IRLEN SYNDROME FOUNDATION

The Educator Toolkit

What Educators Need to Know About Irlen Syndrome

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About the Irlen Syndrome Foundation

The Irlen Syndrome Foundation seeks to increase proper identification of Irlen Syndrome and access to Irlen solutions (Irlen Colored Overlays and Irlen Spectral Filters). We offer access to Irlen certification and training programs, Irlen materials, and ways to better support students with Irlen Syndrome in educational settings.

How to use this Toolkit

This toolkit is intended for teachers, administrators, counselors, learning specialists, and anyone else working or assisting children in academic environments. *This kit includes:*

- Background and information you need as educators to understand and assist students with Irlen Syndrome
- A pre-screening questionnaire to quickly
- identify students at risk
- Tips for classroom and at-home modifications
- Tools to explain Irlen Syndrome to other students or educators in your school
- Information about the assistance and opportunities available for bringing research-based solutions for Irlen Syndrome to your school or district
- Ways the Irlen Syndrome Foundation can increase access to these solutions for your students who need them most

We have intended for much of the information provided in this toolkit to be disseminated to your larger educator population, so we have made sections easy to pull apart, copy, and distribute either electronically or in paper format. Additional resources are available on our website (www.irlensyndrome.org), and we are always happy to help you get the information you need. Please email us at info@irlensyndrome.org.

Quick Facts:

1. Irlen Syndrome affects 15% of the population and up to 46% of students with reading and learning difficulties, many of whom may be misdiagnosed
2. Slow or inefficient reading, poor comprehension, light sensitivity, or expression of strain or discomfort when looking at print are all key indicators
3. Irlen Syndrome is not remediated through reading intervention, reading practice, or other standard methods of teaching

Why Should Educators Be Involved?

Identifying and addressing Irlen Syndrome as part of an initial review and diagnostic protocol for at-risk students is a quick and easy way to remove one potential barrier to learning. When Irlen Syndrome is addressed first, before remediation and other more invasive forms of testing and treatment for learning and reading disabilities, it allows students to reap the benefits of remediation and instruction. Irlen Syndrome is a barrier to learning. Once this barrier is removed, changes in performance and ability can be immediate and dramatic, and often require no additional resources or support.

What is Irlen Syndrome?

Irlen Syndrome is a perceptual processing difficulty.

A perceptual processing difficulty is a hindered ability to make sense of information taken in through the eyes. This is different from problems involving sight or vision. Perceptual processing difficulties affect how visual information is interpreted or processed by the brain.

Irlen Syndrome is hereditary and tends to run in families, affecting males and females equally. However, an individual can also acquire symptoms of Irlen Syndrome as a result of illness, medical procedures, or head injury (such as a concussion).

Like Autism, Irlen Syndrome is a spectrum disorder, falling on a continuum from slight to severe. Individuals who can read or perform visually- intensive activities for 40-60 minutes before any Irlen symptoms appear are on the slight end of the spectrum. These individuals can manage most academic tasks without difficulty; but when endurance is required, their performance may deteriorate. Individuals with severe Irlen Syndrome will experience symptoms within 20 minutes of beginning to read. For some, symptoms may not begin immediately; however, symptoms will get worse the longer the student continues to read.

There are a variety of different symptoms that students with Irlen Syndrome experience. *The most common are:*

Light sensitivity

Reading problems

Attention and concentration problems

Strain and fatigue

Headaches and migraines

Print or environmental distortions

Problems with depth perception

What does it Affect?

Irlen Syndrome affects a large portion of the population. While it is especially prevalent in students with learning and reading difficulties, it also affects a significant portion of gifted students and good readers.

46% Learning disabilities, reading problems

33% ADHD, Dyslexia, behavior problems

14% Average students, gifted, good readers

30% Autism

Students who have suffered head injury, concussion, or whiplash

Students with certain medical/ visual/psychological conditions

How can you identify Students At Risk?

A simple self-test can be administered to individuals or groups of students (via overhead projector). Any students answering "yes" to 3 or more questions may be at risk for Irlen Syndrome and should have a formal screening by a certified Irlen Screener.

The Irlen Self-Test may be administered to individual students or as a group. The teacher may read the questions aloud and/or project them via overhead projector to the entire class. Students may fill out their own papers, or the teacher can complete the form if oral administration is required.

Short Self-Test for Irlen Syndrome

	Yes	No
Do you skip words or lines when reading?		
Do you reread lines?		
Do you lose your place?		
Are you easily distracted when reading?		
Do you need to take breaks often?		
Do you find it harder to read the longer you read?		
Do you get headaches when you read?		
Do your eyes get red and watery?		
Does reading make you tired?		
Do you blink or squint?		
Do you prefer to read in dim light?		
Do you read close to the page?		
Do you use your finger or other markers?		
Do you get restless, active, or fidgety when reading?		

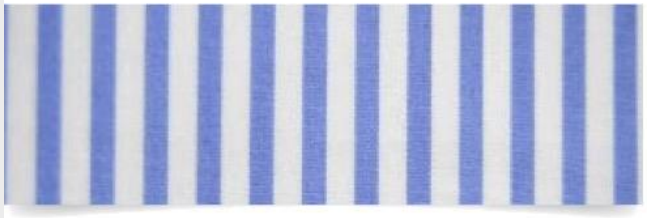
3 or more "yes" answers suggest a student should be screened for Irlen Syndrome

Symptom Triggers

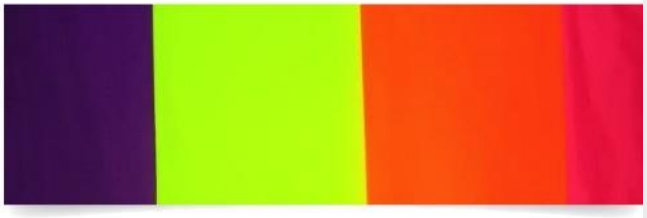
Irlen Syndrome symptoms are triggered by the environment. Bright and fluorescent lighting, glare, high contrast (black print on white paper), patterns, stripes, bright or fluorescent colors, images with lots of details, large amounts of print on the page, demands for sustained attention, and print size, style and format can all cause problems for individuals with Irlen Syndrome.

Bright lights, and particularly fluorescent lights (like the ones used in classrooms), are particularly problematic. Individuals with Irlen Syndrome will often prefer to read in dim or low-light conditions. Bright lights will trigger symptoms to appear sooner and task the brain more, making academic tasks more difficult.

Glare off of glossy, white textbook pages, whiteboards, computer screens, and iPads is often painful for individuals with Irlen Syndrome.



These items often become distorted for individuals with Irlen Syndrome, moving and changing as the individual looks. The distortions that often accompany patterns and stripes can create physical symptoms, such as stomachaches and nausea.



These colors tend to be particularly offensive to individuals with Irlen Syndrome. Looking at these items can cause physical pain or discomfort. Printing important assignments on brightly colored paper can ensure that students won't read them!

Symptom Triggers (continued)

Details

As with patterns and stripes, images with lots of details can often become distorted and become uncomfortable to look at and difficult to decipher.

Lots of Print on the Page

The more print that appears on the page, the more difficult the page is to read, and the more likely it is to cause distortions.

Sustained Attention

The longer the individual tries to read or attend to material, the worse symptoms get and the more difficult and more painful things become.

Print Size, Style and Format

Fancy fonts may look good to the average student; but to a student with Irlen Syndrome, ornate fonts, serif fonts, and small text make reading infinitely more difficult.

A variety of activities can trigger symptoms of Irlen Syndrome

Looking, listening, reading, math, writing, copying, scantron answer sheets, computer, TV, movies, and other visually-intensive activities place demands on the brain that it cannot accommodate successfully. Depending on how severely the student suffers from Irlen Syndrome, symptoms may begin immediately or may take a period of time to build.

When either the environment or visually-intensive activities put stress on the brain,

it results in changes in brain chemistry and changes to the nervous system. These changes impact cortisol, serotonin, dopamine, and hormone levels that lead to the learning, reading, emotional, and behavioral issues often connected with Irlen Syndrome.

Impacts the Entire body

Systemic Impact:

- Autonomic NS imbalance
- Immune system suppressed
- Endocrine system imbalance
- Emotional, behavioral,
- psychological implications
- ADHD
- Depth perception and sensory integration
- Sleeping difficulties
- Visual fragmentation

In Summary, Irlen Syndrome is...

- A problem with the brain, not the eye
- Difficulty processing visual information
- Usually hereditary
- Sometimes acquired via injury, illness, medical procedures (e.g., concussion, TBI)
- Not gender bias, affects males and females equally
- A spectrum disorder, falls on a continuum from slight to severe
- Recognized by a variety of symptoms including: light sensitivity, difficulty reading and attending, strain and fatigue, headaches and migraines, poor depth perception, and print or environmental distortions
- The result of stress on the brain that causes changes in brain chemistry resulting in learning, reading, emotional, and behavioral issues

*Irlen Syndrome **is not** identified by current educational, medical, optometric, or psychological tests, so educators need to be informed and aware of the signs, symptoms, and available solutions. The Irlen Method, which utilizes colored overlays and spectral filters to address Irlen Syndrome, is not a method of reading instruction and does not replace the need for reading instruction and remediation.*

A STORY OF TWO STUDENTS: ABIGAIL AND DEKLAN

What Does Irlen Syndrome Look Like in Different Student Populations?

The disorder manifests itself differently within different populations.

For example, with the gifted student, you may not notice any issues with grades or academic performance, but these students will find themselves having to spend longer completing assignments than they should, and often pay a high price by suffering strain, fatigue or headaches.

At the end of first grade, Abigail was unable to sound out the simplest of words despite the specialized instruction of homeschooling and a reading tutor. Her Irlen screening revealed she had severe physical symptoms and a distortion she described as her "eyes making circles." Fitted with Irlen Spectral Filters, Abigail is now a public school honor roll student, entering fourth grade as an excited chapter book reader.

Deklan was tested at the start of first grade when he refused to read aloud, only staring at each page silently. Through the screening process, Deklan explained that the letters were "moving until they were all in a pile." With Irlen Spectral Filters, Deklan met the reading goal required to attend that year's Reading Celebration.

Who has Irlen Syndrome?

Reading Problems, Dyslexia and Learning Difficulties

Students with Good Reading Skills

Attention Deficit Disorder (ADHD)

Headaches, Migraines and Other Physical Symptoms

Autism and Asperger Syndrome

Traumatic Brain Injuries, Head Injuries, Concussions and Whiplash

Students with Good Reading Skills

- Spend longer to complete homework
- Physical complaints of headaches, strain, or tiredness when reading or at school
- Avoids reading or reading for pleasure
- Does poorly on timed tests or standardized tests
- Unable to keep up with reading assignments
- Reads beginning and summaries rather than the entire chapter
- Listens in class rather than doing assigned reading
- Finds it easier to learn from discussion than reading
- Works hard to get grades but feels that s/he is brighter than grades indicate
- Considered lazy or unmotivated. Told they could do better if tried harder
- 12-14% can be helped by the Irlen Method

Reading Problems, Dyslexia and Learning Difficulties

- Reading is difficult and cannot use their reading skills or learn basic reading skills
- Problems with decoding, fluency, and comprehension
- 46% of this population can be helped by the Irlen Method
- Other problems may exist and instruction or remediation may be necessary

Attention Deficit Disorder (ADHD)

There is confusion and controversy over using medication to treat ADHD.
Conflicting information has led to under-recognition as well as over-diagnosis and over-treatment. According to the experts, almost half of all children in the country with ADHD are not receiving appropriate care. As many as a third of those identified as having attention deficit disorder may be mislabeled and can be helped by the Irlen Method. The characteristics of those who can be helped are:

- Problems concentrating when reading or writing
- Easily distracted when reading or writing
- Distracted when under fluorescent lights
- Daydreams in class
- Problems staying on task with academic work
- Problems starting academic tasks

Headaches, Migraines and Other Physical Symptoms

Headaches, migraines, stomachaches, dizziness and fatigue are a few of the physical symptoms which may be alleviated by the Irlen Method.
These symptoms can have a variety of triggers, and those who benefit from wearing Irlen Spectral Filters may demonstrate the following problems:

- Discomfort in sunlight
- Discomfort in bright lights or fluorescent lights
- Prefer dim lighting
- Bothered by headlights at night
- Bothered by glare
- Discomfort with computer use
- Stress or strain with sustained reading
- Stress or strain from visually-intensive activities
- Difficulty looking at stripes or patterns
- Certain colors are bright and bothersome
- Snow, rain, and hazy days can appear to be glary

Autism and Asperger Syndrome

Approximately 30% of those with Autism and Asperger Syndrome have problems with sensory modulation.
The following types of difficulties can be helped by the Irlen Method:

- Looks in a series of short glances
- Looks away from visual targets
- Squints or looks down
- Finger flicks
- Sideway glances
- Poor eye contact
- Rubs or pushes on eyes
- Mesmerized by colors, patterns, or light
- Behavior changes in bright lights or sunlight
- Poor spatial or body awareness
- Light sensitivity
- Difficulties with stairs, escalators, or catching balls
- Poor small or gross motor coordination

Head Injuries, Concussions and Whiplash

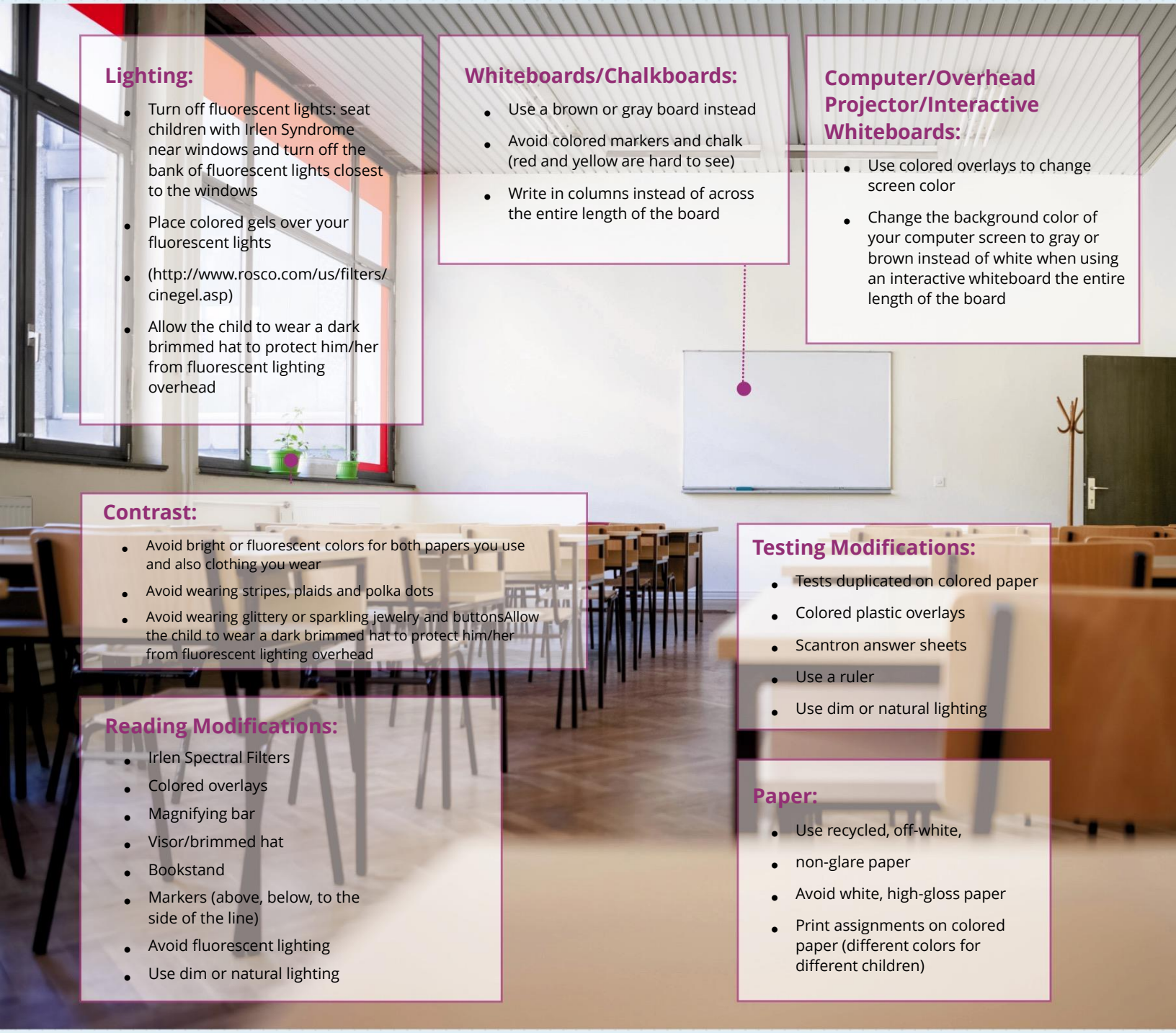
Many students experience lingering effects from experiencing a concussion or other head injury.
The American Academic of Pediatrics has set forth specific guidelines and recommendations for returning to the classroom after a head injury or concussion. This "Return to Learn" initiative acknowledges the challenges that can occur after a head injury. Many of these challenges are acquired Irlen symptoms and do not disappear.

- Reading. Problems reading because of a change in clarity or stability of the print.
- Sustained Attention and Concentration. Problems with ease and comfort reading and doing other visual activities
- Light Sensitivity. Individuals become light sensitive. This makes going outside, being in bright lighting or fluorescent lighting, and driving at night uncomfortable or stressful.
- Physical Symptoms. Experience headaches, nausea, dizziness, anxiety, irritability, or stomachaches. The severity of these physical symptoms is often increased by sunlight, bright lighting, reading, and other visually-intensive activities.
- Depth Perception. Problems with activities that require the ability to judge depth or spatial relationships.
- Fatigue. General sense of being tired and fatigued.
- Neurological Problems. Light-induced seizures, tremors, or other similar problems.

Classroom Modifications:

An Irlen-Friendly Classroom

There are a number of modifications educators can make in the classroom environment to assist students who suffer from Irlen Syndrome.



Lighting:

- Turn off fluorescent lights: seat children with Irlen Syndrome near windows and turn off the bank of fluorescent lights closest to the windows
- Place colored gels over your fluorescent lights
- (http://www.rosco.com/us/filters/cinegel.asp)
- Allow the child to wear a dark brimmed hat to protect him/her from fluorescent lighting overhead

Whiteboards/Chalkboards:

- Use a brown or gray board instead
- Avoid colored markers and chalk (red and yellow are hard to see)
- Write in columns instead of across the entire length of the board

Computer/Overhead Projector/Interactive Whiteboards:

- Use colored overlays to change screen color
- Change the background color of your computer screen to gray or brown instead of white when using an interactive whiteboard the entire length of the board

Contrast:

- Avoid bright or fluorescent colors for both papers you use and also clothing you wear
- Avoid wearing stripes, plaids and polka dots
- Avoid wearing glittery or sparkling jewelry and buttonsAllow the child to wear a dark brimmed hat to protect him/her from fluorescent lighting overhead

Testing Modifications:

- Tests duplicated on colored paper
- Colored plastic overlays
- Scantron answer sheets
- Use a ruler
- Use dim or natural lighting

Reading Modifications:

- Irlen Spectral Filters
- Colored overlays
- Magnifying bar
- Visor/brimmed hat
- Bookstand
- Markers (above, below, to the side of the line)
- Avoid fluorescent lighting
- Use dim or natural lighting

Paper:

- Use recycled, off-white,
- non-glare paper
- Avoid white, high-gloss paper
- Print assignments on colored paper (different colors for different children)

Solutions: Irlen Colored Overlays and Spectral Filters

Over 30 years ago, research directed by Helen Irlen under a federal research grant studied methods of helping children and adults with reading and learning disabilities. It was through this research that she identified a portion of the population suffering from a condition that was not being helped by standard interventions or treatment protocols. Her research defined the nature of Irlen Syndrome, and also discovered that color could help this specific population.

For individuals with Irlen Syndrome, using either Colored Overlays (placed over paper) or Spectral Filters (worn as glasses) to filter out the specific wavelength(s) of light creating stress on the brain, leads to significant improvement in physical comfort and print clarity. In classrooms, Colored Overlays are a low-cost, non-invasive intervention that is easy to implement and can be highly effective specifically for reading. They are an accepted accommodation for standardized tests by many states.

Colored Overlays are a wonderful tool, and work well for many students who have Irlen Syndrome. However, for students experiencing physical symptoms such as headaches, stomachaches, anxiety or fidgetiness, or for those experiencing distortions in their environment and issues with depth perception, Colored Spectral Filters (worn as glasses) will provide a more optimal solution.

Professionals trained in the Irlen Method are able to determine the specific color required for each individual's brain. With over 100,000 different possible color combinations, individualized color is the key to success when addressing Irlen Syndrome.

Everyone's brain is different. Research has shown that even small differences in either hue or density of color can render Colored Spectral Filters less effective, or worse, exacerbate symptoms of Irlen Syndrome.

Any teacher or educational professional can be trained in the Irlen Method to identify Irlen Syndrome and facilitate the proper overlay color selection for maximum benefit. Self-selection of overlay colors is not encouraged, as it can either render the overlays useless or make problems worse.

Recognized As A Standard Accommodation And Assistive Technology

Irlen Colored Overlays and Irlen Spectral Filters are used by millions of children and adults in more than 45 countries around the world.

Colored overlays and/or colored filters are recognized as a standard accommodation for standardized testing in many states in America, including California, Arkansas, Florida, Oklahoma, Nevada, Massachusetts, New Mexico, and Washington. The SAT, LSAT, ACT, Recording for the Blind, Illinois Department of Rehabilitation, Indiana Office of Vocational Rehabilitation, Michigan Rehabilitation Services, Texas Commission for the Blind, Nevada Vocational Rehabilitation Services, and Wisconsin Vocational Rehabilitation all officially recognize Irlen Syndrome.

Irlen Syndrome Foundation

Opportunities for Educators, Schools, and Students

Understanding Irlen Syndrome is just the first step in helping students. Once you identify students at risk for this condition, you may want to have them screened by a certified Irlen Screener to properly identify Irlen Syndrome and determine a helpful Overlay color. Any educator or learning specialist can be trained and certified to screen for Irlen Syndrome. The Irlen Syndrome Foundation offers financial assistance to schools and school districts interested in screening for Irlen Syndrome on a school or district-wide basis. We provide grants for Irlen Screener training and certification and Irlen Colored Overlays. The Irlen Syndrome Foundation also offers scholarships to individual students who need but cannot afford Irlen Services. Please contact us for more information about our educational and student aid opportunities – *aid@irlensyndrome.org*

Research to Support the Use of Irlen Colored Overlays and Spectral Filters in Academic Settings

The Irlen Method and the efficacy of colored overlays and colored filters has been the subject of over 200 research studies in education, psychology, and medicine. This research has established a hereditary component of the disorder1-2, a number of biochemical markers for problems associated with Irlen Syndrome3, and differences between both the anatomy and functioning of brains of individuals with Irlen Syndrome4-7. The research has repeatedly documented improvements in a variety of reading skills, reduction in physical symptoms, and improved functioning and success in both academia and the workplace8-13. Research on Irlen Syndrome has also documented co-morbidity with a variety of other disorders, including chronic fatigue syndrome14, ADHD15, and autism16. A review of 62 studies published in peer-reviewed journals found 56 studies with positive findings, 45 with positive results for particular reading skills, and 11 showing improvements in accommodation facility, eye movements while reading, and reduced headaches/migraine.

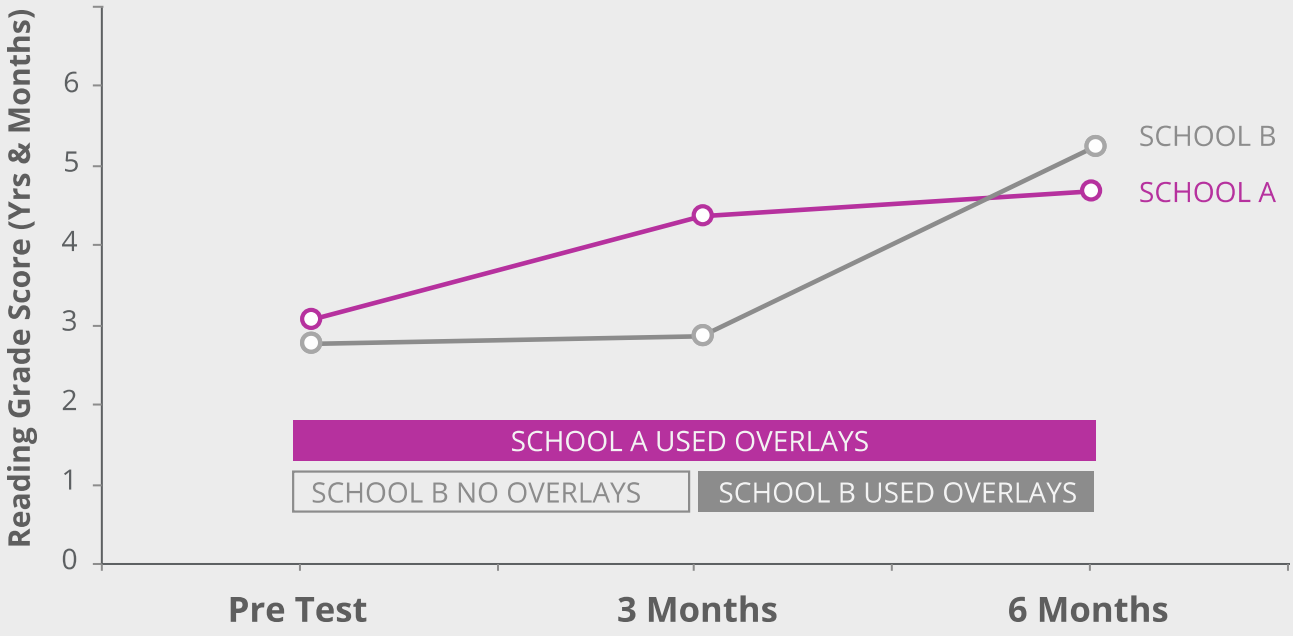
Gold Standard School District Research: The Impact of Colored Overlays on Reading Achievement

In 2004, two teachers began a mission to show their school district how much Irlen Colored Overlays helped students who were struggling to read, and to quantify the improvements in a way that would hold up against strict academic scrutiny. These teachers worked closely with academic researchers to design a study that would allow them to test the effectiveness of colored overlays on reading achievement within regular classroom conditions, while at the same time controlling for external factors and a possible placebo effect. They began their journey by screening all students in grade 3 for Irlen Syndrome at two different elementary schools. They identified 31 students at School A and 40 students at School B who tested positive for Irlen Syndrome. The 31 Irlen students at School A were given their preferred colored overlay to use for 3 months, while the 40 Irlen students at School B received only regular instruction during this time. At the end of the 3 month period, all 71 Irlen students at both schools were assessed on reading rate, accuracy, fluency and comprehension using the GORT-4.

After 3 months of overlay use, the students from School A demonstrated a significant improvement in reading achievement with average gains in grade equivalence scores of 1 year 3 months, allowing most students in this group to reach grade level performance. In contrast, students at School B (who had not been given overlays to use during the first 3 month period) showed only negligible gains in reading achievement during this time. At this 3 month mark, the teachers then gave the Irlen students at School B their preferred overlay color to use for 3 months (from months 3-6). Irlen students at School A continued to use their preferred overlay for this additional 3 months. At month 6, all students at both School A and School B were assessed again on reading rate, accuracy, fluency and comprehension. This time, Irlen students at School B showed an average gain in grade equivalency score of 2 years 4 months. Student performance at School A plateaued during this time, showing no additional gains, presumably because most students at School A had already reached grade level by the 3 month mark. The results from this project were published in the Australian Journal of Learning Disabilities

(Nobel, J., Orton, M., Irlen, S., & Robinson, G. (2004). A controlled field study of the use of coloured overlays on reading achievement. Australian Journal of Learning Disabilities, 9(2) 14-22).

"Students using overlays improved reading scores by more than 1 year in just 3 months."



A number of informal educational reports submitted to administrators and decision-making personnel in school districts also document the impact of implementing Irlen Testing and Colored Overlays within the school system. Below are highlights from a few key reports. These results have been used to make budgetary, staffing, and curriculum decisions within the school district and highlight real results from real schools. In all cases, students using colored overlays showed significant improvements, and recommendations were to continue using colored overlays within the schools.

Below are selections pulled directly from a few of these reports.

1 **2006 Pilot Project:**
Stoddard Elementary School, Anaheim City School District, California, USA. All 4th, 5th, and 6th graders in the school were screened for Irlen Syndrome. Students who were given overlays were able to use them on the California State Test (STAR).

Results:
Test scores for the school went up by 25%.

2 **2000 Boyd School, Colorado, USA.**
All staff at Boyd School were trained in the Irlen Method to identify and refer students for Irlen Testing. Of the total population of 207 third graders, 10% were identified as having Irlen Syndrome and were given Irlen Colored Overlays to use.

Results:
50% of the students using Colored Overlays made significant gains in reading. Many students showed gains of over two grade levels.

3 **1999 Pioneer Valley Pilot Project, Massachusetts, USA.**
A study funded by the Massachusetts State Legislature and the Massachusetts Department of Education was conducted to test the effectiveness of using colored overlays as an intervention for increasing reading performance for students identified with Irlen Syndrome. All 4th graders (172 children) in the South Hadley School District were screened for Irlen Syndrome.

Results:
100% of the students with Irlen Syndrome who were given colored overlays to use demonstrated statistically significant improvement in accuracy and/or comprehension.

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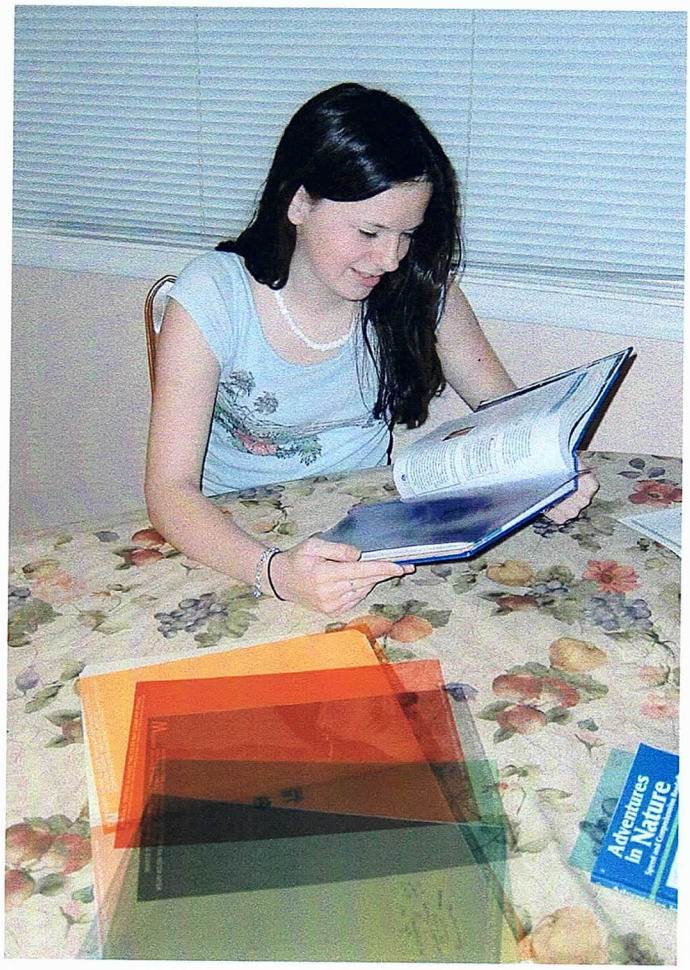
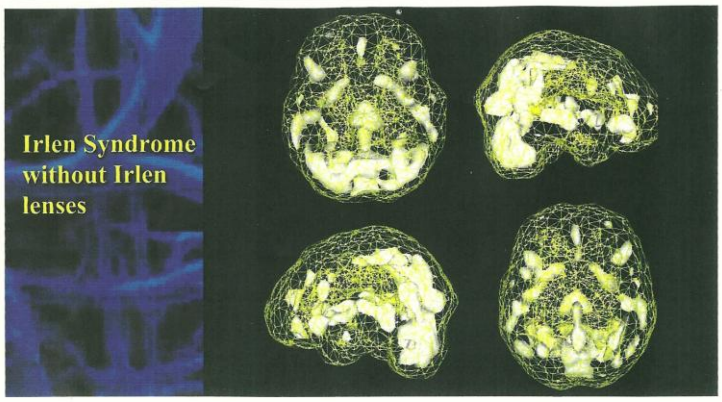
For More Information

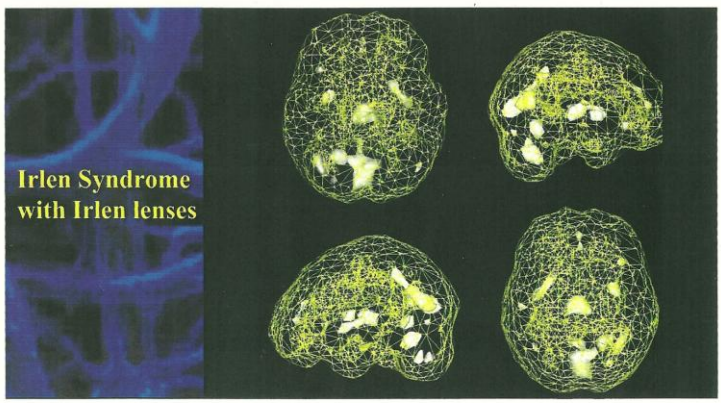
- *Information about Irlen Syndrome:*
- *www.irlensyndrome.org*
- *Information about Irlen Solutions and Screener Trainings: www.irlen.com*
- *Books by Helen Irlen available from Amazon.com and BarnesandNoble.com: Reading By The Colors, The Irlen Revolution, Sports Concussion and*
- *Getting Back in the Game of Life*


Adventures
in Nature



irlen CLINICS

These three-dimensional scans using SPECT technology show the portions of the brain that are in heavy use, or 'hot'. Both scans are of the same brain without, and then with, Irlen Filters. In the scan above, there are many parts of the brain that are 'hot' – many more than is the case for a 'normal' brain. The scan below shows that the brain is 'normalised' once the Irlen Filters are used.



SPECT Scans from the Amen Clinic, Newport Beach, CA, USA