Reading & Math Interventions: Application of the PASS Theory

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The aim of this presentation

- The role of the school psychologist is changing for the better
- We are now more involved with efforts to increase children's academic performance
- This presentation will provide specific recommendations about how school psychologists can use information about cognitive processes to make intervention recommendations and eligibility

The aim of this presentation

- Special attention will be paid to
  - using PASS within IDEIA SLD regulations
  - Identifying cognitive weaknesses in basic psychological processes
  - Selection of interventions based on PASS cognitive weaknesses
  - Case studies will be presented to illustrate how a child's cognitive weakness can be used to identify appropriate interventions
  - Research on PASS and intervention will be summarized

Presentation Outline

- PASS Processes
- Cognitive Weaknesses and Eligibility
- Case of William - low Successive
- Case of Christopher - low Planning
- Case of Frankie - low Attention
- Case of Jeremy - Low Simultaneous
- Case of Sarah - multiple problems
- Case of Deborah – low successive
- Conclusions

PASS Processes

The first step in cognitive intervention is cognitive assessment

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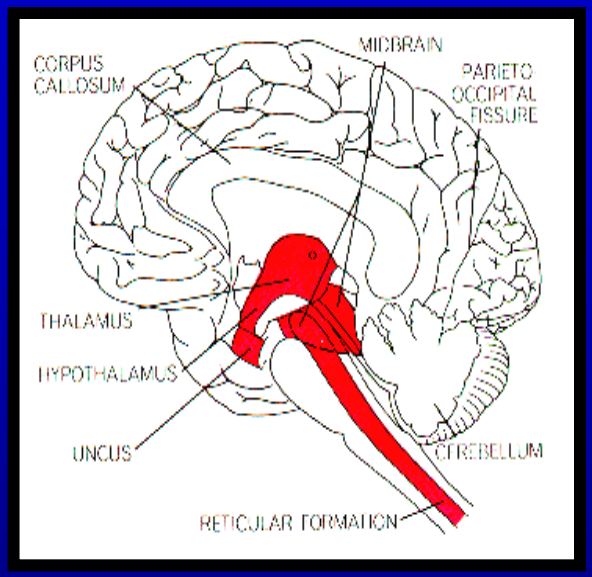
PASS Theory & CAS

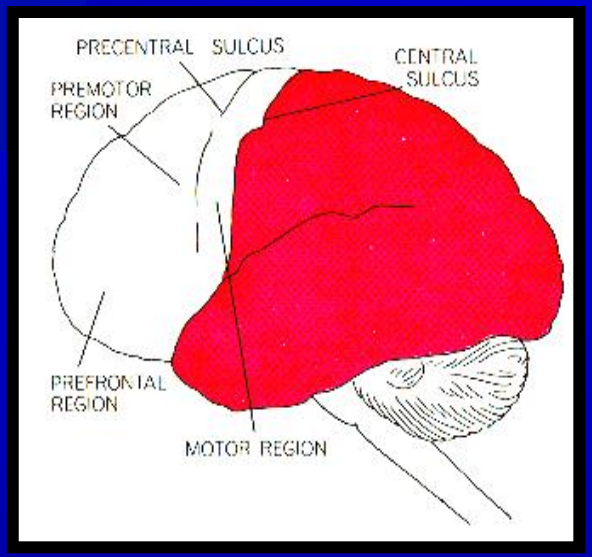
- Human cognitive functioning includes:
  - Planning - The *how to,* cognitive control, use of processes and knowledge, intentionality (Luria's Third functional unit)
  - Attention - focused cognitive activity and resistance to distraction (First unit)
  - Simultaneous & Successive - two forms of processing information (Second unit)

Luria (1972)

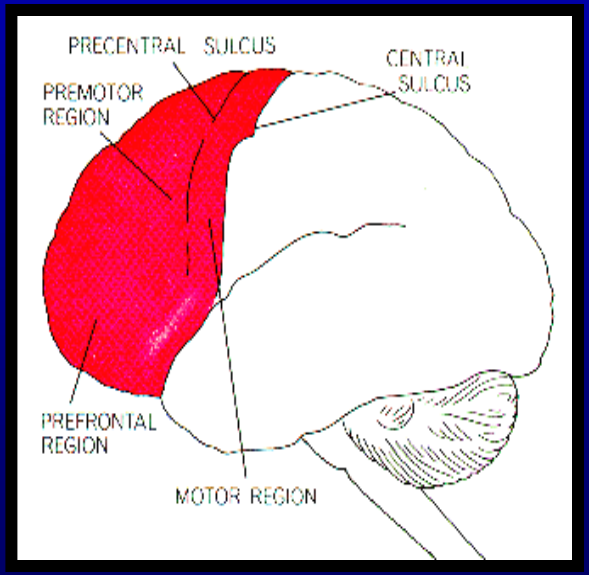


First functional Unit - Attention

Second Functional Unit - Simultaneous & Successive



Third Function al Unit - Planning

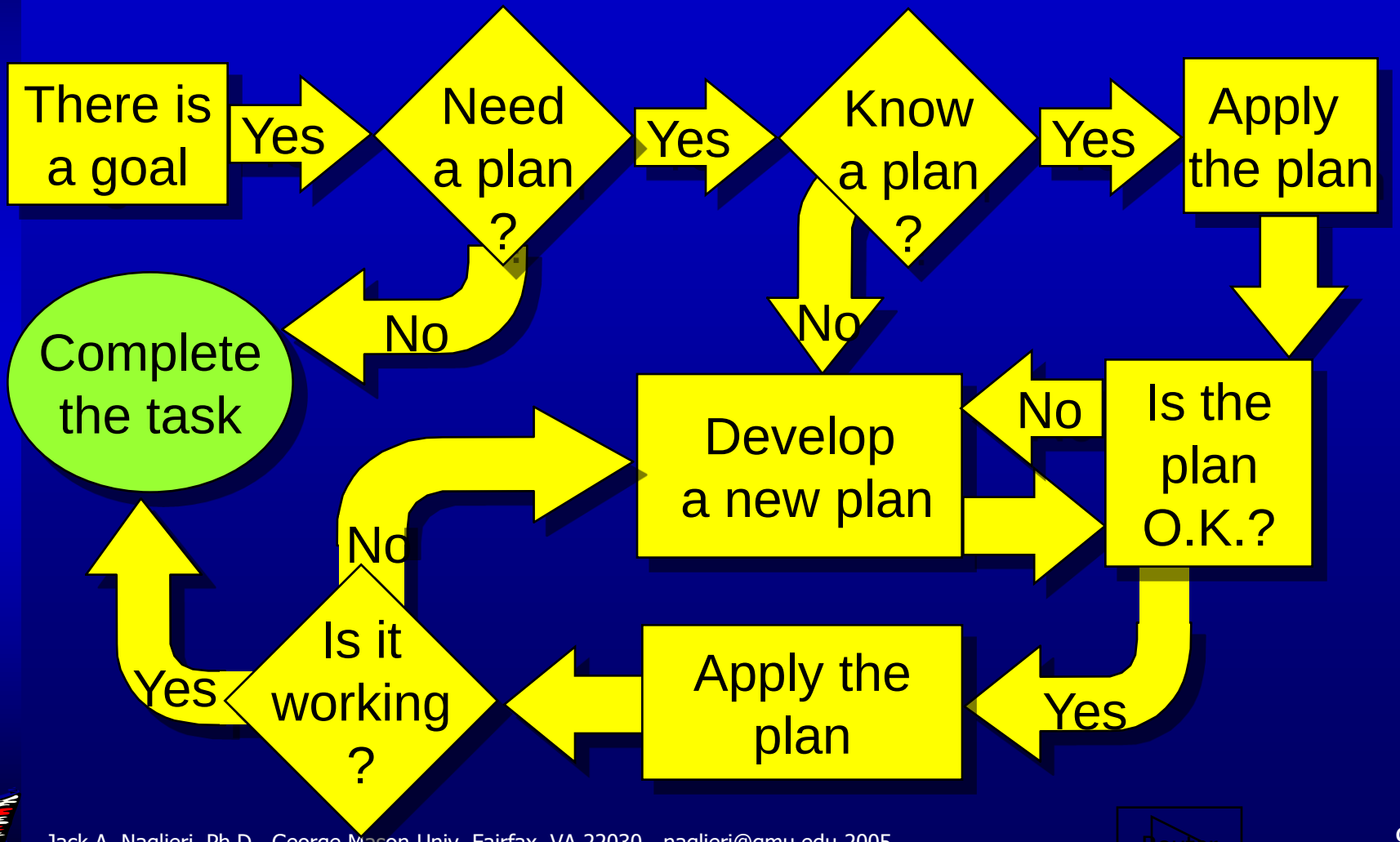


Luria, A. R. (1970). The Functional organization of the brain. *Scientific American, 222*, 66-78.

PASS Theory

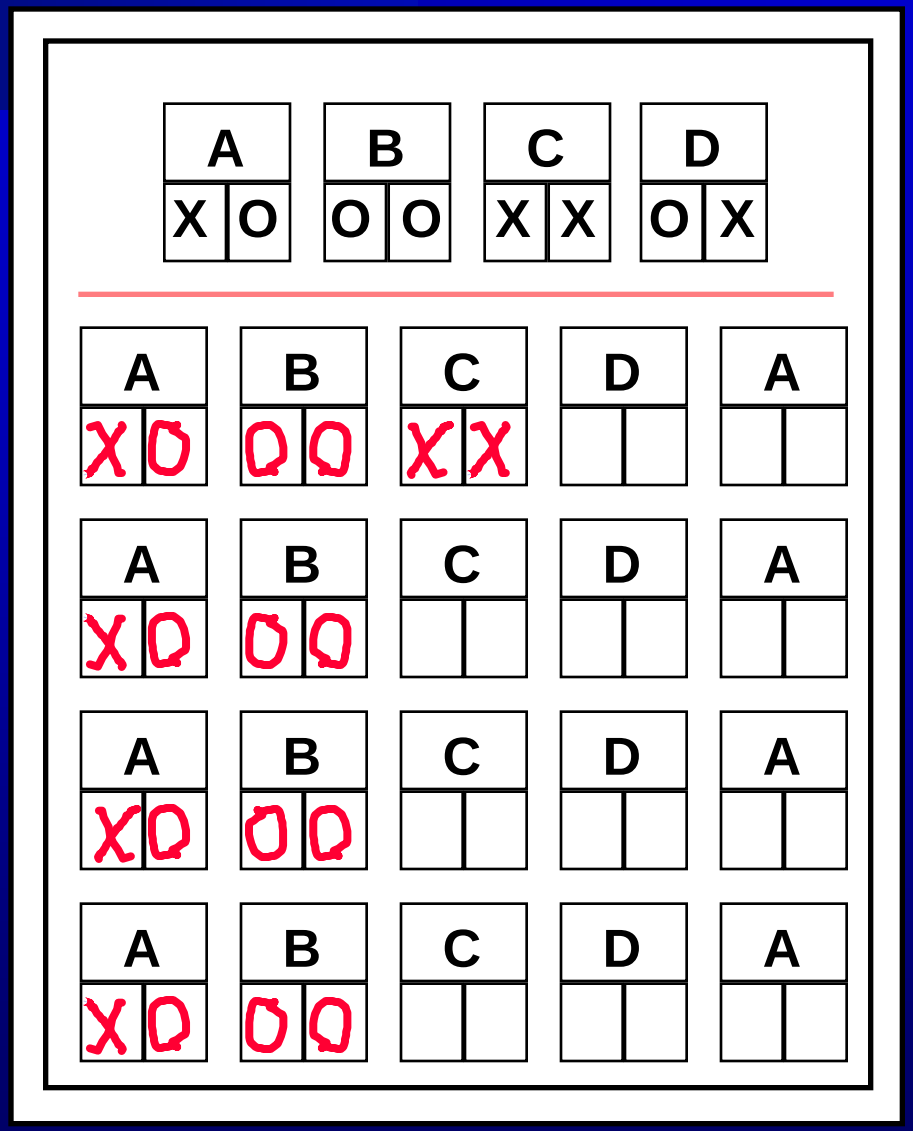
- **Planning** is a mental process by which the child determines, selects, and uses efficient solutions to problems
  - problem solving
  - developing plans and using strategies
  - impulse control and self-control
  - control of processing
  - retrieval of knowledge

PASS Theory


There is a goal
Yes
Need a plan ?
Yes
Know a plan ?
Yes
Apply the plan
No
No
Complete the task
Develop a new plan
No
Is the plan O.K.?
No
Yes
Is it working ?
Apply the plan
Yes

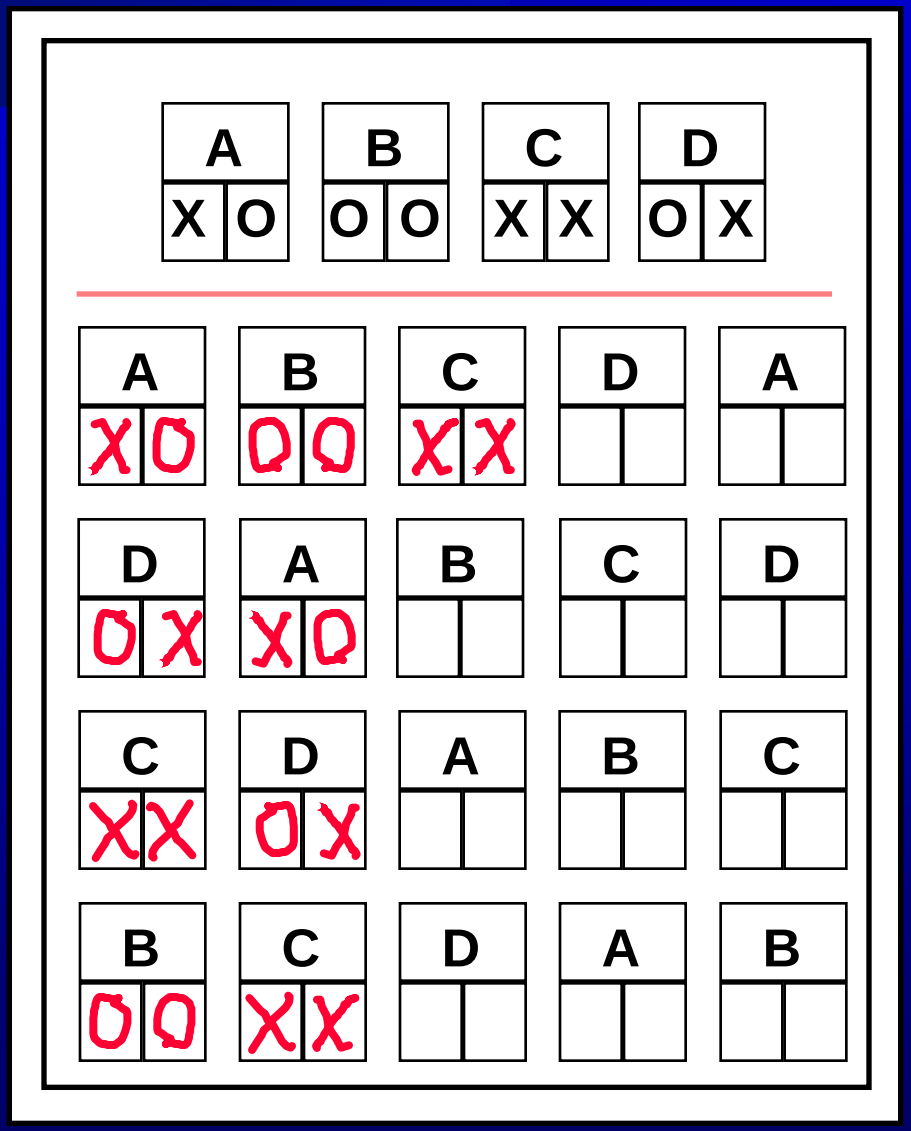
Planned Codes

- Child fills in the codes in the empty boxes
- Children are encouraged to think of a good way to complete the page

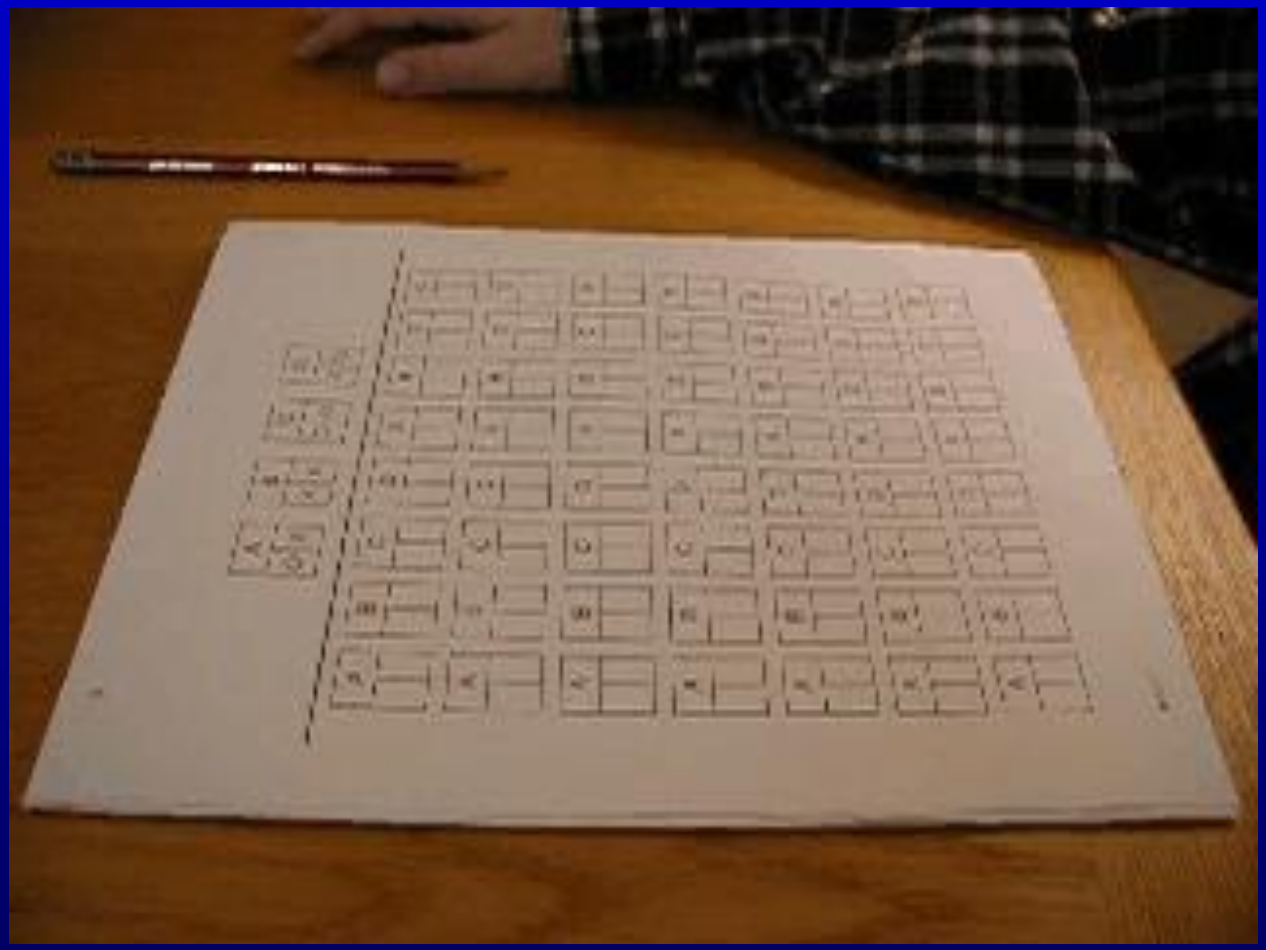


Planned Codes

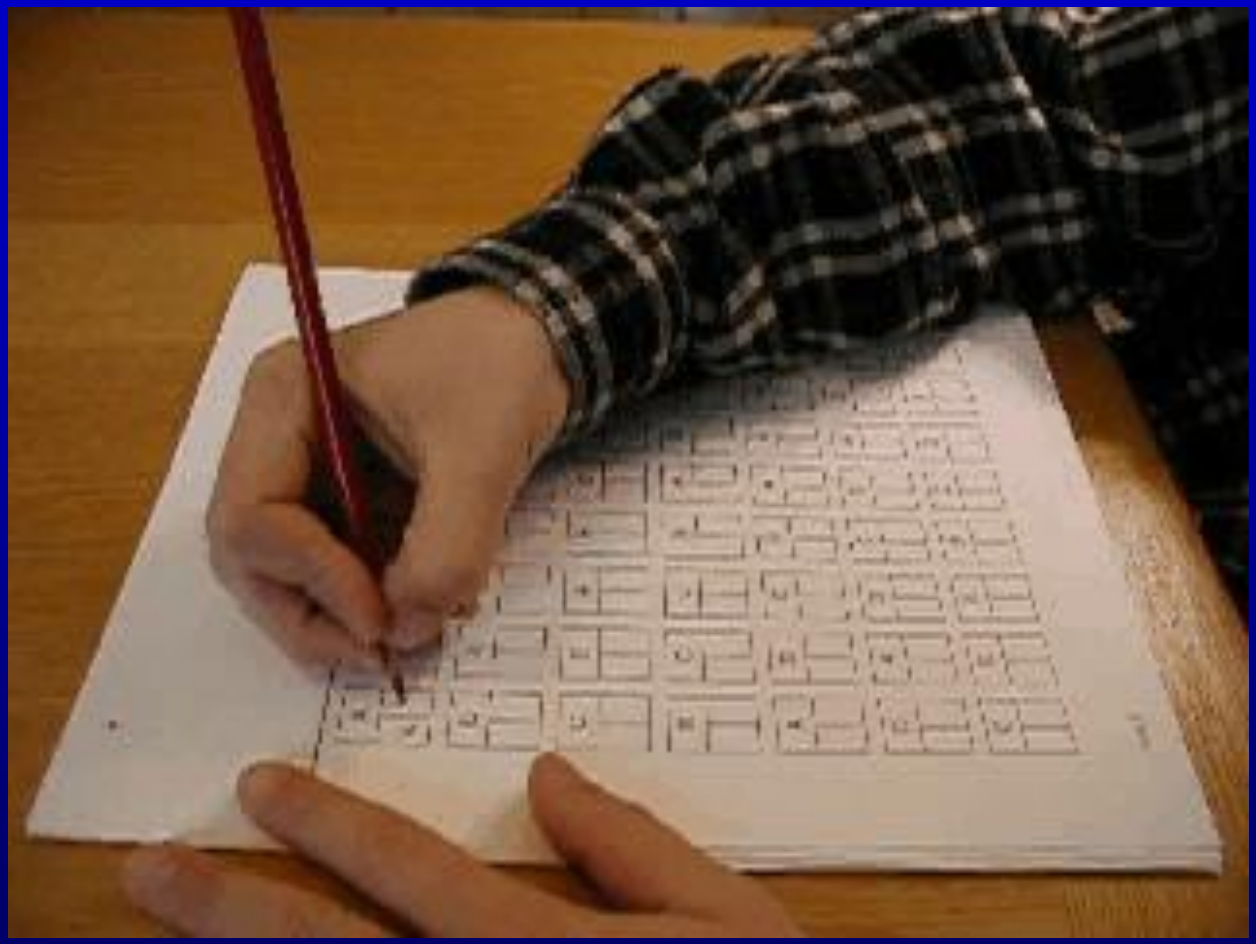
- Page 2
- What is a good plan to complete this page?
- Note orientation



Planned Codes Page 1

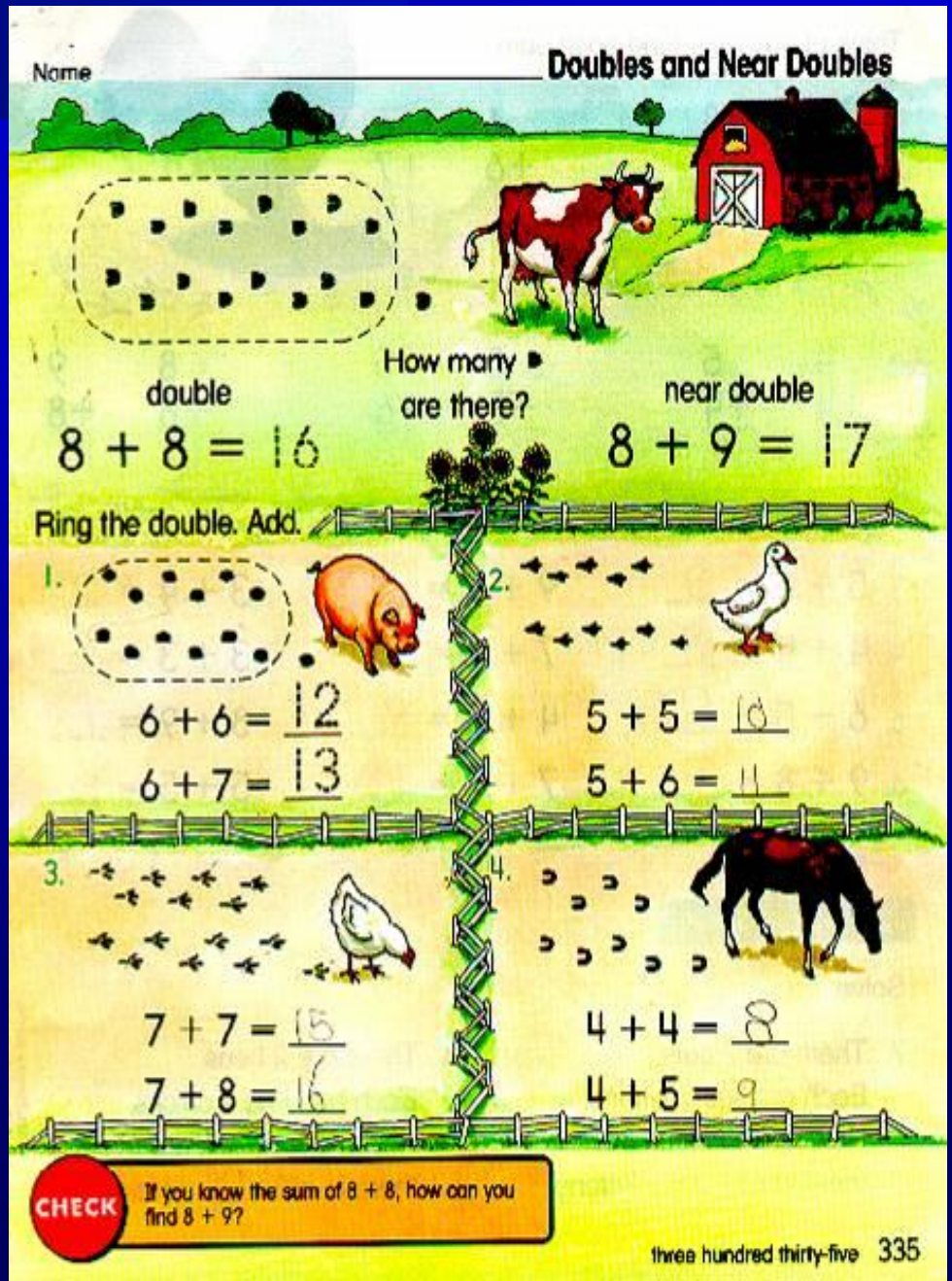


Planned Codes 2



Math Strategies

This work sheet encourages the child to use strategies (plans) in math such as: "If 8 + 8 = 16, then 8 + 9 is 17"



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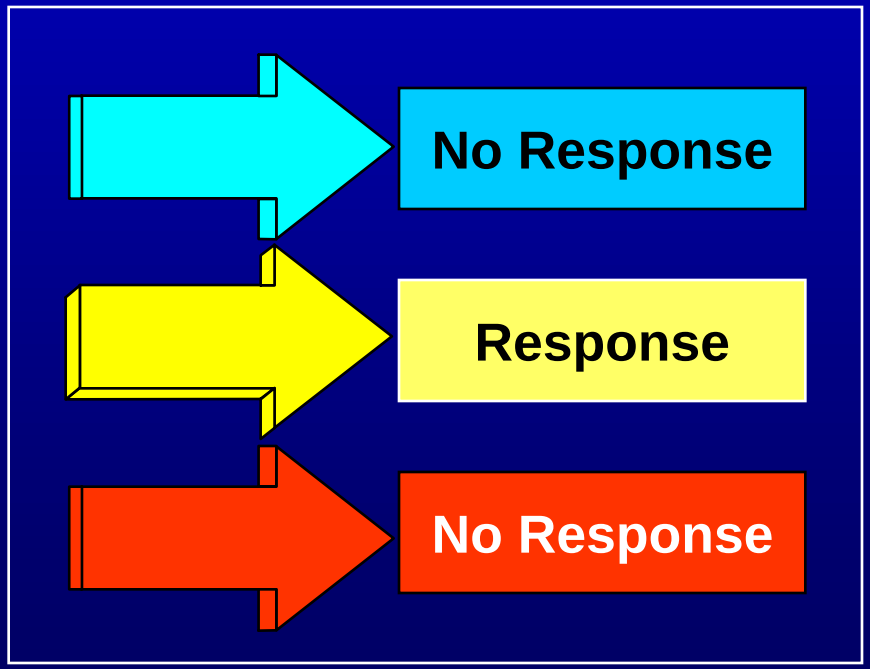
PASS Theory

- **Attention** is a mental process by which the person selectively attends to some stimuli and ignores others
  - focused cognitive activity
  - selective attention
  - resistance to distraction

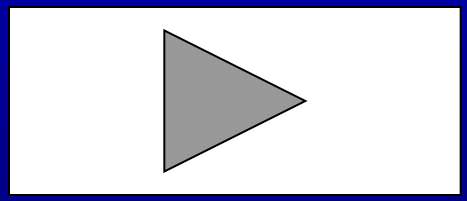


Expressive Attention

- The child says the color not the word
- Score is time and number correct

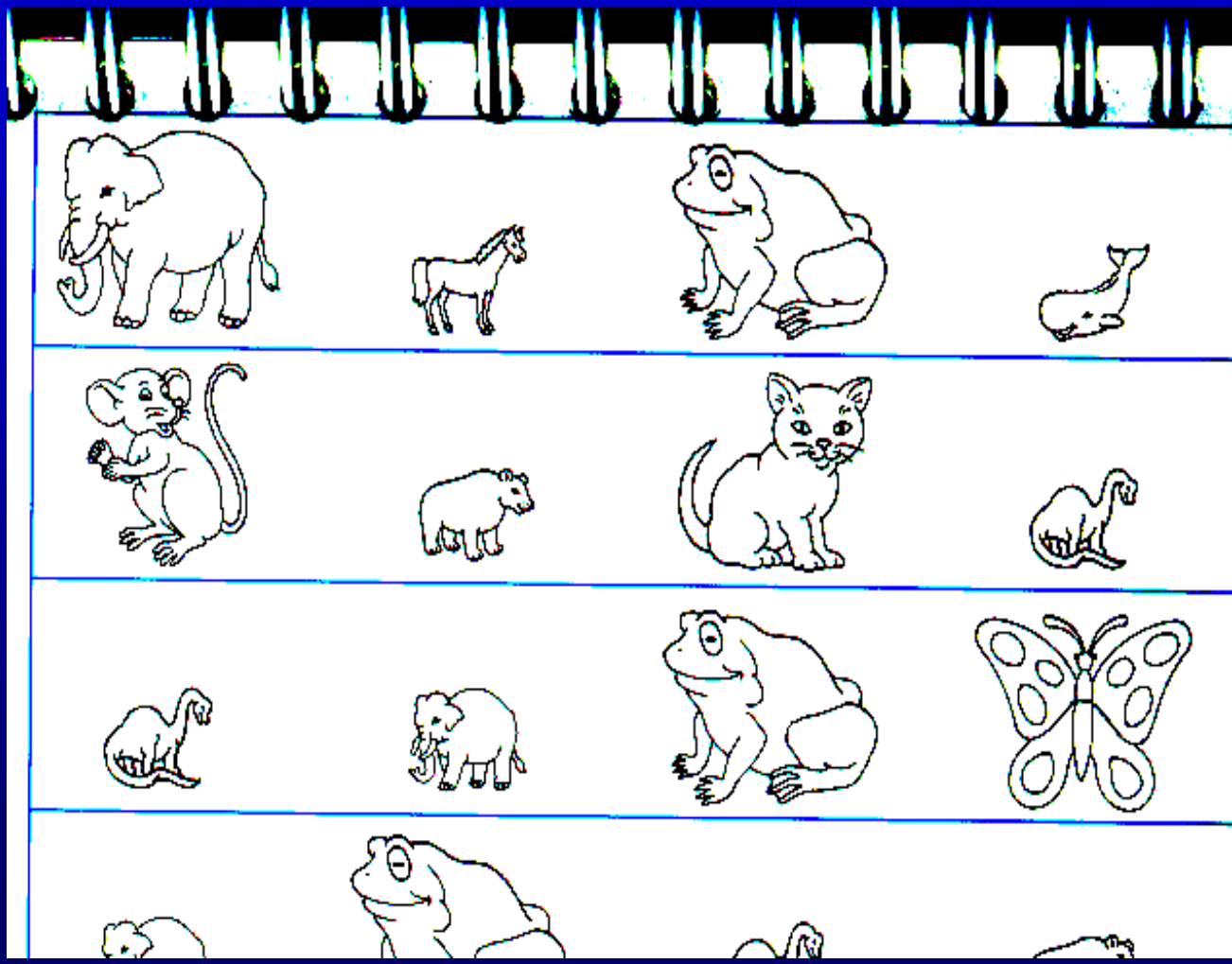
RED	BLUE	GREEN	YELLOW
YELLOW	GREEN	RED	BLUE
RED	YELLOW	YELLOW	GREEN
BLUE	GREEN	RED	BLUE
GREEN	YELLOW	RED	YELLOW

READY ?



Expressive Attention: 5-7 years

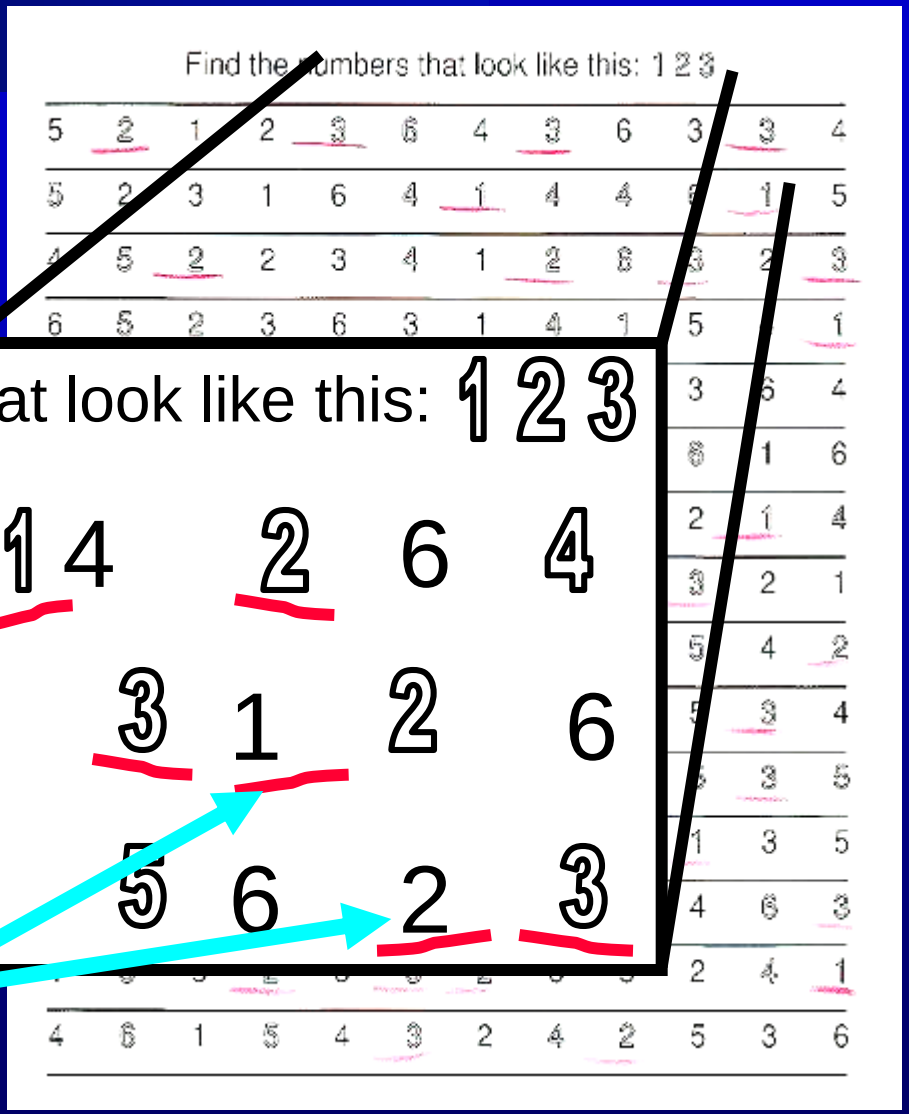
The child tells if the animal is large or small, regardless of the relative size on the page.



Number Detection

- Items 1 - 4 have 180 numbers on each page
- Each child is given two pages
- Targets appear at the top of the page
- Score for targets found and

false detections



Attention

This sheet has a strong Attention demands because of the similarity of the options

11. **A** 3:15 A.M.
B 3:30 P.M.
C 3:15 P.M.
D 3:15 A.M.

leave school

11. 3:15 p.m.

12. Trent began studying at 5:00 P.M. and finished 1 hour and 22 minutes later. What time did he finish?

A 6:22 A.M. **B** 5:22 P.M. **C** 6:10 P.M. **D** 6:22 P.M.

12. 6:22 p.m.

13. Maura began basketball practice at 3:00 P.M. and finished 50 minutes later. What time did she finish?

A 3:50 P.M. **B** 3:05 A.M. **C** 4:05 P.M. **D** 4:50 A.M.

13. 3:50 p.m.

14. Lance fished from 6:00 A.M. to 9:45 A.M. How long did he fish?

A 3 hours **B** 3 hours and 15 minutes
C 3 hours and 45 minutes **D** 4 hours and 45 minutes

14. 3 hours 45 min.

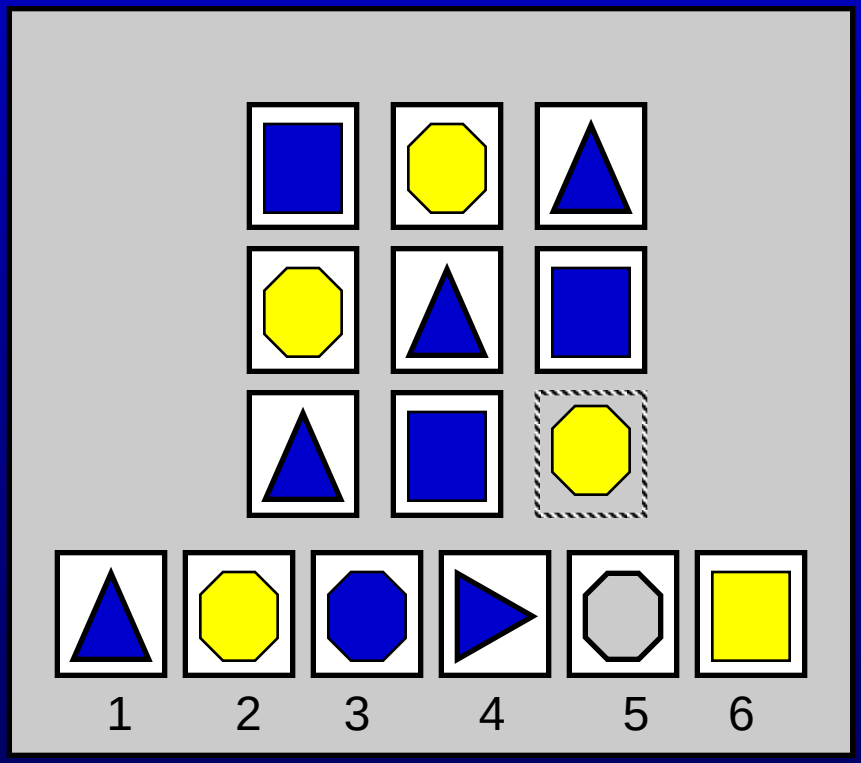
Use the calendar for 15 - 17

PASS Theory

- **Simultaneous** processing is a mental activity by which the child integrates stimuli into groups
  - Stimuli are seen as a whole
  - Each piece must be related to the others

Nonverbal Matrices

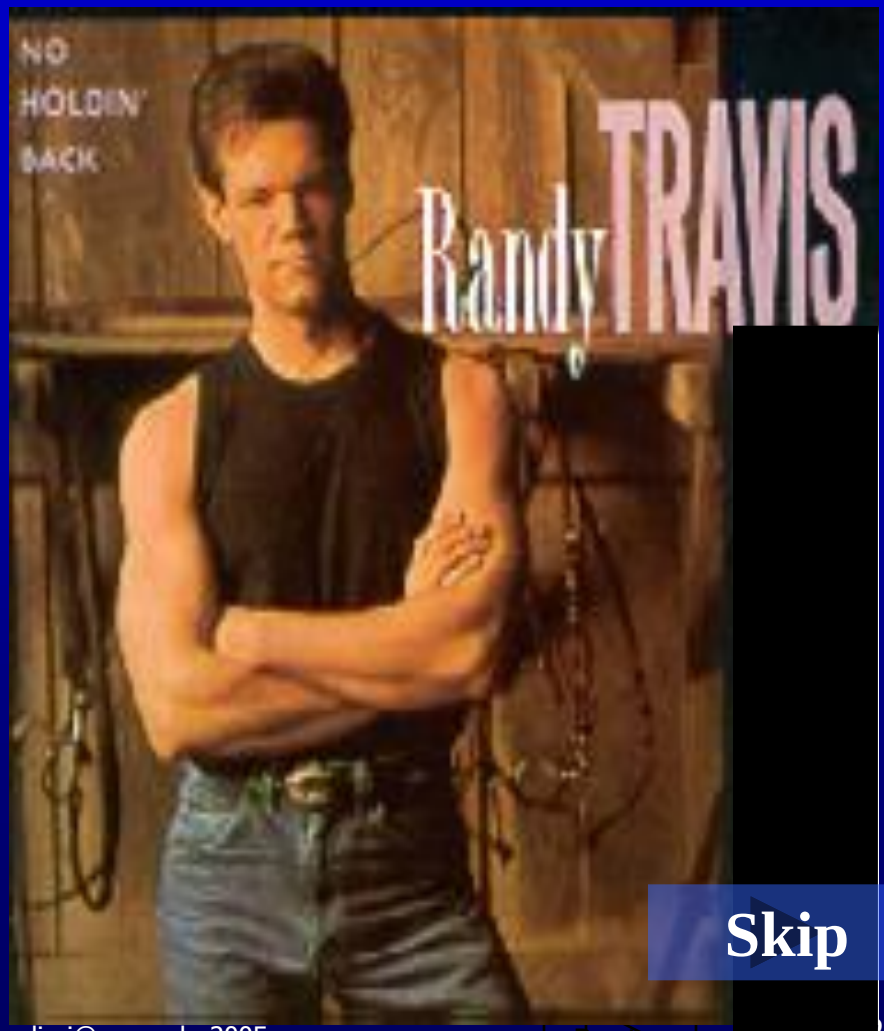
- Child selects one of the options that best completes the matrix
- Start:
  - Ages 5-7: Item 1
  - Ages 8-17: Item 7
- Discontinue: After four consecutive items failed



Simultaneous Verbal Task

- Simultaneous processing using verbal content
- Who is this song about?

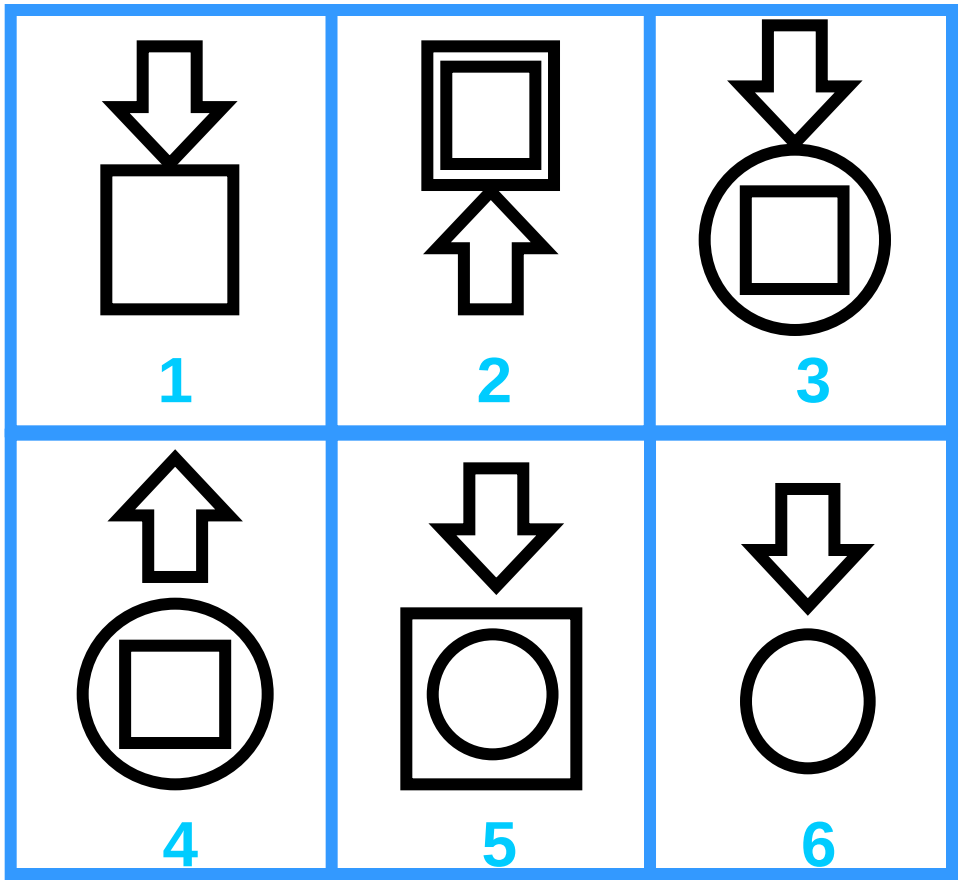
My momma's daddy was his oldest son.



Skip

Verbal-Spatial Relations

- Child selects the picture that answers the question read by the examiner



Which picture shows the arrow pointing to the square in the circle?

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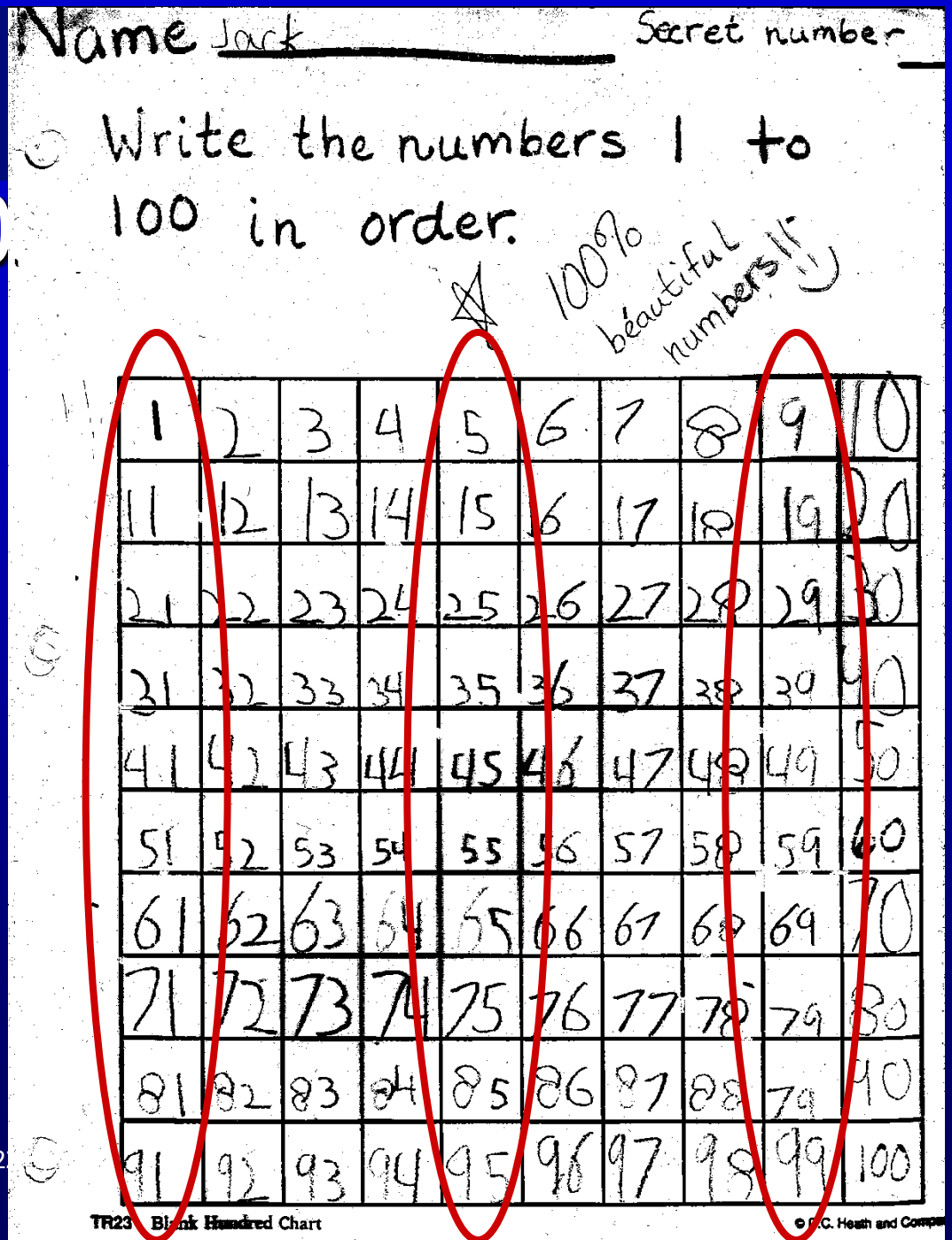
Numbers from 1 to 100

How is … Simultaneous processing facilitated by this work sheet?



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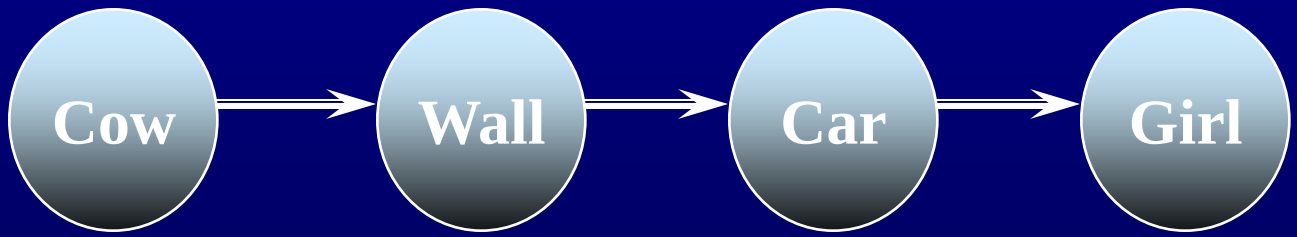
Modern Theory: Successive

- **Successive** processing is a mental activity by which the person integrates stimuli in a specific serial order
  - Stimuli form a chain-like progression
  - Stimuli are not inter-related



Word Series

- The child repeats a series of words in the same order the examiner says them

1. **Wall-Car**
2. **Shoe-Key**

...

10. **Cow-Wall-Car-Girl**
11. **Dog-Car-Girl-Shoe-Key**

...

27. **Cow-Dog-Shoe-Wall-Man-Car-Girl-Key-Book**

Sentence Questions (Ages 8-17)

- The child answers a question read by the examiner

1. The blue is yellow. Who is yellow?

...

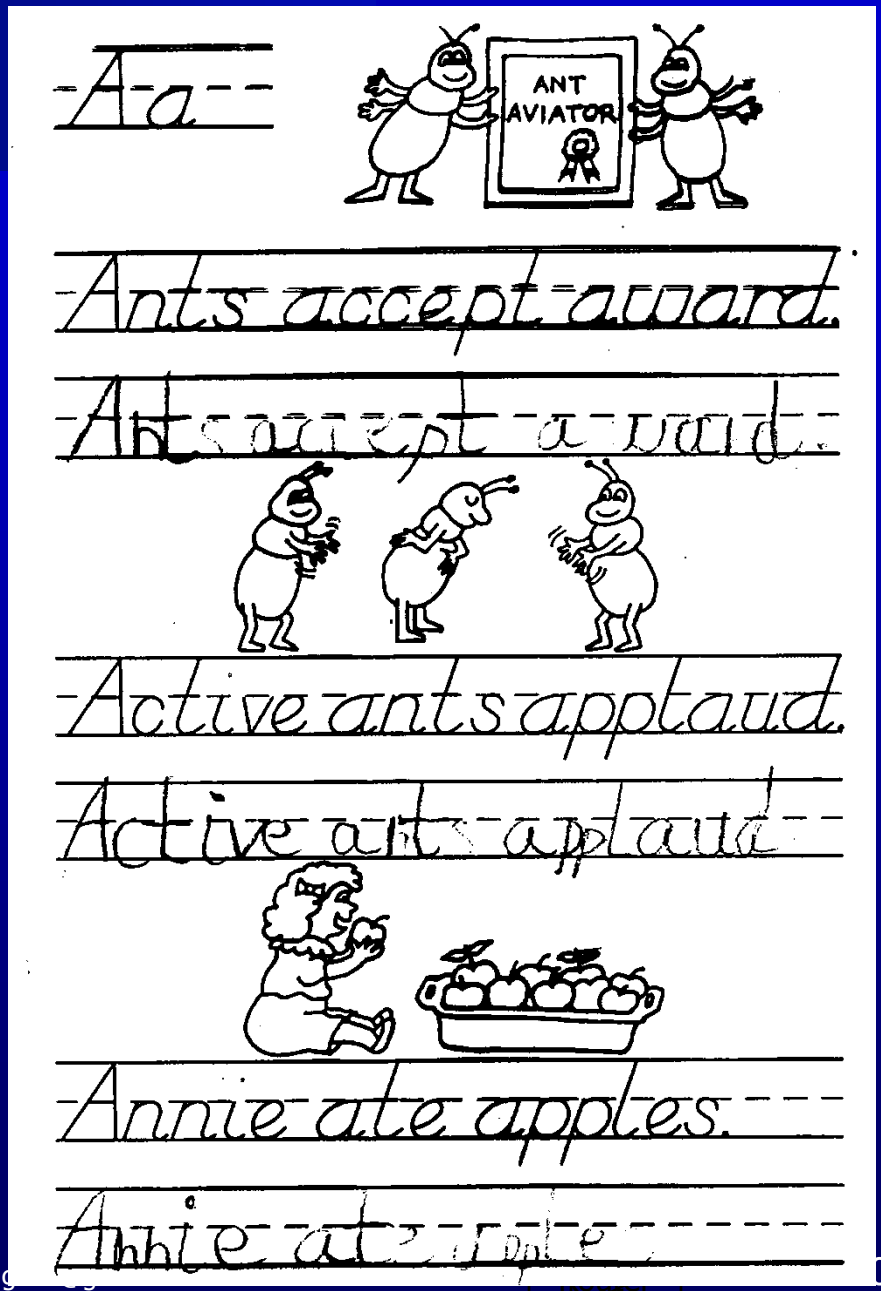
10. The red greened the blue with a yellow. Who used the yellow?

...

20. The red blues a yellow green of pinks, that are brown in the purple, and then grays the tan. What does the red do first?

Successive

The sequence of the sounds is emphasized in this work sheet



PASS Theory & Cognitive Assessment System

Description of the test

CAS (Naglieri & Das, 1997)

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CAS Description

- The CAS …
  - is an individually administered measure of basic psychological processes
  - administered by trained professionals (e.g., school psychologists) in 45 to 60 minutes (depending on the version given)
  - designed for children 5-17 years of age
  - is easy to administer and score
  - consists of four theoretically derived scales

CAS


DAS • NAGLIERI
Cognitive Assessment System
Stimulus Book
Interpretive Handbook
Administration and Scoring Manual

CAS

Full Scale (100; 15)

- Planning (100; 15)
  - Matching Numbers
  - Planned Codes
  - Planned Connections
- Simultaneous (100; 15)
  - Nonverbal Matrices
  - Verbal Spatial Relations
  - Figure Memory
- Attention (100; 15)
  - Expressive Attention
  - Number Detection
  - Receptive Attention
- Successive (100; 15)
  - Word Series
  - Sentence Repetition
  - Speech Rate (5-7) or Sentence Questions

Using PASS processes for Eligibility Decisions

From Theory to Practice

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Hale, Naglieri, Kaufman, & Kavale (2004)

THE SCHOOL PSYCHOLOGIST

Policy Forum

Specific Learning Disability Classification in the New Individuals with Disabilities Education Act: The Danger of Good Ideas

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College of Education, University of Iowa

Abstract

The recently revised IDEA guidelines indicate that a Specific Learning Disability (SLD) can be identified if a child has a disorder in the basic psychological processes. The criteria in the new guidelines for identifying SLD state that: a) a severe discrepancy between achievement and intellectual ability *shall not be required*; and b) a response to intervention (RTI) *may be considered*. These criteria are ambiguous regarding how the traditional ability-achievement discrepancy approach should be applied, and they are equally ambiguous about the recently adopted failure to RTI model. Absent from these criteria is any mention

integrities. Identifying a child's unique pattern of performance on standardized measures not only assures compliance with the new IDEA guidelines, but also allows for recognition of individual cognitive strengths and needs, one of the prerequisites for intervention efficacy.

Specific Learning Disability Classification in the New Individuals With Disabilities Education Act: The Danger of Good Ideas

The National Assessment of Educational Progress (NAEP) recently released the nationwide results of reading and math scores for children in fourth and eighth grades. Averaging across all students, no gains were made in reading scores from

Hale, Naglieri, Kaufman, & Kavale (2004)

- The definition of SLD is
  - "… a disorder in 1 or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations."
- The definition and the method used to identify SLD childrnen needs to be united

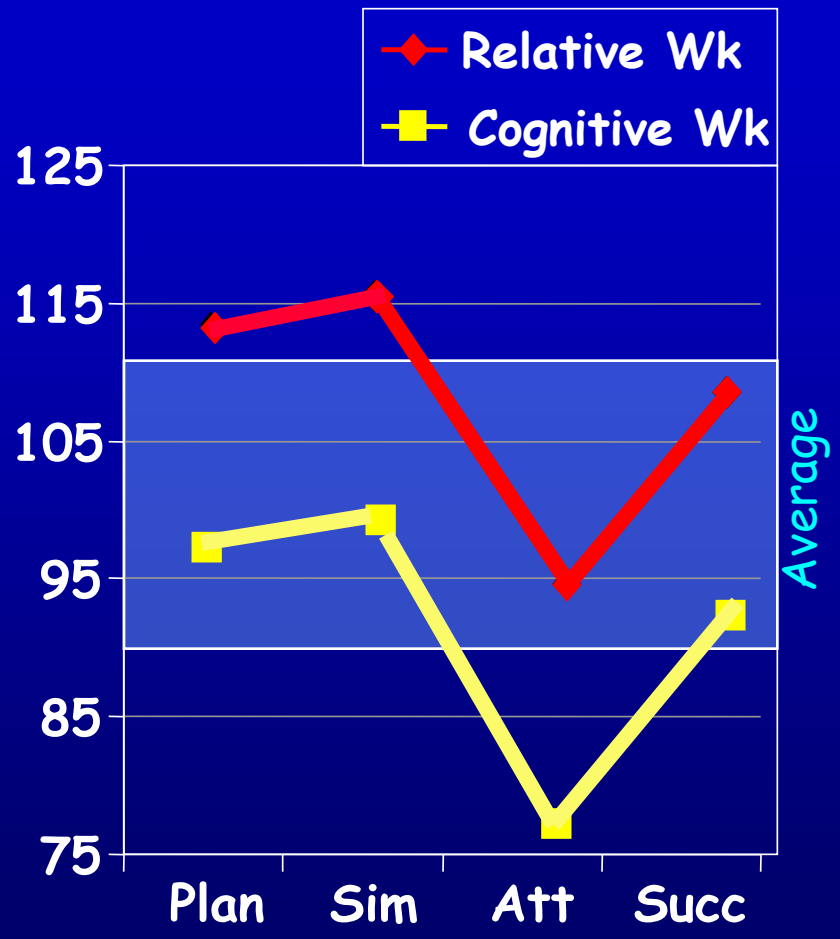
CAS & PASS

- We use the CAS to measure the four basic psychological processes -- Planning, Attention, Simultaneous, and Successive
- The test is interpreted at the theoretical level not subtest level
- We look for variation in the PASS profile that has relevance to intervention

IDEA and Cognitive Assessment

- How do we connect the definition of LD with methods to assess it?
  - Measure "basic psychological processes" using well validated standardized tests built on current views of processing
  - Identify a cognitive weakness with otherwise average or above levels

Relative & Cognitive Weaknesses



- Relative Weakness
  - Significant weakness relative to the child's mean PASS score
- Cognitive Weakness
  - Significant weakness relative to the child and
  - The PASS score falls in the Low Average range (80-89) or lower

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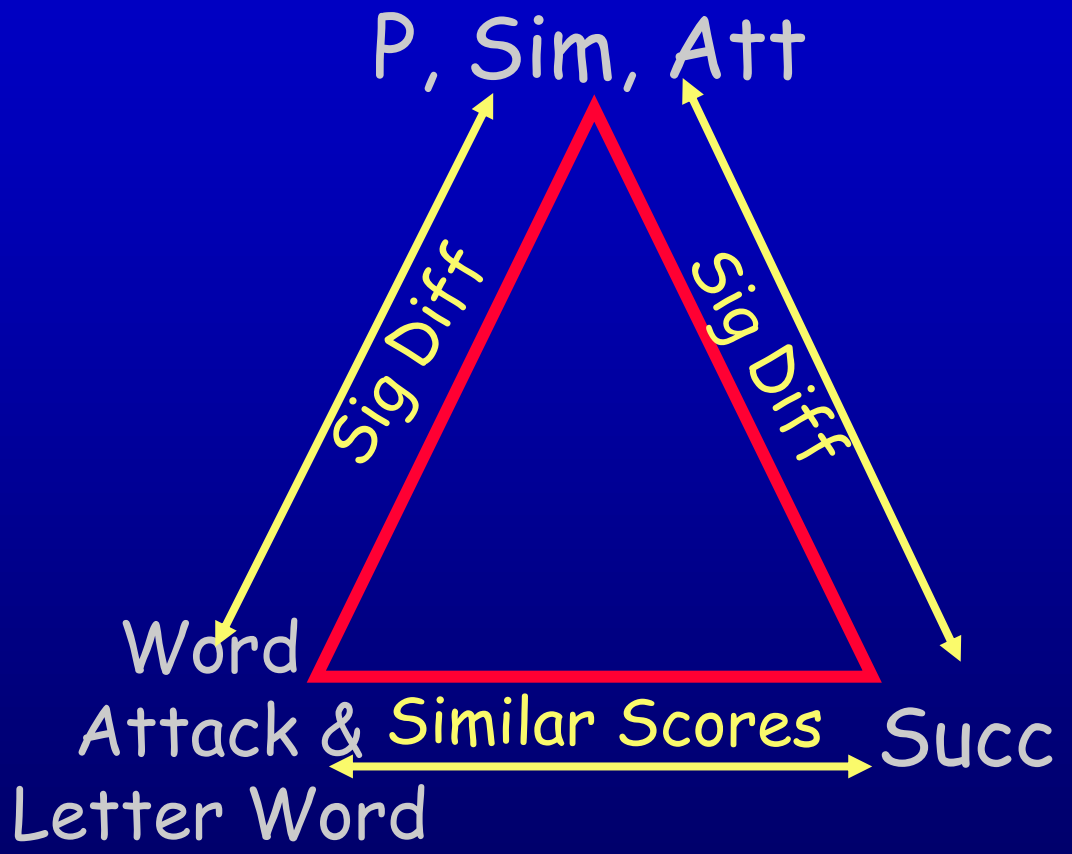
Router

PASS Cognitive Weakness

- PASS is sensitive to cognitive *and* academic failure,

  so we have
  - Difference between high processing low achievement *and*
  - Consistency between low processing and low achievement

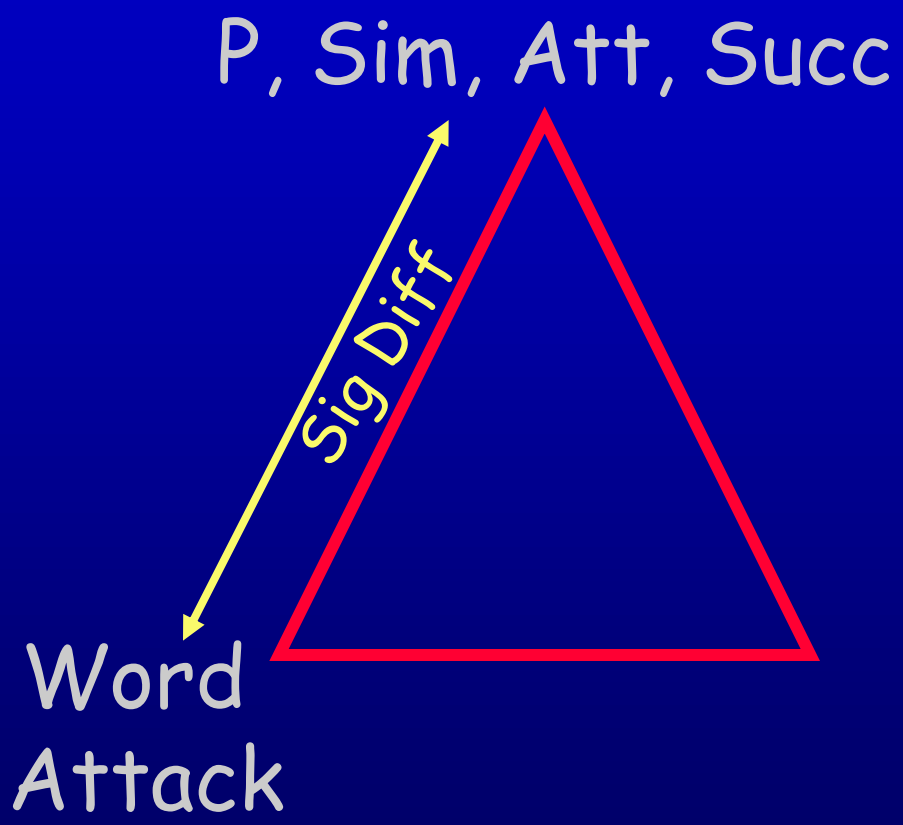


Eligibility - Federal Definition

- How to identify SLD with CAS
  - If a child has a PASS weakness, this is
    - "… a disorder in one or more of the basic psychological processes…involved in understanding or in using language, spoken or written, which may manifest itself in an impaired ability to listen, think, speak, read, write, spell, or do mathematical calculations"
- Once we have identified a processing disorder, what do you tell the teacher?

CAS Discrepancy Only

- Task of the School Psychologist:
  - discrepancy but not consistency = DIRECT INSTRUCTION
  - discrepancy and consistency = SPECIALIZED INSTRUCTION



William

Low Successive processing and Reading Decoding Failure

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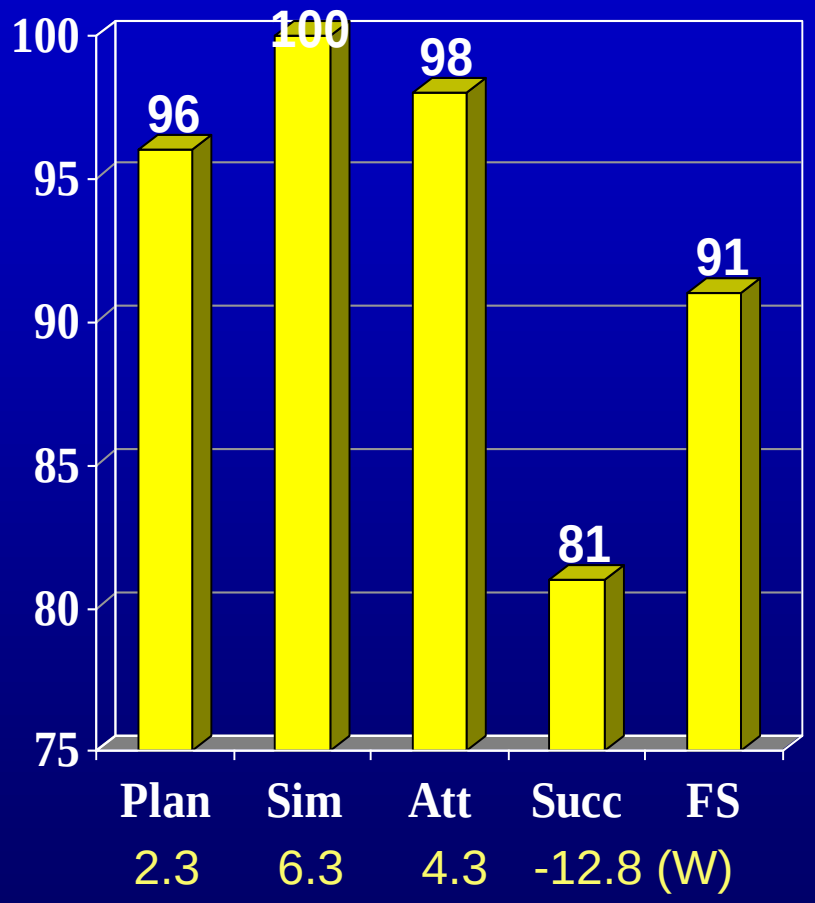
Case of William (continued)

- Reading:
  - Letter-Word ID = 81
  - Word Attack = 76
  - Passage Comp = 89
  - Spelling = 83
  - Dictation = 81
- Math
  - Calculation = 96
  - Applied Problems = 89



Child's mean = 93.8; d values are:

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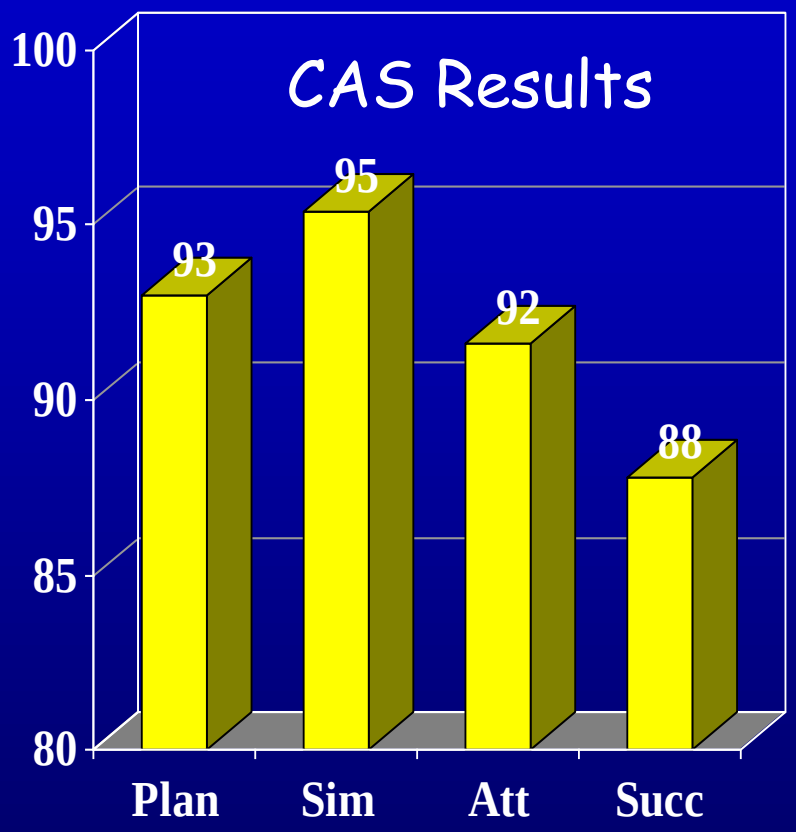
PASS & Reading Disability



- N = 24 boys (15) & girls (9)
- All had a 15-point difference between WISC-III FSIQ & WJ-R Word Attack, and Word Attack

  < 90.
- Results are consistent with the view that successive and phonological failures are related (Das, Naglieri, & Kirby, 1994)

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Router

CAS - Beta version 021802A

New Student | Save Student | Delete Student | Find Student | Score Comparisons | Print Page | Narrative | Interventions | Abandon

Compute scores based on which Battery Type? (•) Standard ( ) Basic

CAS Subtests	Raw Scores	Scaled Scores (Appendix A)				
Matching Numbers	8	10				
Planned Codes	32	9				
Planned Connections	280	9				
Nonverbal Matrices	14		10			
Verbal-Spatial Relations	14		9			
Figure Memory	11		11			
Expressive Attention	33			9		
Number Detection	35			10		
Receptive Attention	33			10		
Word Series	6				5	
Sentence Repetition	6				9	
Sentence Questions	6				7	
Sum of Subtest Scaled Scores		28	30	29	21	108
		PLAN	SIM	ATT	SUC	FS
PASS Scale Standard Scores (Appendix B)		96	100	98	81	91
Percentile Rank (Appendix B)		39	50	45	10	27
90 % Confidence Intervals (Appendix B)	Lower	89	93	91	76	87
	Upper	104	107	106	89	96

	Last	First
* Child's Name	M	WILLIAM
Sex	M	Grade 4
School	BAILEY	
Examiner	GOTTLING	

* Date Tested	2002	2	25
* Date of Birth	1993	2	3
	Year	Month	Day
Age	9	0	22

* = Required Fields

Record Form

Matching Numbers 3

Planned Codes 3

Planned Connections 4

Nonverbal Matrices 4

Verbal-Spatial Relations 5

Figure Memory 5

Expressive Attention 6

Number Detection 8

Receptive Attention 9

Word Series 10

Sentence Repetition 11

Speech Rate/ 12
Sentence Questions 13

Beta - v021802A

Record: 3 of 3

CAS - Beta version 021802A

Compute scores based on which Battery Type? (•) Standard ( ) Basic

CAS Worksheet

Close and return to Page 1

CAS Worksheet | CAS/K-TEA | WJ-3 Tests | CAS vs WIAT | CAS vs PIAT | CAS vs WRAT | CAS vs DAB-2

PASS Scale Comparisons

Print			Values needed at .05	Values needed at .10	.05 SIG / NS	.10 SIG / NS
PLAN	96	2.3	10.8	9.7	-	-
SIM	100	6.3	9.6	8.6	-	-
ATT	98	4.3	11.1	9.9	-	-
SUC	81	-12.8	9.5	8.6	SIG	SIG
PASS mean		93.8				

Subtest Analysis

			Values needed at .05	Values needed at .10	.05 SIG / NS	.10 SIG / NS
MN	10	0.7	2.8	2.5	-	-
PCd	9	-0.3	2.6	2.3	-	-
PCn	9	-0.3	2.9	2.5	-	-
PLAN mean		9.3				
NvM	10	0.0	2.2	1.9	-	-
VSR	9	-1.0	2.5	2.2	-	-
FM	11	1.0	2.2	2.0	-	-
SIM mean		10.0				
EA	9	-0.7	2.9	2.6	-	-
ND	10	0.3	2.9	2.6	-	-
RA	10	0.3	2.9	2.6	-	-
ATT mean		9.7				
WS	5	-2.0	2.4	2.2	-	-
SR	9	2.0	2.4	2.1	-	-
Spr/Sq	7	0.0	2.5	2.2	-	-
SUC mean		7.0				

CAS Sub
Matchin
Planned
Planned
Nonverb
Verbal-S
Figure M
Express
Number
Recepti
Word S
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Sentenc
Sum of
PASS Sc (Appendi
Percentil (Appendi
90
(Appendix D)

Upper	104	107	106	89	96

Record: 3 of 3

CAS - Beta version 021802A

Compute scores based on which Battery Type? (•) Standard ( ) Basic

CAS Worksheet

Close and return to Page 1

CAS Worksheet | CAS/K-TEA | WJ-3 Tests | CAS vs WIAT | CAS vs PIAT | CAS vs WRAT | CAS vs DAB-2

Print WJ-R

Clear Values

	Score	FS 91 .01	FS 91 .05	PLAN 96 .01	PLAN 96 .05	SIM 100 .01	SIM 100 .05	ATT 98 .01	ATT 98 .05	SUC 81 .01	SUC 81 .05
Letter-Word	81	-	Sig	-	Sig	Sig	Sig	Sig	Sig	-	-
Reading Fluency		-	-	-	-	-	-	-	-	-	-
Story Recall		-	-	-	-	-	-	-	-	-	-
Under Directions		-	-	-	-	-	-	-	-	-	-
Calculation		-	-	-	-	-	-	-	-	-	-
Math Fluency		-	-	-	-	-	-	-	-	-	-
Spelling		-	-	-	-	-	-	-	-	-	-
Writing Fluency		-	-	-	-	-	-	-	-	-	-
Passage Comp	89	-	-	-	-	-	-	-	-	-	-
Applied Problems		-	-	-	-	-	-	-	-	-	-
Writing Samples		-	-	-	-	-	-	-	-	-	-
Story Recall-Delayed		-	-	-	-	-	-	-	-	-	-
Word Attack	76	-	Sig	Sig	Sig	Sig	Sig	Sig	Sig	-	-
Picture Vocabulary		-	-	-	-	-	-	-	-	-	-
Oral Comprehension		-	-	-	-	-	-	-	-	-	-
Editing		-	-	-	-	-	-	-	-	-	-
Reading Vocabulary		-	-	-	-	-	-	-	-	-	-
Quant Concepts		-	-	-	-	-	-	-	-	-	-
Academic Knowledge		-	-	-	-	-	-	-	-	-	-
Spelling Sounds	83	-	-	-	-	-	Sig	-	-	-	-

	Score	FS 91 .01	FS 91 .05	PLAN 96 .01	PLAN 96 .05	SIM 100 .01	SIM 100 .05	ATT 98 .01	ATT 98 .05	SUC 81 .01	SUC 81 .05
Sound Awareness		-	-	-	-	-	-	-	-	-	-
Punct & Capt		-	-	-	-	-	-	-	-	-	-
Total Achievement		-	-	-	-	-	-	-	-	-	-
Oral Language		-	-	-	-	-	-	-	-	-	-
Broad Reading		-	-	-	-	-	-	-	-	-	-
Broad Math		-	-	-	-	-	-	-	-	-	-
Broad Written Lang		-	-	-	-	-	-	-	-	-	-
Academic Skills		-	-	-	-	-	-	-	-	-	-
Academic Fluency		-	-	-	-	-	-	-	-	-	-
Academic App		-	-	-	-	-	-	-	-	-	-
Oral Language - Ext		-	-	-	-	-	-	-	-	-	-
Oral Expression		-	-	-	-	-	-	-	-	-	-
Listening Comp		-	-	-	-	-	-	-	-	-	-
Basic Reading Skills		-	-	-	-	-	-	-	-	-	-
Reading Comp		-	-	-	-	-	-	-	-	-	-
Math Calc Skills		-	-	-	-	-	-	-	-	-	-
Math Reasoning		-	-	-	-	-	-	-	-	-	-
Basic Writing Skills		-	-	-	-	-	-	-	-	-	-
Written Skills		-	-	-	-	-	-	-	-	-	-
Phoneme/Grapheme		-	-	-	-	-	-	-	-	-	-

(Appendix D)	Upper	104	107	106	89	96

Record: 3 of 3

CAS Discrepancy / Consistency

- PASS is sensitive to cognitive *and* academic failure,

  so we have
  - Discrepancy: high processing low achievement) *and*
  - Consistency: low processing and low achievement