

CogAT® General Notes

New to me:

CogAT appraises the level and pattern of reasoning abilities with language, numbers, and spatial concepts. These abilities reflect the **overall efficiency** of cognitive processes and strategies that enable individuals to **learn new tasks** and **solve problems**. Because these abilities are closely related to an individual's success in school in virtually **all subjects**, CogAT test results are helpful in planning **effective instructional programs** and **adapting instruction** in ways that enhance the student's chances of **success in learning**.

Ideas to share with others:

- ❖ To guide efforts to **adapt instruction** to the needs and abilities of students.
- ❖ To identify students whose predicted levels of achievement are markedly discrepant from their **observed and actual levels of achievement**.
- ❖ To provide a universal measure of cognitive development for **tailored instruction in the classroom & program placement**.

"Schools serve us, when they aim not to drill, but to create; when they gather from far **every ray of various genius**...and set the hearts of their youth on flame." – Ralph Waldo Emerson

"Education should not be intended to make people comfortable; **it is meant to make people think**." - Hanna Hollborn Gray, President of University of Chicago (1978 – 1993)

<https://www.surveymonkey.com/r/T7C87MG>



Lessons from The Animal School Fable by George H. Reavis

Ability and Achievement

Ability

Influenced by *all* learning opportunities
 Requires novel problem solving and reasoning processes

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

Achievement

Influenced more by formal education
 Requires well-practiced skills and crystallized knowledge

- *Language acquisition
- *Fluency
- *Decoding
- *Vocabulary
- *Comprehension
- *Step-by-step sequential math skills
- *According to specific standards

Potential and Performance

How will you use the Teacher Guide and Practice Activities?

Teacher

Principal / Campus Leaders




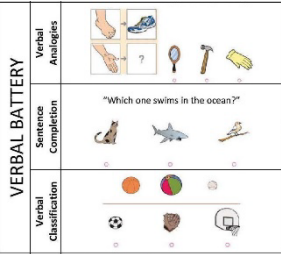
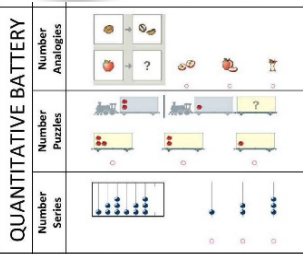
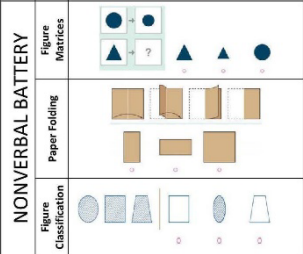
Intervention: RTI / MTSS

English Learner

Special Education

Gifted / Talent Development

CogAT Batteries, Assessment Items, and Activities

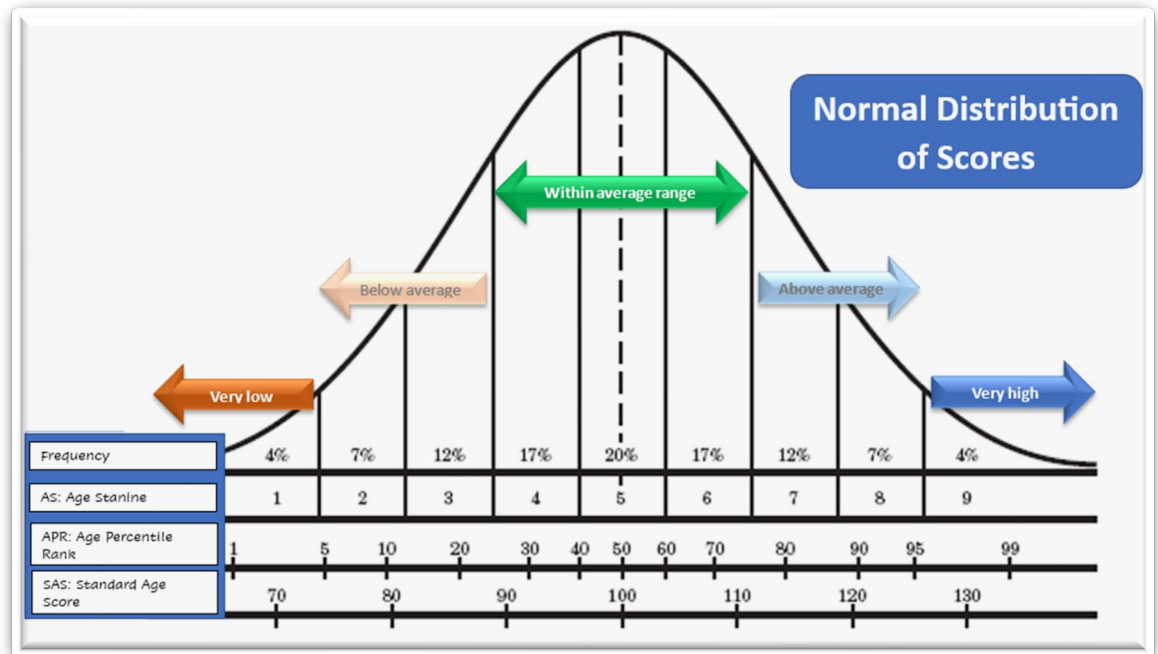
Reasoning with Language		Reasoning with Numbers		Abstract / Figural Reasoning	
	Verbal		Quantitative		Nonverbal
	Picture/Verbal Analogies		Number Analogies		Figure Matrices
	Sentence Completion		Number Series		Figure Classification
	Picture/Verbal Classification		Number Puzzles		Paper Folding
<i>Crossword puzzles</i>				<i>origami</i>	
					
Assess a student’s vocabulary efficiency and verbal memory. Assesses a student’s ability to determine word relationships		Tests the child’s understanding of basic quantitative concepts and relationships that are essential for learning mathematics. Tasks measure both the understanding of relational concepts and the student’s ability to discover relationships and to figure out a rule or principle that explains them.		Measures reasoning using pictures and geometric shapes. This reduces the impact of language on the student’s score.	
Reasoning Strength Area					
Students with a strength in the verbal category often demonstrate the following abilities:		Students with a strength in the quantitative category often demonstrate the following abilities: Process (think) in numbers		Students with a Non-verbal / Visual Spatial strength area acquire information and solve complex problems using visual images and hands-on reasoning rather than language-based reasoning.	
<ul style="list-style-type: none"> • Process (think) in words • Strong auditory learners • Potential to master language (receptive and / or expressive) quickly 		<ul style="list-style-type: none"> • Spontaneous formation of problems • Flexibility in handling data, mental agility of fluency of ideas • Data organization ability • Originality of interpretation • Ability to transfer ideas and the ability to generalize <p><i>It is important to note that this list of characteristics of the advanced quantitative learner does not include “computational proficiency”.</i></p>		<ul style="list-style-type: none"> • Process (think) in pictures • Patterns and aware of the underlying relationships • Ability in spatial and abstract thinking 	
Potential Student Needs					
Students with advanced potential in the verbal reasoning area may benefit from the following:		Students with advanced potential in the quantitative area differ from other students in their:		Students with advanced potential in the non-verbal reasoning area may benefit from the following: Non-verbal aids that include:	
<ul style="list-style-type: none"> • Analytical, critical, and creative thinking skills • Provide accelerated vocabulary development • Build verbal fluency skills through drama, poetry, storytelling, and debate 		<ul style="list-style-type: none"> • Depth of their understanding of math concepts • Accelerated at the pace in which they learn math • Levels of abstraction and the interests that they hold • Math activities and learning experiences that challenge them as they process and analyze problems 		<ul style="list-style-type: none"> • Instruction that goes from whole to part • Visual imagery • Novelty • Movement • Music • Movies • Graphic Methods of presentation 	

Reported Score Types

Abbreviation	Score	Use
USS	Universal Scale Score Range 1st – 12th grades Differ per battery	A scale score that is based on a continuous growth scale from K–12; also used to convert to other score types.
SAS	Standard Age Score Range 50-160 Avg. 100	Allows you to compare the rate and level of cognitive development of a particular student with others in the same age group.
APR	Age Percentile Rank Range 1-99	Use APR to compare student to others of the same age.
GPR	Grade Percentile Rank Range 1-99	Use GPR to compare student to others in the same grade.
AS or GS	Age or Grade Stanine Range 1-9	Percentile Rank is converted to simplified, more general number.
<i>Ability Profile™</i>	Ability Profile Score Median Stanine, Letter for Shape, + - Relative Strength + or Weakness -	Ability Profile Pattern: “A” profiles: Confidence bands overlap for all three scores. Scores are at roughly the same level “B” profiles: One score is above or below the other two scores, which do not differ (>=10 SAS) “C” profiles: Two scores Contrast (>=10 SAS) “E” profiles: Extreme B or C profiles (>=24 SAS)

Notes and Wonderings

CogAT Reports



Differentiating Instruction to Overall Ability

Stanines 1-3 Below average reasoning abilities	Stanines 4-6 Average reasoning abilities	Stanines 7-8 Above-average reasoning abilities	Stanine 9 Very high reasoning abilities
Example Characteristics	Example Characteristics	Example Characteristics	Example Characteristics
<ul style="list-style-type: none"> ● Difficulty learning abstract concepts ● Minimal or ineffective strategies for learning and remembering 	<ul style="list-style-type: none"> ● Likely to use only previously learned methods when faced with new tasks ● Difficulty transferring knowledge/skills 	<ul style="list-style-type: none"> ● Ability to learn relatively quickly ● Good memory, effective learning strategies 	Preference for discovery learning rather than highly structured learning environments (not necessarily solitary environments)
Example scaffolding strategies	Example scaffolding strategies	Example scaffolding strategies	Example scaffolding strategies
<ul style="list-style-type: none"> ● Require very specific directions for a new task ● Provide more structure, coaching, support 	Require some structure, coaching and support, but also benefit from some independence	<ul style="list-style-type: none"> ● Instruction that helps them plan the use of different strategies in different contexts ● Partnering with more able peers, particularly on difficult problems or learning tasks 	<ul style="list-style-type: none"> ● Learning to persist in the face of difficulty can be an important affective or motivational issue for very able students. ● Working with an older and more experienced student (or adult) can be especially beneficial.
Example adaptations to build on strengths	Example adaptations to build on strengths	Example adaptations to build on strengths	Example adaptations to build on strengths
Look for strengths in terms of specific interests and achievements. Even more than other students, those who are behind their peers in reasoning abilities learn more and sustain their efforts longer if the teacher discovers and builds on their interests.	Help them develop the habit of analyzing new tasks to detect relationships with previously learned tasks. Do this by modeling the process for them.	Recognize that these students generally profit most when allowed to discover relationships themselves. Guided discovery methods work better than more structured teaching methods.	Carefully selecting challenging instructional materials, special projects, or other enrichment activities.

Differentiating Instruction to Overall Ability

	VERBAL Reasoning with Language	QUANTITATIVE – Reasoning with Numbers	NON-VERBAL - Abstract / Figural Reasoning
	Student Needs / Activity	Student Needs / Activity	Student Needs / Activity
Stanines 1-3 Below average reasoning abilities			
	Student Needs / Activity	Student Needs / Activity	Student Needs / Activity
Stanines 4-6 Average reasoning abilities			
	Student Needs / Activity	Student Needs / Activity	Student Needs / Activity
Stanines 7-8 Above-average reasoning abilities			
	Student Needs / Activity	Student Needs / Activity	Student Needs / Activity
Stanine 9 Very high reasoning abilities		▪ Student Needs / Activity	Student Needs / Activity

Student Ability Profile Classroom Worksheet

A stanine indicates one of nine broad score groupings on a normalized standard score scale. Stanines range from 1 (lowest) to 9 (highest).

Profiles	Stanines 1-3 Below average reasoning abilities	Stanines 4-6 Average reasoning abilities <i>~54% of students</i>	Stanines 7-8 Above-average reasoning abilities	Stanine 9 Very high reasoning abilities	Score Patterns (approximate)
A All 3 scores are about the sAme, within 9 points					Levels 5/6–8 tests: ~50% Levels 9–17/18 tests: ~40%
B One score is aBove (strength) or Below (weakness) the others (10-23)					Levels 5/6–8 tests: ~26% Levels 9–17/18 tests: ~36%
C Two scores CONTRAST by <23 points; strength & weakness					All level tests: ~12%
E EXTREME contrast of two scores by >24 points					All level tests: ~9%

The Ability profile captures two characteristics of the student’s scores:

Level – the overall magnitude of the scores and

Pattern – whether some scores are significantly higher or lower than other scores.

Student Ability Profile Classroom Worksheet

A stanine indicates one of nine broad score groupings on a normalized standard score scale. Stanines range from 1 (lowest) to 9 (highest).

Stanine 1-3	Verbal	Quantitative	Nonverbal	Stanine 4-6	Verbal	Quantitative	Nonverbal
Names	'+' for strength, '-' for weakness			Names	'+' for strength, '-' for weakness		
Stanine 7-8	Verbal	Quantitative	Nonverbal	Stanine 9	Verbal	Quantitative	Nonverbal
Names	'+' for strength, '-' for weakness			Names	'+' for strength, '-' for weakness		

Characteristics:

The Ability profile captures two characteristics of the student's scores:

Level – the overall magnitude of the scores and

Pattern – whether some scores are significantly higher or lower than other scores.

Profiles:

- A** All 3 scores are about the same, within 9 points
- B** One score is above (strength) or below (weakness) the others (10-23)
- C** Two scores **Contrast** by <23 points: strength & weakness
- E** Extreme contrast of two scores by >24 points

Stanine 1, 2, 3

VERBAL Reasoning with Language	QUANTITATIVE – Reasoning with Numbers	NON-VERBAL - Abstract / Figural Reasoning
Student Profile	Student Profile	Student Profile
<ul style="list-style-type: none"> ▪ Higher in reading than math ▪ Reading skills not strong ▪ Get frustrated ▪ Difficulty making mental images ▪ May have difficulty with graphs and maps ▪ Poor listening skills 	<ul style="list-style-type: none"> ▪ Generally good at grammar and spelling ▪ Lack of experience in talking and thinking about concepts ▪ Has difficulty with abstract concepts ▪ Learning and remembering difficulties ▪ Difficulty detecting relationships in math ▪ Math anxiety ▪ Short attention span 	<ul style="list-style-type: none"> ▪ Difficulty in highly verbal environments ▪ Prefers concrete experiences ▪ Tendency to neglect details ▪ Sees overall picture eg words-miss vowels ▪ Difficulty identifying where to focus their attention ▪ Does not learn effectively in unstructured Situations
Student Needs	Student Needs	Student Needs
<ul style="list-style-type: none"> ▪ Use of computer for certain math skills ▪ Work in pairs ▪ Give some assignments with student interest ▪ Use concrete analogies ▪ Give specific instructions 	<ul style="list-style-type: none"> ▪ Teach algorithm ▪ Cross off/out irrelevant info ▪ Circle/highlight important info ▪ Provide concrete materials ▪ Provide substantial practice for automaticity ▪ Work with partners (peer modeling) ▪ Step by step instruction ▪ Model/demonstrate ▪ Use calculators/videos 	<ul style="list-style-type: none"> ▪ Show rather than tell ▪ Need short explanations with modeling ▪ Need help developing analytic strategies ▪ Reduction of the number of things that must be processed. ▪ Use familiar concepts to explain ideas ▪ Concrete analogies ▪ Very specific instruction ▪ Needs slower paced instruction ▪ Peer modeling. Work with partner ▪ Relate information to material previously learned
Teacher Role	Teacher Role	Teacher Role
<ul style="list-style-type: none"> ▪ Assist and monitor comprehension ▪ Model how math can be stated in sentences ▪ Let student use oral skills to explain ▪ Will need extensive practice of visual skills eg. maps and graphs ▪ Need structured environment ▪ Carefully monitor work ▪ Use videos, model, hands on and illustrations ▪ Allow to ask questions assist to make connections ▪ Teach them to model ideas 	<ul style="list-style-type: none"> ▪ Encourage participation ▪ Build on strengths provide connection ▪ Provide slower pace instruction ▪ Provide structure ▪ Reduce time pressure ▪ Monitor acquisition of skills ▪ Reduce working memory load –allow someone else to check work 	<ul style="list-style-type: none"> ▪ Model, diagram map, illustrate for student ▪ Look for student strengths ▪ Help student find interests ▪ Provide structured environment ▪ Direct coaching ▪ Direct guidance and support ▪ Carefully monitor student when learning new tasks ▪ Frequent prompting

Stanine 4,5,6

VERBAL Reasoning with Language	QUANTITATIVE – Reasoning with Numbers	NON-VERBAL - Abstract / Figural Reasoning
Student Profile	Student Profile	Student Profile
<ul style="list-style-type: none"> ▪ Tend to obtain higher scores on achievement tests ▪ May struggle in math ▪ May have ability to lead in discussion ▪ May like to do reports, present information write essays or assist others ▪ Learn best by observing others ▪ Self-monitoring difficult 	<ul style="list-style-type: none"> ▪ Have good resources for learning ▪ But difficulty applying info ▪ Moderate learner ▪ Math anxiety 	<ul style="list-style-type: none"> ▪ Visualizes or uses mental models ▪ May have difficulty in reading and spelling ▪ Tends to obtain lower scores on achievement tests ▪ Tend to have high interests in specific area
Student Needs	Student Needs	Student Needs
<ul style="list-style-type: none"> ▪ Work in pairs with above ability student ▪ Put all info on one sheet of paper ▪ Allow someone else to monitor skills for them ▪ Work well in groups if positions or jobs are rotated 	<ul style="list-style-type: none"> ▪ Modeling of process ▪ Work in pairs ▪ Offload monitoring/checking to someone else ▪ Give practice and frequent monitoring ▪ Lessons broken into smaller parts ▪ Needs structured environment ▪ Games and puzzles ▪ Frequent repetition 	<ul style="list-style-type: none"> ▪ Work in pairs ▪ Use illustrations/schematics for comprehension ▪ Use videos with students controlling input of info. ▪ Use metaphors and analogies to connect information ▪ Use computer for graphic organizers ▪ In writing teach descriptive wording rather than narrative
Teacher Role	Teacher Role	Teacher Role
<ul style="list-style-type: none"> ▪ May need more help in math area ▪ Encourage practice of math facts out loud ▪ Monitor use of verbal skills for math ▪ Need more structured environment ▪ Teach them to use cue words for analyzing and interpreting information ▪ Direct instruction, frequent feedback ▪ Help them to break up tasks into simpler ideas ▪ Supervised instruction, planning use of time ▪ Teach them how to keep track of progress 	<ul style="list-style-type: none"> ▪ Make student aware of own strengths ▪ Put instructions on one piece of paper ▪ Direct instruction ▪ Be a cheerleader for student ▪ Verbal instruction does not work ▪ Break instruction up into smaller lessons ▪ Look for specific interests ▪ Look for connections to previous work ▪ Correct errors quickly 	<ul style="list-style-type: none"> ▪ Supply visual illustrations for reading instruction ▪ Break up problems into simpler tasks ▪ Use visual cues to reduce strain on working memory ▪ Use terms like “What do you see?” when learning new materials ▪ Reward excellence by recognition ▪ Keep all information in view for comparisons ▪ Structured environment ▪ Moderate pace for instruction ▪ Carefully monitor work ▪ Break up problems into simpler tasks

Stanine 7, 8

VERBAL Reasoning with Language	QUANTITATIVE – Reasoning with Numbers	NON-VERBAL - Abstract / Figural Reasoning
Student Profile	Student Profile	Student Profile
<ul style="list-style-type: none"> ▪ Will do well on all achievement tests ▪ May have difficulty with math computation ▪ Have good memories for sounds, letters and words (can be pitfall) ▪ May be good at spelling ▪ Learn rather quickly ▪ Good group participants ▪ They often know what they need for help 	<ul style="list-style-type: none"> ▪ Like challenge ▪ Master skills easier ▪ Like guided discovery rather than structure ▪ Quick to acquire learning strategies ▪ Excellent group participants ▪ Good to work with parent or older student ▪ Imitates well ▪ Flexible thinker 	<ul style="list-style-type: none"> ▪ Poor sense of time ▪ Sensitive ▪ Like to use visual /mental models to learn ▪ Often have well developed verbal skills ▪ May have difficulty spelling ▪ Likes adult company
Student Needs	Student Needs	Student Needs
<ul style="list-style-type: none"> ▪ Work well with more abled peers ▪ Work well with older students ▪ Need help to focus on important features of a problem 	<ul style="list-style-type: none"> ▪ Automatize low level skills ▪ Focused practice at low-level skills until mastered ▪ Record ideas on paper ▪ Let them keep track of results 	<ul style="list-style-type: none"> ▪ Hands-on experience ▪ Emphasize descriptions ▪ Encourage all three areas ▪ Work with older peer ▪ Encourage revise and improve flow of ideas
Teacher Role	Teacher Role	Teacher Role
<ul style="list-style-type: none"> ▪ Benefit from challenging reading, writing, and speaking assignment ▪ Need enrichment ▪ Need moderate amount of guidance ▪ Aim for transfer of knowledge ▪ Give long term projects ▪ Quick to learn different strategies 	<ul style="list-style-type: none"> ▪ Be a cheerleader ▪ Put student in teacher role ▪ Model with guided discovery ▪ Discovery ▪ Offer computer for work ▪ Reward perseverance ▪ Offload self-monitoring to others ▪ Model ▪ Let student work in group 	<ul style="list-style-type: none"> ▪ Encourage student with materials, projects, and problems that follow their interest ▪ Diversity in grouping ▪ Ask “What do you see?” ▪ Student is sensitive of the attitude of the teacher ▪ Praise student accomplishment ▪ In math, need concrete objects to solve problems ▪ Guided instruction, model different strategies

Stanine 9

VERBAL Reasoning with Language	QUANTITATIVE – Reasoning with Numbers	NON-VERBAL - Abstract / Figural Reasoning
Student Profile	Student Profile	Student Profile
<ul style="list-style-type: none"> ▪ More likely to succeed academically ▪ Can create semantic or meaning based on extensions for new knowledge ▪ They can monitor their own thinking ▪ Can invent or adapt ideas ▪ Can be disruptive ▪ They expect new material to be meaningful then analyze for new meaning ▪ They use prior information to solve alternate opinions new ideas 	<ul style="list-style-type: none"> ▪ Learn best from self-discovery ▪ Very able ▪ Anxiety ▪ Reason exceptionally well 	<ul style="list-style-type: none"> ▪ Poor sense of time ▪ Good at puzzles and mazes ▪ Can have a sense of humor ▪ Excellent visual memory ▪ May seem inattentive or spacey ▪ Possible music or art talent ▪ Desk may be unorganized ▪ Forgets to turn in work or poor quality ▪ May have difficulty spelling
Student Needs	Student Needs	Student Needs
<ul style="list-style-type: none"> ▪ Needs to be challenged with reading/writing speaking activities ▪ Expose them to speakers with high levels of competence in language ▪ Need to develop confidence ▪ Teach them to persist ▪ Allow them to teach others 	<ul style="list-style-type: none"> ▪ Work on computer ▪ Work with someone older ▪ Special projects with instruction ▪ Need for enrichment ▪ Provide groupings where student is the learner ▪ Teach to persist in face of difficulty 	<ul style="list-style-type: none"> ▪ Use of computers and calculators ▪ Follow interests and perseverance on long term projects ▪ Summarize verbally ▪ Visual mental models needed ▪ Graphic maps instead of verbal directions
Teacher Role	Teacher Role	Teacher Role
<ul style="list-style-type: none"> ▪ Give feedback on ways to improve rather than praise ▪ Benefit from discovery learning ▪ Provide challenge academically ▪ Provide opportunities to learn ▪ Allow them to monitor their own progress ▪ Teach them different ways to solve problems ▪ Help them discover what strategies work best ▪ Help them to develop reflectiveness and consider 	<ul style="list-style-type: none"> ▪ Build trust ▪ Watch for behavior (slackers) ▪ Challenge learner to improve his/her understanding ▪ Challenge at level equal to ability ▪ Teach alternate methods to learn ▪ Allow student to be teacher ▪ Instruct several years in advance 	<ul style="list-style-type: none"> ▪ Allow for guided discovery ▪ Put with older students ▪ Needs visual representations ▪ Try to develop visual thinking and reasoning ▪ Can use systematic in visual entities ▪ Suggest trying new ideas rather than model ▪ Encourage self-regulation / self-monitoring ▪ Help with confidence “I trust you” ▪ Encourage student to reflect, see different perspectives

Handwriting practice lines consisting of two columns of horizontal lines, with a central blue diamond logo.

