



# BBBD Supports and Interventions



Using the *Building Blocks of Brain Development* to Support Students with Learning Disabilities

Peter Thompson, Ed.S., Ph.D.





## Module 3.3

# BBBD: Supports and Interventions

## **Intermediate Processes: Supporting Visual-Spatial Problems in the Classroom**



# Important Note

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The information, concepts, and models provided in this presentation are intended to give practitioners a framework when conducting special education evaluations and employing interventions. It is emphasized that nothing in this presentation is meant to be directive or prescriptive.

Professionals are free to use some, or all of the information presented, but they are not required to do so in their practice. **Always consult with your special education director for clarity around district policies and expectations for special education evaluations.**



**IMPORTANT** 

# Learning Outcomes

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- Understand the links that visual-spatial processes have to specific learning disabilities and interpersonal problems
- Learn effective interventions for visual-spatial problems
- Learn about effective accommodations for students that have visual-spatial issues



# Presentation Organization

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## I. Review BBBD and Visual-Spatial Key Concepts

- A. General Impact on Learning and Social Issues
- B. Learning Problems Related to Writing, Mathematics, and Reading

## II. Visual-Spatial and Related Academic Interventions

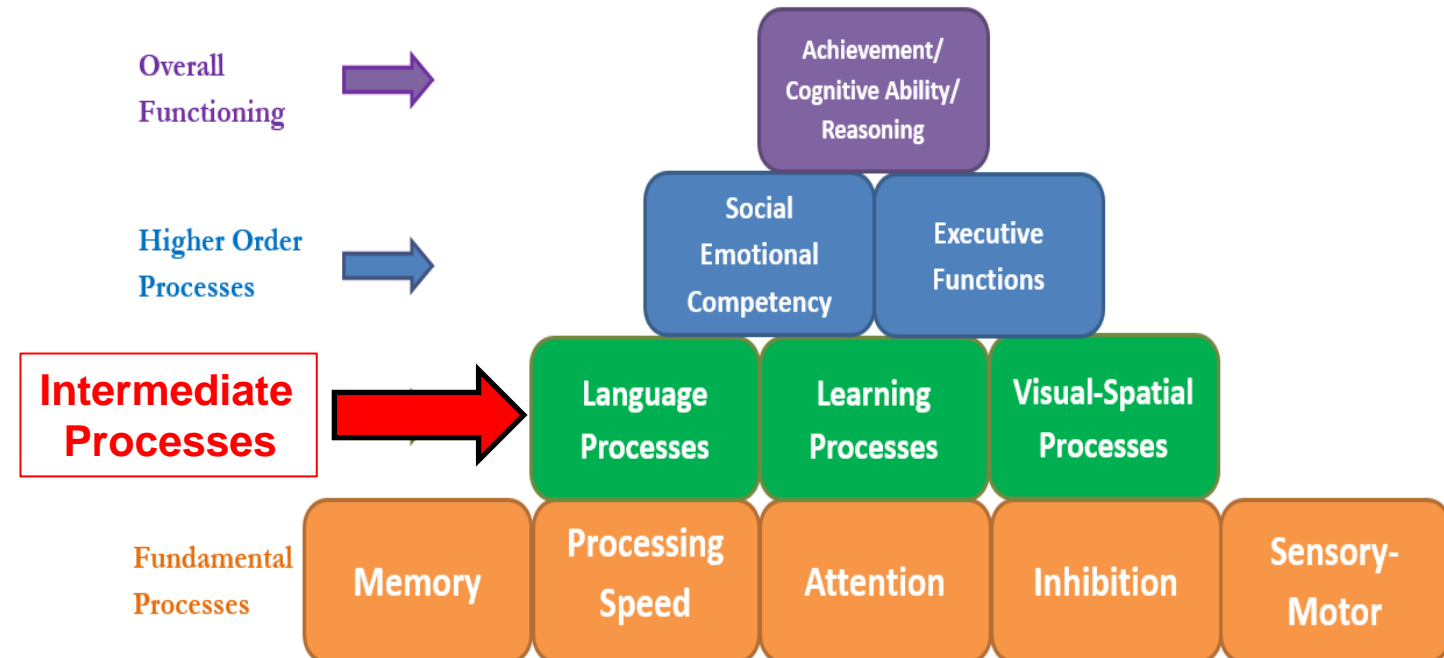
- A. Expert Guidance
- B. Interventions
- C. Accommodations



# What Are Intermediate Processes? Impact on Learning and SLD

- Success within this level is based on proper functioning of fundamental processes
- Critical difference is the integration of functions to process complex information
- Acquisition of specific information and broad knowledge-critical for later use-(skills)

## Building Blocks of Brain Development ©



The Hierarchy of Neurocognitive Functioning © - created by Peter Thompson, Ph.D. 2013, adapted from the works of Miller 2007; Reitan and Wolfson 2004; Hale and Fiorello 2004.

The Building Blocks of Brain Development © - further adapted by the CO Brain Injury Steering Committee, 2016.



# Intermediate Processes: Visual-Spatial Processes Key Concepts

- All learning involves a complex set of neurocognitive processes that needs the successful integration of several brain functions.
- In the BBBD model, visual-spatial processes are the foundation for visual perception, visual-motor integration, orientation, location, visual attention to details, spatial awareness, visualization, and social perception.
- While several regions of the brain are active during visual-spatial processing, the parietal and occipital lobes are especially active.



# Intermediate Processes: Visual-Spatial Processes Key Concepts

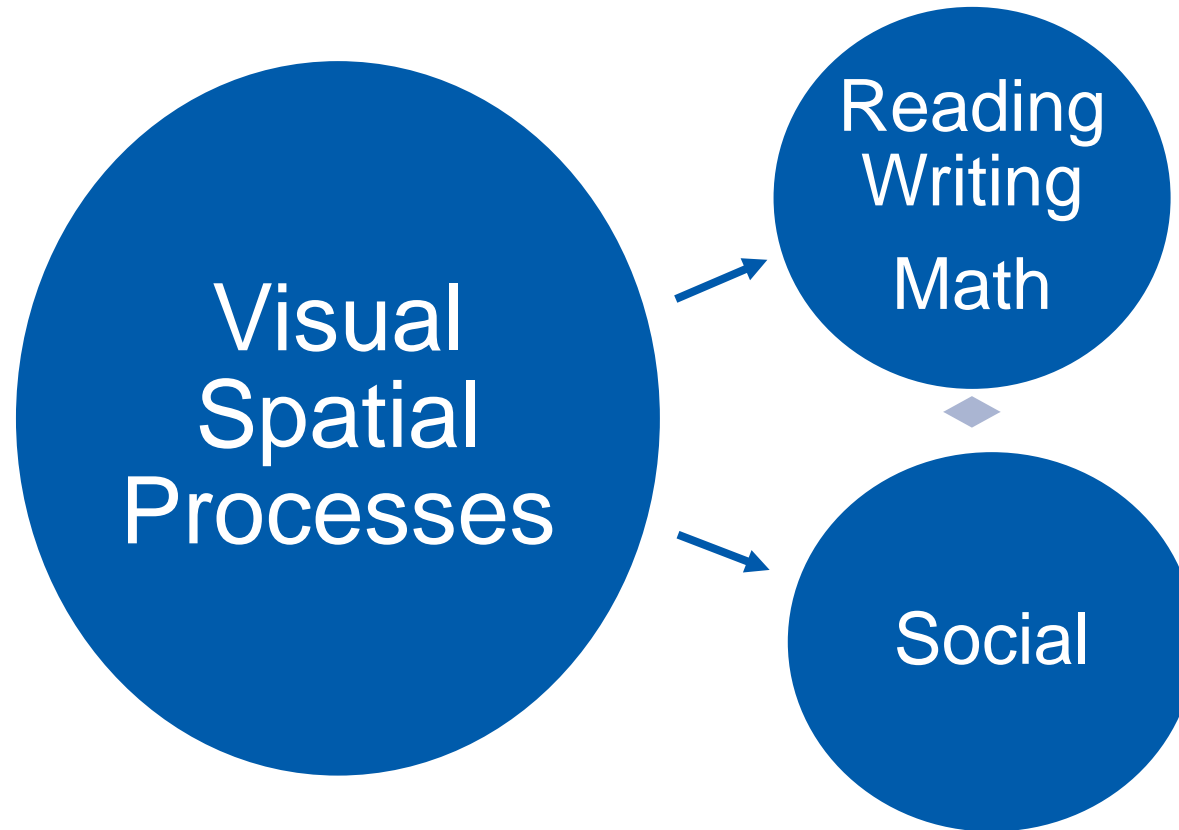
- Visual-spatial brain functions also related to reading, math, and writing. Visual-spatial deficits may have “broad” implications across most skill areas.
- Related to NVLD (Nonverbal Learning Disability).
- May have broad and indirect factors that impact school / life:
  - Handwriting
  - Note-taking
  - Writing assignments (complex; EF, Verbal Reasoning, Reading)
  - Social Competency (Understanding Facial Expressions)
  - Navigating environment (school, community)
  - Impact on safety (Driving, sports)



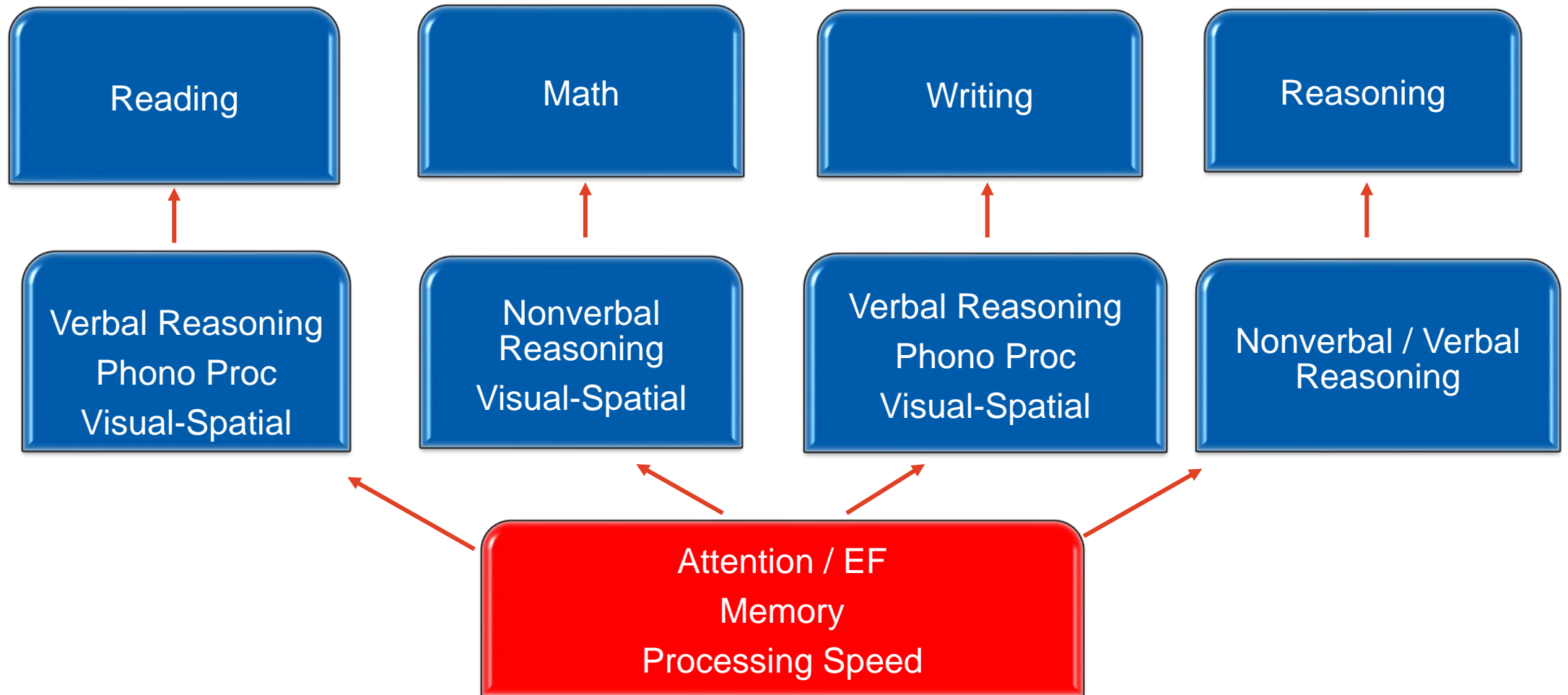


# Visual-Spatial: Simplified Illustration

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# Visual-Spatial Processes: May Impact *All* Academic Areas and Access to Curriculum



## II. Visual Spatial Supports and Interventions

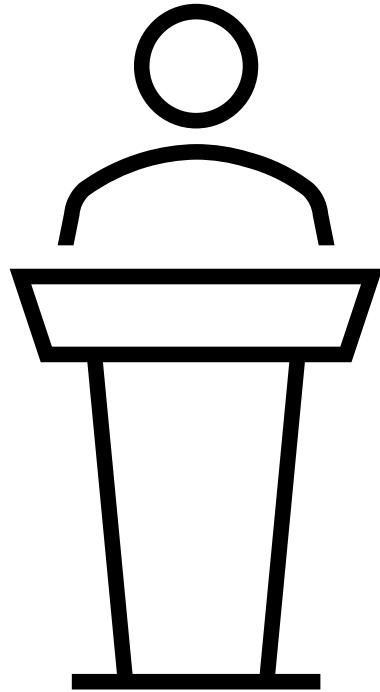
1. Expert Guidance
2. Interventions
3. Accommodations



# 1. Expert Guidance



# 1. Expert Guidance



- ✓ Critical! Remember to develop a positive philosophy of SLDs. Attitudes about SLDs will impact the success of student interventions. Re-assure students, stay positive and expect realistic gains!



# 1. Expert Guidance



- ✓ Degree of V-S deficits may impact degree of academic and social progress.
- ✓ As with S-M issues, always consult with OT/PT.
- ✓ May have to place emphasis on accommodations.



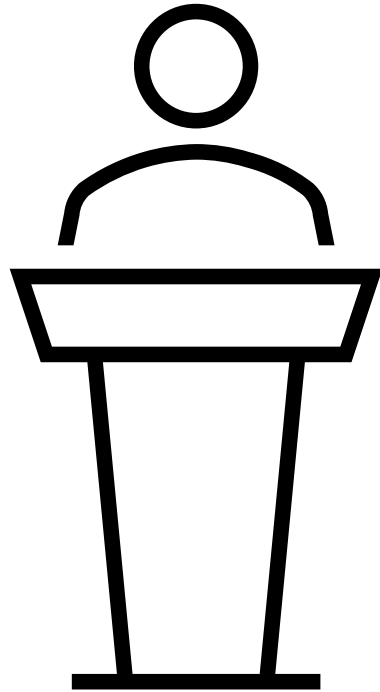
# 1. Expert Guidance



- ✓ Support staff focus on academic impact, but be attuned to social impacts. Staff may need to provide direct, in the moment social feedback.
- ✓ Know interventions that are effective for autism and NVLD.



# 1. Expert Guidance



- ✓ As with all interventions, small group, *direct and explicit instruction is a highly effective* research strategy.
- ✓ Be critical of commercial programs-- no one-size-fits all programs.





# 1. Expert Guidance: Elements of Direct Instruction

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Explicit instruction provides a series of engaging instructional supports or scaffolds - first through the logical selection and sequencing of content, and then by breaking down that content into manageable instructional units based on students' cognitive capabilities



# 1. Expert Guidance: Elements of Direct Instruction

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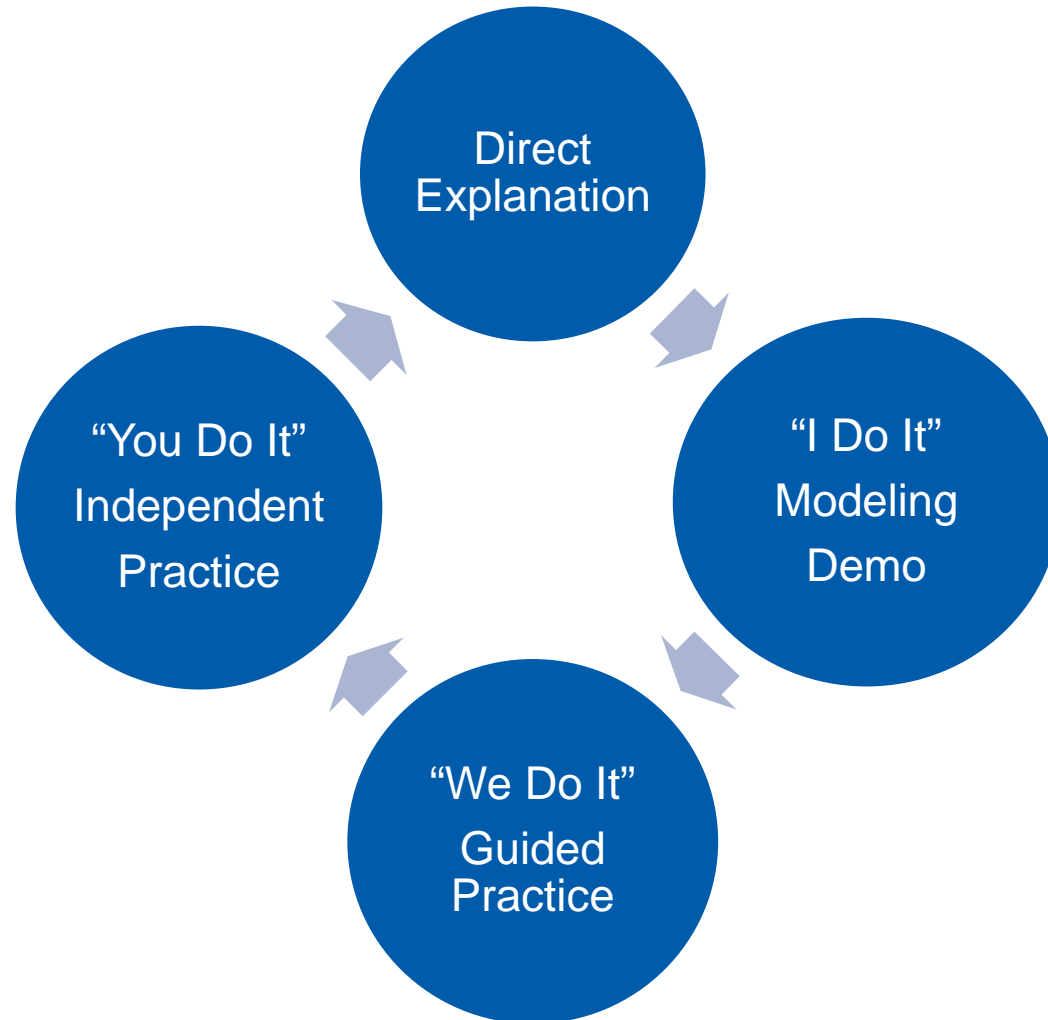
- D & I Core Elements

- ✓ Identify a clear, specific objective
- ✓ Break the information into chunks
- ✓ Model with clear explanations
- ✓ Verbalize the thinking process
- ✓ Provide opportunities to practice
- ✓ Give positive and instructive feedback



# 1. Expert Guidance: Direct Instruction

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## 2. Intervention



## 2. Interventions: Focus on Academic Deficits Caused by Visual-Spatial Deficits

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- Co-occurring with reading disabilities 75% and ADHD 30% (Pennington)
- Since Visual-Spatial deficits are implicated in several academic skill deficits, overview of reading, math, writing interventions.



# 2. Interventions: Reading

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## Reading

- ✓ Learning to read vs. reading to learn
- ✓ Direct explicit instruction-Small group, frequent support
- ✓ Phonological interventions are effective for all readers
- ✓ Paired Guided Reading
- ✓ Increase language comprehension and verbal reasoning (Build vocabulary in authentic environment)
- ✓ Consult with SLP



## 2. Interventions: Math

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- Direct explicit instructional methods
- Use exemplars, visuals, and manipulatives
- Show magnitude between quantitative groups
- “Teach me” opportunities
- Reduce memory demands (visuals)



## 2. Interventions: Writing

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- Mechanics of handwriting (consult OT/PT)
  - Graph paper to help with handwriting
- Teach cognitive organization (EF)
  - Graphic Organizer
  - Verbal Reasoning (vocabulary)
  - “Tell me in own words, then write”
  - Teach key word note-taking





## 2. Interventions: Writing

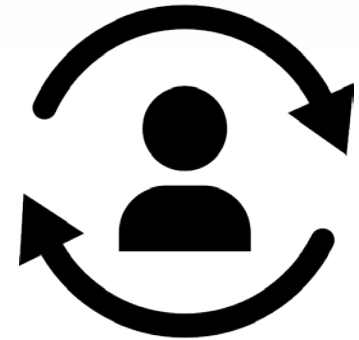


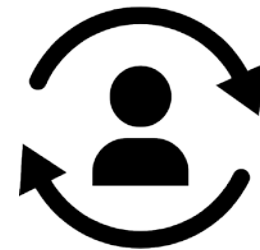
- Recommendation from Dept. of Ed
  - Set time to write daily
  - Explicitly teach the writing process
  - Teach to write for a variety of purposes / audiences
  - Teach students to be fluent with handwriting, spelling, word processing, sentence construction
  - Create an engaged community of writers

**Resource:** WWC Teaching Elementary School Students to Be Effective Writers



# 3. Accommodations





### 3. Accommodations

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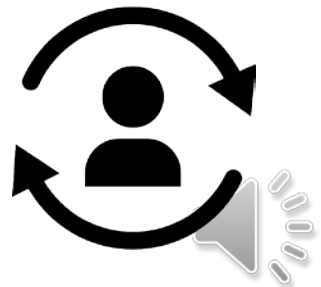
- Provide full notes and allow for notes and devices on tests
- (Key) Speech-to-text (explicitly teach)
- Limit visual information teaching new concepts (Google Example vs. Yahoo)



# 3. Accommodations

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- Allow for manipulatives and visuals when describing new concepts and /or testing
- Encourage student self-advocacy—actively seek help when don't understand
- Actively check for understanding
- Allow for alternative ways to express knowledge



# Summary



- Since visual-spatial processes utilize several brain functions, V-S may impact several academic domains, acts as a generalized indicator. Determine which academic domain is impacted and target interventions accordingly.
- Be aware that visual-spatial problems can impact social and emotional development. Difficulty with facial interpretation. See interventions for Module 4.1.
- Once visual-spatial deficits are linked to specific academic problems, the use of explicit and direct instruction can be highly effective.





# Thank You For Listening End of Module 3.3



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