

# Understanding the Cognitive Abilities Test™ (CogAT®)

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# What is the CogAT?

- **Cognitive Abilities Test**
- Appraises general abstract reasoning abilities
- Appraises capacity to apply abilities to Verbal, Quantitative & Non Verbal tasks



# What is CogAT?

- Not IQ test!
- Measures *learned reasoning abilities*
- Focus on *specific areas* of reasoning linked to school success



# Measures reasoning skills:

- Comprehend problem situations
- Detect similarities & differences
- Make inferences
- Make deductions
- Classify & categorize objects, events, & other stimuli
- Create & adapt problem-solving strategies
- Use familiar concepts & skills in new contexts



# Primary Uses of CogAT

- Adapt instruction to needs & abilities of students
- Alternative measure of cognitive development for program placement
- Identify students with discrepancies between observed & actual levels of achievement



# Norm Referenced Tests (NRT) & Scores

- Scores show comparison (norm group)
- CogAT shows abilities
- Iowa Tests of Basic Skills<sup>®</sup> (ITBS<sup>®</sup> shows achievement
- Percentile Ranks do not show growth from year to year
  - show rank & status against a norm



# Measurement Terms

Raw Score - # items answered correctly

Universal Scale Score (USS) - provides a continuous growth scale of cognitive development

Percentile Rank (PR) - percentage of scores in a specified distribution that fall at or below the point of a given score

Standard Age Score (SAS) - normalized standard scores

Stanine (S) - “Standard-nine” scale

• <http://www.riverpub.com/pdfs/WebGlossary.pdf>



# Standard Age Scores - SAS

- Very High 128 - 150
- Above Average 112 - 127
- Average 89 - 111
- Below Average 73 - 88
- Very Low 50 - 72

Refer to test manuals for information regarding standard deviation and standard error of measurement.

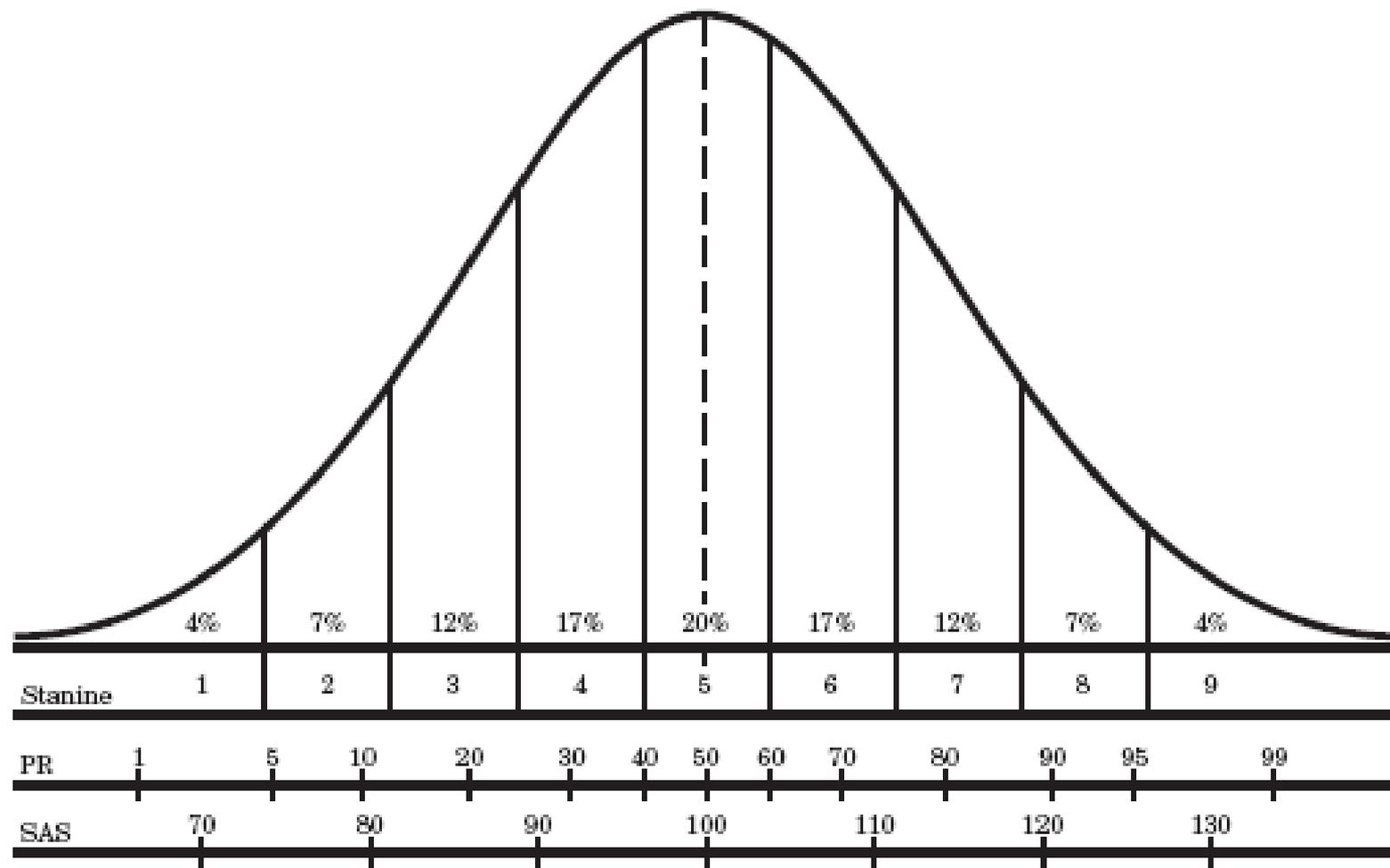


# Stanine Interpretations

- Stanine 9 = Very High
- Stanine 7-8 = Above Average
- Stanine 4-6 = Average
- Stanine 2-3 = Below Average
- Stanine 1 = Very Low



**Figure 1-1: Relationship of Stanines, Percentile Ranks, and Standard Age Scores**



# CogAT Score Profiles

- Students differ in level & pattern of cognitive abilities
- Instruction adapted to capitalize on strengths or compensate for weaknesses



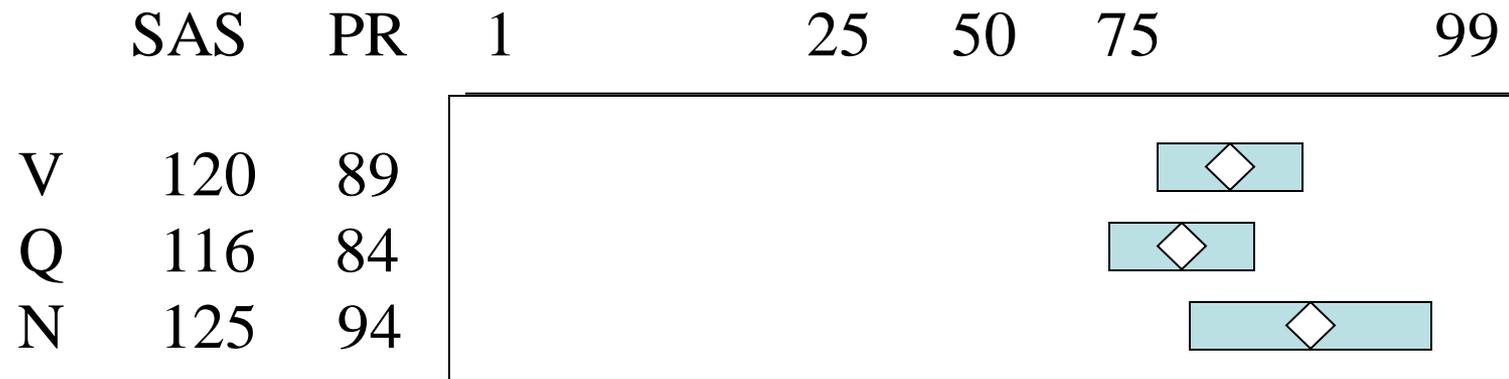
# CogAT Profile System

## ABC Profiles:

- **A** profiles: Confidence bands overlap; Scores are s**A**me level
- **B** profiles: Score a**B**ove or **B**elow the other two scores, which are same
- **C** profiles: Two scores **C**ontrast
- **E** profiles: **E**xtrême B or C profiles ( $\geq 24$ )



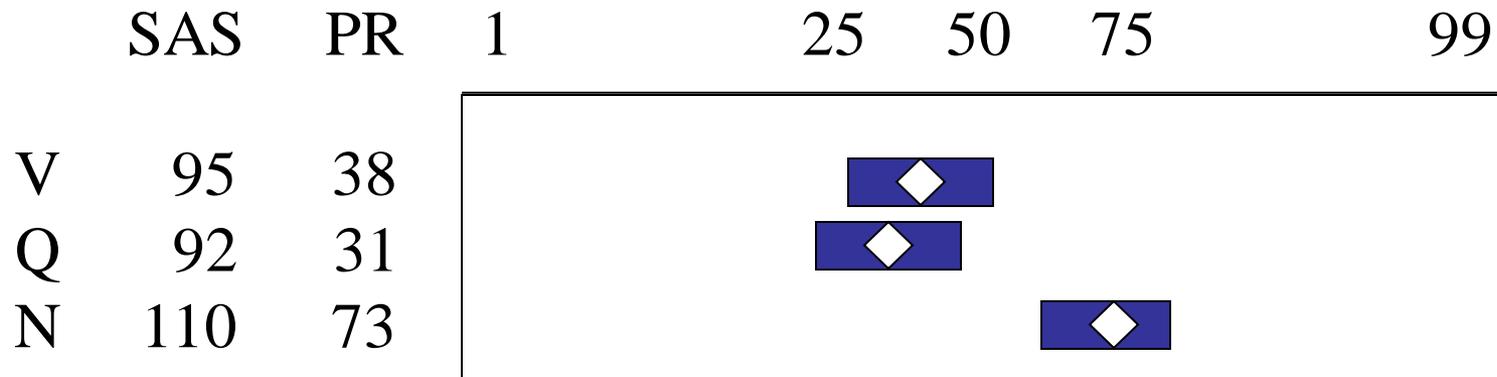
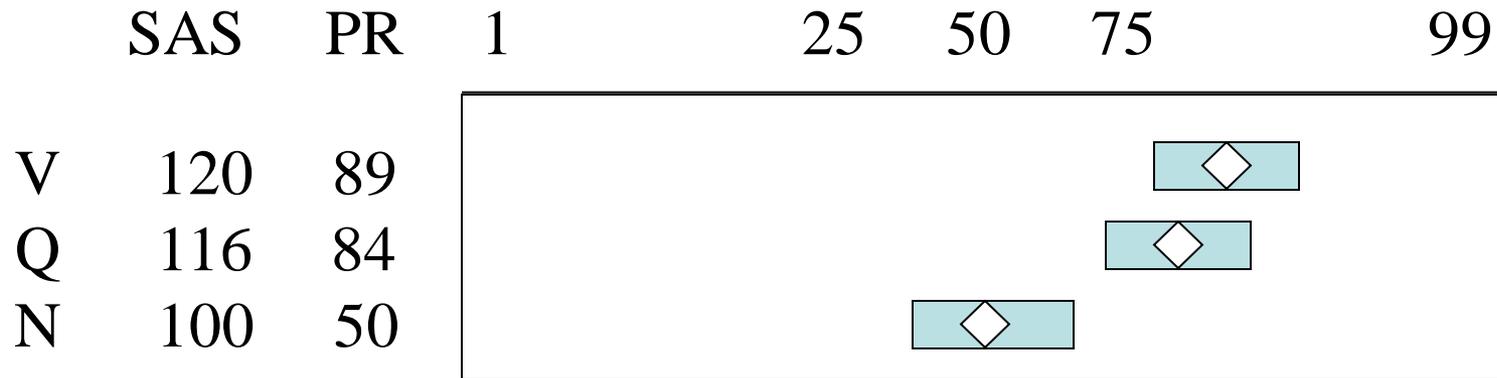
# A Profile



- **A** profiles: Bands overlap for all 3 scores; scores at same level



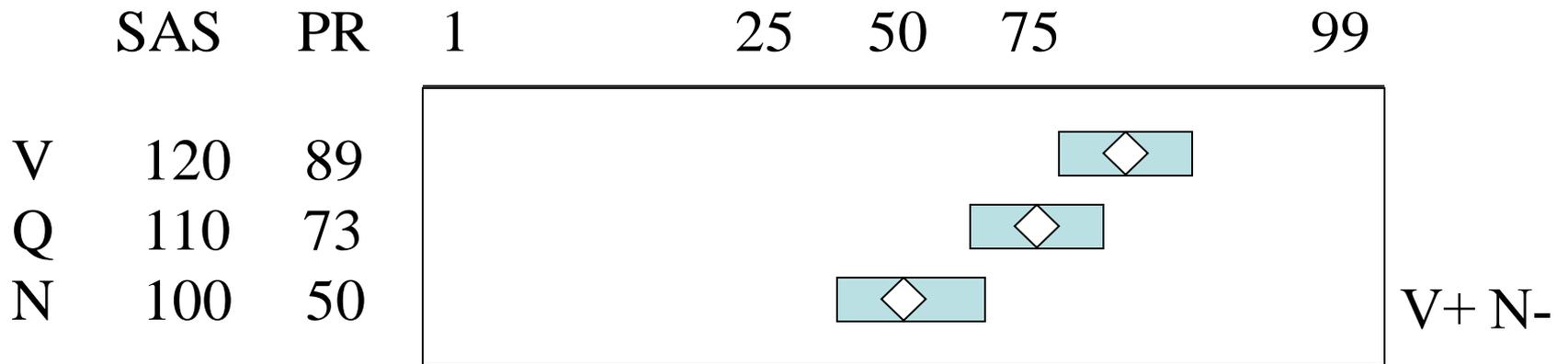
# B Profiles



- **B** profiles: One score **a**Bove or **B**elow other 2 scores; shows relative strength or weakness



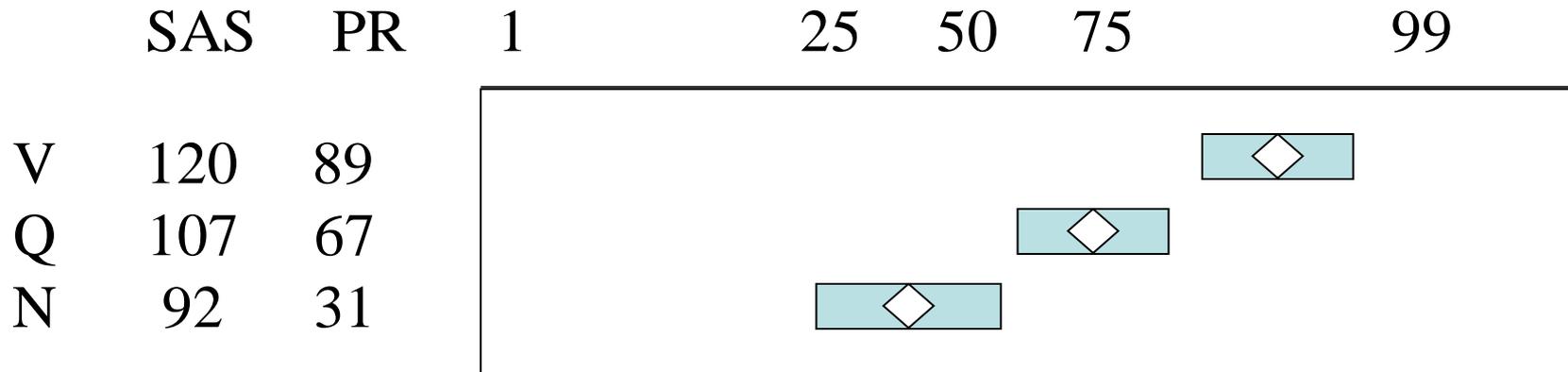
# C Profiles



- C profiles: Two scores Contrast



# E Profiles



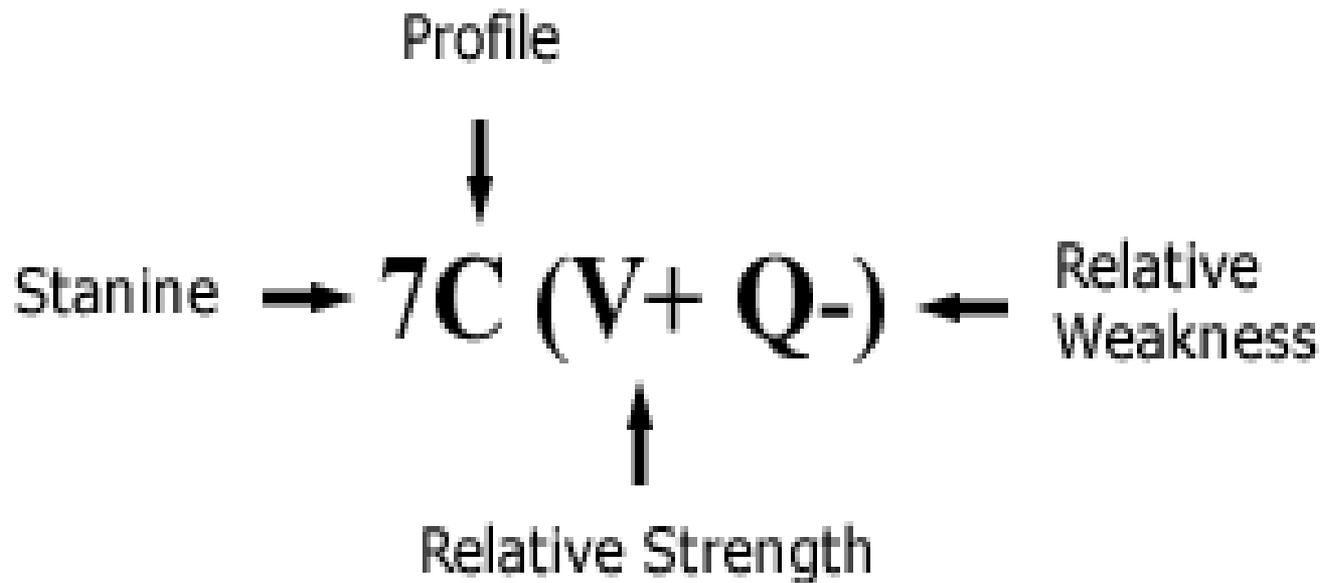
**SAS Max – SAS Min = 28**

**E (V+ N-)**

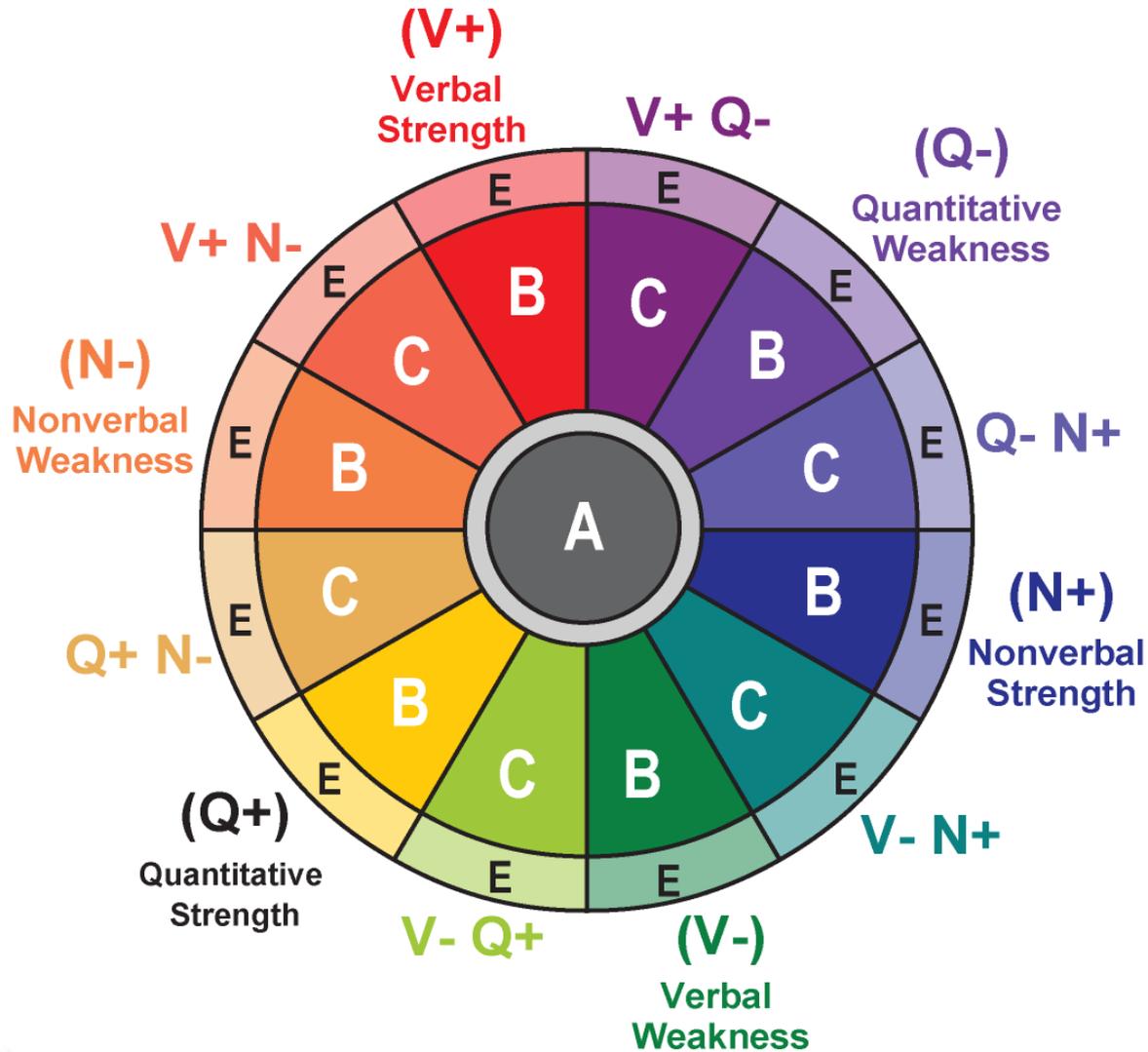
- E profiles: Extreme B or C profiles ( $\geq 24$ )



# CogAT Ability Profile Score



# CogAT Ability Wheel



# Ability Profile System

- Locate individual ability profile score

CogAT®

**PROFILE NARRATIVE FOR MARTIN GRANT**  
Cognitive Abilities Test™ (CogAT®)

Student: Grant, Martin  
Class: Prescott  
Building: Lockwood Elementary  
System: Port Charles CSD

Student ID:  
FormLevel: 6/2  
Test Date: 09/2003  
Series: Fall 2003  
Order No.: 000000000  
Page: 57 Grade: 2

Abilities	National Age Scores		National Age Percentile Ranks			
	Standard Age Score	Staircase	Percentile Rank	75	50	75
Verbal	84	3				
Quantitative	92	4				
Nonverbal	110	6				
<b>COMPOSITE</b>	<b>95</b>	<b>4</b>	<b>38</b>			

**Ability Profile 4E (N+):** The number in the profile is the age staircase for the middle score on the three batteries. The score on the Nonverbal Battery is significantly higher than the scores on the Verbal and Quantitative Batteries. For more information, visit [www.cogat.com](http://www.cogat.com).

Abilities	Raw Scores			Grade Scores	
	Number of Items	Number Att.	Number Correct	National Stanine	National Percentile Rank
Verbal	48	48	24	4	31
Quantitative	48	48	31	5	56
Nonverbal	48	48	42	7	87
<b>COMPOSITE</b>				<b>6</b>	<b>62</b>

Notes:

**Scores for Martin Grant:**

Martin was given the Cognitive Abilities Test in September 2003. At the time of testing, he was in second grade at Lockwood Elementary in Port Charles CSD.

Different students bring different patterns and levels of abilities to learning tasks. He was given the Cognitive Abilities Test to help find out about his reasoning abilities. Martin was tested in all three areas: verbal, quantitative, and nonverbal abilities.

Martin's national percentile rank of 16 on verbal reasoning ability means that, compared with other students his age nationally, Martin scored higher than 16 percent. Martin's national percentile rank is 31 in quantitative ability and 73 in nonverbal ability.

Martin's composite score is derived from results from the three batteries. Martin's composite national percentile rank of 38 is a general statement of his reasoning ability.

If you need assistance with score interpretation, please contact your child's teacher.

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Enter the score profile at: <http://www.cogat.com>

**COGNITIVE ABILITIES TEST™**

**Interactive Ability Profile Site**  
Based on the CogAT® Form 6 Interpretive Guide for Teachers and Counselors

CogAT Home | Support | Scoring

This site was built to enable teachers, counselors, and parents to interpret the Cognitive Abilities Test™ (CogAT) Ability Score Profiles for their students. [Click here to see A Note to Parents](#)

**Directions:** Enter a student's ability profile in the appropriate drop down boxes (see sample score for clarification). Once complete, click search, and an interpretation of the score will be provided.

**Sample Score Profile:**

Profile  
↓  
Stanine → 7C (V+ Q-) ← Relative Weakness  
↑  
Relative Strength

**Input Your Score Profile:**

Stanine: 7  
Profile: A  
Relative Strength: None  
Relative Weakness: None

Search



# Ability Profile System

View instructional strategies

CogAT Interactive Ability Profile Site - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media

Address <http://www.riverpub.com/products/group/cogat6/results.jsp> Go Links

Search Web Mail My Yahoo! Games Personals Music Finance Sign In

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Search for Profile: 5B (V+) [Enter Another Profile](#)

**Profiles 4B (V+), 5B (V+), and 6B (V+)**

**Profile Explanation**

Students with these profiles have a relative strength in verbal reasoning. Their median age stanine for all three CogAT batteries is in the low-average (stanine 4), average (stanine 5), or high-average (stanine 6) range.

- [Characteristics of Students with These Profiles](#)
- [Instructional Suggestions for Profiles 4B \(V+\), 5B \(V+\), and 6B \(V+\)](#)
- [General Instructional Suggestions for All Students with a Median Stanine of 4, 5, or 6](#)
- [For Additional Information](#)

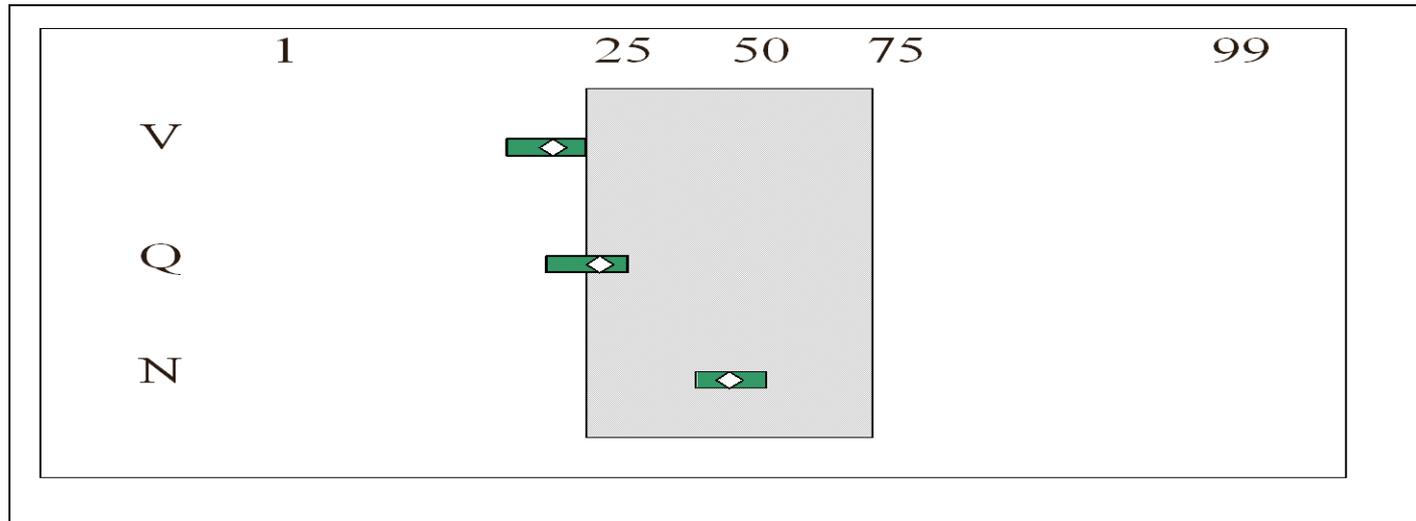
■ [Characteristics of Students with These Profiles](#) [\[top\]](#)

Overall, the reasoning abilities of these students fall in the average range. Because



# Case Study: Sam

	No. of Items	Number Attempted	Raw Score	USS	Age Scores			Grade Scores	
					SAS	PR	S	PR	S
Verbal	44	44	20	125	87	21	3	13	3
Quantitative	44	43	19	124	90	27	4	16	3
Nonverbal	44	43	24	144	100	50	5	30	4
Composite				131	90	27	4	16	3



**Profile 4B (N+)**





## ■ Instructional Suggestions for Profiles 4B (N+), 5B (N+), and 6B (N+) [top]

For most students, the N+ profile reflects a strength in spatial reasoning. Learning is easiest for these students when they can readily connect each new concept or relationship with a mental or physical model (e.g., a schematic drawing) of the situation. For young children, comprehension improves markedly when the text contains detailed illustrations. The tendency to rely on pictures and illustrations emerges whenever these individuals cannot readily envision a mental model of the situation or the problem. This commonly occurs when material is presented verbally at a rapid or inflexible rate (as, for example, in a video presentation). Allowing the student to control the rate at which verbal information is presented by a mechanical device is helpful. It also occurs when the student has no clear mental model of the situation. In all areas of the curriculum, but especially in science and mathematics, metaphors and analogies that allow the student to connect unfamiliar, abstract concepts to a more familiar physical system will not only enable them to understand but will greatly facilitate retention and transfer.

Although students with these score profiles have resources that are adequate for learning, they will nonetheless often have to work at the limits of their capacity when problems are complex or abstract. Students who score in the low-average range (stanine of 4) will experience this more frequently than individuals whose levels of verbal and quantitative reasoning abilities are in the high-average range (stanine of 6). Students who also have difficulties with spelling, grammar, and tasks such as writing and speaking that require verbal fluency will more frequently experience these frustrations as well.

Whenever students must work at the edge of their capacity, even small reductions in the burdens placed on working memory can have substantial benefits. Students who have relatively strong spatial reasoning abilities will especially benefit from strategies that help them create drawings when solving problems in mathematics, or concept maps when taking notes, or mental models of a scene when reading passages. For young children especially, encourage this by asking, What do you see? Older students can be asked to construct the scene--perhaps using computer images or cut-out figures. When teaching writing, encourage these students to try descriptive rather than narrative prose. Help them first envision a scene before they attempt to describe it. Giving them examples of good descriptive prose is also helpful.

Finally, it is important to encourage the continued development of these students'

## Narrative Highlights

- Strength in spatial reasoning
- Learn by connecting new concepts with a mental or physical model
- Comprehension improves with illustrations
- Use metaphors & analogies to connect abstract concepts
- Difficulty with spelling, grammar & writing, & speaking tasks

# CogAT Normative Update

- Updated in 2005
- Recalibrates grade & age norms
- Reflects US student population in the 5 years since the standardization
- Bootstrap Sampling Procedure
- Considered a demographic update



# Common Misunderstandings

- Scores are precise & absolutely accurate
  - Test scores are estimates
  - Representing a range of ability rather than a precise point
- Percentile rank vs. percent correct
- Norm group consists of a particular classroom or school



- Items are biased
  - Screened for bias
    - Authors, Riverside staff, and by a panel of minority educators
  - National try-outs
    - Statistical analysis
    - Items found to be biased are removed

