

## Deficits and How they Present

### **Information Processing Deficits:**

**Visual-processing or perceptual disorder** – hindered ability to make sense of information taken in through the eyes – not actual vision but problems in the processing of visual information by the brain.

Types of visual processing include: spatial perception, reversals, and figure-ground discrimination.

**Spatial perception** refers to the ability to accurately perceive objects in space with reference to other objects. It is the ability to discriminate right from left, top to bottom, and so on.

Lose their place while working on a worksheet or when reading a text

Hinders their ability to write in a straight line across the paper

Impact the directional aspects of mathematics such as the ability to solve problems involving single-digit addition (up-down), regrouping (left-right), the alignment of numbers, or using a number line

May have trouble with the concept of fractions as well as writing them, writing decimals, and find it hard to discern differences in size or shape.

**Reversals** – two types – student reverses digits or letters, creating a mirror image of a single digit, and the second when a student reverses the digits of a two-digit number.

Can cause problems with regrouping and transposing digits or letters.

**Figure ground** is the ability to identify an object from a background of other objects.

These students lose their place on a page

Mix up parts of different problems

Have difficulty reading a calculator

Difficulty reading multi-digit numbers

Difficulty copying symbols correctly

**Visual discrimination** – the ability to discern similarities and differences when comparing letters, numbers, and other objects. This includes distinguishing among common objects and symbols, color, form, shape, pattern, size, and position, as well as the ability to recognize an object as distinct from its surrounding environment.

Can cause students to have trouble identifying symbol

Difficulty gaining information from pictures, charts, graphs

Difficulty using visually presented material in a productive way

Trouble reading text, worksheets, or tests with too much information on one page  
Slow processing speed

The may not be able to tell the difference between a quarter and a nickel, the numbers 6 and 9, and the small hand on a clock and the large one  
These issues can result in interference with many mathematics skills such as measurement, estimation, problem solving, and geometry.

Overall: Difficulties reading out loud; loses their place in the text; will combine unrelated parts of sentences; copies problems or assignments incorrectly from the board; difficulty when taking math quizzes and tests – often uses information from one problem coupled with information from another problem on the same page to answer a questions; when setting up a number problem, they will often misalign numbers;

**Auditory processing** refers to an individual's ability to analyze, interpret, and process information obtained through the ear. It does not apply to what is received by the eardrum, or to deafness, or being hard of hearing.

Difficulty with phonological awareness, decoding

Difficulty paying attention in class

Difficulty making out the teacher's voice against the background noise from other students and difficulty discriminating between sounds of spoken numbers in class

Difficulty hearing the teacher when other students are shuffling their papers, opening their notebooks, or making other noises

Difficulty writing down math problems when dictated in class – will write down an incorrect number if it sounds like another number

Never remembers an assignment when told to them orally

Can cause problems with students ability to count in a sequence

Oral drills are challenging for these students

Have difficulties with decimals

Difficulties with using ordinal numbers

Difficulty learning vocabulary presented orally

Slow processing speed

**Memory** – difficulty remember information

They understand new information in class, but are uncertain how to proceed once they leave class

Have difficulties placing information in short-term memory and thus have problems later retrieving if from long-term memory

Can't easily retrieve needed information from long-term memory

Unable to retain mathematics facts or new information readily

Forget steps in algorithms such as long division, and have a hard time when solving multi-step word problems

Perform poorly when reviewing past material

Perform poorly when asked to complete a variety of problems on several different concepts

Have difficulties in matters related to time  
Might do well on daily quizzes, but has difficulty passing chapter exams containing this materials  
Difficulty remembering the writing process

**Motor** – motor skill deficiencies interfere with the ability to use and coordinate large and small body muscles in order to move and manipulate objects.

Work often looks sloppy as if it was completed quickly and without much effort  
Inability to write clearly interferes with accuracy so written work may not reflect understanding  
Difficulties writing in small spaces  
Become fatigued after writing  
Pace, neatness, and copying are problematic

**Attention** – difficulty maintaining concentration. Typical symptoms involve developmentally inappropriate levels of attention (predominantly inattentive, predominantly hyperactive-impulsive, combine – inattention, hyperactivity-impulsivity).

Not able to stick with tasks sufficiently to finish them  
Difficulty organizing and completing work correctly  
Students may actually be attending to too many things at once  
May give the impression that they are not listening or has not heard what has been said  
Work is often messy and performed carelessly and impulsively  
Difficulties maintaining attention to steps in algorithms or problem solving  
Difficulty maintaining attention to essential instruction  
Writing is disorganized

**Language Deficits:**

Expressive language – production of language that is understood by and meaningful to others

Inability to complete rapid oral drills  
Difficulty counting  
Difficulty explaining their thoughts orally  
Difficulty explaining how to complete a problem orally  
Uses incorrect grammar or syntax

Lacks specificity  
Jumps from topic to topic  
Has limited use of vocabulary  
Difficulty finding the right word to communicate  
Uses social language poorly  
Is afraid to ask questions  
Has difficulty discussing abstract, temporal, or spatial concepts  
Often does not provide enough information to the listener

Receptive language – the ability to understand what is meant by spoken communication

Difficulty relating words to meaning (connecting vocabulary words with an understanding of a mathematical concepts such as first and greater than)  
Difficulty with words that have multiple meanings  
Difficulty with writing notes or problems from dictation  
Difficulty following oral directions  
Difficulty solving word problems  
Become confused when irrelevant information is included in word problems  
Difficulty reading due to lack of comprehension of vocabulary  
Does not respond to questions appropriately  
Cannot think abstractly or comprehend abstractions as idioms  
Cannot retain information presented verbally  
Cannot recall sequences of ideas presented orally  
May confuse the sounds of letters that are similar  
Has difficulty understanding humor or figurative language  
Has difficulty comprehending compound and complex sentences  
Has difficulty comprehending concepts showing quantity, function, comparative size, and temporal and spatial relationships

Cognition and Metacognition Deficits:

Cognition as it refers to “understanding” is the ability to comprehend what you see and hear, and to infer information from social cues and body language.  
Metacognition emphasizes self-awareness of how one approaches a task in order to plan and monitor progress (thinking about your thinking)

Lack awareness of basic skills  
Lack awareness of strategies and resources to complete tasks  
Trouble selecting appropriate strategies to solve problems  
Difficulties identifying and selecting appropriate strategies

Difficulties organizing information  
Difficulty monitoring problem-solving processes  
Difficulty evaluating problems for accuracy  
Difficulty generalizing strategies to new situations  
Not able to adjust reading styles to accommodate the difficulty of the text  
Do not recognize that they are failing to understand what they are reading  
Difficulty selecting the main idea  
Difficulty summarizing  
Lack of strategies to use when planning, writing and revising written expression

Disposition Toward Learning (Behavior)