



الجمعية الكويتية لاختلافات التعلم  
Kuwaiti Association for Learning Differences



مؤسسة الكويت للتقدم العلمي  
Kuwait Foundation for the Advancement of Sciences

# A Guide to Learning Difficulties (LDs) and Attention Deficit Hyperactivity Disorder (ADHD)





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In Partnership  
With



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After many years of volunteer work in the establishment of a non-profit organization whose vision is to develop quality education in our beloved country of Kuwait, I've come to believe that successful educational development in any country depends not only on a realistic, studied, and programmed vision, but also on the team in charge of putting this plan into action to meet the educational challenges that affect educational outcomes.

Without advanced educational institutions and qualified educators who are passionate about their mission, aware of the importance of their profession in supporting creative human capital, and confident in their ability to make the change and play a vital role in the development of education, it will undoubtedly fail.

I place this valuable and unique publication in our Arab world in your hands. I am sure it is in the safe hands of responsible and dedicated educators with a mission and a long experience

in the field. You are the hope that our children with learning difficulties and/ or attention deficit hyperactivity disorder, whom we prefer to refer to as students with "learning differences," according to the global trend that focuses on their differences and not their weaknesses, will have a fair opportunity in education and a happy and fulfilling lives.

Let us work together to build a promising future for the present and future generations. Our beloved country, Kuwait, deserves the best.

**KALD Founder and Chair  
Mrs. Amaal Al-Sayer**

## About The Kuwaiti Association for Learning Differences



الجمعية الكويتية لاختلافات التعلم  
Kuwaiti Association for Learning Differences

The Kuwait Association for Learning Differences (KALD) is a humanitarian, non-profit organization whose vision is to develop quality education in Kuwait by working with government and private institutions, international bodies, civic associations, and educational institutions.

The association was established in 2007 with the efforts of Amal Al-Sayer, with the financial support of the Masharee Alkhair Charity Foundation \ KIPCO. Its board of trustees consists of volunteers, some of whom specialize in learning difficulties, and some are parents and educators interested in this field.

KALD works to help students with learning difficulties (LDs) and attention deficit hyperactivity disorder (ADHD) and enable them to succeed in all aspects of their lives. The term “learning differences” is chosen to align with the global trend that focuses on these students’ differences rather than their weaknesses.

Since its inception, the association has followed well-studied plans by working on three axes: awareness, training, and development. The association organizes awareness campaigns at the level of Kuwait.

It also writes and publishes publications and distributes them to the public, various institutions, and health centers.

In addition, KALD works on educating students’ parents through annual forums and training workshops. It aims to introduce parents to LD and

ADHD, the best ways to deal with their children’s difficulties, and guide them where they can get further help.

Training educators, especially teachers, receive significant attention. The association achieves this training through local and international conferences, workshops, and courses conducted by specialists in this field. The association also honors teachers with «KALD Award for Distinguished Teacher» which teachers from the private and public sectors apply.

KALD believes in the importance of providing integrated educational services for students. Therefore, it provides academic, psychological, and social services directly to the student through courses, workshops, and private lessons given, after school hours, by a professional team.

# The Kuwait Foundation for the Advancement of Sciences (KFAS)



The Kuwait Foundation for the Advancement of Sciences (KFAS) was established in 1976 by an Amiri Decree under the direction of the late Amir of Kuwait, H. H. Sheikh Jaber Al-Ahmad Al-Jaber Al-Sabah with a vision to create and nurture a thriving culture of science, technology, and innovation for a sustainable Kuwait.

¶KFAS operations are funded by contributions from the private shareholding companies of Kuwait as part of their corporate social responsibility. The contributions currently amount to one percent (1%) of their annual net profit.

¶KFAS mission to «stimulate and catalyze the advancement of Science, Technology, and Innovation (STI) for the benefit of society, researchers, and enterprise in Kuwait,» continues to be at the heart of all the Foundation's activities and plans.

¶Since its creation, KFAS has successfully established several dedicated research and educational centers of excellence in Kuwait. These are The Scientific Center, Dasman Diabetes. Institute, Sabah Al-Ahmad Center for Giftedness & Creativity, and Jaber Al-Ahmad Center for Nuclear Medicine and Molecular Imaging. These centers are recognized as world-class facilities and pioneering scientific research institutes. In addition, KFAS has established Al Taqaddum Al Elmi Company, the Foundation's publishing arm, and most recently, KFAS Academy, an online university for continued education.

¶The limited resources for R&D and STI in Kuwait present constraints and challenges in the drive towards a knowledge-based economy. The new 2017-2021 strategy, therefore, also aims to work with the government to help increase in multiple folds the rate of government funding of research to reach the minimum international average of 1% of GDP by the year 2020. With the conclusion of the previous five-year strategy and the commencement of the next (2017- 2021), KFAS is continuing to contribute to the creation of a rich scientific culture in Kuwait and to enable a sustainable and robust knowledge-based economy.

# Masharee Al Khair Charity Organization



Masharee Al Khair Charity Organization is the charitable foundation of Kuwait Projects Company (KIPCO) and is the main sponsor of the Kuwaiti Association for Learning Differences. This organization initiates and develops a wide range of projects, such as restorations of historical heritage sites, educational scholarships, and donations to the sick and needy.

## Some of its other goals:

**Granting scholarships to excelling Kuwaitis, Arab and Muslim students to pursue higher education or to carry out research.**

**Granting scholarships and awards to excelling scholars in religious, social, and artistic fields in recognition of their invaluable contributions.**

**Giving financial help to high-rank research and specialized training centers.**

## Examples of Masharee Al Khair Donations

### Health:

- A financial contribution to the National Awareness Cancer Campaign and paying medical bills for patients treated abroad
- A donation to Children Cancer Hospital in Lebanon
- Buying furniture and medical equipment for a number of institutions such as Al Ri'ayeh Hospital, The Ministry of Health and Amiri Hospital

### Sports:

- A donation to the Kuwaiti Handball Team and building of a sports field in Salwa

### Education and Awareness

- Building a new floor at the Center for Child Evaluation and Teaching
- Donation to the Dyslexia Awareness Campaign
- Financial aid and full scholarships to exceptional college students in Kuwait and abroad
- Furnishing Sheikha Salwa Library
- Donations to a number of charities in the Arab countries, such as Oman, Sudan, and Somalia

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## Who is This Guide For?

Three things must be present to deliver the most outstanding educational service for students with learning disabilities and attention deficit hyperactivity disorder. First, an early diagnosis and individualized educational plan; second, specialized teaching techniques; and third, modification and accommodations. On the ground, however, few schools provide these services, and most parents cannot afford the high fees of such schools.

Therefore, the association has prepared this guide because it believes that with sufficient information about learning difficulties and attention deficit hyperactivity disorder, a parent can notice whether some symptoms exist in his child, understand his child's problem, and deal with it better. In addition, this guide can lead the parent to the rights of their child guaranteed by law, which are the modifications and the accommodations that the teacher must provide in the classroom.

Accurate and sufficient information qualifies the teacher to notice the symptoms of the student's difficulties early to discuss the student's situation with the psychological and social counselor and draw the parents' attention to the need to request a diagnosis for their child.

Often, the diagnosis may recommend that a specialized teacher teach the student reading, writing, or mathematics. But this does not mean that this recommendation cancels the vital role that the classroom teacher can play, through the use of modifications or accommodations, in helping the student succeed and flourish.

When sincerity and love of work meet with knowledge and will, the teacher can make a significant difference in the lives and future of his students.

**KALD Cultural & Media Office**  
**Alia Qardan**

## Kuwait Law No. 2010/8 Rights of Persons with Disabilities

**Article 9:** The Government shall be committed to providing educational services for persons with disabilities, slow learning, and **learning difficulties** on an equal basis with others, taking into account their special needs in terms of communication, language, and necessary simplified arrangements. The Government shall provide specialized educational and professional executives, reinforce their efficiency and give them moral and material incentives. The rights and needs of persons with disabilities, **learning difficulties**, and slow learning shall be considered in all educational and vocational tests or endorsement tests prepared by civil or governmental institutions. The Government shall provide the necessary audio-visual equipment and guarantee an appropriate environment to help the aforementioned persons complete their education. The Ministry of Education shall organize training courses for all teachers in government schools to detect **learning difficulties** and slow learning and know-how to deal with such situations according to their individual needs. The Authority shall be in charge of the costs of the slow learning and **learning difficulties** evaluation tests, provided that the Ministry of Education establishes centers specialized in the aforementioned tests as of the date of the enforcement of this law.

**Article 10:** The Government shall take all the adequate and organizational, administrative arrangements required for the integration of persons with disabilities, learning difficulties, and slow learning at various stages of education in the educational and habilitating curricula commensurate with their sensory, physical, and mental capabilities, enabling thereby their integration in society and allowing them to work and be productive.

According to this law, **learning difficulties are disabilities that the government is obligated to provide the various educational services necessary for all students who have these difficulties. The law included all these services, including qualified educational cadres, specialists in diagnosis, appropriate curricula, necessary facilitation training, and others.**

**What is “facilitation training”?**

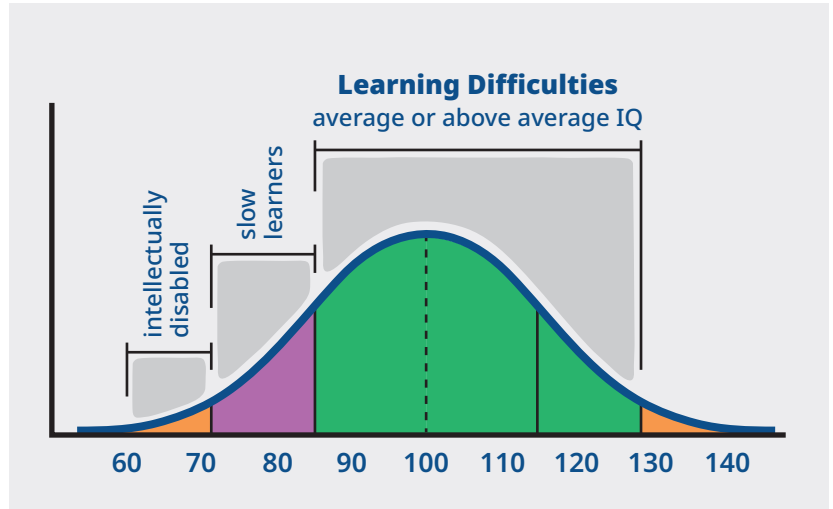
According to what is applied in the developed world in this field, this facilitation training includes two types of services:

**modifications and accommodations**

# Facts About Students with Learning Difficulties

## Fact One

Students with learning disabilities have average or above-average intelligence. Still, they often face academic, psychological, and social problems because of their academic challenges.



## Fact Two

Their numbers are enormous; many students with learning difficulties do not complete their secondary education.

According to the US National Center for Learning Disabilities ([www.nclid.org/StateofLD](http://www.nclid.org/StateofLD)), 1 in 5 children has learning and attention disorders (20%)

If we take the average percentage, which is 10%, and apply it to the number of students in Kuwaiti schools only, which is about 600,000 students, we will find that about 60,000 students may have these difficulties and disorders.

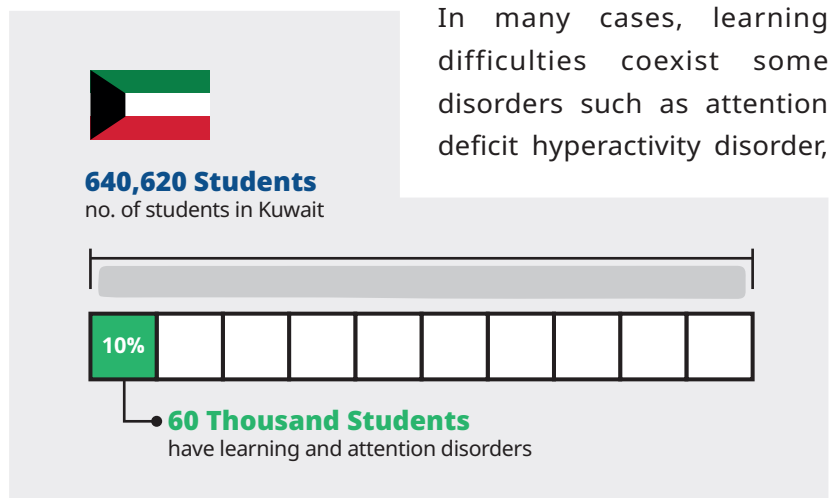
## Fact Three

Many students with learning difficulties have the capabilities and skills to succeed and excel in science, humanities, and more. Thomas Edison, the great inventor, was expelled from

elementary school because of his learning difficulties. His mother was told that he would never be able to finish school and that it would be wise not to let him seek further education in science.

## Fact Four

In many cases, learning difficulties coexist some disorders such as attention deficit hyperactivity disorder,



executive dysfunction, and others.

Such disorders pose more unfavorable adverse effects, which may be devastating in some cases, on the student's academic, psychological, and social life.

Hence, it is necessary to consider the appropriate support the teacher provides for his students.

### **Fact Five**

The fact that students with learning difficulties need to be taught by specialized special needs teachers, does not negate the important role a classroom teacher can play by using the appropriate modifications or accommodations.

### **Fact Six**

A conscientious and skillful teacher is the most critical factor in preparing educated new generations that enjoy healthy psychological and social lives. Hence, writing this booklet came as a contribution from the Kuwait Association for Learning

Differences in supporting teachers, who are one of the essential pillars of quality education that contributes to the progress and development of societies.

### **The term “learning difficulties” used in this guide**

As stated in Kuwait Law No. 8/2010, learning difficulties are a disability that imposes on the government the need to provide educational services to students who have these difficulties to enable them to complete their education and integrate into society.

According to The Diagnostic and Statistical Manual of Mental Disorders: DSM-5 (American Psychiatric Association, 2013), the term learning disabilities is considered an umbrella for many several disabilities, including specific learning disabilities in reading, writing, and mathematics. It differentiates between specific learning disabilities and other disabilities on the bases of IQ score. Individuals with specific

learning disabilities must have an average or above-average intelligence.

Later, the term «specific learning disorders» was adopted, often associated with other neurodevelopmental disorders such as attention deficit hyperactivity disorder.

According to [www.learningdisabilities.org.uk](http://www.learningdisabilities.org.uk) learning difficulty is a condition that causes obstacles in learning a specific skill such as reading or writing. Still, it does not affect general intelligence, while a learning disability is a comprehensive cognitive disability that affects learning and intelligence in all areas of life.

Therefore, the term “learning difficulties” is used in this guide as used in the UK which includes the concept of disability (obstacles in learning a specific skill) and focuses on average or above-average intelligence, which parents and educators prefer.

**There are two kinds of support services that the educational institutions must provide for students with learning and attention difficulties:**

| <b>Modifications</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Accommodations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• <b>Curriculum:</b><br/>Changes in the curriculum. The student is not expected to learn the same subjects as their classmates.<br/><br/>For example, a student could be assigned shorter or easier reading assignments or homework different from those given to the rest of the class.</li> <li>• <b>Homework:</b><br/>The student is given different assignments, such as shorter or easier reading tasks than those given to the rest of the students in the class.</li> <li>• <b>Tests and exams:</b><br/>Should cover less material or less complicated subjects.</li> <li>• <b>Alternative evaluation:</b><br/>Includes modifications to the regular test. The questions may or may not cover the same material as the standardized tests. The results are also interpreted differently.</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Curriculum:</b><br/>No change in curriculum. The student learns the same material as his peers, allowing him to meet the exact expectations.<br/><br/>For example, A dyslexic student might listen to an audio version of a book. But it's still the same book that their classmates read.</li> <li>• <b>Homework:</b><br/>The student is given the same assignment, but he can use the computer to either print out the work or record it by voice instead of writing it manually.</li> <li>• <b>Tests and exams:</b><br/>Accommodations for testing can differ from those used for teaching.<br/><br/>For example, a spell check on a computer might help a student who has writing difficulties take notes during class. However, it will not be appropriate during the weekly spelling test because the goal is to test language level (spelling).</li> <li>• <b>Standardized Test:</b><br/>In the official exam at the state level or in international certification programs such as International Baccalaureate, students receive accommodations such as extra time, taking a test on a computer, or appointing an assistant person to read the questions to the student and others.</li> </ul> |

# Common Modifications

## Assignment modifications

- Complete different homework problems than peers
- Answer different test questions
- Create alternate projects or assignments

## Curriculum modifications

- Learn different material (such as continuing to work on multiplication while classmates move on to fractions)
- Get graded or assessed using a different standard than other students
- Be excused from particular projects

# Common Accommodations

## Essential notes

- Accommodations allow students with learning difficulties to demonstrate their learning. That is why appropriate accommodations must be an integral part of the teaching process: teaching methods by the teacher, student response, and assessment.
- Practice is key to effective use of support. They must be incorporated into classroom practice before they can be expected to be used in assessment situations.

- Accommodations are only helpful when the student knows how to use them effectively. The extra time is not enough: the student must be taught how to use it.

## Presentation (Change in the student's access to information)

- Listen to audio recordings instead of reading text
- Learn content from audiobooks, movies, videos, and digital media instead of reading print versions

- Work with fewer items per page or line
- Work with text in a larger print size
- Have a “designated reader” — someone who reads test questions aloud to students
- Hear instructions spoken aloud
- Record a lesson instead of taking notes
- Get class notes from another student

- See an outline of a lesson
- Use visual presentations of verbal material, such as word webs
- Get a written list of instructions

### **Response accommodations (changes the way students complete assignments or tests)**

- Give responses in a form (spoken or written) that's easier for them
- Dictate answers to a scribe who writes or types
- Capture responses on an audio recorder
- Use a spelling dictionary or digital spellchecker
- Use a word processor to type notes or give answers in class
- Use a calculator or a printed copy of the multiplication table

### **Setting accommodations**

- Work or take a test in a different setting, such as a quiet room with few distractions
- Sit where they learn best (for example, near the teacher)
- Use special lighting or acoustics
- Take a test in a small group setting
- Use sensory tools such as an exercise band that can be looped around a chair's legs (so fidgety kids can kick it and quietly get their energy out)

### **Timing accommodations**

- Take more time to complete a task or a test
- Have extra time to process spoken information and directions
- Take frequent breaks, such as after completing a worksheet

### **Scheduling accommodations**

- Take more time to complete a project
- Take a test in several timed sessions or over several days
- Take sections of a test in a different order
- Take a test at a specific time of day
- Organization skills accommodations
- Use an alarm to help with time management
- Mark texts with a highlighter
- Use a planner or organizer to help coordinate assignments
- Receive study skills instruction

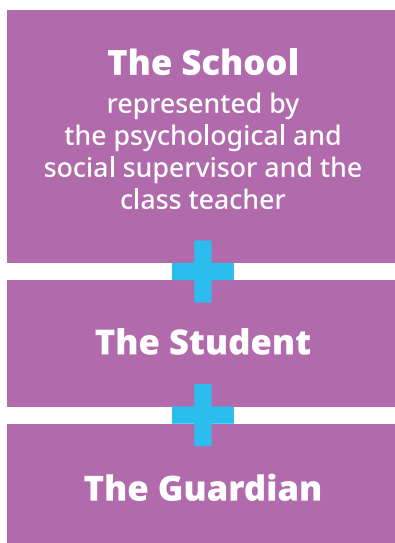


# How and Who Decides if a Student Needs Modifications or Accommodations?

Educational institutions that provide services for students with learning difficulties require that a student gets a diagnosis by an authorized body to be entitled to an Individualized Educational Plan (IEP).

This plan includes the appropriate modifications or accommodations, as it defines the student's needs and facilitates the process of learning, and demonstrates what he has learned.

Three parties must participate in the process:



**The choice between choosing modifications or accommodations for a certain student is a critical decision that must be taken with all care and attention as it affects the student's present and future.**

**A student who receives accommodations has the right to take official exams, whether at the school or state level, and can apply to colleges and universities like his peers.**

**That is due to the following facts:**

- Accommodations do not materially change the course's requirements, educational level, content, or performance standards.
- They are limited to changes in how the student accesses information and demonstrates learning.
- It does not guarantee success or provide an unfair advantage

- Its goal is to provide the student equal opportunities to learn and demonstrate what he has learned.

Choosing modifications over accommodations for a student usually depends on the severity of his disability. Because of the changes in the required study material, the tasks required of the student, and the methods and content of the tests, the student cannot sit for the standardized test. Yet, modifications allow the student to stay with his classmates until graduating high school. A good number of colleges accept students with high-school certificates.

# Learning Difficulties

The background of the slide is split into two colors: a light green upper section and a dark blue lower section. A smooth, curved line separates the two colors, starting from the left edge and curving upwards towards the right edge.



# The Relationship Between Developmental Learning Disabilities and Learning Difficulties

## 1. Developmental Learning Disabilities

They are the skills that the child needs for academic learning. They are divided into:

### A. Primary Disabilities:

These include attention, memory, and cognition.

### B. Secondary Disabilities:

These include thinking and verbal language.

## 2. Learning Difficulties

The difficulties that students face in their academic learning include:

### A. Reading Difficulty

Dyslexia

### B. Writing Difficulty

Dysgraphia

### C. Mathematics Difficulty

Dyscalculia

There is a strong relationship between developmental and learning difficulties. A developmental learning difficulty must lead to academic learning difficulties. Example:

If a child shows an academic difficulty, such as dysgraphia, it may be due to a difficulty in visual coordination, which is one of the developmental learning difficulties.

**In this handbook, the term learning difficulties has been adopted as a variety of disorders arise due to a slight defect in the functioning of the child's brain, even though the child:**

- Has average or above average IQ.
- Has no visual, motor, or hearing disability.
- Was provided with appropriate educational, psychological, and social conditions for learning.

The concept of learning difficulties (called then disabilities) appeared in the United States of America in 1963 when educational specialists began to think of ways to help students with these disabilities. Since then, there has been considerable development in this field through scientific research and numerous studies regarding the definition of these disabilities, their manifestations, and their effects on all aspects of students' lives.

The heterogeneity of people with learning difficulties made consensus on a single definition difficult. Disciplines tend to

describe learning difficulties according to their frameworks of reference. While clinicians associate learning difficulties with the brain and its functioning, educators prefer to refer to them in behavioral and academic terms.

### **The bright side of learning difficulties.**

All people with learning disabilities have strengths, particularly relative to their weaknesses. The term "learning differences" is sometimes employed because it captures those difficulties in some areas that are directly tied to strengths in others.

### **For instance, people with dyslexia have strengths in:**

**Material or spatial reasoning:** heightened ability to solve problems with navigation or with the visualization of faces, scenes, and objects. This skill can be helpful for designers, engineers, filmmakers like Steven Spielberg, or photographers like Ansel Adams.

**Interconnectedness:** the verbal reasoning capacity to connect seemingly-disconnected ideas (finding analogies, etc.). Paul Orfalea, CEO of Kinko's, has said

that his learning style has helped him see the big picture and not worry about tiny details.

**Narrative reasoning:** great memory for personal experiences. This skill can be helpful for poets (such as Philip Schultz), essayists, memoirists, and other writers (like John Irving).

**Dynamic reasoning:** the ability to reason in novel situations. This is helpful for the business or scientific field. A study by Cass Business on 300 business winners found that about 40 percent had been diagnosed with dyslexia — four times the rate in the general population.

Children with learning disabilities tend to be more empathetic due to their hardships. Most teachers with learning disabilities view their disabilities as having a positive effect on their teaching, likely due to the ability to empathize with students and their potential learning struggles.

# Learning Difficulties and Coexisting Disorders

These difficulties appear as persistent weaknesses in at least one of three main areas:

## A. Reading

Dyslexia

Auditory Processing Disorder

Visual Auditory Disorder

## B. Writing:

Dysgraphia

Writing Expression Disorder

Developmental Coordination Disorder

## C. Mathematics:

Dyscalculia

Disorders that could coexist with learning difficulties:

Attention Deficit Hyperactivity Disorder

Executive Dysfunction/ Executive Function Issues

## **Essential points about these difficulties:**

- “Specific Learning Disorder” is a medical term used for diagnosis. It is often referred to as a “Learning Disorder.”
- “Specific Learning Disabilities” is another term for this disorder used by both the educational and legal systems.
- “Learning Differences” is a term that has gained popularity, especially when talking with children about their difficulties, as it focuses on the fact that they are positively different.
- Difficulties in reading and writing often cause problems in other school subjects such as history, math, science, and social studies and may affect daily activities and social interactions.
- Each person has a different set of these difficulties than others, which may vary in severity. When the problem is slight, the student shows

some difficulties in learning in one or two academic areas, but it may be possible to compensate. In the case of moderate difficulties, the student has significant learning difficulties and needs specialized teaching methods and support services. On the other hand, severe difficulties significantly negatively impact many academic fields and require technical, intensive, and continuous teaching methods.

- If learning difficulties are not recognized and managed early, they can cause problems throughout a person's life beyond low academic achievement. These problems include an increased risk of psychological and social issues such as dropping out of school and family problems and getting involved in criminal cases.
- Learning difficulties do not go away with age, but a person may deal with them in better ways.

## **The causes of learning difficulties are still obscure, but many studies have agreed that difficulties are related to one of these factors:**

- Genetic factors
- Prenatal risks, such as exposure to alcohol or drugs, premature birth, and low birth weight
- Trauma or abuse in early childhood
- Physical trauma, such as head injuries or infections of the nervous system
- Environmental factors, such as exposure to high levels of toxins such as lead

# Diagnosis

Learning difficulties can be diagnosed in children in their early life stages, but, often, they are not recognized until puberty. Diagnosis is made through observations, interviews, family history, and school reports. Neuropsychological tests may be used to help find the best way to help an individual with a particular learning disorder.

## For a learning difficulty to be diagnosed, a student must meet four criteria:

**1.** Has experienced difficulties in at least one of the following areas for at least six months despite targeted assistance:

- Difficulty reading (e.g., inaccurate, slow reading with great effort)
- Difficulty understanding the meaning of what is read
- Difficulty with spelling
- Difficulty with written expression (e.g., problems with grammar, punctuation, or organization)
- Difficulty understanding numbers concepts, numbers facts, or arithmetic
- Difficulty with mathematical thinking (e.g. applying math concepts or solving math problems)

**2.** Has much fewer academic skills than expected for the child's age and causes problems with school, work, or daily activities.

**3.** Has shown difficulties during early school age. Yet some people do not experience significant problems until adulthood (when academic, work, and daily demands are more critical).

**4.** His learning difficulties are not due to other conditions, such as intellectual disability, vision or hearing problems, a neurological condition (such as stroke in children), or adverse conditions such as economic or environmental deprivation, lack of education, or speech difficulties/ understanding language.

## The importance of early diagnosis and intervention

Diagnosis allows the development of an individualized educational plan (IEP) for the student. Appropriate teaching methods and support services make a big difference in all aspects of the student's life. The earlier we do the diagnosis and intervention, the better the results.



Much research has shown that the effort it takes to help a child in the fourth grade of primary school is four times the effort it takes to help that child when he was in preschool.

In addition, **75%** of children with reading difficulties who do not receive help until the third-grade face reading challenges throughout their lives. But if those same children received proper service by first grade, **90%** of them would achieve average reading ability.

### Adverse effects of not doing early intervention

As mentioned previously, the number of people with learning difficulties and attention disorders is enormous, and we must not ignore it. Global statistics indicate that attention deficit hyperactivity disorder often accompanies learning difficulties and has increased dramatically in the past few years.

According to the American Psychiatric Association (APA), **5%** of American children have ADHD. At the same time, the Centers for Disease Control and Prevention (CDC) confirms that **11%** of American children,

ages 4 to 17, suffer from this disorder. That's a **42%** increase in just eight years.

### Some worrying statistics:

- The dropout rate for students with learning difficulties (**18.1%**) is nearly three times that of all students (6.5%)
- Students with learning difficulties have deeper emotional concerns than their peers, such as depression, loneliness, and low self-esteem. This often leads them to become addicted and engage in unacceptable and sometimes dangerous social behaviors such as speeding and causing accidents.

- **75%** of juveniles in American prisons have learning difficulties that have not been dealt with.
- **65%-80%** of adults with this disorder will not have an education level of their intellectual abilities and are also likely to be unemployed or have difficulty keeping a job.
- Many have social and personal problems such as the inability to maintain friendships, marital disputes, and even divorce.



## **Section One:**

### **Learning Difficulties**

## **A. Reading**

- **Dyslexia**
- **Auditory Processing Disorder**
- **Visual Auditory Disorder**

## **B. Writing:**

- **Dysgraphia**
- **Writing Expression Disorder**
- **Developmental Coordination Disorder**

## **C. Mathematics:**

- **Dyscalculia**

# Dyslexia

Dyslexia is the most common among other learning difficulties, accounting for **80%-90%** of them. The student who has this difficulty suffers from the inability to read fluently, and he reads slowly and makes mistakes, affecting his understanding of what he reads. But he often has no problem understanding the text when hearing others reading.

Dyslexia is the inability to match letters with sounds (Decoding), and another more basic skill is the ability to recognize sounds in words (Phonemic Awareness). Dyslexia affects people in different ways. Therefore, symptoms may not seem the same from one person to another.

Some children may not be discovered to have dyslexia until later when they have trouble with more complex skills such as grammar, comprehension, reading fluency, sentence structure, and more profound writing.

## **Dyslexia can cause difficulty in other skills, too. These include:**

- Reading comprehension
- Spelling
- Writing
- Math

Dyslexia doesn't just affect learning. It can also affect social skills, daily activities, memory, stress management, etc. It is a lifelong problem that can present challenges daily, but support is available to improve reading and writing skills and help those with this problem succeed in school and work.

## **Most common Dyslexia symptoms**

- Slow reading speed
- Transposing letters in words
- Poor reading comprehension

- Difficulty identifying single words
- Problems with spelling
- Omission or substitution of words while reading
- Reversal of words while reading
- Difficulty decoding syllables or single words and associating them with specific sounds
- Limited sight word vocabulary
- Resistance to reading and lack of enjoyment



**10%**  
of the population  
have Dyslexia

## Types of dyslexia identified based on symptoms:

### Phonological Dyslexia

The student finds it challenging to process the sounds of individual letters and syllables and cannot match them with written forms.

### Surface Dyslexia

This type of dyslexia is characterized by difficulty recognizing whole words, caused by vision problems or problems with visual processing in the brain. With difficulty recognizing words, these people may have trouble learning and memorizing words.

### Double Deficit Dyslexia

The student shows a twofold deficit in both phonemic process and naming speed. The majority of weaker students fall into this category.

### Rapid Naming Deficit

The student finds it difficult to quickly and automatically name a letter, number, color, or object as the processing speed is low, and it takes time to call it.



## Some examples of dyslexia symptoms:

- Delete some words or parts of the read word; for example (I traveled by plane), the student may read (travel by plane).
- Adding some words not in the original text to the sentence or some syllables or letters to the read word. For example, the term (I traveled by plane) may be read as (I traveled by plane to America).
- Replacing some words with others that may carry some of their meaning; for example, he might read the word (high) instead of (tall) or pupils instead of (students), and so on.
- Repeating some words more than once without any justification. For example, he might read (The mother washed the clothes), then he says: (The mother washed... the mother washed the clothes).
- Reversing and switching letters is one of the most common mistakes in reading difficulties, where the student reads words or syllables in reverse as if he sees them in the mirror: he may read the word (tip) and say (pit) and sometimes make mistakes in the order of letters. The word, he may read the word (part) and say (prat) instead, and so on.
- Weakness in distinguishing between graphically similar letters, such as (i and l) or (v and w).
- Weakness in distinguishing between letters that are similar in wording and that are different in graphics, such as (f and v) or (S and Z), and this weakness in distinguishing letters is naturally reflected in his reading of words or sentences that include these letters. For example, he may read (fifty), say (vivty).
- Weakness in distinguishing between vowels, as he may read the word (full) but say (fill).
- Difficulty tracing the place of arrival in reading and confusion when moving from the end of the line to the beginning of the following line.
- Read the sentence in a fast and unclear or slow word/word way.



# Accommodations For Students with Dyslexia

## Classroom materials and routines

- Post visual schedules and also read them out loud.
- Provide colored strips or bookmarks to help focus on a line of text when reading.
- Use large-print text for worksheets.
- Allow the student to use a text reader like a Reading Pen or text-to-speech software.
- Have handbooks with high-interest topics for students reading below grade level.
- Provide extra time for reading and writing.
- Give the student multiple opportunities to read the same text.
- Use reading buddies during work time (as appropriate).

## Introducing new concepts

- Use visual or audio support to

help the student understand written materials in the lecture.

- Pre-teach new concepts and vocabulary.
- Provide the student with typed notes or an outline of the lesson to help take notes.
- Provide a glossary of content-related terms.

## Giving instructions

- Give step-by-step directions and read written instructions out loud.
- Highlight keywords and ideas on worksheets for the student to read first.
- Check in frequently to ensure the student understands and can repeat the directions.
- Show examples of correct and completed work to serve as a model.
- Give self-monitoring checklists and guiding

questions for reading comprehension.

- Help the student break assignments into smaller steps.
- Arrange worksheet problems from most straightforward to hardest.

## Completing tests and assignments

- Grade the student on the content that needs to be mastered, not on spelling or reading fluency.
- Allow understanding to be demonstrated differently, like oral reports, posters, and video presentations.
- Provide different ways to respond to test questions, like saying the answers or circling an answer instead of filling in the blank.
- Provide extended time for taking tests in a quiet room, if needed.

# Auditory Processing Disorder (APD)

**When discussing (dyslexia and dyscalculia), it is necessary to mention two disorders that may accompany them, namely, auditory processing disorder (APD) and visual processing disorder (VPD).**

Auditory processing refers to difficulties in the brain interpreting or processing speech information when the sound is heard and clear.

Defects in auditory processing can impair speech and language directly, but they can also affect other areas of learning, particularly reading and spelling. When school teaching focuses primarily on spoken language, an individual with an auditory processing problem may have difficulty understanding the lesson or directives.

Children's phonemic awareness must be cultivated early through songs and numerous language

games to prepare them for reading and writing. Phonemic awareness is developed through the spoken study of language sounds rather than through the use of written letters.



**According to the National Council of Health in the United States, 43% of children with learning difficulties also have an auditory processing disorder, and 25% of the children examined have dyslexia and an auditory processing disorder.**

The reason for this condition is unknown, although it affects people of all ages and various ways.

## **Some auditory processing disorder symptoms:**

- Difficulties following verbal instructions, particularly those requiring several stages
- Difficulty following a discussion, mainly when there are multiple speakers or background noise.
- Easily distracted by background noise or loud noises that come out of nowhere
- Difficulty remembering specific specifics of what is read or said
- Problems with reading or spelling, which both require sound processing
- Difficulty in conversing and taking longer to answer while someone is speaking, with the speaker frequently being requested to repeat what they said
- Difficulty identifying the source of sounds or speech



## Types of Auditory Processing

|                                              |                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Auditory Discrimination</b>               | <p>Auditory discrimination is the ability to recognize, compare and distinguish between distinct and separate sounds.</p> <p>Similar words or sounds may be confused, for instance, SHOOT/BOOT or SH/CH. As a result, the child can find it challenging to follow instructions, read, spell, and write.</p> |
| <b>Auditory Memory</b>                       | <p>Auditory memory is the ability to store and recall information given orally. A student with difficulties in this area may not be able to follow instructions given orally or have trouble remembering information from a story read aloud.</p>                                                           |
| <b>Auditory Sequencing</b>                   | <p>Auditory sequencing is the ability to remember or rearrange items in a list or arrange the sounds in a word or syllable. Example: Saying or writing the word 'ephelant' for 'elephant'</p>                                                                                                               |
| <b>Auditory Mixing</b>                       | <p>Auditory blending is the process of assembling phonemes to form words. For example, the single phonemes "c," "a," and "t" are mixed from the word "cat."</p>                                                                                                                                             |
| <b>Auditory Figure-Ground Discrimination</b> | <p>It is the ability to focus on the essential sounds (what the teacher is reading or saying) in a noisy setting.</p>                                                                                                                                                                                       |

## The relationship between dyslexia and auditory processing disorder (APD)

Dyslexia and auditory processing disorder share many of the same symptoms, but they are different disorders that specialists must diagnose, and intervention methods must be specific to each.

## The difference between Dyslexia and APD

### Dyslexia is

a difficulty processing language

### APD is

a difficulty processing sounds

**This difference has important implications and should not be taken lightly: The dyslexia intervention methods should not be used with a student who has APD and vice versa unless the student has both dyslexia and APD.**

Dyslexia is a language-dependent learning difficulty often associated with slow or inaccurate reading, poor spelling, poor writing, or mixing up similar words. There is significant research evidence that the primary deficit in many children with developmental dyslexia is a deficit in phonological processing. This contributes to the difficulty in understanding how words are made of sounds (phonemes) and how these sounds map to their written counterparts (writing letters).

APD is a sound-processing defect in the central auditory nervous system that results in the brain's inability to process sounds and language accurately and efficiently. This can make it difficult for the student to distinguish minor phonemic differences within words, remember what was heard, and keep up with continuous speech, especially when there is noise or when more than one person is speaking. When a student

asks to repeat what the teacher says, it often has nothing to do with reading or spelling, but it is a big red flag that the student is having difficulty processing spoken language.

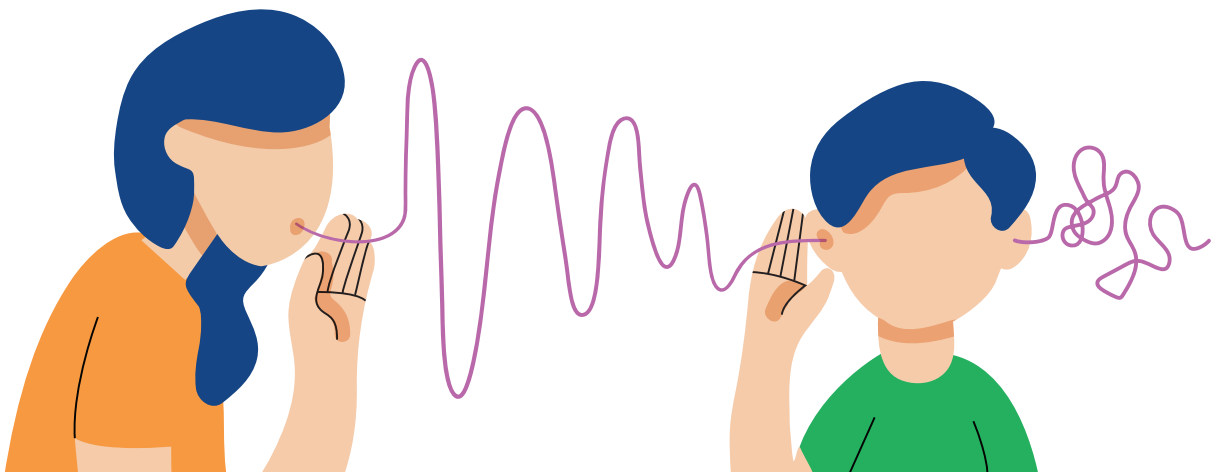
## Diagnostic process

Dyslexia is usually diagnosed by psychologists, psychometrics, or speech-language pathologists, psychologists, or speech-language pathologists.

Only an **audiologist** can examine the central auditory nervous system and diagnose an APD.

## Treatment

It is essential to make the correct diagnosis so appropriate interventions can occur. Treatment for an APD varies based on each child's specific auditory processing defects. Students with dyslexia need intensive treatment and specialized reading education programs; the most famous is the Orton Gillingham Program.





# Accommodations for Students with Auditory Processing Disorder

## Classroom seating, materials, and routines

- Provide a quiet area for independent work.
- Let the student sit near the teacher and away from auditory distractions, like doors and windows.
- Check in frequently to make sure the student understands the work.
- Provide an assistive listening device to make it easier to distinguish the teacher's voice.
- Giving instructions and assignments
- Give step-by-step instructions, and have the student repeat them.
- Use attention-getting phrases like "This is important to know because...."
- Say directions, assignments, and schedules out loud, and rephrase as needed.

- Decide with the student on a nonverbal signal to show that a key point is being made.
- Repeat key information throughout the lesson, and rephrase as needed.
- Use visual tools, images, and gestures to enhance and support spoken lessons.
- Break down test or classwork instructions into short, written steps.
- Highlight keywords and ideas on worksheets.
- Give written homework instructions.
- Provide a list of homework assignments for the week (or day).

## Introducing new concepts/ lessons

- Speak clearly and slowly when presenting new information.
- Give material on a new concept to the student before

it's taught to the whole class (so the student can get familiar with it ahead of time).

- Give a list of or highlight key vocabulary and concepts for upcoming lessons.
- Give a short review or connection to a previous lesson before teaching something new.
- Give the student an outline of the lesson.

## Evaluation

- Break test or class assignment instructions into short written steps
- Give the student extra time when taking the test
- Assign a grade based on the student's completion of the lesson objective (For example, do not flag misspellings if it is not the spelling skill being tested)

# Visual Processing Disorder (VPD)

Visual processing disorder can cause issues with how the brain processes visual information (written symbols) and can cause difficulties in learning mathematics and reading.

There are different visual processing difficulties, each with its symptoms. An individual can have more than one type of

visual processing difficulty.

It's also important to note that many people with no VPD have learning and behavior problems from time to time. However, if the student has these difficulties persistently and over an extended period, trained professionals should consider testing him for VPD.

Since misdiagnosis of this disorder is not rare, a behavioral optometrist should be consulted, and the condition should not go untreated.

Here are the eight types of visual processing disorders (remember that a child may have any combination of these forms of VPD):

| Types of Visual Processing Disorders                                                                                    |                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Visual Discrimination</b></p> <p>The skill to see the difference between similar letters, shapes, or objects</p>  | <p>The child may not see the difference between similar shapes. For instance, he may mix up or may not know the difference between a circle or an oval.</p>                                                                                                                                             |
| <p><b>Visual Figure-Ground Discrimination</b></p> <p>The skill to distinguish a shape or letter from its background</p> | <ul style="list-style-type: none"> <li>• He cannot find a specific piece of information on a printed page full of words and numbers</li> <li>• He may not be able to find particular information on a web page.</li> </ul>                                                                              |
| <p><b>Visual Sequencing</b></p> <p>The skill to see shapes, letters, or words in the correct order.</p>                 | <ul style="list-style-type: none"> <li>• He finds it hard to stay in the right place while reading a paragraph. Example: skip lines, read the same line multiple times</li> <li>• He finds it difficult to understand mathematical equations.</li> </ul>                                                |
| <p><b>Visual-Motor Processing</b></p> <p>The skill to use what one sees to coordinate movement.</p>                     | <p>The child finds it hard to:</p> <ul style="list-style-type: none"> <li>• Write within the lines or margins of a piece of paper</li> <li>• Copy from the whiteboard or a book</li> <li>• Move without bumping into objects</li> <li>• Participate in sports that require precise movements</li> </ul> |

Both children and adults can with VPD can show some or all of these symptoms.

### Some symptoms of auditory processing disorder

- Confusing similar words
- Forgetting letters, numbers, and words easily
- Reverse letters or numbers
- Poor reading comprehension
- Making mistakes in copying
- Poor spelling skill
- Difficulty telling time or understanding the concept of time

- Handwriting is crooked or poorly spaced
- Difficulty following multi-step directions

|                                                                                                                                           |                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Visual Closure</b></p> <p>The skill to know what an object is even when the thing is only partially visible</p>                     | <p>The child shows difficulties in identifying, for example, a picture of: a car without tires, a word missing one letter, a face without a nose</p>                                                                                                 |
| <p><b>Visual-Spatial Issues:</b></p> <p>The skill of understanding where objects are in space and how close things are to one another</p> | <p>The child has trouble:</p> <ul style="list-style-type: none"> <li>• Moving from one place to another</li> <li>• Spacing letters and words on paper</li> <li>• Reading maps</li> <li>• Estimating time</li> </ul>                                  |
| <p><b>Letter and Symbol Reversal</b></p> <p>This sort of disorder can make reading, writing, and math work difficult.</p>                 | <p>The child switches numbers or letters when writing or may mistake "b" for "d" or "w" for "m."</p>                                                                                                                                                 |
| <p><b>Long- or Short-Term Visual Memory</b></p> <p>The skill to see the difference between similar letters, shapes, or objects</p>        | <p>The child has problems in:</p> <ul style="list-style-type: none"> <li>• Spelling familiar words</li> <li>• Reading comprehension</li> <li>• Using a calculator or keyboard quickly and accurately</li> <li>• Remembering phone numbers</li> </ul> |

## The importance of visual processing in a student's life

Visual processing is the brain's ability to interpret the information it receives through the sense of sight. Therefore, it is an essential skill that helps us understand the world around us and participate in what is going on in it. As adults, we often overlook how fortunate we are to have this ability and never struggle.

But life is a difficult battle for the student who has difficulty visual processing and has to achieve success in studies and have friends to play with and prove to himself and others that he is capable of competition and distinction. Good visual processing skills are essential for many everyday skills such as reading, writing, solving puzzles,

cutting, drawing, completing math problems, getting dressed, and finding socks on the bedroom floor, among many others. Without the ability to meet these daily tasks, the child can become anxious and lose confidence.

Visual-spatial processing, one of the types of this processing, enables the child to know the location of objects in space, including his body. It also includes seeing how far things are from him and each other. For example, for a child to understand the shape-based difference between the letter W, the letter M, the number 6, and the number 9, he needs this skill. Without it, the child will struggle while performing the required academic tasks because he cannot maintain his focus for a long time and does not have

organizational skills. Work that requires eye-hand coordination exhausts him.

The difficulty in this field is not limited to creating academic problems in learning reading and mathematics but also essential life matters. The child needs this skill in tying his shoelaces, following the dance steps he sees on TV, and not disturbing others by bumping into them. As for adults, they need this skill to read the map and find the destination and other necessary life things.

We reiterate the importance of diagnosis by specialists and early intervention by the school and parents to help students who have any of these disorders grow and develop and give them a chance for success and happiness in life.





# Accommodations for Students with Visual Processing Disorder

## Classroom materials and routines

- Post visual schedules, but also say them out loud.
- Describe visual presentations aloud and/or provide narration.
- Build in time to summarize the important information from each lesson.
- Provide uncluttered handouts with few or no nonessential images.
- Use a reading guide strip or a blank index card to block out other lines of text while reading.
- Provide a highlighter to use to highlight information while reading.
- Provide a slant board (or three-ring binder) to bring work closer to student's visual field.
- Provide graph paper (or lined paper to be used sideways) to help line up math problems.
- Use audiobooks or text-to-speech software.
- Provide wide-ruled paper and darken or highlight lines and margins to help form letters in the right space.
- Provide a note-taker or a copy of class notes.
- Have loop scissors available to make it easier to control cutting and following a line.
- Provide colored glue sticks to use on white paper.
- Use Wikki Stix to create a border for areas to color or glue.
- Give directions and assignments out loud.
- Include simple diagrams or images to help clarify written directions.
- Write directions in a different color from the rest of an assignment (or highlight them).
- Clearly space words and problems on a page.
- Use highlighting or sticky-note flags to draw attention to important information on worksheets.
- Allow time for the student to ask questions about directions.

## Completing tests and assignments

- Allow oral reporting instead of written responses.
- Allow the student to submit answers on a separate sheet of paper rather than on fitting them into small spaces.
- Reduce visual distractions by folding a test or using blank pieces of paper to cover up part of the page.
- Provide extended time on tests.
- Provide a quiet room for tests if needed.

# Dysgraphia

Dysgraphia is a learning difficulty that affects writing abilities. It can manifest itself as difficulties with spelling, poor handwriting, and trouble putting thoughts on paper.

## There are three types of dysgraphia a child may experience:

### Dyslexia Dysgraphia

Children with this variety of dysgraphia struggle to write words unless traced or copied. Writing skills tend to decline as the word, sentence, or assignment continues. Poor spelling can also be a challenge. However, fine motor skills and drawing are usually unaffected.

### Motor Dysgraphia

as you may have guessed by the name, this form of dysgraphia significantly affects fine motor skills and often leads to illegible handwriting. Also, with this type of dysgraphia, drawing and copying skills can suffer. Thankfully, spelling skills are typically unaltered.

### Spatial Dysgraphia

this condition causes difficulty in the spatial relationship between the writing tool and the medium,

such as paper or a whiteboard. This spatial reasoning issue affects handwriting skills, note-taking, copying, and drawing. However, fine motor skills and spelling remain average.

Dysgraphia can cause different symptoms in children at different ages, depending on the writing difficulty. Some people may only have poor handwriting or spelling, while others have both.

## Commonly seen symptoms of dysgraphia include:

- Illegible or poor handwriting, or an inability to form letters
- Mixing of upper- and lower-case letters, or print and cursive writing
- Writing problems like unfinished letters, words, or sentences
- Complaining of pain while writing (often from an awkward pencil grip)
- Mismatched sizes and spaces between words and letters
- Difficulty spelling, which can indicate dyslexic dysgraphia
- Trouble thinking and writing at the same time

- Frequent erasing
- Unusual positioning of the wrist, paper, or body when writing
- Holding and managing a writing tool

## Effects of the difficulty of writing on the student's life:

**Even in the digital age, handwriting is an essential skill for success in school and beyond. The challenge of living with a difficulty in writing can lead to anxiety and low self-confidence.**

**Furthermore, handwriting helps the brain remember, organize, and process information. When the physical act of writing is tough, a child cannot «show what they know» effectively. Students may fail a test simply because they find it challenging to write their thoughts on paper.**





# Accommodations for Students with Dysgraphia

## Classroom materials and routines

- Provide pencil grips or different types of pens or pencils to see what works best for the student.
- Provide handouts, so there's less to copy from the board.
- Provide typed copies of classroom notes or lesson outlines to help the student take notes.
- Provide extra time to take notes and copy material.
- Provide graph paper (or lined paper to be used sideways) to help line up math problems.
- Provide paper with different-colored or raised lines to help form letters in a suitable space.
- Allow the student to use an audio recorder or a laptop in class.

## Giving instructions

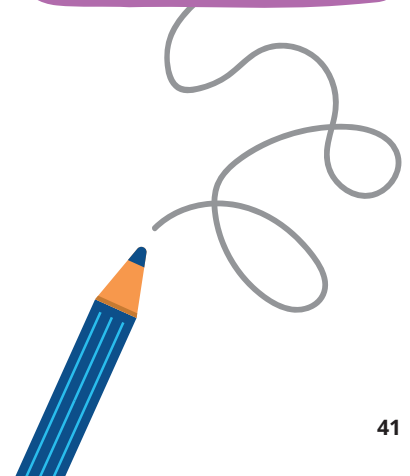
- Provide paper assignments already filled in by name, date, title, etc.
- Provide information needed to start writing assignments early.
- Help the student break writing assignments into steps.
- Provide a rubric and explain how each step is graded.
- Give examples of finished assignments.
- Offer alternatives to written responses, like giving an oral report.

## Completing tests and assignments

- Adapt test formats to cut down on handwriting. For example, use "circle the answer" or "fill in the blank" questions.
- Allow a "proofreader" to look for errors.

- Grade based on the student's knowledge, not handwriting or spelling.
- Let the student print or use cursive for handwritten responses.
- Provide extended time on tests
- Provide a quiet room for tests if needed.

**Note: There are few studies on the number of individuals who have dysgraphia, but some specialists estimate that the rate ranges between 5%-10%, and others 17%.**



# Written Expression Disorder

Written expression disorder is a difficulty learning to write but does not involve technical skills such as spelling and handwriting (difficulties in these skills are included under the term (dysgraphia). Students with this disorder find it challenging to put their thoughts into writing. They may have great ideas but make frequent mistakes in grammar and punctuation.

## Some manifestations of the disorder

- Words that are misused or that have the wrong meaning
- The exact words used over and over
- Basic grammar mistakes, like missing verbs or incorrect noun-verb agreement
- Sentences that don't make sense
- Disorganized essays and papers
- Written work that seems incomplete
- Missing facts and details
- Slow writing and typing

## Some behavioral manifestations

- Giving excuses and trying to avoid doing clerical work
- Complaining about not being able to think about what to write or not knowing the starting point
- Sitting at the study table for a long time without writing anything
- Finish the written assignment quickly and do not review it before submitting it

## Important information about this disorder

- Often also occurs with other learning challenges. The two most common are dyslexia and attention deficit hyperactivity disorder.
- Children do not outgrow written expression disorder. It lasts a lifetime and is caused by differences in the brain.
- There are no comprehensive tutorials available commercially for writing difficulties. But some strategies and techniques

8% - 15%

**Not many people know about this disorder, although it is more common than dyslexia. Experts believe that 8% - 15% of people have this disorder.**

can help people manage challenges and improve their skills.

- Writing disabilities can be assessed in people of any age, but assessment methods are different for children than adults.
- School psychologists, clinical psychologists, speech-language pathologists, and neuropsychologists carry out the assessment process.
- Writing expression disorder affects learning. It can make some tasks at work difficult. But it is essential to realize that people with specific learning disabilities are just as intelligent as others.



## Accommodations for Students with Written Expression Difficulties

- Additional time for writing assignments
- Alternative means of assessing knowledge (e.g., oral reports or visual projects)
- Use of organizational assistive software
- Marks for spelling are only deducted when the spelling is an essential skill required for the task
- For students who cannot keep up with note-taking from a blackboard, provide a copy or outline
- Use of a digital recorder to dictate thoughts or answers
- Use of a scribe or speech-to-text assistive software
- Use of word prediction or spell checker software



# Developmental Coordination Disorder (DCD)

The differences in the terminology used by specialists are apparent in the differentiation between the so-called «dyspraxia» and «developmental coordination disorder» as they are used by some specialists, especially in England, as alternatives. While many specialists confirm a big difference between them, the disorder is a specific and official condition, but dyspraxia is not.

**5%** of the population have Developmental Coordination Disorder

**Developmental Coordination Disorder (DCD) is a neurodevelopmental disorder that makes learning coordination and motor skills challenging. These include:**

## Fine motor skills

to make small movements such as using a pencil

## Gross motor skills

to make large movements such as kicking a ball

## Movement planning

for multi-step tasks such as lacing shoes

Difficulties with motor skills can affect learning, work, and daily life. But people with DCD are just as smart as others. There are many ways to help at home and school.

At least 5 percent of children have this disorder, which is more common in boys than in girls. Children cannot outgrow this disorder but can improve their motor skills.

## Effects of Developmental Coordination Disorder on the Student:

### Inside school

It negatively affects learning skills, including writing, taking notes, completing homework, and keeping up with classroom lessons.

### Out of school:

creates challenges in everyday life as well. A student's motor planning problems make it difficult for them to learn the steps of self-care measures, such as brushing teeth and getting dressed. A balance problem may make it difficult for him to sit down and eat properly.

## The relationship between Dysgraphia and Developmental Coordination Disorder:

They are both learning difficulties and cause writing problems, but they are different difficulties even though they may be in the same child. Class teachers must understand that they can use the following accommodations to help the student.



# Accommodations for Students with Developmental Coordination Disorder



## Classroom seating, materials, and routines

- Seat the student closer to the board, teacher, and/or another student who could help.
- Adjust the chair and/or desk height to ensure the student is positioned correctly for desk work. (Feet flat on the floor, shoulders relaxed, and forearms supported on the desk.)
- Allow the student to work in different positions, like standing.
- Provide a slant board (or large three-ring binder) for a sloped writing surface.
- Provide different writing tools (thin markers, gel pens, etc.) to reduce pencil pressure.
- Provide pencil grips.
- Provide special paper as needed, like raised-line paper or graph paper.
- Give the student an end locker or cubby and teach locker-opening skills.
- Give breaks so the student can move around a few times a day.
- Give extra time to get from class to class.
- Build in extra time to get changed for gym and ready for recess.
- Have the student dictate to a scribe or use speech-to-text software.
- Give outlines of diagrams or maps, so the student only needs to mark what's being taught.
- Allow the student to use a computer for written assignments.
- Allow oral answers on tests.
- Provide checklists, rubrics, and visual direction cards.

## Giving instructions and assignments

- Give teaching notes ahead of time or have a note-taking buddy.
- Use worksheets that reduce the need to copy, like fill-in-the-blanks or matching.
- Use larger print for worksheets, notes, and textbooks.
- Provide extra time for tests and writing assignments.

## Introducing new concepts/ lessons

- Provide extra time to complete work.
- Give directions slowly and in short sentences.
- Pre-teach physical skills in small parts.
- Teach specific handwriting strategies that show how to print letters consistently.



# Dyscalculia

Arithmetic difficulty is a disability in learning mathematics that impairs an individual's ability to understand concepts related to numbers, perform accurate mathematical calculations, solve causes and problems, and perform other basic math skills .

This difficulty is not as well understood as dyslexia, but it is believed by many professionals to be expected.

Problems in mathematics can appear in different ways; the signs may vary from person to person and age. Number sense problems may appear early, such as in preschool, in some children

**5% - 10%**  
of the population  
have dyscalculia

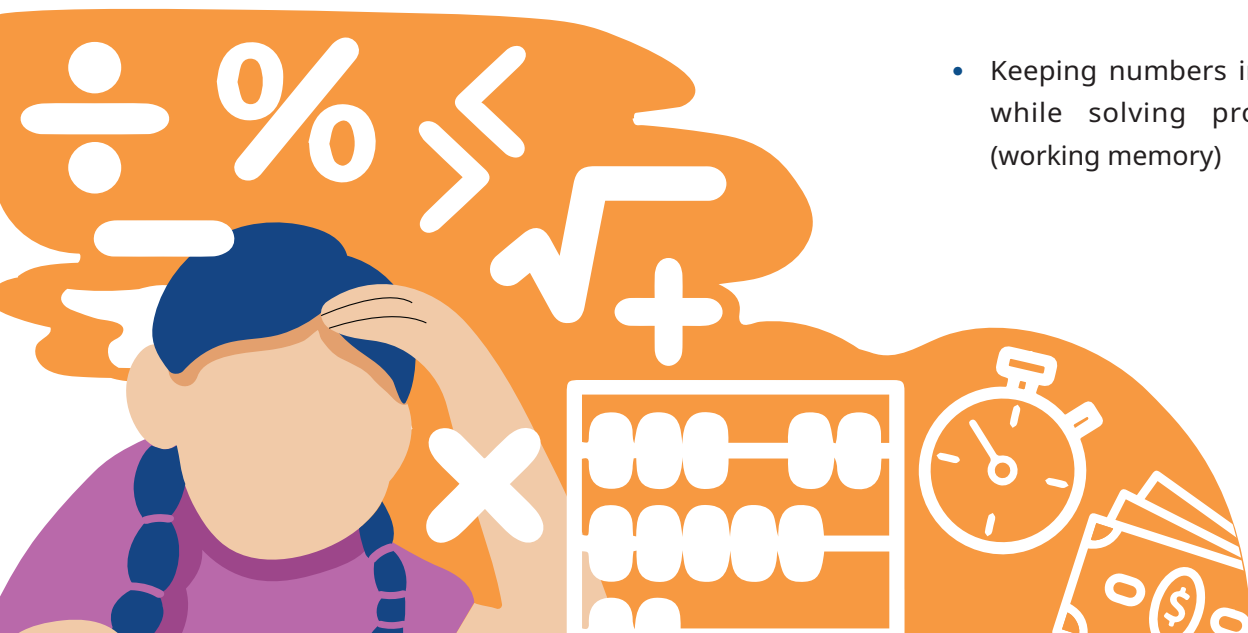
but become more noticeable as math becomes more complex in school.

Learning disorder complicates everyday aspects of life that involve mathematical concepts such as telling time, counting money, and doing mental arithmetic.

It is not clear whether dyscalculia is as common in girls as it is in boys. Most experts believe that there is no difference. (It's also a myth that boys are better at math than girls.)

## Some signs of dyscalculia

- Understand the meaning of quantities or concepts such as greater versus less
- Understand that the number 5 is the same as the word five and that both mean five elements
- Remember math facts, such as multiplication tables
- Counting money and knowing the parts of a dinar, for example
- Estimating time
- Judging speed or distance
- Understand the logic behind mathematics
- Keeping numbers in mind while solving problems (working memory)





# Accommodations for Students with Dyscalculia

## Classroom materials and procedures

- Review what the student has already learned before teaching new skills
- Teaching the student to “talk to oneself” through problem-solving
- Use graph paper to help arrange numbers and math problems
- Using materials such as coins and cubes to teach math ideas
- Check frequently to make sure the student has understood what you have explained
- Use concrete examples that connect mathematics to real life
- Use catch-all statements such as, “It is essential to know because...”
- Use graphic organizers to organize information or help

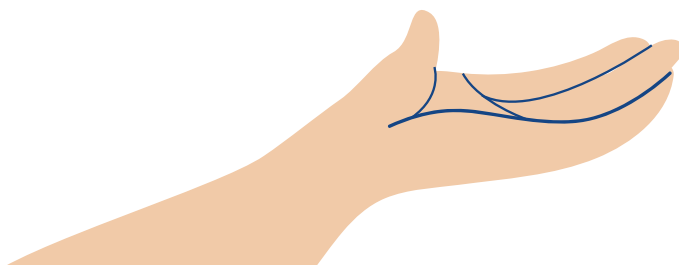
break math problems into steps

- Give the student a list of the mathematical formulas that are taught in the classroom

## Instructions, explanation of tasks, and assessment of learning

- Prepare separate worksheets for number problems and word problems
- Give step-by-step instructions and ask the student to repeat them
- Using hand tools to teach math manipulatives when solving problems
- Give a rubric evaluation form describing the elements of the task
- Provide charts of mathematical facts or multiplication tables

- Circle the main words and numbers in word problems
- Use an extra piece of paper to cover most of the math or test paper to make it easier to focus on one problem at a time
- Giving more space to write problems and solutions
- Divide the worksheets and give them to the student in batches
- Giving extra time in exams
- Allow the student to use the calculator when arithmetic is not what is being assessed



## **Section Two:**

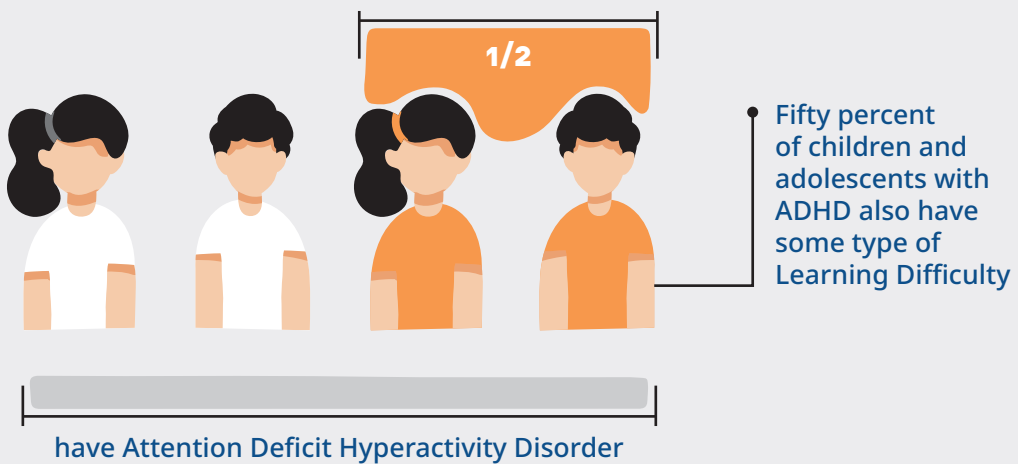
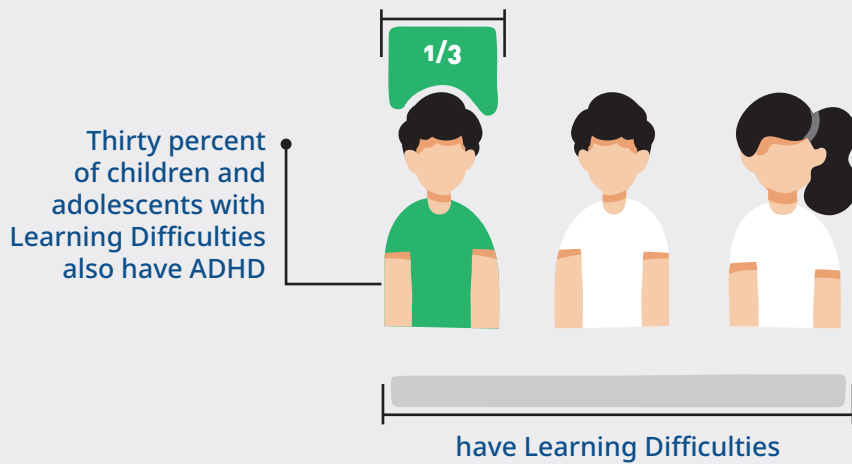
### **Disorders that Could Coexist with Learning Difficulties**

**Attention Deficit Hyperactivity Disorder (ADHD)**

**Executive Dysfunction or Executive Functions Issues**



## The relationship between Learning Difficulties and Attention Deficit Hyperactivity Disorder



# Attention Deficit Hyperactivity Disorder (ADHD)

One of the most common mental disorders affecting children and also affecting many adults are of three types.

**There are three different types of ADHD, depending on which types of symptoms are strongest in the individual:**

**1. Predominantly Inattentive Presentation**

Because symptoms can change over time, the presentation may also change over time.

**2. Predominantly Hyperactive-Impulsive Presentation**

It is usual for children to have difficulty concentrating and moving around at one point or another. However, the word «disorder» is only mentioned when a specialist diagnoses the child. Many children lack focus or movement and do not have a disorder.

**3. Combined Presentation: Symptoms of the above two types are equally present in the person.**

| Symptoms of Attention Deficit Hyperactivity Disorder                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Symptoms of attention-deficit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | The main signs of hyperactivity and impulsivity                                                                                                                                                                                                                                                                                                                                               |
| <ul style="list-style-type: none"> <li>• Short periods of attention and concentration and ease of distraction</li> <li>• Making mistakes due to negligence - for example, in school work</li> <li>• Frequent forgetting or losing things</li> <li>• Inability to commit to arduous or time-consuming tasks</li> <li>• Inability to listen to or carry out instructions</li> <li>• Jump from one task to another before completing any of them</li> <li>• Difficulty organizing such as tasks and objects</li> </ul> | <ul style="list-style-type: none"> <li>• Inability to sit still, especially in quiet surroundings</li> <li>• Constant restlessness Inability to focus on tasks Excessive physical movement</li> <li>• Excessive speech and interruption of other people's speech</li> <li>• Inability to stand and wait</li> <li>• Acting without thinking</li> <li>• Little or no sense of danger</li> </ul> |

## Notes on ADHD

Symptoms of the disorder are well-defined, are usually noticed before age 6, and occur in more than one setting, such as home and school. It may also become more evident when a child's circumstances change, for example, when they attend school.

Most cases can be diagnosed when children are 3 to 7 years old, but sometimes it's diagnosed later in childhood. People with ADHD may also have additional problems, such as sleep disturbances and anxiety.

Children with ADHD may also struggle with low self-esteem, troubled relationships, and poor performance in school.

Symptoms sometimes lessen with age. However, some people never completely outgrow their ADHD symptoms. But they can learn strategies to be successful. While treatment won't cure ADHD, it can help with symptoms. Treatment typically involves medications and behavioral interventions. Early diagnosis and treatment can make a big difference in the outcome.

### Treatment

Treatment can help relieve symptoms and reduce problems in daily life.

The decision to resort to treatment that includes medication and behavioral therapy is the guardian's responsibility.

### The treatment that the school can offer to mitigate the impact of the disorder on the learning process is:

#### First:

behavioral classroom management and organizational training provided by trained teachers or the school's psychological supervisor

#### Second:

Accommodations support services offered by the classroom teacher





# Accommodations for Students with ADHD

## Class materials and procedures

- Giving the child the opportunity to vent excess kinetic energy by providing flexible seats, such as rocking chairs
- Increase the space between desks or work tables and allocate a quiet workspace in the classroom
- Set up seating near the teacher and away from high traffic areas
- Publish a written schedule of daily rules and regulations and inform the student in advance of schedule changes

## Building organization skills

- Allocate a notebook to write homework and allow the student to use the electronic calendar
- Providing an additional set of books to be kept by the student at home
- Provide special boxes to store small items such as pens, sharpeners, etc., to keep the lesson table organized
- Encouraging the student to assign a specific color for each subject

- Provide written notes or lesson planners to assist the student in taking notes
- Teach note-taking strategies, such as using graphic organizers and mind mapping software
- Asking a colleague to take notes for the student

## Giving instructions

- Give the directions in writing or say them out loud and ask the student to repeat them
- Provide an outline of the lesson detailing instructions and assignments

- Make instructions simple, straightforward, and concrete
- Use pictures and diagrams to help create visual interest
- Provide an evaluation form that describes the elements of a completed task
- Help the student break down long tasks into smaller parts

## Evaluation

- Allow the student to demonstrate understanding in various ways, such as oral reports, posters, and video presentations

- Offer different ways to respond to test questions, such as an oral answer, a line, or a circle around the correct answer
- Reduce the number of questions per worksheet
- Schedule frequent short exams, rather than one long exam at the end of each unit
- Giving the mark on the content of the answer and not on the line or the arrangement of the paper
- Giving extra time and a quieter place to work and take exams

## Behavior management

- Use a behavior plan with a reward system
- Use a nonverbal signal (such as a sticky note that you place quietly in front of the student or place your hand on the student's shoulder to get attention or signal that they should take a break from work)
- Talk to the student about behavioral problems face to face
- Checking frequently to monitor the student's psychological state and level of frustration

## A mother's letter to her son's class teacher

Please know that my son's joking in class is a way to get attention and a desperate attempt to make him feel accepted by his peers, who see him as immature and annoying. He suffers because they don't invite him home, don't want him on their sports teams, and don't share messages with him on his mobile. No matter how confident they may seem, don't be fooled. This is his natural defense mechanism to convince himself that he is great.

I hope you know how stressful school and study are for my son; when you show him your disappointment with him, he will feel it very strongly because he does not want to disappoint you. He takes it hard when his inner voice tells him he's a failure and not worthy.

I wish I knew my son didn't want to misbehave. What appears to be misconduct may be due to exhaustion, frustration, or embarrassment. If he feels any

of these feelings.

I hope I knew that getting his full attention, even by saying his name, before starting to give instructions makes the difference between hearing everything you say or only part of it.

I wish you knew how long it takes my son to complete his homework. When we ask teachers to reduce the amount of homework, we don't mean to take responsibility for him. Still, we want our child to feel confident about his ability to complete the work rather than feeling incapable.

I hope you know that big tasks or projects overwhelm him. The more you can break projects down into smaller tasks, the more likely they will be successful.

I want to express my thanks and appreciation to you for the difficult work that you are doing, which requires courage and patience. Your understanding and support for my son and me will never be forgotten.

# Executive Dysfunction/ Executive Function Issues

**Doctors have always understood hyperactivity and impulsivity. However, the understanding of inattention has shifted to a broader concept called executive dysfunction. Dr. says. Russell Barclay, the world's leading expert on ADHD, says it is likely that «Executive Dysfunction» is the root cause of ADHD.**

## What is executive functioning?

Executive functioning refers to the cognitive and mental abilities that include three skills:

**Working Memory**

**Flexible Thinking**

**Self-control**

Which helps people engage in goal-directed action. They direct actions, control behavior, and motivate us to achieve our goals and prepare for future events. People with executive dysfunction struggle to organize and regulate their behavior in ways that will help them accomplish long-term

goals. While Dr. Russell prefers to use "Executive Dysfunction," other specialists prefer "Executive Functioning Issues or Challenges." They argue that there is no diagnosis called "executive function disorder," and it is not mentioned in the DSM-5, the manual used to diagnose conditions.

**The dysfunction appears as a deficiency in:**

**Focusing  
Following directions  
Planning  
Organizing  
Managing time  
Dealing with feelings  
Problem-solving**

## Importance of Executive Function

Executive Dysfunction is not a medical diagnosis. Some describe the executive function as "the brain's management system." That's because the skills involved let us set goals, plan, and get things done. When

people struggle with executive function, it impacts them at home, at school, and in life. A student who struggles with executive function skills is at risk of dropping out of school or having depression and anxiety.

Large numbers of students who do not have a learning difficulty or ADHD who are described as neurotypical may have impairments in one area of executive function, especially «working memory,» at some point in their lives.

Difficulties with executive function skills can also be a symptom of many different disorders in childhood. For example, children with depression or anxiety often have trouble with administrative function skills, such as starting a task or working efficiently.

The skills associated with executive functioning do not develop all at once but rather in a sequence - building one skill on top of another. All skills interact, influencing how people organize their behavior to create positive future outcomes. These abilities begin to develop at two and are

fully developed by age thirty. During that, many students may lag behind their peers in the extent of the development of one of these skills, which affects their learning process and their psychological and social life.

### Some symptoms of Executive Dysfunction

- It isn't easy to start carrying out the task and does not know how to finish it
- Has difficulty organizing his thoughts (difficulty moving from one task to another)
- Needs external support and reminders more than peers
- Has no concept of time required to complete the task
- «Forgets» multi-step instructions shortly after giving them
- It shows a large discrepancy in the level of its performance in one day
- Cannot generalize lessons learned from one task or situation to another

- He strongly dislikes changing routines and directions and does not protect his personal belongings

### Treatment

Students with executive functioning disorder need help from specialists. Cognitive-behavioral therapy, used with medications to treat co-occurring conditions such as attention deficit hyperactivity disorder, can also be used. But it is also essential for the classroom teacher to provide support services that help these students.

The relationship of Attention Deficit Disorder to Executive Functioning

Children with ADHD often have difficulty with many aspects of executive functioning, and inattention and impulsivity are closely related to the executive functioning disorder. Example: A student with attention deficit disorder finds it difficult to follow instructions due to a weakness in one of his executive functions, which is working memory. Another example is when a

student makes mistakes that indicate neglect or appears indifferent to details. It may be because she has a weakness in one of the executive functions, self-control.

Also, problems with executive functioning are not limited to children who have ADHD. Many children with learning differences struggle with one or more basic skills.

For example, children with depression or anxiety often have trouble with executive functioning skills such as starting a task or working efficiently. Thus, far more children have functioning problems than children who have ADHD.

**Thus, the number of children who have difficulties in executive functions and do not have ADHD is much greater than those with ADHD**

# Executive Functions

## First: Working Memory

The main driver in the learning process

Working memory is a system that processes and uses short-term memory (verbal, visual, or spatial) information to accomplish a task.

10% of people have poor working memory

Working memory is not for short-term use only. They help the brain organize new information for long-term storage.

For example, solving a written math problem involves keeping the math problem details in the verbal short-term memory store while retrieving the basic math facts needed to perform problem-solving math from long-term memory.

Problems with working memory arise when: the brain stores information in a disorganized

20% - 50% of those with learning difficulties have impairment in this vital function

manner, making the stored information not make much sense because it has not been correctly packaged, or the brain may not keep it in a «long-term tank.” Therefore, poor working memory significantly impacts academic skills such as reading, mathematics, and social skills.

Mathematical Equation

There are 10 trees in a field, each tree has 5 apples, how many apples are there in the field?



From the Working Memory

multiplicat  
tab

$1 \times 5 =$   
 $2 \times 5 =$   
 $3 \times 5 =$





## Components of a working memory system

**1. Verbal short-term memory** contains information that can be expressed in numbers, words, and sentences.

## 2. Short-term visual and spatial memory

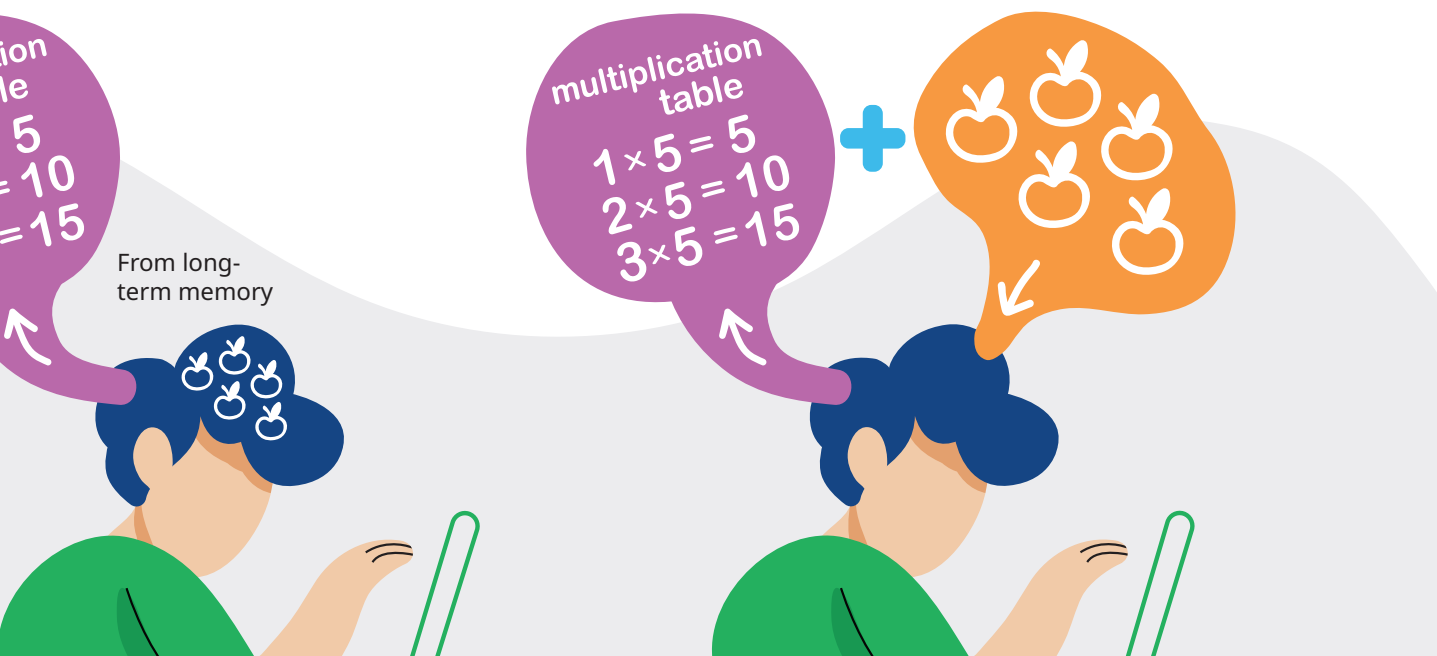
includes pictures, images, and information about the location.

## 3. Working memory

also includes an element that helps us resist distractions and maintain focus while doing a task that requires working memory.

## Symptoms of poor working memory

- The student's performance is below average in some or all areas of learning
- Having trouble with tasks that contain more than one step
- It stops working because it has lost track of what it was supposed to do
- Has a lack of skills in planning and organization
- Finds it challenging to apply what he learned in previous experience to a new situation
- Finds it difficult to remember all the steps in the verbal directions
- Has difficulty thinking and doing at the same time and has difficulty with complex thinking
- Appears very distracted and inattentive but is not impulsive or hyperactive
- Shows a lack of self-confidence and frequently daydreams
- He has relationships with peers but finds it difficult to follow conversations when he is among a group of them



## The difference between:

### Working Memory

### Short Term Memory

#### Short-term Memory

is the ability to hold, but not manipulate, a small amount of information in an active and readily available state for a short period (15 to 30 seconds).

#### Example:

When someone mentions their phone number in front of you, you keep the numbers in your memory as you press the phone buttons to make the call. You usually forget that number afterward.

#### Working Memory

is the short-term memory that is used to perform specific tasks.

#### Example:

The teacher instructs the student: "Sit down and take out the reading book and the writing notebook." The student may sit back and forget to take the book, notebook, or both.

## The difference between:

### Working Memory

### Attention

Attention and working memory are crucial to daily life and learning. Two aspects of executive functioning help us assimilate and understand new information. But while they are closely related, these functions are not the same.

**Attention allows information to be taken**

**Working memory helps the brain to understand it**

**Many children with learning difficulties have attention, problems with working memory, or both.**

## Accommodations for students with working memory defects

In-class accommodations that can benefit all students, not just those with poor working memory.

- Present information in several ways: orally, in writing, or in practice.
- Simplify information to facilitate its processing. Repeat information whenever needed.
- Reduce the amount of information students need to store. Write keywords, equations, or action steps on the whiteboard.
- Write the instructions simply and concisely and give students written copies.
- Divide the required task into parts and give it to students in batches.
- Allow students to use voice recorders to record lessons.
- Continuous encouragement and motivation are a great help for students.

## Second: Flexible Thinking

**Flexible thinking is vital in all types of learning in everyday life and school. It is for children to change the direction of their work, look at things differently, use different strategies to solve problems, and it includes the ability to «forget» the old ways of doing things.**



### Some examples of the role of flexible thinking in the learning process:

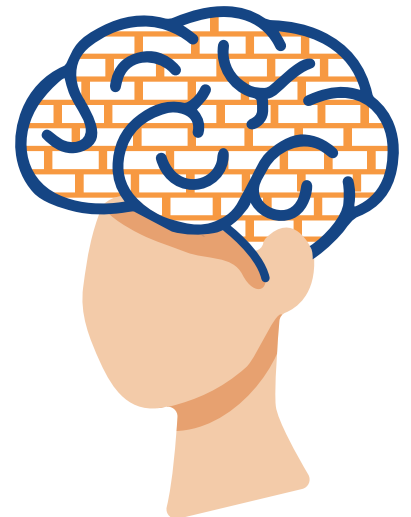
Writing is a complex process for children, so they must organize their thoughts and choose the appropriate words for the sentences. They should also add supporting details of the main idea and be able to check for grammatical and spelling errors. It all requires the skill of flexible thinking in terms of changing course, rethinking things, and letting go of other things.

Flexible thinking is an essential skill in mathematics. Children use it to find ways to solve word math problems and understand that a statement like «how long does he have» means that addition should be used.

Flexible thinking also helps children understand that there is more than one way to solve an arithmetic problem. They can see how a new type of problem can be solved using information and methods they learned before.

### Some symptoms of poor flexible thinking at home and school:

- Not accepting other people's ideas
- Argue the same point over and over
- Feeling frustrated when even small things go wrong
- Repeating the same mistakes
- Not adhering to the new schedules
- Worrying when plans change
- Having trouble switching from one activity to another
- Annoyance when others don't follow the rules



## Third: Self-Control

Self-control is a necessary executive function in school and everyday life that begins to develop in childhood and into your twenties.

### Self-control develops in three areas:

- Control of bodily movement (so that it is moderate and appropriate to the situation)
- Impulse control of speech and actions
- Emotional control so that the child can complete the work despite the discomfort

### When children experience self-control, they have more difficulty than their peers in managing these types of behaviors:

- Occurrence of tantrums or burst into tears for minor annoyances
- Interrupting others while talking and talking non-stop
- Being hyperactive or anxious, getting frustrated easily, and giving up quickly
- Taking other people's belongings without their permission first
- Difficulty taking turns and difficulty listening to criticism

### Some symptoms of poor flexible thinking at home and school:

- Not accepting other people's ideas
- Argue the same point over and over
- Feeling frustrated when even small things go wrong
- Repeating the same mistakes
- Not adhering to the new schedules
- Worrying when plans change
- Having trouble switching from one activity to another
- Annoyance when others do not follow the rules





# Accommodations for Students with Executive Dysfunction

## Class environment, schedules, and routines

- Put schedules, directions, class systems, and forecasts on the walls so that they are clear to all.
- Make the daily routine almost fixed so that it changes as little as possible.
- Provide necessary office supplies such as folders and others to help the student get organized.
- Give notice (when possible) about changes to the schedule.

## Giving the required instructions and tasks

- Give instructions and tasks step by step and aloud and asking the student to repeat them
- Use catch-all statements such as, "It is essential to know because..."

- Check frequently to make sure the student has understood what is being asked of them.
- Give simple and tangible written and spoken directions.
- Allow the student to use speech-to-text (dictation) technology to write.

## Introducing new concepts/ lessons

- Highlight keywords and ideas in worksheets.
- Give a brief review of the previous lesson before starting the new lesson.
- Give the student an outline of the new lesson.

## Evaluation

- Let the assessment of marks be based on the work done and not based on omitting marks on work points that have not been completed.

- Informing the student of the upcoming exam format so that the student can focus on the content.
- Allow the student to use different ways to answer the questions, such as saying it orally, circling or underlining the correct answer.
- Conduct with the student an evaluation form describing the elements of a successful assignment.

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**Contact  
Information  
for The  
Kuwaiti  
Association  
for Learning  
Differences  
KALD**

**Address**

Kuwait - Khaldiya  
Block 3 Street 33  
Building 15

**Numbers**

+965 2491 2963  
+965 6609 6581

**Email**

[info@kaldkuwait.org](mailto:info@kaldkuwait.org)

**Website**

[www.kaldkuwait.org](http://www.kaldkuwait.org)

