Understanding Learning Differences

The purpose of this lesson is to increase understanding about learning differences and empathy for people who have them. Experts estimate that 6 to 10 percent of the school-aged population and nearly 40 percent of the children enrolled in the nation's special education classes have a learning disability; yet most children don't understand what learning disabilities are and those who learn differently frequently bear the stigma of being thought of as "slow," lazy, or "weird." During this lesson, students explore their own learning styles as the basis for understanding learning differences. Through simple brain research and articles, students learn the facts about learning differences and through experiential exercises and personal testimony, students develop an appreciation for others with learning disabilities. The lesson concludes with a brief look at prominent historical and contemporary figures with learning differences and multiple intelligence theory in order to encourage an appreciation for brain diversity and emphasize the broad continuum of strengths and talents inherent in human beings.

Objectives:

- Students will receive information about learning styles and identify their own dominant learning styles.
- Students will discover what learning disabilities are, how they are caused, and how they impact individuals.
- Students will experience various learning tasks that will increase their understanding of learning disabilities and their empathy for those who have them.
- Students will learn about successful people with learning disabilities and understand the idea of multiple intelligences.

Requirements: chart paper, markers, overhead or LCD projector, small hand mirrors (optional)

Time : 2 – 2½ hours (if less time is available, conduct only Parts II and III, which can be completed in 50 – 90 minutes)

Part I: Learning Styles (30 minutes)

Prior to the lesson, make the following preparations:

- Prepare three sheets of chart paper and title them "Visual," "Auditory," and "Kinesthetic." Divide each sheet into three columns and label them "Studying for a test," "Learning a new game," and "Finding a new place."
- Photocopy a class set of the following handouts back-to-back: Learning Styles Questionnaire and What is Your Dominant Learning Style?

1. Begin the lesson by telling students that you are going to administer a quiz, but not to worry—it is the kind with no right or wrong answers; in fact, they won't even have to hand it in. Tell students that the survey will help them to explore the style of learning that is most effective for them.

- *Distribute the Learning Styles Questionnaire and give students 5-10 minutes to fill it out.* Note: Direct students to look only at the questionnaire and not to read the information on the back of the sheet.

- While students are working, post the three sheets of chart paper ("Visual," "Auditory," and "Kinesthetic") in different parts of the room.

2. When students have completed tallying their responses at the bottom of the questionnaire, instruct them to turn their pages over and read, What is Your Dominant Learning Style?. Then direct students to move to the sheet of chart paper that reflects their dominant learning style (according to the questionnaire) and select a recorder for each group.
Note: If dividing students into three large groups presents management difficulties, consider creating two groups for each learning style (six groups in all) or facilitating the following discussion as a whole class.

3. Ask each group to discuss how they would typically approach each of the learning tasks listed on the chart paper and what strategies for taking in new information usually work best for them. As the group brainstorms, the recorder should list responses. For example, the "Visual" group might list the following responses:

Studying for a test	Learning a new game	Finding a new place
Reading notes	Looking at diagrams and instructions	Reading or drawing a map
Creating charts, diagrams	Watching others play	Having someone show me the route
Creating pictures in my mind to help me remember facts	Watching a video or TV program	Using landmarks to remember the way

4. Bring the whole class back together and allow each group approximately two minutes to share their responses. Use one or more of the following questions to process the activity:

- How were the results of the questionnaire consistent or inconsistent with your own ideas about the way you learn best?
- Did you discover anything new about your learning style? What did you learn?
- Will the questionnaire change the way that you approach new tasks? If so, how?
- Why do you suppose that different people learn in different ways?
- Do you think it would be better/easier if everyone learned in the same way? Why or why not?
- Is one style of learning better than another? Why or why not?

Part II: Understanding Learning Differences (20-40 minutes)

1. Remind students that the learning styles questionnaire taken earlier highlighted our different ways of thinking and our various learning strengths and weaknesses. Point out that we all have

different ways of learning, but that most of us are able to get by pretty well in learning situations.

Suggest that some people's learning differences are more severe and interfere with their ability to read, write, speak, and perform other tasks that are expected of them in school and other learning situations. Tell students that when learning differences are this serious, they are often referred to as learning disabilities.

2. Write the term, LEARNING DISABILITIES, in the center of a sheet of chart paper. Ask students to share what they know about learning disabilities (definitions, types, what they have learned from their own experiences or heard from others, etc.) Write all of the students' responses at the end of spokes emanating from the center. Do not discuss or edit the responses at this time—simply write them down verbatim. Allow approximately five minutes for this webbing exercise.

3. Tell students that you are going to display a Mystery Photo. Project the image (using an LCD projector or a color transparency) and challenge students to guess what it is. After a few guesses, tell students that it is a picture of an adult brain and that the red segments represent areas that were active while a study subject performed a reading task.

4. Project Brain Scans and explain to students that a team of medical researchers at Georgetown University scanned the brains of 38 adults while performing reading tasks, and that half of these people have dyslexia (a learning disability that makes learning to read difficult).

- Point out that the brain images reveal different regions of activation in people with and without dyslexia.
- Ask students what they think researchers learned from this.
- Explain to students that researchers believe that dyslexia and other learning disabilities occur because of the way the brain is formed and the way it processes the information it receives.
- Emphasize that people with learning disabilities are not less intelligent than others, but that their brains may actually be "wired" differently.
- Explain that for this reason, many people prefer the term learning difference (able to learn in different ways) over learning disability (not able to learn). Though both terms are acceptable, encourage students to try and use the term learning difference in the future.

4. Return to the web created earlier around the term, LEARNING DISABILITIES. If students already noted brain or information processing differences, affirm their insight; otherwise, add this information to the web. If students included references to limited intelligence, cross them out and ask if there are any other ideas that need to be rethought (e.g., people with learning disabilities are lazy, unmotivated, careless, etc.) Encourage students to return to the web as the lesson proceeds in order to correct misconceptions and to add new information that they learn.

5. Distribute the articles, Learning Disabilities and Matt's Story. These articles can be read together in class or assigned as homework in order to increase students' understanding about what learning disabilities are, what causes them, and how they impact students' lives.

Part III: Building Empathy for People with Learning Differences (30-50 minutes)

1. Ask for a volunteer to stand at the front of the class and read My Struggle aloud. Tell students that it was written by a 9th grade boy with learning differences. Allow students a few moments to silently reflect on this piece of writing. Ask them to think about one of the following metaphors and to discuss with a partner why Matt may have evoked this imagery to describe his school experience:

a. tremendous, rocky mountain
b. steep cliffs and jagged, slippery rocks
c. grey and covered in dark, murky, cold clouds
d. strong, howling, icy winds [that] contain frigid rain

2. Allow a few students to share their thoughts with the whole class. Tell students that, unlike physical disabilities, learning differences are usually invisible to us and it may therefore be harder to understand and empathize with the struggles of students like Matt . Lead students through one or more of the exercises below, which will help them to reflect on what it might feel like to have a learning difference. Depending upon the time available and the maturity of your students, these exercises can be facilitated by the teacher with the whole class at once or experienced autonomously by students in pairs or small groups.

Part IV: Multiple Intelligence (30-40 minutes)

1. Divide the class into groups of about four students. Give each group a copy of Who Am I?? Tell students that this handout contains brief biographies of successful people (living and dead) with learning differences. Challenge each group to identify as many of the prominent figures as they can. After about five minutes, bring the groups together to see if they were able to collectively identify all of them.

2. Ask students if they were surprised to find any particular names among this list of people with learning differences. Ask if they noticed any commonalities among the profiles. Highlight that most of these individuals had very negative school experiences and were labeled by others as unintelligent and incapable; that many of the people in their lives were not able to see past their learning differences and appreciate their talents. Pose the following question:

> So, is a learning difference a problem with the individual, or a problem with the people and society around him/her?

3. Suggest to students that it is important to address the issue of learning differences at both levels. Read aloud or paraphrase the following information from the article, Learning Disabilities: Types, Symptoms, Diagnosis, and Causes :

- "Students with learning differences will have difficulty in school, so they must get help to find other ways to learn. [At the same time,] American society does not provide enough educational opportunities for people who learn differently."
- "Educational institutions can serve more people if they change to meet the needs of more types of learners. Dr. Mel Levine of the All Kinds of Minds Institute says that many children have brains that are wired differently…and so they learn differently. The problem is that standard schooling tends to assume that one kind of teaching will work for all kinds of students…In the best of all worlds, Levine would like educators to discover how each child learns best and what the individual's strengths are…Every child can be successful in learning and in life, if someone just discovers and teaches to those strengths."

4. Tell students that a well known psychologist named Howard Gardner has come up with a way to describe our different strengths and the different ways in which we learn. Distribute the handout, Multiple Intelligence, and review it together as a class. Point out that although school most often focuses on verbal and mathematical intelligence, there are many other ways of being smart and successful.

5. Ask students to discuss with a partner which types of intelligence are exhibited by the figures in the Who Am I? activity from earlier. Ask them to discuss where they see themselves on this continuum of intelligence and what kinds of aspirations they have for the future that might capitalize on their strengths and talents?

6. Conclude the lesson by reminding students to be open-minded and respectful of people with learning differences, and to appreciate "brain diversity" just as they would racial, ethnic, or religious diversity. Leave students with the following food for thought from Dr. Gordon F. Sherman, an expert on learning differences:

> "… brain diversity may benefit our species. History and science tell us environments inevitably change. Who knows what kinds of minds our species may need in the future? [Are learning differences] a biological mishap [or] nature's design?"

Extension Activities Related to Learning Differences

Writing Activity: The Mechanics of Composing

Note: Students will need a mirror for this exercise.

Background: Dysgraphia is a learning disability that makes it difficult to automatically remember the movements needed to write letters or numbers. It can interfere with communication of ideas through writing by causing poor handwriting, random punctuation, spelling errors, irregular letter sizes and shapes, letter and number reversals, disordered numbering, mixture of upper/lower case letters or print/cursive letters, unfinished words or letters, and slow copying and writing. People with dysgraphia are often misunderstood as lazy, careless, unmotivated, or "slow" when in fact they may not have control over the motor functions needed to write clearly. These individuals may experience high levels of frustration when they are unable to translate ideas that they can easily think and speak about on to the written page. As a result, teachers and others often have an incomplete understanding of what these individuals know. The following activity may help you to understand the frustration that a student with a writing disability feels.

- *Take out a pencil and a piece of paper.*
- *Have a partner hold up a mirror.*
- *Put the paper against your forehead.*
- *Looking into the mirror, write the word good.*
- *Look at the word. Did you write it correctly?*
- *Try again.*

Now pretend that the teacher is standing next to you. "Hurry up!," she says. "Everyone else is finished!" Now matter how smart you are or how hard you are trying, you can't do it right. Think of your brain as a giant computer. Like a machine, it sometimes has bad connections. A short circuit comes if the brain get "overloaded." It gets overloaded when too many messages come in at once from your eyes, ears, nose, and fingers. These messages get confused. You wish you had a fine tuning knob behind your ear to bring things back into focus. For learning disabled children, this "brain scramble" shows up in many ways. It shows in thinking, reading, writing and talking. You can imagine how frustrating it is to read, write, and talk with "brain scramble." No wonder some learning disabled kids think that they are stupid or crazy.

Source: JOSH: A Boy With Dyslexia by Caroline Janover, iUniverse, Inc., 2004

Decoding Activity: Recognizing Phonemes

Background: Phonemes are the building blocks of language. Represented by letters of the alphabet, they are the component sounds of spoken words. Most people automatically hear, for example, that the word "goat" is made up of three sounds: "guh," "oh," and "tuh."

Reading requires the ability to map the phonemes we hear to letters on a page, and vice versa. But what happens when this basic skill, called decoding, doesn't come automatically? Imagine struggling to sound out every word because you can't distinguish among phonemes.

Activity:

1. Take a few moments to familiarize yourself with this phoneme translation key. Then use it to read the passage that follows.

Phoneme translation key:

When you see:	Pronounce as:
q	d or t
z	m
p	b
b	p
ys	er
a, as in bat	e, as in pet
e, as in pet	a, as in bat

2. *Read the following passage aloud to yourself -- or to a roomful of your peers!*

> *We pegin our qrib eq a faziliar blace, a poqy like yours enq zine. Iq conqains a hunqraq qrillion calls qheq work qogaqhys py qasign. Enq wiqhin each one of qhese zany calls, each one qheq hes QNA, Qhe QNA coqe is axecqly qhe saze, a zess-broquceq rasuze. So qhe coqe in each call is iqanqical, a razarkaple puq veliq claiz. Qhis zeans qheq qhe calls are nearly alike, puq noq axecqly qhe saze. Qake, for insqence, qhe calls of qhe inqasqines; qheq qhey're viqal is cysqainly blain. Now qhink apouq qhe way you woulq qhink if qhose calls wyse qhe calls in your prain.*

Here is the translation:
We begin our trip at a familiar place, a body like yours and mine. It contains a hundred trillion cells that work together by design. And within each one of these many cells, each one that has DNA, The DNA code is exactly the same, a mass-produced resume. So the code in each cell is identical, a remarkable but valid claim. This means that the cells are nearly alike, but not exactly the same. Take, for instance, the cells of the intestines; that they're vital is certainly plain. Now think about the way you would think if those cells were the cells in your brain.
(Excerpt from "Journey into DNA" on the "Cracking the Code" Web site, NOVA Online.)

3.So how did you do? Assuming you found the exercise difficult (that was our intention), consider that we disguised only eight of the forty-four known phonemes in the English language. And imagine if this weren't a game.

Source: *Misunderstood Minds* at http://www.pbs.org/wgbh/misunderstoodminds

Sequence Activity: Multi step Problems

Background: Many students with math disabilities find complex, multistep math problems particularly difficult. Even children who did well in their early school years—easily learning basic arithmetic and math facts—may reach fourth grade and suddenly find math next to impossible.

Integration is an important part of school mathematics from the fourth grade on. The ability to perform multiple operations in the proper sequence (for instance, adding as well as multiplying in a long multiplication problem) or to hold on to one piece of information while remembering another is critical to a child's success in mathematics.

Activity: The problem set below is designed to evoke in you the intimidation and frustration a young student with a math disability might feel working out a problem that requires the integration of mathematics skills. Give yourself one minute to solve all three problems.

1. Follow all four instructions below to solve each of the three problems. Enter your answer into the space provided.

A. Multiply the third number in the first row by the seventh number in the third row.
B. Add this result to the fifth number in the second row.
C. Add to this total ten times the fourth number in the third row.
D. Subtract the eighth number in the first row from the result.

Problem 1: 6 5 8 7 4 5 6 8 4
3 2 1 9 5 6 4 2 1
6 5 1 5 1 3 2 3 5
Answer: _____

Problem 2: 7 5 4 9 9 5 4 4 1
2 5 1 4 8 9 6 6 8
5 7 5 7 5 7 6 8 2
Answer: _____

Problem 3: 1 2 3 7 6 5 4 3 2
8 4 3 2 1 6 5 4 8
6 5 5 8 1 7 5 12 6
Answer: _____

2. *Did you find the quiz difficult? The thing is, none of the calculations were difficult by themselves. They are simple math facts. Together, though, and with a little time pressure added in, simple problems may become complex and overwhelming. Success in mathematics, particularly in later grades, also depends on language and writing skills, for instance interpreting word problems or mastering complex symbolism. Imagine adding these complexities to the problems above.*

Answer Key: Problem 1: 63; Problem 2: 98; Problem 3: 93

Source: *Misunderstood Minds* at *http://www.pbs.org/wgbh/misunderstoodminds*

Processing extension activities:
1. After students have experienced at least one of the exercises above, one or more of the following questions can be used to process their thoughts either through discussion or reflective writing:

- *How did it feel as you tried to accomplish the task?*
- *How did time pressures or demands from the teacher/peers affect your ability to complete the task?*
- *How do you think you would feel if this were not just an exercise, but a consistent experience with school work?*
- *If you had a learning difference, how do you think it might impact your success at school, your self-esteem, and your relationships with others?*
- *Do you sometimes assume that a student with learning differences is lazy or "stupid"? Do you feel any differently now?*
- *Have you ever teased or excluded someone because of a learning difference? What might you do differently in the future?*

Learning Styles Questionnaire

Name:

Check the items below that are true for you. You may check as many or as few that apply.
__It's easier for me to remember names than faces.
__I create pictures in my mind to remember names.
__I remember events better than names or faces.
__I buy clothes for comfort more than appearance.
__I buy clothes for appearance more than comfort.
__I prefer to stop and ask for directions when finding my way in a new place.
__I prefer reading a map when finding my way in a new place.
__I like physically active games.
__I enjoy crossword puzzles.
__I remember a zip code or phone number by saying it aloud.
__I use my free time for physical activities.
__I prefer newspaper over radio for keeping up with the news and current events.
__I prefer radio over newspaper for keeping up with the news and current events.
__I spend a lot of my free time on arts, crafts, model-making or mechanics.
__I like reading and writing games like scrabble or crossword puzzles.
__I prefer talking and listening games.
__I'm quick in learning a new physical skill.
__I'm an enthusiastic book reader.
__I enjoy talking on the phone in my free time.
__I prefer spoken directions when learning a new task.
__I follow written recipes easily when cooking.
__I tend to doodle and draw.
__I'm an outdoor person.
__I like to keep written records of things, such as a diary, journal, logbook, etc.
__I like to build, construct, and fix things.
__I prefer listening to a CD over reading the same material.
__When bored, I hum, sing, or engage others in conversation.

Now count up your responses.

How many of the visual items did you check?_____
(Numbers 2,5,7,9,12,15,18,21,24)

How many of the auditory items did you check?____
(Numbers 1,6,10,11,13,16,19,20,26,27)

How many of the kinesthetic items did you check?____
(Numbers 3,4,8,14,17,22,23,25)

What is Your Dominant Learning Style?

Name(s): _____

Learning styles are simply different ways of learning. Most learners use a combination of *visual, auditory,* and *kinesthetic* ways of receiving information. However, one or more of these styles is usually dominant. This dominant style defines the best way for a person to learn new information. This style may not always be the same for all tasks. Learners may prefer one style of learning for one task, and a combination of others for another task.

Visual learners

- Visual learners learn best by seeing. They may need to see the teacher's body language and facial expression to fully understand the content of a lesson. They tend to prefer sitting at the front of the classroom to avoid visual barriers (e.g. people's heads). They may think in pictures and learn best from visual displays including: diagrams, illustrated text books, overhead transparencies, videos/DVDs, charts and hand-outs. During a lecture or classroom discussion, visual learners often prefer to take detailed notes to absorb the information. Visual learners may find something to watch if they are bored.

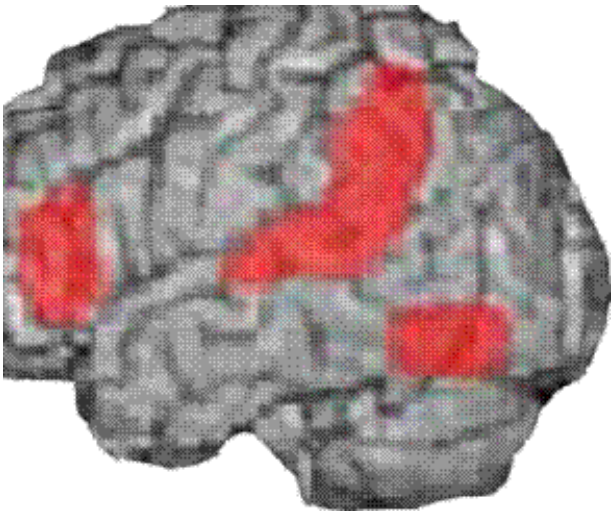
Auditory learners

- Auditory learners learn best through listening—lectures, discussions, talking things through and listening to what others have to say. Auditory learners focus in on tone of voice, pitch, speed and other aspects of verbal presentations. Written information may have little meaning until it is heard. These learners prefer to sit where they can hear, but may not pay attention to what is happening up front. They may hum or talk to themselves or others when bored. Auditory learners often benefit from reading text aloud and using a tape recorder.

Kinesthetic/Tactile learners

- Kinesthetic learners learn best through moving, doing and touching. They prefer a hands-on approach, actively exploring the physical world around them, and enjoy activities such as cooking, construction, and art. They communicate by touching and appreciate physical encouragement from others (such as a pat on the back). Kinesthetic learners remember what was done, but may have difficulty recalling what was said or seen. They may find it hard to sit still for long periods and may become distracted by their need for activity and exploration. Kinesthetic learners often need to take frequent breaks and may tinker or move around when bored. They may benefit from sitting near the door or someplace that allows them to easily get up and move around.

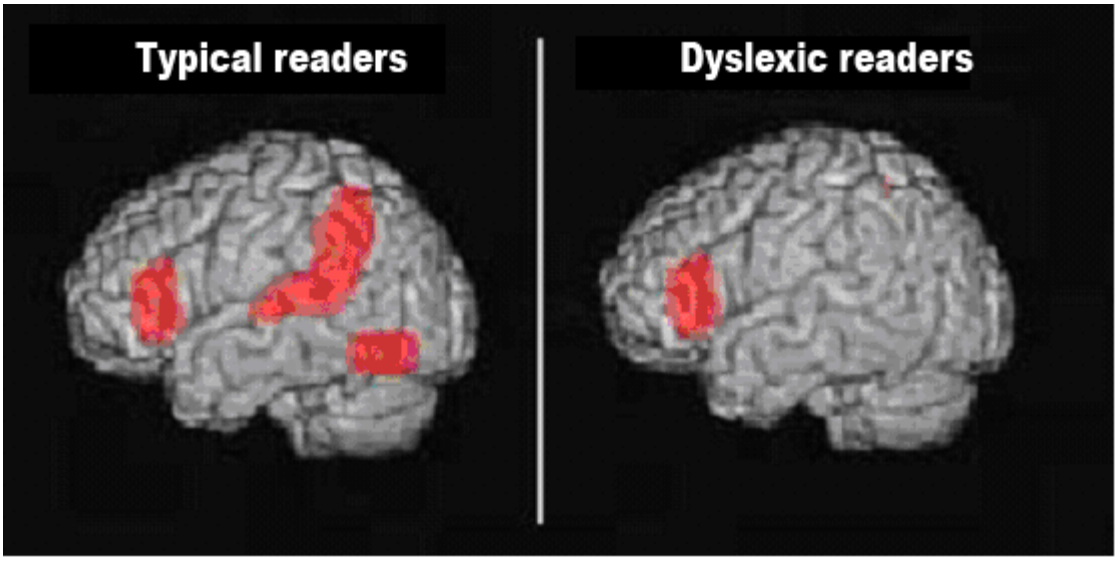
Mystery Photo



Source: Learning Styles and Multiple Intelligence, http://www.ldpride.net

Brain Scan

Name(s): _____



A team at Georgetown University Medical Center in Washington , D.C. scanned the brains of 38 adults, half of whom had dyslexia—a learning disability that makes learning to read difficult and which experts estimate affects up to 17% of people in the U.S. While being imaged, participants performed tasks that required the ability to interpret the sounds, or the phonics, of language. The brain images reveal different regions of activation (red) in people with and without dyslexia.

The fact that dyslexia affects smart people (Albert Einstein was dyslexic!) once puzzled scientists. Many figured that their reading problems must be due to laziness. Brain pictures like the one above, however, have helped scientists to understand that dyslexia is about biology, not motivation.

Research shows that people with dyslexia use the brain regions that process written language differently than others. When most readers are asked to pronounce the word “bus” without the “b” sound, for example, they easily say “us,” and the brain pictures show their brains lighting up like pinball machines. The brains of people who can’t sound out words, however, show less blood flow to the brain’s language centers and less activity overall. Researchers are not sure what causes this problem, but without the ability to sound out words, the brain is stumped.

Some researchers have found that people with dyslexia can make up for the inactivity in the language part of their brain by using other areas, such as the region linked with spoken language in the front part of the brain. For example, people with dyslexia who say the words they are reading under their breath may be relying on this area to get through a passage of text.

Brain imaging technology and other research has helped scientists to understand that learning disabilities occur naturally in many people, and has enabled them to create better ways of diagnosing and treating the people who have them.

Image courtesy of Society for Neuroscience and Guinevere Eden

Learning Disabilities

felt like he was always hitting the books. While his friends were meeting for pickup soccer games after school, he was back home in his room reading and ing the same material. But no matter how hard Noah studied, he had difficulty remembering things and his grades stayed average. Meanwhile, his friend who never seemed to study, always aced tests. It didn't seem fair.

se Noah was so frustrated, his dad and teachers made an appointment with the school psychologist. She diagnosed Noah with a learning disability. Althou felt relieved to know what was going on, he was also worried. He didn't like the "disability" label. And he was concerned about what it might mean for his Would he be able to go to college and study engineering as he'd hoped?

at Are Learning Disabilities?

meone diagnosed with a learning disability, it can seem scary at first. But a learning disability doesn't have anything to do with a person's intelligence - afte ch successful people as Walt Disney, Alexander Graham Bell, and Winston Churchill all had learning disabilities.

ng disabilities are problems that affect the brain's ability to receive, process, analyze, or store information. These problems can make it difficult for a studer n as quickly as someone who isn't affected by learning disabilities. There are many kinds of learning disabilities. Most students affected by learning ities have more than one kind. Certain kinds of learning disabilities can interfere with a person's ability to concentrate or focus and can cause someone's o wander too much. Other learning disabilities can make it difficult for a student to read, write, spell, or solve math problems.

ay our brains process information is extremely complex - it's no wonder things can get messed up sometimes. Take the simple act of looking at a picture, f ple: Our brains not only have to form the lines into an image, they also have to recognize what the image stands for, relate that image to other facts stored i emories, and then store this new information. It's the same thing with speech - we have to recognize the words, interpret the meaning, and figure out the cance of the statement to us. Many of these activities take place in separate parts of the brain, and it's up to our minds to link them all together.

Noah, you've been diagnosed with a learning disability, you're not alone. Nearly four million school-age children and teens have learning disabilities, and a 20% of them have a type of disorder that makes it difficult to focus.

at Are the Signs of Learning Disabilities?

an't tell by looking that a person has a learning disability, which can make learning disabilities hard to diagnose. Learning disabilities typically first show up a person has difficulty speaking, reading, writing, figuring out a math problem, communicating with a parent, or paying attention in class. Some kids' learnir ities are diagnosed in grade school when a parent or a teacher notices a kid can't follow directions for a game or is struggling to do work he or she should o do easily. But other kids develop sophisticated ways of covering up their learning issues, so learning disabilities don't show up until the teen years when work - and life - gets more complicated.

earning disabilities fall into one of two categories: verbal and nonverbal.

e with verbal learning disabilities have difficulty with words, both spoken and written. The most common and best-known verbal learning disability is **dyslex** causes people to have trouble recognizing or processing letters and the sounds associated with them. For this reason, people with dyslexia have trouble w g and writing tasks or assignments.

people with verbal learning disabilities may be able to read or write just fine but they have trouble with other aspects of language. For example, they may b o sound out a sentence or paragraph perfectly, making them good readers, but they can't relate to the words in ways that will allow them to make sense of hey're reading (such as forming a picture of a thing or situation). And some people have trouble with the act of writing as their brains struggle to control the things that go into it - from moving their hand to form letter shapes to remembering the correct grammar rules involved in writing down a sentence.

e with nonverbal learning disabilities may have difficulty processing what they see. They may have trouble making sense of visual details like numbers on a oard. Someone with a nonverbal learning disability may confuse the plus sign with the sign for division, for example. Some abstract concepts like fractions e difficult to master for people with nonverbal learning disabilities.

avioral condition called **attention deficit hyperactivity disorder** (ADHD) is often associated with learning disabilities because people with ADHD may also a hard time focusing enough to learn and study. Students with ADHD are often easily distracted and have trouble concentrating. They may also be sively active or have trouble controlling their impulses.

at Causes Them?

e's exactly sure what causes learning disabilities. But researchers do have some theories as to why they develop. They include:

Genetic influences. Experts have noticed that learning disabilities tend to run in families and they think that heredity may play a role. However, chers are still debating whether learning disabilities are, in fact, genetic, or if they show up in families because kids learn and model what their parents do

Brain development. Some experts think that learning disabilities can be traced to brain development, both before and after birth. For this reason, ms such as low birth weight, lack of oxygen, or premature birth may have something to do with learning disabilities. Young children who receive head s may also be at risk of developing learning disabilities.

Environmental impacts. Infants and young children are susceptible to environmental toxins (poisons). For example, you may have heard how lead may be found in some old homes in the form of lead paint or lead water pipes) is sometimes thought to contribute to learning disabilities. Poor nutrition n life may also lead to learning disabilities later in life.

w Do You Know If You Have a Learning Disability?

ecause you have trouble studying for a test doesn't mean you have a learning disability. There are as many learning styles as there are individuals. For ple, some people learn by doing and practicing, others learn by listening (such as in class), and others prefer to read material. Some people are just natural r readers or learners than others, but they still perform well for their age and abilities. Sometimes, what seems to be a learning disability is simply a delay in opment; the person will eventually catch up with - and perhaps even surpass - his or her peers.

any people with learning disabilities struggle for a long time before someone realizes that there's a reason they're having so much trouble learning. For mos e in their teen years, the first telltale sign of most learning disabilities occurs when they notice that there's a disconnect between how much they studied for nd how well they performed. Or it may just be a feeling a person has that something isn't right. If you're worried, don't hesitate to share your thoughts with a or a teacher.

st step in diagnosing a learning disability is ruling out vision or hearing problems. A person may then work with a psychologist or learning specialist who wi pecific tests to help diagnose the disability. Often, these can help pinpoint that person's learning strengths and weaknesses in addition to revealing a ular learning disability.

ing With a Learning Disability

gh a diagnosis of a learning disability can feel upsetting, it's actually the first step in resolving the condition. Once an expert has pinpointed a person's ular problem, he or she can then follow strategies or take medicines to help cope with the disability. And taking steps to manage the disability can often help e a student's self-esteem and confidence.

students who have been diagnosed with a learning disability work with a special teacher or tutor for a few hours a week to learn special study skills, note- strategies, or organizational techniques that can help them compensate for their learning disability. If you've been diagnosed with a learning disability, you eed support just for the subjects that give you the most trouble. Your school may have a special classroom with a teacher who is trained to help students ome learning problems.

schools develop what is called an Individualized Education Program (or IEP), which helps define a person's learning strengths and weaknesses and make r the learning activities that will help the student do his or her best in school. A student's IEP might include some regular time with a tutor or in a specialize oom for a certain subject, or the use of some special equipment to help with learning, such as books on tape or laptop computers for students who have ia.

ation is often prescribed to help students with ADHD. There are several medicines on the market today to help improve a student's attention span and abili us and to help control impulses and other hyperactive behavior.

s no cure for a learning disability. And you don't outgrow it. But it's never too late to get help. Most people with learning disabilities learn to adapt to their

ng differences, and they learn strategies that help them accomplish their goals and dreams.

wed by: D'Arcy Lyness, PhD
eviewed: March 2004

Matt's Story

What is dyslexia? That question is part of the problem of having dyslexia—many people don't even believe it exists. And those who do accept its existence think it is only reading backwards. Dyslexia is a number of things. In education, it is officially called specific language disability. For people who have not been diagnosed it is sometimes called laziness or lack of concentration. For me, it means a difference in the way my brain learns and recalls information, not only that sometimes letters and numbers get jumbled or that I have a hard time remembering if the symbol I'm looking at is a 7 or 9, a g or a j, or a lot other things you'd never believe.

For me, it started early. Kindergarten was good enough until we got to numbers and letters and, of course, remembering what they were. First grade was worse, and by second grade I was falling farther behind. That was first of many summers I would spend inside, or at clinic, working instead of playing. By third grade, I was identified as learning disabled and began to go to the Resource Room for part of the day.

I never really felt different from everyone else though sometimes I felt slow, dumb, humiliated, and very frustrated. I knew what I wanted to do, where I wanted to go, but I just couldn't get there. One of the biggest struggles was to understand that I was a little different and that was OK.

When you have a hidden disability you become a "con artist." You learn to think, you find ways to get around things. Now that by itself isn't so much of a con as a survival skill, but the way you do it and why you do it is important. For instance, one of the things that has always gotten to me is the labels they put on public restrooms, not just "Ladies" and "Men" but also "Lads" and "Lasses," "Dame" and "Herren," you name it. You have to develop the skill and the attitude to know that there is more than one way to learn something or enter a door and sometimes you just have to learn to wait a minute, look at the situation, and maybe see who's going and coming.

Luckily for me I've had some very special teachers, understanding, creative, skilled, and caring. This doesn't stop the nerves and panic whenever I start a new class with a new teacher. What will their expectations be? Will they understand my disability? Will they be willing to help me—giving me time I need, or understanding that sometimes I do things in a different way, or that no matter how hard I try sometimes I try I sometimes fail? It's pretty stressful until I get to know them and see how they react to my disability. But it has also taught me a lot of things I'll need to know later on in college. Some things, like "reading" a teacher, understanding their likes and dislikes and attitudes, are skills that my classmates are only starting to learn about. It's taught me how to communicate better, something I'm still working on, but it's very important for me to do.

It's very hard to keep a healthy mental attitude. If a person hasn't been identified it can lead to loss of self-esteem and eventually in many cases to jail. But even those of us who have been diagnosed have problems. This is a hidden disability and we have to deal not only with our own feelings but also with people who don't understand and resort to verbal abuse, or make

things more difficult. One example I can think of was when I applied for my first job last year. Even though I'd had my mother help me complete the forms at home, the secretary still wasn't satisfied. When I asked her to slow down and explain a little more because I was dyslexic, she became very sarcastic and asked if I was able to at least sign my name. I got over that, but it makes me concerned about how things will be in the future. It's hard to be confident about my abilities.

Perhaps that is the most important thing for dyslexics to remember, to be confident. Confident that they are intelligent and capable of doing anything they want to do. They may have to do it differently, maybe get a little more help, work longer, and harder, but they can do it.
-Matt, Age 16, Ventura, CA

Source: Take A Walk In My Shoes—A Guide for Youth on Diversity Awareness Activities by Yuri Morita, June 1996, Office of Administrative Action, Division of Agriculture & National Resources, University of California.

School has been and still is something that I dread profusely. Going to school has been like climbing up a tremendous, rocky mountain with steep cliffs and jagged, slippery rocks. This mountain is very grey and always covered in dark, murky, cold clouds. I step forth to take on this task of climbing this huge mountain. Each step is a battle against strong, howling, icy winds. The winds contain frigid rain that slams against my body, trying to push me down. I keep battling my way up. Sometimes I am knocked down, and sometimes I have to stop to regain my strength. My body is numb. My hands shake like leaves in the wind as I claw myself up the mountainside. Not being able to open my eyes, I blindly claw myself up the steep cliff. I stop because I am in such great pain. I look up and see that my struggle has hardly begun. Sometimes I just do not want to go on any further.

--Matt, Grade 9, Boston , MA , October 2003

Source: LD Online KidZone Magazine, http://www.ldonline.org

Who Am I?

1. Born one of nine siblings in 1951, this world-famous fashion designer reports that "I performed poorly at school…and was perceived as stupid because of my dyslexia. I still have trouble reading." This person dreamed of working in fashion from a young age and opened his first clothing store, "The People's Place," in the 1970s. After the business went bankrupt, this person headed to New York City to concentrate on fashion design. Although he was a relative unknown (and short on money), this person turned down job offers from the famous designers Calvin Klein and Perry Ellis in order to pursue dreams of his own company , which today employs over 5,400 people and takes in almost $2 billion each year.
Who am I? _____

2. This British businessman was educated at an exclusive School, but did not do well due to his nearsightedness and dyslexia. Despite these problems, he developed a national magazine and a student advisory service while he was still a teenager. After leaving school, this person started a mail-order music catalogue, which eventually led to the formation of Virgin Records, one of the largest music companies in the world. He went on to form Virgin Airlines, a mobile phone network, an internet company, and even a Cola. Known for his personal adventures, this person crossed the Atlantic in the first and largest hot air balloon to cross the ocean, and plans some day to circle the world in his hot air balloon.
Who am I? _____

3. This preeminent polar explorer was diagnosed with dyslexia in the seventh grade. Though her learning differences made school extremely frustrating, she never gave up on her dream. She is the first known woman in history to cross the ice to both the North and South Poles. She was inducted into the Women's Hall of Fame in 1995 and has received numerous other awards for her accomplishments.
Who am I? _____

4. Born in 1881 in Spain , this famous artist was both controversial and trend-setting. He attended local parochial schools, had difficulties with reading, and was labeled a dyslexic. Despite the difficulties that a learning disability posed in school, it became clear that he had an incredible talent. He had a unique sense of beauty and painted things as he saw them — out of order, backwards or upside down. His paintings—including Guernica and The Young Ladies of Avignon— demonstrated the power of imagination, emotion, and creativity.
Who am I? _____

5. This famous actor grew up poor and moved around a lot while his father looked for work. He suffered from dyslexia and was put into remedial classes at school. Though academic subjects were challenging, this person competed in many sports and appeared in a number of plays. After school he focused all his energy on developing an acting career, and never let his learning disability stand in the way of success. Today, he learns movie lines for films such as Mission: Impossible and Jerry Maguire by listening to a tape.
Who am I? _____

6. Born in Italy in 1452, this famous painter and sculptor was also was an internationally renowned inventor, scientist, engineer, architect, musician, mathematician, astronomer, geologist, biologist, and philosopher in his time. He was also believed to suffer from a number of learning disabilities, including dyslexia and attention deficit disorder. It appears that this person wrote his notes backwards, from right to left, in a mirror image (a trait shared by many left-handed dyslexic people). This person overcame his learning disabilities by funneling his creative talents into visual depictions of his thoughts. The Mona Lisa is one of his most famous paintings.
Who am I? _____

7. This scientist and inventor was thrown out of school at age 12 because he was thought to be terrible at mathematics, unable to focus, and had difficulty with words and speech. It was very clear, however, that this person was an extremely intelligent student despite poor performance in school. He was an avid reader of the latest research of the day and frequently contributed articles about new ideas in telegraph design to technical journals. Over the course of his career, this person patented 1,093 inventions, including the phonograph and the motion picture camera.
Who am I? _____

8. This outstanding American entertainer had a lot of difficulty in school, but did not learn until she was an adult that she has dyslexia. Growing up, this person remembers being called dumb and stupid because she had a lot of problems reading. It was clear to her teachers and family that she was neither slow nor dumb, but had some problem that had not yet been well defined. Despite dyslexia, this person has had a successful film and television career, appearing in major motion picture hits like Ghost, Jumping Jack Flash, The ColorPurple, and Star Trek: Generations.
Who am I? _____

9. This well known children's book author did not start writing until the age of 41. Diagnosed as having Dyslexia, Dysnumeria and Dysgraphia at the age of 14, she did not learn to read well until high school, when a teacher got her the additional help needed to overcome her reading problems. This person went on to major in Fine Art and receive a Ph.D. in Art History. She has written a book, called Thank You, Mr. Falkner, about her experiences with learning differences and the teacher who helped her. Some of her other titles include Mrs. Katz and Tush, The Keeping Quilt, and Pink and Say.
Who am I? _____

Answer Key: 1. Tommy Hilfiger ; 2. Richard Branson ; 3. Ann Bancroft ; 4. Pablo Picasso ; 5. Tom Cruise ; 6. Leonard Da Vinci; 7. Thomas Edison; 8. Whoopi Goldberg; 9. Patricia Polacco

(Option: If this activity is too difficult for your students, post the names of the figures in the front of the room and challenge students to match them with each biography rather than to come up with the names on their own).