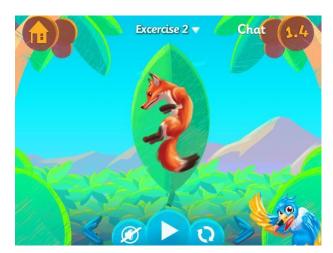
⁹Ritchey, K. D.; Goeke, J. L. (2006). "Orton-Gillingham and Orton-Gillingham Based Reading Instruction: A Review of the Literature". *The Journal of Special Education* **40** (3): 171.

¹⁰Wolf, Maryanne, "What is Fluency? Fluency Development: As the Bird Learns to Fly." Scholastic Professional Paper, 2006.

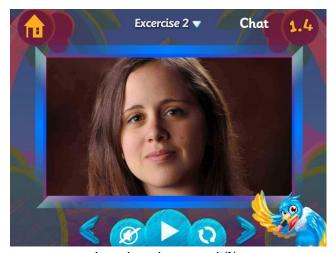
Examples of letter, picture, sound sequence:



"This is the letter f."

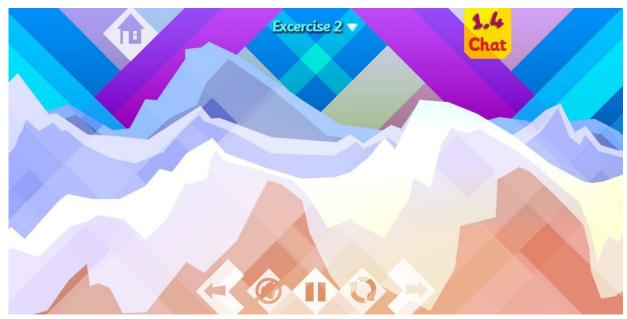


"As in fox."



It makes the sound /f/.

The computer shows an animation of how to write the letter in the sky & in the sand.

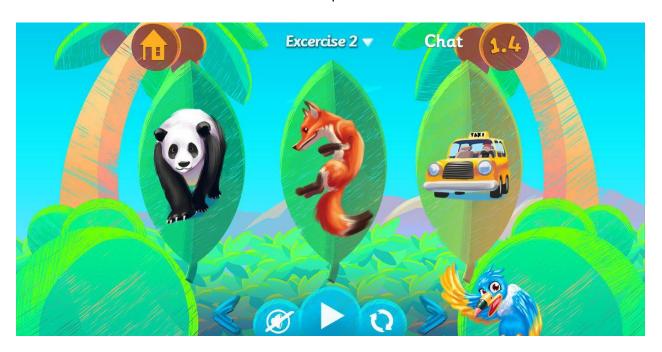


Sky writing



Sand Writing

Phonemic Awareness Drills: "Find the picture that starts with the sound /f/."



Auditory Sound Drill: "Type the letter that makes the sound /t/ as in taxi."



Sound Blending Drill: "Say the sounds the letters make and blend them into a word."



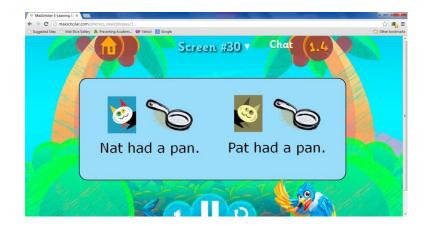
Fluency Drill: "Listen to me as I pronounce each word in order. Next you will be asked to read the same words, and you will be timed to see how many words you can read in one minute."



Sight Words: "You will now learn the sight words that will appear in the story you will read." (This is an example of one of the sight words.)



Controlled Reader



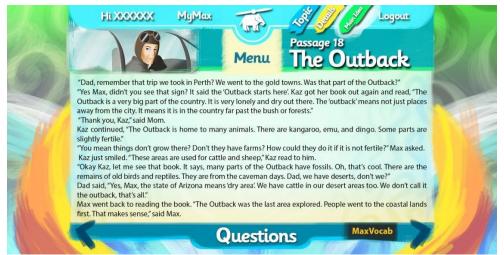
HIGHLIGHTING PROGRAM

Reading comprehension problems affect 75% of all struggling readers. Our interactive, electronic program teaches a student how to highlight, a research-based strategy that is very effective in improving comprehension. Most students are never taught how to highlight, and, when given a highlighter, will often color the entire paragraph or passage. Our program was created to allow only the important words and phrases to be highlighted while the student is using our electronic highlighting tools. Visualizing and summarizing what has just been read is a strategy that helps reading comprehension. The students who can visualize and retell what is read will better understand the passage, allowing them to answer questions about what has just been read. Our passages are written with high interest content. We have materials written which appeal to students of many cultural backgrounds.

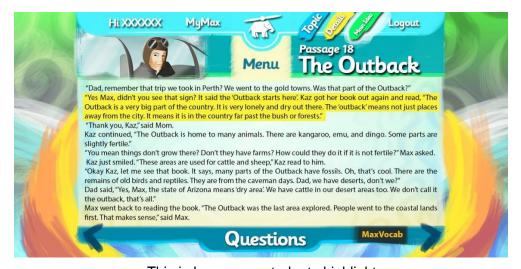
MaxScholar Highlighting Reading Comprehension Program is based on the educational strategy of highlighting. Research has shown that the highlighting strategy using a specific sequence of directions (topic in blue; main idea in green; and only the important details in yellow) teaching the student to focus better, to visualize what is read, to remember what is important, and to slow down in reading. This strategy develops self-confidence in reading. After highlighting a given passage, the students are asked to summarize, either by writing in a notebook or orally to the classroom, teacher, aide, parent, or grandparent. This process insures better recall of the text. This program has provided outstanding results for struggling readers, ESE, and ELL students. This is the first electronic version of a reading comprehension program that allows students to learn to utilize the highlighting strategy in a way that improves reading comprehension. There are books in the series that allow students to start at their own level and scaffold upwards towards grade level or better reading.

The students will soon master this powerful strategy, while they are becoming comfortable using digital materials. The future of educational textbooks and other learning materials will be on the digital format. Materials were carefully selected to engage students from many different cultures. Because of the graphics, the animations, the scoring system, and the interaction with the computer, many students comment that the program is "fun" or that it seems like "playing a video game."

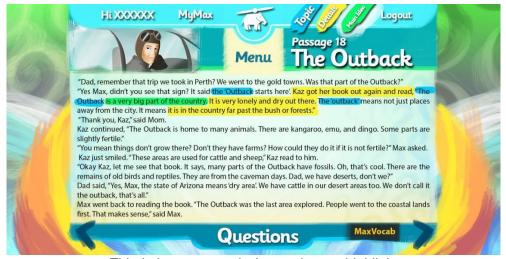
The program always provides questions at the end of each passage that follow the Common Core State Standards and judge explicit and implicit (inferential) reading comprehension. It is a creative way to address individualized Response to Intervention (RTI) 1, 2, 3.



This is a "typical" passage.



This is how many students highlight.



This is how we teach the student to highlight.

Demonstration of how to use the MaxScholar Highlighting Program

In order to use the entire MaxScholar software, a user must have a computer, either PC or Mac. The software also works well on a tablet, like an iPad, providing that there is an Internet connection. The following Internet browsers work well, and they can be downloaded for free:

Google Chrome (www.google.com/chrome)

Mozilla Firefox (www.mozilla.firefox.todownload.com)
Safari (www.safari-free.todownload.com)

Internet Explorer works well provided it is version 8 or newer. The software has not been tested on Opera.

On-line demonstration on how to use MaxScholar Highlighting Program is available at this web address: http://maxscholar.com/video_highlighting/

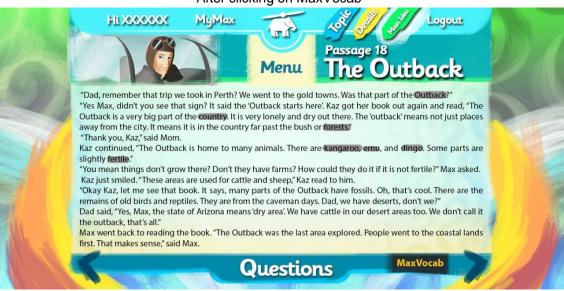


MAXVOCAB

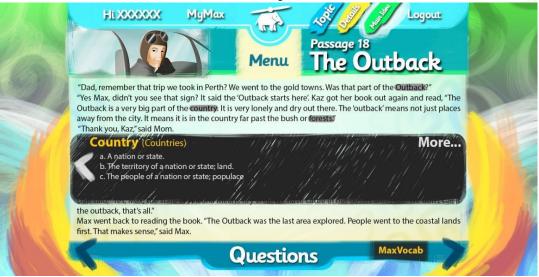
By clicking the button "MaxVocab" located in the lower right hand corner of each passage in the Highlighting series, certain words will become highlighted in dark grey. The student can use this tool while reading the passage, when encountering an unfamiliar word. The most relevant, high-frequency, vocabulary words of the passage have been preselected and will always appear when the MaxVocab button is clicked. Research¹⁰ shows that students of all ability levels increase their knowledge of the target vocabulary words as a result of reading passages in which the words appear, regardless of the instructions or of word lists given prior to reading. Lessons that utilize vocabulary in context can also help students learn to use context clues to identify the meaning of unknown words. These clues are methods that readers can use to determine the meaning of a word by using the language and other words found around it. Context clues can help a student learn to read more critically and to be better prepared for further reading outside the classroom.

Once the student clicks on the MaxVocab button, the vocabulary words in the passage become highlighted. Clicking on the individual word brings up the definition of that word, in the context that it is used. By clicking on "More..." in the upper right hand corner, a list of all the vocabulary words in that passage appears. By scrolling down to the appropriate word, the student can again see the definition, along with a synonym, antonym, and the use of the word in a sentence. If a student encounters a word that he or she does not know which is not a highlighted vocabulary word, the student is encouraged to use one of the on-line dictionary web sites to look up the meaning of that word.

After clicking on MaxVocab



After clicking on More...



In addition to using MaxVocab while the student is reading a passage, there is a tab under "List of Apps" which is also called "MAXVOCAB." After clicking on that tab, the student is presented two choices: "Look for a Word" and "Play the Definition Game." By clicking on "Look for a Word," the entire list of all words in all the passages of a specific book can be found. If the student or teacher suggests, the student can review all the vocabulary words not mastered, write each word on an index card, and write the definition, synonym, and antonym on the reverse side of the index card. These cards can be saved in a box and reviewed periodically until each word is mastered. By clicking on "Play the Definition Game," a type of "Hangman" game appears. The student is asked to type a specific letter until the entire word is spelled out correctly. The words used are from the master word list of the program.

Hi XXXXXX MyMax

Back to App Logout

Play Again?

These Were The Right Ones:

A large hoofed mammal (Equus caballus)
having a shorthaired coat, a long mane, and a
long tail, domesticated since ancient times and
used for riding and for drawing or carrying

Any of various winged vehicles capable of
flight, generally heavier than air and driven by
jet engines or propellers

a. A structure serving as a dwelling for one or
more persons, especially for a family.
b. A household or family.
c. A vehicle, such as a streetcar, that runs on
rails

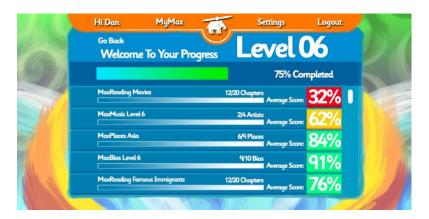
Play the Definition Game

¹⁰Killian, AS, Nagy, WE, Pearson, PD, et. al., Learning Vocabulary from Context: Effects of Focusing Attention on Individual Words During Words During Reading. Center for the Study of Reading, College of Education, University of Illinois at Champaign-Urbana, Technical Report No. 619, November 1995.

MAXSCHOLAR LEVELS SYSTEM

The Maxscholar apps are all linked between each other through the Levels System. All the content in our apps was created using the Flesch-Kincaid Grade Level Readability Index. This way the students can read at their reading level and focus on learning more vocabulary and use the highlighting techniques to exercise their memory and understanding of the texts.

With all our content separated by level on each app, the student has to go through all the apps available on their level and do all the exercises before going to the next level. On the MyMax menu the students can go to "My Progress" and see how much they've done, what they have to do to pass the level, and what is their average score.



There are two ways of assigning a reading level to the students:

- The first is through the teacher. When the user for the student is created using our administrative tools, the teacher can set a reading level for the students for them to use as a starting point. Teachers can do this individually for each student or as a group when creating the class.
- The other is using our pretest on the MaxReading app. When users login to maxscholar for the first time, they are asked to take a test by reading 4 texts and answering 5 questions for each text. Depending on the score of the test, the reading level assigned by the teacher will remain, or the app will suggest a lower level for the student.



The pretest result can be overridden by the teacher using the "administer accounts" tool on our Administrative Tools.



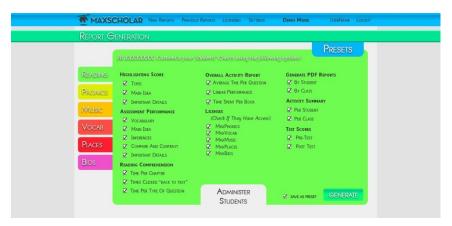
During the level and after the level, the students will have to perform and interim test and a post test in order to account for the students' progress, adding to the texts' highlighting and question scores and helping our system to get a better sense of how the students are doing.

All of the student scores, errors, times of use and other variables in all of our Maxscholar apps are registered and processed in our database for the teachers to see using out Reports system.

REPORTS SYSTEM

All of your students' doing can be easily viewed, analyzed, saved and shared using out Dynamic Reports System, which can be accessed through our Administrative Tools.

On it you can create reports by choosing an app first, then choosing the variables you want to be taken into account on the charts and information you will be seeing on the report.



Once you've chosen the variables, you have to choose the students you want to see the report of. This can be done by using the Administer Students tab on the Report Generation screen. From there you can choose a whole class, remove students from it, add students from other classes and, if you want, you can save that custom list for further use.



Once you generated the report you'll see several items. On top of the report there's a list of all the charts available for the app you chose to make the report of. On the middle there's a chart, which you can change the timeframe of the chart on the screen for you to look closer on a certain timeframe, or choose a year and get a general picture of what is going on. On the right there's the list of student you've selected for this report. You can add them and remove them from the chart in real time and also add a group average of the chart if you want to compare a few students against the rest of the group.

The PDF ready button is for when you want to share the report with someone else. Press the button when the chart is exactly how you want it, do this with the other charts you're interested in saving and then go to the "save and share" button on the bottom to save the PDF. On this screen you can also save the report as a preset, so you can go back to this particular group of students with the variables you specifically chose without having to choose it all over again.



You can access the preseted reports on the "presets" tab in the Report Generator screen.

RESEARCH

Orton-Gillingham Phonics

Reference 1

Study Shows Orton-Gillingham Curriculum Benefits Students

November 8, 2010

http://www.redorbit.com/news/health/1945628/study shows ortongillingham curriculum benefits students/

Kingston, NY (PRWEB) November 6, 2010

A short-term study of an Orton-Gillingham curriculum implemented with first, second, third and fourth graders in a reading remediation program demonstrates age equivalent gains of up to 3 years and 6 months. Overall, the study shows significant gains in both Passage Comprehension and Word Attack skills tested using the Woodcock Reading Mastery Test Revised Form G.

The Multi-sensory Teaching study was conducted during the 2009-2010 school year by Alison Luria, founder of Multi-sensory Teaching.

"Similar findings can be expected on any properly implemented Orton-Gillingham curriculum," said Luria. "All students will benefit from teachers who are well-trained in Language Enrichment, Developing Metacognitive Skills, Multi-sensory Grammar, and Writing. Students with reading difficulties will reap the greatest rewards."

"This study shows that an Orton-Gillingham curriculum can help struggling readers improve their skills. Schools interest in implementing proven methods of early reading instruction should consider Orton-Gillingham based training for their teachers," said Susanne Warren of High Meadow School in Stone Ridge, N.Y. Language Enrichment certificate recipient, Kristin Schroder, stated "As a teacher with over 20 years of experience, I am excited to be teaching the comprehensive Language Enrichment program in the Kindergarten classroom. It addresses my students' needs, and I am now confident in their success as they progress through the program."

http://www.orton-gillingham.net/greeley_research.pdf

THE EFFICACY OF A SUPPLEMENTARY MULTISENSORY READING PROGRAM: The Efficacy of a Supplementary Multisensory Reading Program for First-Grade Students

Debora L. Scheffel C Colorado Department of Education

Jack C. Shaw University of Northern Colorado

<u>Abstract</u>

The purpose of this study was to evaluate the efficacy of the Institute for Multi-Sensory Education's supplementary Orton-Gillingham based reading program across three schools in a single school district. Dynamic Indicators of Basic Early Literacy Skills (DIBELS) assessments were used to measure the reading skills of 224 treatment and 476 comparison group first-grade students, with control group students receiving traditional reading instruction for 90 minutes per day in a core reading program and treatment group students receiving instruction using the supplementary reading program for 30 additional minutes per day. Classroom observations by reading professionals revealed satisfactory program implementation. Collected teacher surveys demonstrated high teacher satisfaction with the program. Alphabetic principle and phonemic awareness skills in the treatment group made significant improvement relative to the comparison group. Treatment group female Hispanics made the greatest gains in alphabetic principle skills.

http://www.orton-gillingham.net/oswego_research.pdf

Oswego Community School District 308, Oswego, IL Institute for Multi-Sensory Education Professional Development, School Year 2008 - 2009

Oswego, Illinois is a southwest suburb of Chicago with a total enrollment of just over 14,000 students. The racial/ethnic backgrounds of these students are: 64.8% white, 8.1% black, 17.2% Hispanic, 5.2% Asian/Pacific Islander, 0.2% Native American, and 4.3% Multi-racial/Ethnic. The low-income rate is 10.9 and the limited English-proficient rate is 3.8. The mobility rate is below the state average at 8.3. Oswego is a fast growing district, growing from four elementary schools to thirteen in less than ten years.

Our Reading Department expanded as well from less than ten members to currently over thirty. Professional development and fidelity to implementation were critical to the continuity and effectiveness of our services to our most struggling readers. With this in mind, our district contracted with the Institute for Multi-Sensory Education (a program that uses Orton-Gillingham methods for teaching reading) for 30 hours of comprehensive training for our Reading Professionals that serviced our primary atrisk students. This professional development provided the essential training they needed to be as successful as possible, as well as a framework for a unified delivery of this powerful intervention. Reading Professionals were given a survey after participating in this initial training. Over 97% of them foun d this training to be valuable and would recommend it to fellow teachers. Our results from this training were consistent and effective in enabling 76% of the 225 indentified first grade at-risk students to reach target comprehension and word decoding scores on the Gates-MacGinitie Reading Test.

During May of the 2008-2009 school year, these targeted at-risk students were administered four diversified assessments to document their reading achievement. Here are the assessment results of the 225 at-risk first graders after participating in this reading intervention for thirty minutes a day, five days a week in small groups of approximately four students. These small groups were serviced in a pullout setting by a Reading Teacher or a Reading Specialist.

Assessments Administered in Spring 2009	Reading Skills Assessed	Target Score	Average Score of the 225 identified at-risk first graders
Gates-MacGinitie Reading Test *Administered in small groups by Reading Professionals	Word Decoding and Comprehension	40 th percentile or higher	59 th percentile rank
AIMSweb R-CBM Benchmarking Probes *Administered individually by classroom teachers	Fluency	59 words read correctly in one minute is at the national 50 th percentile	63 words read correctly in one minute
Observation Survey: Text Reading *Administered individually by Reading Professionals	Determine the appropriate level of text difficulty	*Text Level 20 is the random sample average according to Reading Recovery	**Text Level 18
Darrell-Morris Developmental Spelling Test *Administered whole class by classroom teachers	Spelling Stages	The transitional/correct stage range of 67-90	78

Highlighting

Brain research has shown that the kinesthetic acts of highlighting, followed by summarizing, are very effective tools which can be used to improve reading comprehension.

Highlighting:

- Teaches the child to visualize what is read & form a movie in his/her head.
- Teaches the child to remember what is important.
- Improves the child's attention.
- Forces the student to slow down in reading a passage.
- Builds self-confidence in reading.
- Allows the child to summarize more easily.
- Develops higher level rational & conceptual thinking.
- Activates the orbito-frontal portion of the frontal lobes.
- Allows learned material to become part of long-term memory.
- Helps visual & tactile learners remember what is read.

Research indicates that summarizing a passage is an excellent way to remember what has been read. When students are able to put into their own words what they have read, they have improved comprehension and recall, and can answer most Common Core State Standards questions.

Reading Strategies for Struggling Readers: Annotating Text

http://www.readinghorizons.com/blog/post/2010/08/04/Reading-Strategies-that-Work-for-Struggling-Readers.aspx

"The lack of <u>effective reading strategies</u> is often what prevents <u>struggling readers</u> from excelling with reading. Fortunately, you can <u>teach reading strategies</u> to struggling readers to help them improve their reading comprehension. Often, educators call these reading strategies "scaffolding" techniques because they help struggling readers build their way up to reading comprehension, much as a scaffold helps a construction worker to build upward from the ground.

"One such scaffolding skill that you can teach to struggling readers is the **annotation of text**. This means, quite simply, that the reader "marks up" sections of text, either with a highlighter or underlining, and makes notes in the margin in his/her own words, to ensure understanding.

"Annotation helps build three key reading skills. When annotating a text, the reader:

- 1. Formulates questions in response to what he is reading
- 2. Analyzes and interprets elements of poetry or prose
- 3. Draws conclusions and makes inferences based on explicit and implicit meaning

"In order for this to be effective, it is essential that you show your struggling readers how to highlight and annotate a text. Otherwise, the student will probably lapse into highlighting every word, which doesn't help him to identify key concepts.

"As you use these **teaching strategies**, you should discuss with the students the purpose of highlighting. Each student will have different purpose for highlighting depending on their own skill set and reading struggles.

"For example:

"Students that struggle with **understanding what they read** (reading comprehension), benefit from highlighting because it helps them focus on identifying the main ideas of a text.

"Showing struggling readers active strategies like annotating gives them concrete tools to be able to interact with text and find small, immediate successes. The more students practice effective reading strategies, the more natural they will become, and the closer to absorbing text they will get."

Strategies for Reading Comprehension: Selective Underlining

Jones, R. (2006). Strategies for Reading Comprehension: Selective Underlining. Retrieved 2008, April 14, from http://www.readingquest.org/strat/underline.html

What Is Selective Underlining?

Well, there's underlining, and there's underlining selectively. [By the way, even though I'm using the word "underlining," you can feel free to know that also means highlighting.] The way to make underlining useful as a tool for comprehension is for it to be strategic, selective, and purposeful. The underlining must be undertaken toward particular ends.

Do you remember how wonderful it was to discover the highlighter, perhaps when you were in college? I know that for me, I was more likely NOT to read the stuff I was highlighting. For some reason, that's the effect that a highlighter had on me. Or maybe I'd look back at the selection and find I'd pretty much colored the whole darn thing yellow. With selective underlining (and highlighting!), the idea is to underline ONLY the key words, phrases, vocabulary, and ideas that are central to understanding the piece. Students should be taught this strategy explicitly, given time and means to practice, and reinforced for successful performance.

How Can I Teach My Students to Selectively Underline?

There are several ways to go about it. You may be saying, "Selective underlining is all well and good, but have you eggheads up in the university forgotten that we use textbooks, and that our kids only get to use them for the year, but we have to use them at least five years??" That's a fair question, so how can you teach this strategy anyway?

- First of all, let's realize that not every single bit of text you have students read is in a textbook and untouchable.
- Second, consider seeking out appropriate content sources, such as newspapers, that students can indeed learn this strategy with while still pursuing meaningful social studies goals.
- Third, think about how you can get around the problem of textbooks that can't be marked in. For instance, in order to teach the strategy, you might photocopy a page or two out of the text that students use and distribute it to them. Make an overhead of that selection for yourself. Model for them and guide them in practicing the strategy on the photocopies. Alternatively, if you have enough of the materials available to you, give each student a sheet of transparency film, some paperclips, and some overhead pens. Let them practice directly on their texts by using the transparencies.

Teaching Children How to Highlight as They Read

http://suite101.com/article/teaching-highlighter-skills-a74727

The question about highlighter skills is not whether to teach them, but when to teach them. Highlighter skills are useful towards helping students improve reading comprehension and learn good study habits. Think carefully about what text to have the students read and what highlighting skills to teach them.

Highlighter Skills to Improve Reading Comprehension

Highlighting will help to promote better reading comprehension. Students who highlight as they read are learning to identify the important points, and are paying close attention to what they are reading so that they highlight the appropriate text. Focusing on the text in this way enables greater learning and deeper comprehension.

Highlighting also helps both visual and tactile students remember what they are reading and will aid in studying the text independently. For visual learners, the highlighted portions of text will stick in their heads better as a visual reminder of the important facts in the text. For tactile learners, the physical act of highlighting helps them to remember the important facts.

Picking a Text to Highlight

When choosing a text to teach highlighter skills, think carefully about the students' reading level. The text should be at an independent reading level for all students, so that the act of reading is not the focus of the activity. It may be prudent to choose a text that is written a grade level below where your students are currently reading, and that includes more than one paragraph.

Teaching Highlighting Skills

When deciding what to teach students to highlight, think through the things you would highlight when studying a college text book. Students need to look for the main idea, key points, and any other important information. Ask students to think about what information might end up on a test, and highlight that.

Teach students to not highlight an entire paragraph. Look for and highlight new information. They need not highlight even an entire sentence if only part of the information is important.

When going back to study a highlighted text for a test, teach students to read the highlighted parts and not the entire text again. The point of highlighting is to remember where the most important pieces of information are found within the body of the text.

Students as young as second grade can learn how to use a highlighter when reading an informative text. Proactively teach highlighting skills, and do not expect a child to understand what is important to highlight, even if he is able to articulate the key facts in the story.

Selective Underlining/Highlighting Strategy

http://fchsreading.wikispaces.com/file/view/1+Selective+Underlining+Strategy.pdf

What is it?

We have all had the experience of suggesting that students highlight the text that they are reading, only to watch them indiscriminately highlight nearly every word on the page. It is clear that learning how to highlight a text as a part of a reading strategy requires some instruction, including some modeling and guided practice. If done well, highlighting can become a very effective reading tool; if done poorly, it is most likely a waste of a student's time, energy and ink. Selective underlining/highlighting is most effective when combined with marginal annotations that help to explain the highlighted words and phrases.

The following lists provide a simple set of goals and guidelines that students could use to increase the effectiveness of their selective underlining/highlighting and, as a result, improve their comprehension and understanding of a text.

Purposes/Goals of Selective Underlining/Highlighting Capture main ideas / key concepts / details of a reading Target, reduce and distill the needed information from a text Strengthen reading comprehension.

What does it look like?

- 1. Choose a focus or framework for your highlighting. Ask yourself: What is the purpose or intended goal of this particular reading? (e.g. Main ideas only? Supportive details for an interpretive claim you are making? Definitions and examples of key vocabulary?) After you determine the focus, highlight only the targeted information.
- 2. If possible, do not highlight on a first reading of a text. Rather, divide a page into manageable chunks and read a section once. Then skim the section again and highlight on the second reading. If you try to highlight on the first reading, you may not have a clear sense of the key ideas/concepts or important/relevant details.
- 3. Eliminate every single unnecessary word in a sentence as you underline or highlight. This method should still allow you to make sense of a sentence or section when you reread it. Do not underline/highlight entire sentences unless it is absolutely necessary.
- 4. You may want to use multiple colors in your highlighting process. For instance, choose one color for main ideas and another color for supportive detail that may help in sorting the information when you study the material or collect information for a paper, exhibition or project. You may want to use a color to indicate facts or concepts on which you would like clarification or pose as questions.

Highlighting for Understanding of Complex Text

http://www.radteach.com/page1/page8/page11/page11.html

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Most teachers enjoy challenging their students and extending students' critical thinking skills. Few joys compare with seeing a student grasp the big picture, connect and relate previous learning to something new, and discover the satisfaction of an "Ah-ha" moment. However, with larger classes and more material to cover in less time, it's not always possible to engage in Socratic methods with empirical or inductive dialogue to bring students up to their potential as high level thinkers. But brain-based research and colored marker pens can help teachers provide the necessary scaffolding and guide their students with to develop their powers of interpretation, analysis, and abstraction.

Many students are limited in their prior experience in higher cognitive analysis of complex written text. They have either been taught to the standardized test or are products of the digital-audio-visual era with its emphasis on immediate gratification without encouraging critical feedback. Sheridan Blau teaches in the departments of English and education at the University of California, Santa Barbara, where he also directs the South Coast Writing Project. His believes that, "Over-instruction or giving predigested interpretations to students results in a limited conception of what competent readers go through to produce meanings from what they read. Most student readers function largely as welfare recipients in the economy of literary and other academic interpretation and instruction. We want to give students the experience of successfully interpreting difficult text, and liberate students from interpretive welfare. The goal is to build in students a greater tolerance for difficulty or failure. Confusion represents a high state of understanding. The act of interpretation doesn't occur in reading unless you feel something is wrong – something makes you uncomfortable. From there you seek and reach a new perspective and the richest parts of the understanding and connection with the material."

That experience provided a set of self-management skills, concentration, persistence, and courage, in the face of intellectual difficulties. By extrapolation I have used the colored pen technique to light the way for students to reach higher levels of thinking, abstraction, and conceptualization regarding the material they read in other subjects where interpretation is important. As one would expect, the scaffolding afforded by the colored markers eventually becomes unnecessary, because as students become adept at the process, they are simultaneously developing their higher levels of thinking, abstraction, and conceptualization. They discover that they can achieve the same degree of understanding by focused rereading. The end result is that they learn the material they need, but not because it is processed through superficial rote memory from notes or lectures that predigest the material, but rather through their own relational and conceptual thinking utilizing their higher-level executive function skills.

What's Happening in the Brain That Moves the Hand That Controls The Marker?

Perhaps what may sound like a "gimmick" may garner the appropriate respect and attention from skeptical readers when they understand the science behind how this technique is promoting learning. Behind the colored markers, the technique works like this: Executive functions, centered in the orbito- frontal portion of the frontal lobes, include higher reasoning, abstraction, synthesizing, critical analysis, comparison/contrast, and judgment. As brain research has found, this processing results in the learned material becoming part of long-term memory available for retrieval and subsequent critical thinking connections far beyond the classroom.

The brain is divided into lobes, each with many functions, each interconnecting to the other lobes through nerve pathways or circuits. Areas in the frontal and temporal lobes are integral in executive attention – alerting the rest of the brain to pay attention or respond to stimuli. In learning, the stimuli are the bits of sensory information students see (through their eyes or by internal visualization after reading text), hear, feel, smell, touch, or experience through movement. There are even more specialized brain regions that have been revealed through neuro-imaging and brain mapping while subjects are in the process of moving information from sensory data to these centers of executive function. When new information is actively learned and stored, the first areas activated (lit up by increased metabolism seen on PET or fMRI scans) are the somatosensory cortex areas, one in each brain lobe, where input from each individual sense (hearing, touch, taste, vision, smell) is received and then classified or identified by matching it with previously stored similar data.

Next in the sequence of memory storage is the limbic system, comprised of parts of the temporal lobe, hippocampus, amygdala, and prefrontal cortex (front part of the frontal lobe). Studies of the electrical activity (EEG or brain waves) and metabolic activity (from specialized brain scans) show the synchronization of brain activity as information passes from the somatosensory cortex sensory processing areas to the limbic system. For example, bursts of brain activity from the somatosensory cortex are followed milliseconds later by bursts of electrical activity in the hippocampus and then other parts of the limbic system before being passed along to the executive function centers. This is the one of the most exciting areas of brain-based memory research because it offers educators a view of the brain while it is processing new information. This provides empirical evidence with which to evaluate the techniques and strategies that stimulate and those that impede communication between the parts of the brain when information is processed and stored.

Engaging in the process of learning actually increases one's capacity to learn. Each time a student participates in an academic endeavor, a certain number of neurons are activated. When the action is repeated, such with a new color marker during each rereading, these same neurons respond again. The more times one repeats an action, the more connections are made from the new memories to previous related knowledge. If previously stored, related memories can be activated, or brought back on line, they travel back to the hippocampus and nearby regions of the temporal lobe where they are connected to the new information. The brain then makes the conscious connection between these stored memories and the new information.

When students process information through multiple sensory intake centers in their brains (visual reading, auditory reading out loud or with a partner, color stimulation of the highlighting, and the positive emotional connections to past "coloring" activities when coloring meant childhood fun, the information to be learned is connected to multiple senses and positive emotions. This excites more of the brain, increasing stimulation of

executive function centers. Part of this process is due to the brain's plasticity. When new information is input using several sensory systems, the brain's plasticity builds additional dendrites to form more networks of information communication. For example, offering the information visually will set up a dendrite/neuron connection with the occipital lobes, the posterior lobes of the brain that processes visual input. Subsequently or simultaneously presenting the same material by sound will build an auditory dendritic circuit with the temporal lobes. The temporal lobes process sound and play an important role in the regulation of emotion and memory processing because they are part of the limbic system. This duplication of pathways results in greater opportunity for future cues to prompt the brain to recall related stored information and make connections and higher-level interpretations.

A "Colored" Brain

As the highlighting lesson progresses, students feel more capable of doing higher order thinking independently. When students have the opportunity to actively think for themselves, they become self- learners. The person who does the work (thinks) is the one who learns. When students are ready to respond in class discussion, openended questions with multiple possible responses encourage more students to be the thinkers. When some students do begin to respond with what they believe are factual answers or correct assumptions, asking them to explain their thinking and give evidence for their ideas allows others to actively listen and clarify their own interpretations.

A student must care enough about new information or consider it important, for it to go through the limbic system, form new synaptic connections, and be processed in executive function centers of the frontal lobe. Having students relate new information in the engaging process of highlighting personalizes it and increases its importance to them. This process has the built-in positive emotional experience of the "play" of coloring and the success that results from feelings of accomplishment, pleasant social interactions with classmates or teacher, or specific acknowledgement and praise. This emotional connection is particularly applicable during early college years when the influences of emotions and hormones are greatest, making this a particularly significant time for teachers to use strategies that make the most of the heightened emotional state of students.

Color Me Dopamine

The chemical neurotransmitter that appears to most impact the activity state of the limbic, attention, and executive function systems is dopamine. Dopamine has long been associated with attention and attention disorders in the frontal lobes. Dopamine carries information across synapses in the networks and circuits involved in decision-making and executive control. In the frontal lobes and the amygdala, there is an optimal stimulation state where brain stimulation and activity is enhanced with some types of reward-dependent learning. This is reflected in neuro-imaging that measures dopamine levels in these brain regions.

Research evidence indicates that when reward or positive reinforcement is part of a lesson, dopamine activity increases in these brain regions to the point that there is an opening of the gates and passages through the limbic system to the executive function control centers. Dopamine responsive brain cells in the amygdala and elsewhere in the limbic system may be where the brain "makes predictions" about possible rewards by releasing the dopamine in response to cues that rewards are possible. The dopamine then activates the neural pathways

to prompt the behavior to achieve the rewards it predicts. This research, and an even newer area of brain research related to mirror neurons (which play a part in learning language and linguistic interpretation), suggest that the pleasure and achievement-based rewards of this highlighting color process can change the way students will relate to challenging text in the future.

Metacognition

Metacognition, knowledge about one's own thoughts and the facts that influence one's thinking and learning can optimize future learning. With all the information neuroimaging and brain mapping has yielded about the acquisition of information, some of the best strategies are still those that students recognize themselves. Research has demonstrated that optimal learners knowingly practice distinct learning behaviors that they have acknowledged as successful for them. After a lesson with the colored highlighters, it is beneficial for students to recognize a breakthrough success in the learning processing that they experienced that day, and consider what they did right.

The Future

When executive function brain research is applied to the classroom it not only drives the learning process, but also allows instructors and professors to energize and enliven the minds of more students. As the research continues to build, it will challenge educators to develop and utilize new strategies that bring the insights gleaned from brain-based research to their interactions with students, their pedagogical practice. That will be a fascinating and exciting challenge to meet.

I have seen the work students have produced after they leave my highlighting class and am confident that a set of markers helped them brighten the executive thinking portions of their brains. Demonstrating this technique with students has helped them sharpen their critical thinking and capacity for abstraction so these skills. It sounds almost naïve to assert that a few colored markers can help prevent important learning skills from being extinguished by frustration and negative experiences with a challenging text, but I've found that they have. I urge you to try this approach to surmounting difficult texts with your students.



What is Fluency? Fluency Development: As the Bird Learns to Fly

http://www.scholastic.com/teachers/article/collateral resources/pdf/w/WhatIsFluency.pdf

by Maryanne Wolf

At this very moment your attentional systems are engaged; your conceptual curiosity has been piqued by the simile of a bird's flight; and your visual system is swooping quickly across the page, forwarding its gleanings without a single conscious effort to the multiple cognitive and linguistic systems that await its work. There is more. The latter linguistic systems are rapidly transforming these subtly differentiated visual symbols into sounds and words capable of transforming our thoughts, our actions,

Indeed, sometimes our lives. This is the teeming underlife of reading, and a great deal rests upon our ability to activate all of these processes accurately and fluently. Despite the three-ring cognitive performances going on inside their heads,

Adult readers rarely give reading's automaticity a moments' reflection unless confronted by its absence: for example, in a child first learning to read, where the greatest amount of thought and effort is given to every letter and word; or in the rare, tragic aftermath of a stroke or brain injury that renders a person alexic and able to read only in the most labor-intensive fashion. In both of these examples, what is missing is fluency—that quality of written language that allows us to read with rapidly-executed skill and with almost effortless comprehension.

There is a third example of fluency's absence that is something between the other two examples and equally noteworthy. Many children with developmental reading disabilities never attain smooth, fluent reading, and, as a result, become increasingly behind their peers in a despairing game of catch-up that won't end well. The cycle of school failure is an only too well-known phenomenon to most educators. A bright child arrives at school full of life and excitement; tries hard like everyone else to learn to read; told by the first teacher to try a little harder; told by the second teacher that she/he is "not working to potential"; told by other children that she/he is "slow" or a "retard"; and told by society that everyone has to read well to get to college and to get a good job. By the time this child is in fourth grade there is no earthly resemblance to the child who entered school a few years before! Unless all children have their best shot at learning to read accurately, fluently, and with good comprehension, we will repeat this unnecessary cycle of personal failure and rejection and societal loss over and over again in school after school.

DOCUMENTED TEST IMPROVEMENT RESULTS

Results obtained using the **Highlighting Strategy** for students in Miami-Dade County Public Schools who were provided at least 20 hours of tutoring. The following scores were obtained:

Year	# of Students	# of Students # completing program		Average % gain
2008 - 2009	282	99%	82% ¹	38%
2009 - 2010	323	99%	92% ²	60%
2010 - 2011	462	98%	91%2	44%
2011 -2012	423	98%	80% ³	39%
			Average Gain	45%

¹District Administered Interim Tests

²Comprehensive Assessment of Reading Strategies (CARS)

³SAT-10, administered by District

Results obtained using the Highlighting Strategy for at-risk students at a Miami-Dade County Public School (SIB)

Grade	# of Students	Hours of Tutoring Using MaxScholar Software	% of Students Making Learning Gains	% of Students Making >15% Learning Gains	Average % Gain Over Baseline
3' ^u	36	19	69%	56%*	48%
4"	40	18	75%	33%*	60%
5"**	36	0	58%	16%*	4%

^{*}District Administered Interim Tests

Results obtained using the Highlighting Strategy for students at another Miami-Dade County Public School, all at risk (HES) "I Have a Dream Foundation"

Grade	# of Students	Hours of Tutoring Using MaxScholar Software	% of Students Making Learning Gains	% of Students Making >15% Learning Gains	Average % Gain Over Baseline
5"	99	22	90%	56%*	63%
5"**	116	0	15%	5%	11%

^{*}District Administered Interim Tests

Results obtained using the Highlighting Strategy for students at another Miami-Dade County Public School, "T.I. Elementary School"

Grade	# of Students	Hours of Tutoring Using MaxScholar Software	% of Students Making Learning Gains	% of Students Making >15% Learning Gains	Average % Gain Over Baseline
5 th (SED)	121	30	100%	46%*	52%
5 ^{τπ} **(SED)	116	0	15%	5%*	3%

^{*}District Administered Interim Tests

^{**}Did not use the software

^{**}Did not use the software

^{**}Did not use the software

FEATURES OF THE SOFTWARE

5 R's of Reading Instruction

	PreK Phonics	MaxPhonics	MaxReading	MaxMusic	MaxPlaces	MaxBios	MaxVocab
Phonemic Awareness	✓	✓					
Phonics	✓	✓					
Fluency	✓	✓	✓				
Vocabulary	✓	✓	✓	✓	✓	✓	✓
Comprehension			✓	✓	✓	✓	
Holds students' attention	√	✓	✓	√	✓	✓	√

Color Key: Program focus Additional support

Instructional Levels:

	PK	K	1	2	3	4	5	6	7	8	9	10	11	12
PreK Phonics	Grade	s PreK -	2											
MaxPhonics		Grade	s K - 2											
MaxReading		Grade	Grades K - 12											
MaxMusic					Grades 3 -12									
MaxPlaces					Grades 3 - 12									
MaxBios					Grades 3 - 7									
MaxVocab					Grades 3 - 12									

SCHOOL PARTNERSHIPS

MaxScholar improves students' ability to read words and comprehend what they read. These programs will result in:

- Improved student achievement in reading comprehension which improves performance on state testing.
- Improved student achievement in reading which supports the Common Core State Standards

MaxScholar can be used for all pre-K, VPK, & Head Start students resulting in:

- A strong foundation for children to learn their letters and sounds
- A way for these students to learn to write the letters
- A stronger preparation for Kindergarten

MaxScholar can be used for all K-3 students who are just beginning to read or who have not been taught to read (blend letter and sounds into words)

- A strong foundation for these students will make them stronger readers.
- Closing the gap for struggling 1st, 2nd, and 3rd grade students by teaching them to read using multi-sensory language instruction, a research-based method.

MaxScholar can be used for students who are or who have

- Learning Disabilities
- Dyslexia
- ADHD
- Auditory Processing Disorder
- ELL
- Students on RTI programs

MaxScholar is appropriate

- For schools to use for PreK, VPK, Head Start, and K 3 students as part of a program to teach reading in these schools
- For after-school tutoring at school sites
- For use in schools, as part of programs targeting at-risk students
- As part of an RTI program, Levels I, II, and III.
- For supplementary programs for schools, parents, or grandparents to reinforce, drill, and practice

PRICING

Number of Licenses	Price per License
1	\$250.00
2 – 24	\$135.00
25 – 99	\$75.00
100 – 299	\$50.00
300 – 3,000	\$35.00
Over 3,000	\$25.00

^{*}Each license allows one student to use all the programs for one year

Professional Development (teacher training) will be determined by the number of teaching staff to be trained.

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