

Cognitive Ability	Academic Weakness	Interventions
General Information – Knowledge (Crystallized Intelligence)	Basic Reading Skills Reading Comprehension Written Expression Math Calculation Math Reasoning	Teach vocabulary; relate new information to already learned information; provide context and background; relate material to be learned to student interest and experiences
Fluid Reasoning	Reading Comprehension Written Expression Math Calculation Math Reasoning	Review and repeat material to be learned; use manipulatives; teach problem solving skills; guide learning step by step
Quantitative Reasoning (Ability)	Math Calculation Math Reasoning	Use manipulatives; teach problem solving; drill for automaticity on math facts; use practical, every day math; use calculators to teach, check work and when math concepts are the emphasis

Common Types of Learning Disabilities

Dyslexia	Difficulty processing language	Problems reading, writing, spelling, speaking
Dyscalculia	Difficulty with math	Problems doing math problems, understanding time, using money
Dysgraphia	Difficulty with writing	Problems with handwriting, spelling, organizing ideas
Dyspraxia (Sensory Integration Disorder)	Difficulty with fine motor skills	Problems with hand-eye coordination, balance, manual dexterity
Auditory Processing Disorder	Difficulty hearing differences between sounds	Problems with reading, comprehension, language
Visual Processing Disorder	Difficulty interpreting visual information	Problems with reading, math, maps, charts, symbols, pictures

An Educator's Guide

To

Processing Disorders: Cognitive Abilities

Summary of Cognitive Abilities

- **Auditory Processing** - discrimination, analysis and synthesis of auditory stimuli; perception and discrimination of speech sounds despite interfering background noise
- **Phonemic Awareness** - manipulation, analysis and synthesis of discrete sounds
- **Visual Processing** - (includes visual memory) perception, analysis and synthesis of visual stimuli; storage and memory of visually presented stimuli; mental manipulation of visual patterns
- **Long Term Retrieval/Memory** - storage and retention of information with ability to retrieve it at a later time
- **Short Term Memory** - processing and holding auditory information in awareness, then manipulating it within a few seconds
- **Processing Speed** - rapid cognitive processing without higher order thinking; attentiveness and fluency of simple information processing
- **Verbal Reasoning** - reasoning and comprehension using language, verbal expression, vocabulary
- **General Information/Knowledge** - acquired knowledge, long-term memory
- **Fluid Reasoning** - inductive and deductive reasoning, problem solving and concept formation on novel tasks that are nonverbal or limited in language demands
- **Quantitative Reasoning (Ability)** - understanding mathematical concepts and relations

Cognitive Ability	Academic Weakness	Interventions
Auditory Processing	Basic Reading Skills Reading Comprehension Written Expression	Review; repeat; multisensory teaching & learning strategies' provide meaning; limit amount of new information
Phonemic Awareness	Basic Reading Skills Spelling Written Expression Basic Writing Skills	Provide multisensory learning, class notes & study guides; use visual aids and graphic organizers, semantic or mental mapping techniques
Visual Processing	Not strongly related to achievement	Use manipulatives; teach verbal mediation of visual/spatial skills
Long Term Retrieval - Memory	Basic Reading Skills Reading Comprehension Written Expression	Review, repeat; multi sensory teaching & learning strategies; provide meaning; limit amount of new information
Short Term Memory	Basic Reading Skills Reading Comprehension Math Reasoning	Review & repeat; teach memory strategies; keep directions short; provide class notes; use audiotape recorder to record class notes
Processing Speed	Basic Reading Skills Written Expression Math Calculation	Provide extended time; emphasize quality over quantity; use flash cards and timed drills; teach skills to automaticity
Verbal Reasoning	Basic Reading Skills Reading Comprehension Written Expression Math Reasoning	Teach vocabulary; relate new information to already learned information; provide context and background