

# **Cognitive Functioning & Psychological Processing Guide**

This resource serves as a guide to better understand how a student’s disability affects their learning and behavior. Different parts of the brain are responsible for processing and organizing information, and disabilities can impact cognitive functioning and psychological processing in multiple ways. There are a variety of assessments that provide information about a person’s cognitive functioning and psychological processing skills, including norm-referenced cognitive ability and functional assessments that are administered by qualified school psychologists during special education evaluations within the Individual Education Program (IEP) process. Every student is different, so it’s important to thoroughly understand all evaluations and reports for an *individual* student and use this guide only as a reference.

Below is an overview of types of cognitive and psychological processing, their effect on academics and behavior, recommended strategies, modifications and accommodations with linked High Leverage Practices (HLPs). The Idaho Department of Education: Cognitive Functioning and Psychological Processing Guidance (2017) and Georgia Department of Education Cognitive Functioning and Psychological Processing Document (2012) were used to create this document. In addition to this resource, the Maryland Association of School Psychology created a checklist for teachers to gather their perspectives on students’ cognitive and functional skills in the classroom. See [Minnesota Association of Secondary School Principals Interview Checklist for Teachers](https://massp.org/downloads/osseo/Eval-Eligibility-Tools/Basic-Psychological-Processing-Checklist.pdf).

## Memory

Memory is the brain’s ability to store and retrieve information. Different parts of the brain are responsible for memory, and as a result there are three different types of memory: Working, short-term, long-term memory.

### Working Memory

Fundamental to learning, working memory is the ability of the brain to focus on, temporarily store and use relevant skills and information to complete a task. Working memory difficulties affect a student’s ability to relate prior knowledge with new concepts and skills as well as the encoding of new information into long-term memory. A student with working memory difficulties may have a hard time:

* Remembering and following multiple-step directions.
* Learning new vocabulary words, skills and information.
* Decoding and remembering sounds(phonemes) or words.
* Reading fluency, and comprehension.
* Paraphrasing or summarizing.
* Organizing thoughts for writing.
* Structuring writing.
* Grammar.
* Completing problems that have multiple steps.
* Mental math.
* Multi-step math and word problems.

| **Selected Strategies** | **Selected Modifications and Accommodations** |
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| * Establish a consistent, organized and responsive learning environment ([HLP 7](https://ttaconline.org/Resource/JWHaEa5BS75qK5b_Xe0MuQ/Resource-hlp-highlight-tool---hlp-7-establish-a-consistent-organized-and-respectful-learning-environment)). * Task analyze new information and skills into smaller lesson chunks ([HLP 12](https://ttaconline.org/Resource/JWHaEa5BS761nSbuSkgJug/Resource-hlp-highlight-tool---hlp-12-systematically-designed-instruction) & [HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)). * Logically sequence lessons from easiest to most complex skill ([HLP 12](https://ttaconline.org/Resource/JWHaEa5BS761nSbuSkgJug/Resource-hlp-highlight-tool---hlp-12-systematically-designed-instruction) & [HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)). * Teach with explicit instruction ([HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)), using teacher modeling and demonstration with [*teacher think aloud*.](https://www.youtube.com/watch?v=UmhLgsBD1-I) * Review prior knowledge before teaching new skills. * Teach in chunks, keeping new information “brief.” * Explicitly teach evidence-based practices. * Explicitly teach cognitive & meta-cognitive strategies like mnemonics, Self-Regulated Strategy Development (SRSD) to help students remember steps ([HLP 14](https://ttaconline.org/Resource/JWHaEa5BS74TsOgKn5ZScg/Resource-hlp-highlight-tool---hlp-14-teach-cognitive-and-metacognitive-strategies-to-support-learning-and)). * Explicitly teach and use self-monitoring of academic performance checklists. * Incorporate multi-sensory learning strategies (visual, tactile, auditory). * Explicitly teach and use graphic organizers, concept maps ([HLP 15](https://ttaconline.org/Resource/JWHaEa5BS77QE91wc1tSUw/Resource-hlp-highlight-tool---hlp-15-provide-scaffolded-supports)). * Explicitly teach reading with evidence-based practices. * Monitor student progress. * Integrate attention cues (verbal & non-verbal) into active engagement strategies ([HLP 18](https://ttaconline.org/Resource/JWHaEa5BS74-lxz8SOewxw/Resource-hlp-highlight-tool---hlp-18-use-strategies-to-promote-active-student-engagement)). * Color code. * Use assistive technologies ([HLP 19](https://ttaconline.org/Resource/JWHaEa5BS7656jLDw5CI8Q/Resource-hlp-highlight-tool---hlp-19-use-assistive-and-instructional-technologies)). * Give immediate positive, and corrective feedback ([HLP 8 & 22](https://ttaconline.org/Resource/JWHaEa5BS74c9k7QHp11Aw/Resource-hlp-highlight-tool---hlp-22-provide-positive-and-constructive-feedback-to-guide-students-learning))   **Reading & Writing**   * Explicitly teach reading with [evidence-based practices](https://intensiveintervention.org/training/course-content/intensive-intervention-reading), * Develop sight vocabulary. * [Cover Copy Compare for sight words & spelling](https://www.interventioncentral.org/academic-interventions/writing/how-master-spelling-or-sight-words-cover-copy-compare). * Teach evidence-based reading comprehension strategies. * Demonstrate and teach re-telling paraphrasing, and summarizing strategies. * Use peer assisted learning strategies (PALS).   + [PALS Grades K-1](https://iris.peabody.vanderbilt.edu/module/palsk1/)   + [PALS Grades 2 - 5](https://iris.peabody.vanderbilt.edu/module/pals26/) * [Intensive Interventions in Reading](https://intensiveintervention.org/training/course-content/intensive-intervention-reading) * Explicitly Teach evidence-based writing strategies like [SRSD for writing](https://iris.peabody.vanderbilt.edu/module/srs/).   **Mathematics**   * [Mathematics Intensive Interventions](https://intensiveintervention.org/training/course-content/intensive-intervention-mathematics) * Explicit instruction with *teacher think aloud:* * [Elementary Video](https://www.youtube.com/watch?v=YDRsmxPA-J8) (1 min.) * [Secondary Video](https://www.youtube.com/watch?v=jrMFkpn6NPc)(1 min.) * [Guided Practice](https://www.youtube.com/watch?v=sJ0cbrDSFS4) (44 seconds) * Explicitly teach evidence-based practices in mathematics: * [Visual Representations](https://www.google.com/search?q=project+stair+and+visual+representations&sca_esv=34e05643fe6f2863&sxsrf=ADLYWIKD5aWEGHeNt6799u6M3Xq3mw8Aug%3A1733432616157&source=hp&ei=KBVSZ8zGBoWqptQPlKnN0Ac&iflsig=AL9hbdgAAAAAZ1IjOO78zrLUyvsrlbaUZ3Y3izWlXpxx&ved=0ahUKEwjM-szaw5GKAxUFlYkEHZRUE3oQ4dUDCBo&uact=5&oq=project+stair+and+visual+representations&gs_lp=Egdnd3Mtd2l6GgIYAiIocHJvamVjdCBzdGFpciBhbmQgdmlzdWFsIHJlcHJlc2VudGF0aW9uczIFECEYoAEyBRAhGKABMgUQIRigATIFECEYoAEyBRAhGKABSN1RUABY5U9wAHgAkAEAmAGrAaABlCWqAQQ2LjM0uAEDyAEA-AEBmAIooALUJ8ICBBAjGCfCAgsQABiABBiRAhiKBcICCxAuGIAEGLEDGIMBwgIOEC4YgAQYsQMYgwEYigXCAgsQABiABBixAxiDAcICCxAuGIAEGNEDGMcBwgIKEAAYgAQYQxiKBcICChAuGIAEGEMYigXCAhAQLhiABBixAxhDGIMBGIoFwgINEAAYgAQYsQMYQxiKBcICEBAAGIAEGLEDGEMYgwEYigXCAgoQIxiABBgnGIoFwgIIEAAYgAQYsQPCAgUQABiABMICCxAuGIAEGMcBGK8BwgIIEC4YgAQYsQPCAg4QLhiABBixAxjHARivAcICBhAAGBYYHsICCBAAGBYYChgewgILEAAYgAQYhgMYigXCAgsQABiABBiiBBiLA8ICCxAAGKIEGIkFGIsDwgIIECEYiwMYnwXCAgUQIRifBcICBRAhGKsCmAMA4gMFEgExIECSBwQzLjM3oAeEsAI&sclient=gws-wiz#fpstate=ive&vld=cid:49e125d6,vid:XSnlcEg0X7g,st:0) * [Schema Based Instruction](https://www.youtube.com/watch?v=1zXJGVHa554&list=PLslPXYHeky6tyRuGv9OGkt4NFnay75RX_) * [Cognitive & Meta-cognitive Strategies (HLP 14)](https://ttaconline.org/Resource/JWHaEa5BS74TsOgKn5ZScg/Resource-hlp-highlight-tool---hlp-14-teach-cognitive-and-metacognitive-strategies-to-support-learning-and) * [Cover Copy Compare Math facts](https://www.interventioncentral.org/academic-interventions/math-facts/how-master-math-facts-cover-copy-compare) | * Develop a sight word vocabulary * Use a highlighter for underlining and marking important parts of books. * Simplify directions ([HLP 13](https://ttaconline.org/Resource/JWHaEa5BS75KFXw3IEGxmA/Resource-hlp-highlight-tool---hlp-13-adapt-curriculum-tasks-and-materials-for-specific-learning-goals)) and provide visuals. * Give fewer problems ([HLP 13](https://ttaconline.org/Resource/JWHaEa5BS75KFXw3IEGxmA/Resource-hlp-highlight-tool---hlp-13-adapt-curriculum-tasks-and-materials-for-specific-learning-goals)). * Use guided notes ([HLP 13](https://ttaconline.org/Resource/JWHaEa5BS75KFXw3IEGxmA/Resource-hlp-highlight-tool---hlp-13-adapt-curriculum-tasks-and-materials-for-specific-learning-goals)). * Give copies of directions, written, verbal assignments. * Give a copy or outline of notes. * Calculator, written formulas, number line or math fact list. * Write on tests to prevent copy errors. * Word banks. |

### Short-term Memory

Short-term memory is the ability to remember and recall information after only a few seconds. A student with short-term memory difficulties may have a hard time:

* Completing problems that have multiple steps.
* Remembering verbal directions, especially those with multiple steps.
* Learning new vocabulary words, skills and information.
* Copying information.
* Remembering and writing verbal information and dictation.

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| **Suggested Strategies** | **Several Accommodations & Modifications** |
| * Task analyze new information and skills into smaller lesson chunks ([HLP 12](https://ttaconline.org/Resource/JWHaEa5BS761nSbuSkgJug/Resource-hlp-highlight-tool---hlp-12-systematically-designed-instruction) & [HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)). * Logically sequence lessons from easiest to most complex skill. * Explicitly teach cognitive & meta-cognitive strategies like mnemonics, Self-Regulated Strategy Development (SRSD) to help students remember steps ([HLP 14](https://ttaconline.org/Resource/JWHaEa5BS74TsOgKn5ZScg/Resource-hlp-highlight-tool---hlp-14-teach-cognitive-and-metacognitive-strategies-to-support-learning-and)). * Use self-monitoring of academic performance checklists. * Incorporate multi-sensory learning strategies (visual, tactile, auditory). * Explicitly teach and use graphic organizers, concept maps ([HLP 15](https://ttaconline.org/Resource/JWHaEa5BS77QE91wc1tSUw/Resource-hlp-highlight-tool---hlp-15-provide-scaffolded-supports)). * Incorporate colors, color coding. * Demonstrate and teach re-telling paraphrasing, and summarizing strategies. * Integrate attention cues (verbal & non-verbal) into active engagement strategies ([HLP 18](https://ttaconline.org/Resource/JWHaEa5BS74-lxz8SOewxw/Resource-hlp-highlight-tool---hlp-18-use-strategies-to-promote-active-student-engagement)). * Assistive and instructional technologies ([HLP 19](https://ttaconline.org/Resource/JWHaEa5BS7656jLDw5CI8Q/Resource-hlp-highlight-tool---hlp-19-use-assistive-and-instructional-technologies)). * Give immediate positive, and corrective feedback ([HLP 8 & 22](https://ttaconline.org/Resource/JWHaEa5BS74c9k7QHp11Aw/Resource-hlp-highlight-tool---hlp-22-provide-positive-and-constructive-feedback-to-guide-students-learning)) | * Simplify directions ([HLP 13](https://ttaconline.org/Resource/JWHaEa5BS75KFXw3IEGxmA/Resource-hlp-highlight-tool---hlp-13-adapt-curriculum-tasks-and-materials-for-specific-learning-goals)). * Give visuals with verbal directions. * [Use guided notes](https://www.theteachertoolkit.com/index.php/tool/guided-notes) ([HLP 13](https://ttaconline.org/Resource/JWHaEa5BS75KFXw3IEGxmA/Resource-hlp-highlight-tool---hlp-13-adapt-curriculum-tasks-and-materials-for-specific-learning-goals)). * Give copies of directions, written, verbal assignments. * Give a copy or outline of notes. * Include worksheets that have fewer problems. * Calculator, written formulas, or math fact list. * Write on tests to prevent copy errors. |

### Long-term Memory

Long term memory is the ability to store, recall and use new or previously learned skills and information. Long-term memory impacts on a student’s ability to retrieve prior knowledge to relate to the learning of new skills and information. A student with long-term memory difficulties may have a hard time:

* Remembering essential prerequisite skills.
* Completing warmups, and activities involving prior knowledge.
* Answering assignments that include multiple types of problems and concepts (inter-leaving practice).
* Writing.
* Remembering skills learned in class today.

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| **Suggested Strategies** | **Several Accommodations & Modifications** |
| * Establish a consistent, organized and responsive learning environment ([HLP 7](https://ttaconline.org/Resource/JWHaEa5BS75qK5b_Xe0MuQ/Resource-hlp-highlight-tool---hlp-7-establish-a-consistent-organized-and-respectful-learning-environment)). * Focus on essential skills and concepts, and related essential prerequisite skills ([HLP 12](https://ttaconline.org/Resource/JWHaEa5BS761nSbuSkgJug/Resource-hlp-highlight-tool---hlp-12-systematically-designed-instruction) & [HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)).. * Task analyze new information and skills into smaller lesson chunks ([HLP 12](https://ttaconline.org/Resource/JWHaEa5BS761nSbuSkgJug/Resource-hlp-highlight-tool---hlp-12-systematically-designed-instruction) & [HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)). * Logically sequence lessons from easiest to most complex skill. * Explicitly teach cognitive & meta-cognitive strategies like mnemonics, Self-Regulated Strategy Development (SRSD) to help students remember steps ([HLP 14](https://ttaconline.org/Resource/JWHaEa5BS74TsOgKn5ZScg/Resource-hlp-highlight-tool---hlp-14-teach-cognitive-and-metacognitive-strategies-to-support-learning-and)). * Use self-monitoring of academic performance checklists. * Review & repetition of concepts, skills. * Incorporate multi-sensory learning strategies (visual, tactile, auditory). * Explicitly teach and use graphic organizers, concept maps ([HLP 15](https://ttaconline.org/Resource/JWHaEa5BS77QE91wc1tSUw/Resource-hlp-highlight-tool---hlp-15-provide-scaffolded-supports)). * Explicitly teach through demonstration, modeling, and guided practice, providing independent practice once students are confident and accurate ([HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)). * Assistive and instructional technologies ([HLP 19](https://ttaconline.org/Resource/JWHaEa5BS7656jLDw5CI8Q/Resource-hlp-highlight-tool---hlp-19-use-assistive-and-instructional-technologies)). * Give immediate positive, and corrective feedback ([HLP 8 & 22](https://ttaconline.org/Resource/JWHaEa5BS74c9k7QHp11Aw/Resource-hlp-highlight-tool---hlp-22-provide-positive-and-constructive-feedback-to-guide-students-learning)) | * Allow for use of a calculator, written formulas, or math fact list. * When creating tests, incorporate multiple-choice, true/false, or matching questions where students need to identify the correct answer from a set of answers to facilitate recall. * Use word banks, and external memory sources. |

## Fluid Reasoning

Fluid Reasoning is the cognitive ability to logically think about and solve new problems without prior knowledge. The brain adapts and reasons through new problems through pattern recognition and flexible thinking. Students who are labeled as gifted and talented have strong fluid reasoning abilities. A student with Fluid Reasoning difficulties may have a hard time:

* Seeing the big picture.
* Understanding the main idea when reading.
* Relating prior knowledge with new knowledge.
* Understanding how new concepts and skills relate with each other.
* Using predictive and inferential skills when reading.
* Understanding the author’s purpose for writing and perspective.
* Identifying the purpose of writing and main idea.
* Organizing thoughts and notes to write a cohesive essay.
* Understanding counterarguments and others’ perspectives.
* Number sense and representing problems.
* Applying math skills.
* Understanding word problems.
* Solving everyday life problems, especially when things do not go as planned.

| **Selected Strategies** | **Selected Accommodations & Content Specific Strategies** |
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| * Establish a consistent, organized and responsive learning environment ([HLP 7](https://ttaconline.org/Resource/JWHaEa5BS75qK5b_Xe0MuQ/Resource-hlp-highlight-tool---hlp-7-establish-a-consistent-organized-and-respectful-learning-environment)). * Focus on essential skills and concepts, and related essential prerequisite skills ([HLP 12](https://ttaconline.org/Resource/JWHaEa5BS761nSbuSkgJug/Resource-hlp-highlight-tool---hlp-12-systematically-designed-instruction) & [HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)).. * Task analyze new information and skills into smaller lesson chunks ([HLP 12](https://ttaconline.org/Resource/JWHaEa5BS761nSbuSkgJug/Resource-hlp-highlight-tool---hlp-12-systematically-designed-instruction) & [HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)). * Logically sequence lessons from easiest to most complex skill. * Identify the [learning target](https://www.education.ky.gov/school/stratclsgap/currandstand/Documents/Learning%20Targets.pdf) and rationale for learning. * Discuss learning target. * Use visuals. * Teach with explicit instruction ([HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)), using teacher modeling and demonstration with [*teacher think aloud*.](https://www.youtube.com/watch?v=UmhLgsBD1-I) * Explicitly teach evidence-based practices and multiple approaches to answering problems. * Explicitly teach and use graphic organizers ([HLP 15](https://ttaconline.org/Resource/JWHaEa5BS77QE91wc1tSUw/Resource-hlp-highlight-tool---hlp-15-provide-scaffolded-supports)). * Explicitly teach cognitive & meta-cognitive strategies like mnemonics, Self-Regulated Strategy Development (SRSD) to help students remember steps ([HLP 14](https://ttaconline.org/Resource/JWHaEa5BS74TsOgKn5ZScg/Resource-hlp-highlight-tool---hlp-14-teach-cognitive-and-metacognitive-strategies-to-support-learning-and)). * Explicitly teach and use self-monitoring of academic performance checklists. * Use flexible grouping ([HLP 17](https://ttaconline.org/Resource/JWHaEa5BS77TClINXJcjFg/Resource-hlp-highlight-tool--hlp-17-use-flexible-grouping)) and [reciprocal teaching](https://www.readingrockets.org/classroom/classroom-strategies/reciprocal-teaching) to build metacognition and flexible thinking. * Assistive and instructional technologies ([HLP 19](https://ttaconline.org/Resource/JWHaEa5BS7656jLDw5CI8Q/Resource-hlp-highlight-tool---hlp-19-use-assistive-and-instructional-technologies)). * Give immediate positive, and corrective feedback ([HLP 8 & 22](https://ttaconline.org/Resource/JWHaEa5BS74c9k7QHp11Aw/Resource-hlp-highlight-tool---hlp-22-provide-positive-and-constructive-feedback-to-guide-students-learning)) | **Accommodations**   * Use guided notes ([HLP 13](https://ttaconline.org/Resource/JWHaEa5BS75KFXw3IEGxmA/Resource-hlp-highlight-tool---hlp-13-adapt-curriculum-tasks-and-materials-for-specific-learning-goals)). * Give time to review previously learned skills. * Provide time to engage in new learning in flexible groups. * Integrate cooperative learning strategies.   **Reading**   * Explicitly teach evidence-based reading practices. * Use [*teacher think aloud*](https://www.readingrockets.org/classroom/classroom-strategies/think-alouds#:~:text=are%20think%2Dalouds%3F-,Think%2Dalouds%20have%20been%20described%20as%20%E2%80%9Ceavesdropping%20on%20someone's%20thinking,questions%2C%20connections%2C%20and%20reflections.)*.* * Use [graphic organizers](https://irrc.education.uiowa.edu/resources/irrc-resources/reading-graphic-organizers). * Use peer assisted learning strategies (PALS).   + [PALS Grades K-1](https://iris.peabody.vanderbilt.edu/module/palsk1/)   + [PALS Grades 2 - 5](https://iris.peabody.vanderbilt.edu/module/pals26/) * Teach self-monitoring.   **Writing**   * Explain why writing is important and model why and how to write. * Explicitly teach evidence-based writing practices with [*teacher think aloud*](https://www.youtube.com/watch?v=aVCUJiw7Ml8)*.* * Use [graphic organizers](https://www.readingrockets.org/topics/writing/articles/graphic-organizers-help-kids-writing) (HLP 15)   **Mathematics**   * Explicit instruction with *teacher think aloud:* * [Elementary Video](https://www.youtube.com/watch?v=YDRsmxPA-J8) (1 min.) * [Secondary Video](https://www.youtube.com/watch?v=jrMFkpn6NPc)(1 min.) * [Guided Practice](https://www.youtube.com/watch?v=sJ0cbrDSFS4) (44 seconds) * Use self-monitoring. * Explicitly teach cognitive & meta-cognitive strategies like mnemonics, Self-Regulated Strategy Development (SRSD) to help students remember steps ([HLP 14](https://ttaconline.org/Resource/JWHaEa5BS74TsOgKn5ZScg/Resource-hlp-highlight-tool---hlp-14-teach-cognitive-and-metacognitive-strategies-to-support-learning-and)). * Teach patterns and relationships like patterns on a 100 chart to learn multiplication facts. * Teach multiple representations and ways to represent problems. * Use number-lines to enhance number sense. * Use manipulatives to teach number sense. * Teach skip-counting. * Ask why and how questions so that students explain their thinking. |

## Executive Functioning

Executive functioning involves the cognitive processes a brain uses to set goals and self-regulate behavior and cognition to achieve goals. Executive functioning involves goal setting, planning, self-monitoring, cognitive flexibility, attention control, and inhibition. Executive functioning is individualized, and students display a spectrum of strengths and needs. Learn more: [The IRIS Center Executive Functioning – Why Students Struggle](https://iris.peabody.vanderbilt.edu/module/ef1/). A student with executive functioning difficulties may have a hard time:

* Paying attention (daydreaming or distracted).
* Engaging in on-task behaviors (student is frequently off-task).
* Beginning assignments.
* Completing assignments.
* Planning.
* Organizing.
* Writing.
* Over focused on details.
* Seeing the big picture.
* Identifying the main idea.
* Summarizing.
* Completing multi-step math problems.
* Multi-sensory differences.
* Self-regulation.
* Emotional regulation.
* Social skills.

| **Selected Strategies** | **Selected Modifications and Accommodations** |
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| * The IRIS Center [Executive Function (2023) – Strategies to Improve Academic Performance](https://iris.peabody.vanderbilt.edu/module/ef2/) * Establish a consistent, organized and responsive learning environment ([HLP 7](https://ttaconline.org/Resource/JWHaEa5BS75qK5b_Xe0MuQ/Resource-hlp-highlight-tool---hlp-7-establish-a-consistent-organized-and-respectful-learning-environment)). * [HLP 7 Elementary & Secondary Checklists](https://ttaconline.org/Resource/JWHaEa5BS754zUC-7HqWCQ/Resource-establish-a-consistent-organized--responsive-classroom-elementary--secondary-checklists-hlp-7) * PBIS and [PBIS Classroom Template](https://www.pbis.org/resource/creating-effective-classroom-environments-plan-template) * [Student-teacher game](https://www.pbis.org/resource/the-student-teacher-game). * Evidence-based [intensive behavior interventions](https://intensiveintervention.org/training/course-content/behavior-support-intensive-intervention). * Teach [social behaviors (HLP 9](https://ttaconline.org/Resource/JWHaEa5BS77Wj7xlzK4FGQ/Resource-hlp-highlight-tool---hlp-9-teach-social-behaviors)) * Collaborate with related therapists ([HLP 1](https://ttaconline.org/Resource/JWHaEa5BS77n8SA6lK7xng/Resource-hlp-highlight-tool---hlp-1-collaborate-with-professionals-to-increase-student-success)) to explicitly teach, maintain and generalize skills ([HLP 21](https://ttaconline.org/Resource/JWHaEa5BS76qPaCxrNkJag/Resource-hlp-highlight-tool-hlp-21-teach-students-to-maintain-and-generalize-new-learning-across-time-and)). * When planning academic instruction, task analyze new information and skills into smaller lesson chunks ([HLP 12](https://ttaconline.org/Resource/JWHaEa5BS761nSbuSkgJug/Resource-hlp-highlight-tool---hlp-12-systematically-designed-instruction) & [HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)). * Logically sequence lessons from easiest to most complex skill ([HLP 12](https://ttaconline.org/Resource/JWHaEa5BS761nSbuSkgJug/Resource-hlp-highlight-tool---hlp-12-systematically-designed-instruction) & [HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)). * Teach with explicit instruction ([HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)), using teacher modeling and demonstration with [*teacher think aloud*.](https://www.youtube.com/watch?v=UmhLgsBD1-I) * Review prior knowledge before teaching new skills. * Explicitly teach evidence-based practices. * Explicitly teach cognitive (mnemonic) & meta-cognitive strategies like Self-Regulated Strategy Development (SRSD) to help students to self-monitor and regulate their behaviors to complete academic tasks ([HLP 14](https://ttaconline.org/Resource/JWHaEa5BS74TsOgKn5ZScg/Resource-hlp-highlight-tool---hlp-14-teach-cognitive-and-metacognitive-strategies-to-support-learning-and)). * Teach evidence-based reading comprehension strategies. * Teach [schema-based instruction](https://iris.peabody.vanderbilt.edu/module/math/cresource/q2/p06/) for mathematics word problems. * Teach [SRSD for writing](https://iris.peabody.vanderbilt.edu/module/srs/). * Break down projects into component parts with checklists. * Chunk projects, providing clear steps with deadlines. * Explicitly teach and use self-monitoring of academic and behavior checklists. * Explicitly teach organization and executive functioning skills like keeping an agenda, planning list, calendar. * Use teacher question and student response routines (OTR) to actively engage students ([HLP 18](https://ttaconline.org/Resource/JWHaEa5BS74-lxz8SOewxw/Resource-hlp-highlight-tool---hlp-18-use-strategies-to-promote-active-student-engagement)). * Explicitly teach and use graphic organizers, Venn diagrams, concept maps ([HLP 15](https://ttaconline.org/Resource/JWHaEa5BS77QE91wc1tSUw/Resource-hlp-highlight-tool---hlp-15-provide-scaffolded-supports)). * Use assistive technologies for organization and checklists ([HLP 19](https://ttaconline.org/Resource/JWHaEa5BS7656jLDw5CI8Q/Resource-hlp-highlight-tool---hlp-19-use-assistive-and-instructional-technologies)). * Review assignments and planning process with demonstration and teacher think aloud. * Give immediate positive, and corrective feedback on learning and behavior ([HLP 8 & 22](https://ttaconline.org/Resource/JWHaEa5BS74c9k7QHp11Aw/Resource-hlp-highlight-tool---hlp-22-provide-positive-and-constructive-feedback-to-guide-students-learning)) * Behavior Specific Praise   + [Elementary](https://www.youtube.com/watch?v=ijV6FkDWLAs)   + [Secondary](https://www.youtube.com/watch?v=oCnZu8sqWhA) | * [Guided notes](https://www.theteachertoolkit.com/index.php/tool/guided-notes) * Organization for notes. * Checklists * Color code * Teacher check ins * Use timers. * CBM |

## Auditory Processing

Auditory processing involves the process the brain uses to listen to, discriminate, sequence and remember auditory information. A student with auditory processing difficulties may have a hard time:

* Understanding oral language.
* Hearing a teacher in a loud environment.
* Articulation errors.
* Listening to and attending to instruction.
* Remembering information when it’s presented orally.
* Slower processing.

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| **Selected Strategies** | **Selected Accommodations & Content Specific Strategies** |
| * Collaborate with related therapists ([HLP 1](https://ttaconline.org/Resource/JWHaEa5BS77n8SA6lK7xng/Resource-hlp-highlight-tool---hlp-1-collaborate-with-professionals-to-increase-student-success)) to explicitly teach, maintain and generalize skills ([HLP 21](https://ttaconline.org/Resource/JWHaEa5BS76qPaCxrNkJag/Resource-hlp-highlight-tool-hlp-21-teach-students-to-maintain-and-generalize-new-learning-across-time-and)). * Speak slowly so that students can understand you. * Establish a consistent, organized and responsive learning environment ([HLP 7](https://ttaconline.org/Resource/JWHaEa5BS75qK5b_Xe0MuQ/Resource-hlp-highlight-tool---hlp-7-establish-a-consistent-organized-and-respectful-learning-environment)). * Use visuals when teaching. * Pair directions with visuals. * Use self-monitoring checklists. * Explicitly teach students with evidence-based reading practices and programs. * Focus on essential skills and concepts, and related essential prerequisite skills ([HLP 12](https://ttaconline.org/Resource/JWHaEa5BS761nSbuSkgJug/Resource-hlp-highlight-tool---hlp-12-systematically-designed-instruction) & [HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)).. * Task analyze new information and skills into smaller lesson chunks ([HLP 12](https://ttaconline.org/Resource/JWHaEa5BS761nSbuSkgJug/Resource-hlp-highlight-tool---hlp-12-systematically-designed-instruction) & [HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)). * Logically sequence lessons from easiest to most complex skill. * Identify the [learning target](https://www.education.ky.gov/school/stratclsgap/currandstand/Documents/Learning%20Targets.pdf) and rationale for learning. * Discuss learning target. * Use visuals. * Teach with explicit instruction ([HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)), using teacher modeling and demonstration with [*teacher think aloud*.](https://www.youtube.com/watch?v=UmhLgsBD1-I) * Explicitly teach evidence-based practices and multiple approaches to answering problems. * Explicitly teach and use graphic organizers ([HLP 15](https://ttaconline.org/Resource/JWHaEa5BS77QE91wc1tSUw/Resource-hlp-highlight-tool---hlp-15-provide-scaffolded-supports)). * Explicitly teach cognitive & meta-cognitive strategies like mnemonics, Self-Regulated Strategy Development (SRSD) to help students remember steps ([HLP 14](https://ttaconline.org/Resource/JWHaEa5BS74TsOgKn5ZScg/Resource-hlp-highlight-tool---hlp-14-teach-cognitive-and-metacognitive-strategies-to-support-learning-and)). * Explicitly teach and use self-monitoring of academic performance checklists. * Engage students with teacher- student questioning routines (OTR) throughout instruction ([HLP 18](https://ttaconline.org/Resource/JWHaEa5BS74-lxz8SOewxw/Resource-hlp-highlight-tool---hlp-18-use-strategies-to-promote-active-student-engagement)). * Ask students to repeat what they have heard. * Assistive and instructional technologies ([HLP 19](https://ttaconline.org/Resource/JWHaEa5BS7656jLDw5CI8Q/Resource-hlp-highlight-tool---hlp-19-use-assistive-and-instructional-technologies)). | **Accommodations**   * Visuals * Read Aloud * Bookshare * Simplify directions ([HLP 13](https://ttaconline.org/Resource/JWHaEa5BS75KFXw3IEGxmA/Resource-hlp-highlight-tool---hlp-13-adapt-curriculum-tasks-and-materials-for-specific-learning-goals)). * Give visuals with verbal directions. * [Use guided notes](https://www.theteachertoolkit.com/index.php/tool/guided-notes) ([HLP 13](https://ttaconline.org/Resource/JWHaEa5BS75KFXw3IEGxmA/Resource-hlp-highlight-tool---hlp-13-adapt-curriculum-tasks-and-materials-for-specific-learning-goals)). * Give copies of directions, written, verbal assignments. * Give a copy or outline of notes. * Classroom Management ([HLP 7](https://ttaconline.org/Resource/JWHaEa5BS75qK5b_Xe0MuQ/Resource-hlp-highlight-tool---hlp-7-establish-a-consistent-organized-and-respectful-learning-environment)) and PBIS * Write on tests. * Quiet, alternative testing environment.   **Reading**   * Explicitly teach students with evidence-based reading practices and programs. * Explicitly teach [Elkonin Boxes](https://www.readingrockets.org/classroom/classroom-strategies/elkonin-boxes) for phonemic awareness.   **Writing**   * [Cover Copy Compare - Spelling](https://www.jimwrightonline.com/mixed_files/troy/wright_cover_copy_compare_spelling.pdf) * Teach spelling using word groups and sorts. * Practice time for memorizing spelling words. |

## Visual Processing

Visual processing involves the process the brain uses to see, perceive, interpret, analyze, store and retrieve visual information from the eyes. A student with visual processing difficulties will have a hard time:

* Writing.
* Copying information.
* Incorrectly write letters.
* Difficulties locating words on a page.
* Reading fluently.
* Tracking text.
* Recognizing spelling patterns.
* Labeling diagrams.
* Judging and measuring distances.
* Tracking objects.
* Differentiating colors, similar shapes or numbers.
* Identifying information from graphs and charts.
* Locating specific information on a page.
* Visually discriminating numbers like 9 & 6, math symbols.
* Incorrectly write numbers.
* Regrouping, fractions.

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| **Selected Strategies** | **Selected Accommodations** |
| * Collaborate with related therapists ([HLP 1](https://ttaconline.org/Resource/JWHaEa5BS77n8SA6lK7xng/Resource-hlp-highlight-tool---hlp-1-collaborate-with-professionals-to-increase-student-success)) to explicitly teach, maintain and generalize skills ([HLP 2](https://ttaconline.org/Resource/JWHaEa5BS76qPaCxrNkJag/Resource-hlp-highlight-tool-hlp-21-teach-students-to-maintain-and-generalize-new-learning-across-time-and)1). * Establish a consistent, organized and responsive learning environment ([HLP 7](https://ttaconline.org/Resource/JWHaEa5BS75qK5b_Xe0MuQ/Resource-hlp-highlight-tool---hlp-7-establish-a-consistent-organized-and-respectful-learning-environment)). * Teach prefixes & suffixes. * Assistive and instructional technologies ([HLP 19](https://ttaconline.org/Resource/JWHaEa5BS7656jLDw5CI8Q/Resource-hlp-highlight-tool---hlp-19-use-assistive-and-instructional-technologies)). | **Accommodations**   * Enlarged print. * Reduce visual information on one page. * Write on tests. * Increased white space and places to write. * Graph paper. * Color coding * Color overlays * Reading strips. * Read aloud. |

## Processing Speed

Processing speed involves how quickly a person can process information and perform cognitive tasks. A student with processing speed difficulties will have a hard time:

* Completing tests and quizzes within a reasonable time.
* Completing classwork and homework.
* Slower rate of work.
* Reduced work completion.
* Respond slowly to questions.
* Mental math skills.
* Math fluency.
* Reading fluently.
* Writing.

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| **Selected Strategies** | **Selected Accommodations** |
| * Establish a consistent, organized and responsive learning environment ([HLP 7](https://ttaconline.org/Resource/JWHaEa5BS75qK5b_Xe0MuQ/Resource-hlp-highlight-tool---hlp-7-establish-a-consistent-organized-and-respectful-learning-environment)). * Give students time to think about and respond to questions. * Self-monitoring checklists and strategies. * [CBM](https://easycbm.com/) of math and reading. * Repetition of math facts with flashcards and incremental rehearsal of facts. * Fluency drills. * [Choral reading](https://www.readingrockets.org/classroom/classroom-strategies/choral-reading). * [Repeated reading](https://www.readingrockets.org/blogs/shanahan-on-literacy/everything-you-wanted-know-about-repeated-reading). * Assistive & instructional technologies ([HLP 19](https://ttaconline.org/Resource/JWHaEa5BS7656jLDw5CI8Q/Resource-hlp-highlight-tool---hlp-19-use-assistive-and-instructional-technologies)). | **Accommodations**   * Enlarged print. * Reduce visual information on one page. * Write on tests. * Increased white space and places to write. * Graph paper. * Color coding * Color overlays * Reading strips. * Read aloud. |

## Verbal Reasoning & Knowledge

Verbal reasoning is the ability to listen, understand, and develop logical conclusions from oral and written communication. Life experiences and education influence verbal reasoning skills. A student with verbal reasoning difficulties will have a hard time:

* Learning new skills due to gaps in prior knowledge.
* Relating new information with prior knowledge due to a lack of prior knowledge or context.
* Understanding vocabulary.
* Recalling information and facts.
* Observing or finding the main idea.
* Retrieving words to orally communicate.
* Organizing thoughts.
* Using academic language to communicate.

| **Selected Strategies** | **Selected Accommodations & Content Specific Strategies** |
| --- | --- |
| * Focus on essential skills and concepts, and related essential prerequisite skills ([HLP 12](https://ttaconline.org/Resource/JWHaEa5BS761nSbuSkgJug/Resource-hlp-highlight-tool---hlp-12-systematically-designed-instruction) & [HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)). * Identify important vocabulary words in units of study. * Task analyze new information and skills into smaller lesson chunks ([HLP 12](https://ttaconline.org/Resource/JWHaEa5BS761nSbuSkgJug/Resource-hlp-highlight-tool---hlp-12-systematically-designed-instruction) & [HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)). * Logically sequence lessons from easiest to most complex skill. * Identify the [learning target](https://www.education.ky.gov/school/stratclsgap/currandstand/Documents/Learning%20Targets.pdf) and rationale for learning that integrates with students’ interests. * Use visual aids. * Teach with explicit instruction ([HLP 16](https://ttaconline.org/Resource/JWHaEa5BS75xIzvl0Fcv-g/Resource-hlp-highlight-tool---hlp-16-use-explicit-instruction)), using teacher modeling and demonstration with [*teacher think aloud*.](https://www.youtube.com/watch?v=UmhLgsBD1-I) * Use concise language that students understand while explicitly teaching important academic vocabulary words. * Explicitly teach important vocabulary words, including verbs that are often used in questions and problems. * Create a language and experience rich learning environment with word walls, labeling classroom objects with written words. * Explicitly teach root words, suffixes, prefixes. * Explicitly teach and use graphic organizers ([HLP 15](https://ttaconline.org/Resource/JWHaEa5BS77QE91wc1tSUw/Resource-hlp-highlight-tool---hlp-15-provide-scaffolded-supports)). * When giving directions, use language that students understand. * When asking questions, give students think time. * Give immediate positive, and corrective feedback ([HLP 8 & 22](https://ttaconline.org/Resource/JWHaEa5BS74c9k7QHp11Aw/Resource-hlp-highlight-tool---hlp-22-provide-positive-and-constructive-feedback-to-guide-students-learning)) | **Accommodations**   * Use guided notes ([HLP 13](https://ttaconline.org/Resource/JWHaEa5BS75KFXw3IEGxmA/Resource-hlp-highlight-tool---hlp-13-adapt-curriculum-tasks-and-materials-for-specific-learning-goals)). * Teacher notes. * Teacher check ins. * Word banks * Study guides. * Highlight important vocabulary and verbs. * Students may need extended time for reading or writing. * Give time to review previously learned skills. * Provide time to engage in new learning in flexible groups. * Integrate cooperative learning strategies.   **Reading**   * Pre-teach vocabulary words. * Read for different purposes (fun, academic, etc.) * Introducing multiple reading genre. * Use [Frayer Models](https://dpi.wi.gov/sites/default/files/imce/ela/bank/6-12_L.VAU_Frayer_Model.pdf) (HLP 15).   **Writing**   * Use a word bank. * Teach cognitive and meta-cognitive strategies. * Explicitly teach evidence-based writing practices with [*teacher think aloud*](https://www.youtube.com/watch?v=aVCUJiw7Ml8)*.* * Use [graphic organizers](https://www.readingrockets.org/topics/writing/articles/graphic-organizers-help-kids-writing) (HLP 15)   **Mathematics**   * [Explicitly teach mathematics vocabulary words](https://www.youtube.com/watch?v=nok68BjPxM4). * Teach synonyms to mathematics words. * Explicitly teach evidence-based practices in mathematics: * [Visual Representations](https://www.google.com/search?q=project+stair+and+visual+representations&sca_esv=34e05643fe6f2863&sxsrf=ADLYWIKD5aWEGHeNt6799u6M3Xq3mw8Aug%3A1733432616157&source=hp&ei=KBVSZ8zGBoWqptQPlKnN0Ac&iflsig=AL9hbdgAAAAAZ1IjOO78zrLUyvsrlbaUZ3Y3izWlXpxx&ved=0ahUKEwjM-szaw5GKAxUFlYkEHZRUE3oQ4dUDCBo&uact=5&oq=project+stair+and+visual+representations&gs_lp=Egdnd3Mtd2l6GgIYAiIocHJvamVjdCBzdGFpciBhbmQgdmlzdWFsIHJlcHJlc2VudGF0aW9uczIFECEYoAEyBRAhGKABMgUQIRigATIFECEYoAEyBRAhGKABSN1RUABY5U9wAHgAkAEAmAGrAaABlCWqAQQ2LjM0uAEDyAEA-AEBmAIooALUJ8ICBBAjGCfCAgsQABiABBiRAhiKBcICCxAuGIAEGLEDGIMBwgIOEC4YgAQYsQMYgwEYigXCAgsQABiABBixAxiDAcICCxAuGIAEGNEDGMcBwgIKEAAYgAQYQxiKBcICChAuGIAEGEMYigXCAhAQLhiABBixAxhDGIMBGIoFwgINEAAYgAQYsQMYQxiKBcICEBAAGIAEGLEDGEMYgwEYigXCAgoQIxiABBgnGIoFwgIIEAAYgAQYsQPCAgUQABiABMICCxAuGIAEGMcBGK8BwgIIEC4YgAQYsQPCAg4QLhiABBixAxjHARivAcICBhAAGBYYHsICCBAAGBYYChgewgILEAAYgAQYhgMYigXCAgsQABiABBiiBBiLA8ICCxAAGKIEGIkFGIsDwgIIECEYiwMYnwXCAgUQIRifBcICBRAhGKsCmAMA4gMFEgExIECSBwQzLjM3oAeEsAI&sclient=gws-wiz#fpstate=ive&vld=cid:49e125d6,vid:XSnlcEg0X7g,st:0) * [Schema Based Instruction](https://www.youtube.com/watch?v=1zXJGVHa554&list=PLslPXYHeky6tyRuGv9OGkt4NFnay75RX_) |

References

Georgia Department of Education (2012). *Cognitive functioning and psychological processing.* Retrieved 10/1/2024 from [*https://gadoe.org/Curriculum-Instruction-and-Assessment/Special-Education-Services/Documents/Sp%20Ldrshp%2014%20Handouts/Guiding%20Questions%2011-v2.pdf*](https://gadoe.org/Curriculum-Instruction-and-Assessment/Special-Education-Services/Documents/Sp%20Ldrshp%2014%20Handouts/Guiding%20Questions%2011-v2.pdf)

Idaho Department of Education – Special Education (2017). *Cognitive functioning and psychological processing guidance document.* Retrieved 10/1/2024 from <https://www.sde.idaho.gov/sped/sped-manual/files/chapters/chapter-4-evaluation-and-eligibility/Cognitive-Functioning-and-Psychological-Processing.pdf?fbclid=IwAR0ftdwCQylFGFAdfQO9NPusriBcmBO73iAVtUmfvZHKV2wDDFXY-G5FOlk>

The IRIS Center. (2017). *High-quality mathematics instruction: What teachers should know*. Retrieved from [https://iris.peabody.vanderbilt.edu/module/math/](https://iris.peabody.vanderbilt.edu/module/math/#content)

The IRIS Center. (2013, 2023). Executive Functions (Part 1): Understanding Why Some Students Struggle. Retrieved from <https://iris.peabody.vanderbilt.edu/module/ef1/>

The IRIS Center. (2013, 2023). Executive Functions (Part 2): Strategies to Improve Students’ Academic Performance. Retrieved from <https://iris.peabody.vanderbilt.edu/module/ef2/>