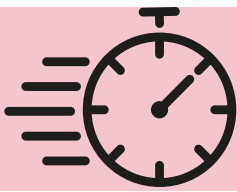


Cognitive Processing Speed (Gs)



Cognitive processing speed refers to the pace at which an individual can perceive and process information, formulate thoughts, and respond. It involves the ability to perform cognitive tasks quickly and efficiently.

Students with slow cognitive processing speed often exhibit a range of challenges, including taking longer to complete assignments, tests, and tasks compared to their peers, struggling to keep up with verbal or multi-step instructions, delayed response times when formulating and contributing responses, difficulty with timed tests and the pace of quick tasks, trouble processing information and taking notes simultaneously, slower reading fluency and comprehension, struggles with mental math and quick calculations, and becoming easily overwhelmed or fatigued due to the extra effort required, which can lead to difficulty sustaining attention.

GENERAL STRATEGIES	DESCRIPTION
Extended Time / Less Quantity	● Provide additional time for completing assignments, tests, and tasks. ● Reduce quantity of work required, including homework ● Focus on quality/accuracy of work and responses rather than time parameters
Break Down Instructions	● Present instructions in smaller, manageable steps. ● Break down multi-step directions into sequential parts, and provide visual aids or written instructions to reinforce the steps. ● Plan for long-term projects using a realistic schedule ● Increase wait times after asking questions and after the student responds
Cognitive Processing Speed activities	● District Processing Speed lessons (A Therapy Resource published by Upbility.net) ● Fluency Interventions and speed drills: Mathletics, Reflex Math, Sumdog, Great Leaps, card and dice games, Tim Rasinski resources, REWARDS resources ● Opportunities to practice cognitive processing speed skills (e.g., puzzles, games) ● Utilize computer activities that require quick, simple decisions
Provide Guided Notes	● Offer partially completed notes or outlines for lectures or readings. ● This reduces the cognitive load of simultaneously listening, processing, and taking notes.
Use Visual Aids	● Incorporate visual aids, such as diagrams, charts, clocks, written schedules, desk organizers, or graphic organizers, to support the understanding and retention of information. ● Provide practice guides and online review materials
Provide Explicit Instruction	● Teach specific strategies for time management, active reading, note-taking, and test-taking to help students develop compensatory skills. ● Explicit instruction in cognitive processing speed strategies (e.g., chunking, visual aids) ● Teach the student how to plan for long-term projects using a realistic schedule that allows for consistent progress ● Teach planning and time management strategies

SKILL AREA	IMPACT OF COGNITIVE PROCESSING SPEED DEFICITS	EVIDENCE-BASED INTERVENTIONS
READING	● Difficulty quickly decoding words, which can hinder reading fluency and comprehension. ● Struggle to keep up with the pace of reading assignments or instructions, leading to incomplete work or misunderstandings. ● Slower processing of written information can make it difficult to keep up with the pace of reading and comprehending text efficiently.	● Repeated reading builds fluency, automaticity, and familiarity to reduce cognitive load. ● Activates prior knowledge and reduces cognitive demands during reading. ● Chunking text: Breaks down longer texts into smaller, manageable sections. ● Multimodal instruction: Incorporates visual aids and multimedia to reinforce information. ● Explicit comprehension strategy instruction ● Timed reading practice: Gradually increases reading rate while allowing extended time. ● Metacognitive strategies: Teaches self-monitoring and problem-solving when comprehension breaks down.
WRITING	● Difficulty generating ideas, organizing thoughts, and translating them into written form ● Difficulty keeping up with note-taking or writing assignments that require a quick pace. ● Revising and editing their work can be time-consuming, as they need more time to process and make changes. ● Challenges with quickly retrieving words and organizing ideas can impact the quality and flow of written expression	● Break down the stages of writing and provide scaffolding. ● Graphic organizers to help organize thoughts and ideas. ● Sentence starters or frames to provide structure to reduce cognitive demands. ● Dictation or speech-to-text: Allow focus on content generation over mechanics. ● Demonstrate the thought processes involved. ● Prevent cognitive fatigue during extended writing tasks by having frequent breaks ● Self-regulation strategy instruction: Help students manage cognitive resources.
MATH	● Slower processing of numerical information and math facts can make it challenging to perform calculations and solve problems quickly. ● Word problems or multi-step math problems may be challenging, as they require quickly processing and integrating information. ● Struggle with timed math tests or activities that require rapid calculations ● Keeping up with the pace of instruction or demonstrations can be problematic, leading to gaps in understanding.	● Explicit math strategy instruction: Break down complex concepts into manageable steps. ● Concrete-Representational-Abstract (CRA) approach: Use manipulatives, visuals, then abstractions. ● Worked examples: Demonstrate step-by-step problem-solving to reduce cognitive load. ● Cognitive strategy instruction: Teach problem-solving and computational skills. ● Distributed practice: Provide spaced review over time for long-term retention. ● Explicit math vocabulary instruction: Teach the language of math to reduce cognitive demands. ● Access to math-focused resources (e.g., games, puzzles, online tools)

Benefits of providing evidence-based interventions

		
Academic Success Cognitive processing speed is crucial for academic tasks. Students with deficits may struggle to keep up, leading to learning gaps. Interventions can help them develop strategies and receive accommodations to access and demonstrate knowledge more effectively.	Skill Development Cognitive processing speed is crucial for academic and life skills. Interventions can help students improve speed and develop strategies to overcome deficits, leading to better performance in various areas. Addressing processing speed issues early supports students in becoming more independent and successful.	Lifelong Implications Unaddressed cognitive processing speed deficits can have long-term impacts, affecting job performance, productivity, and daily life demands in adulthood. Interventions and accommodations during school can help students develop coping strategies and self-advocacy skills for the future. Addressing these issues early prevents frustration, low self-esteem, and potential mental health issues from academic struggles.