DIFFERENTIAL ABILITY SCALES

Author
Colin D. Elliott, Ph.D.
Differential Ability Scales

A differential measurement of distinctive abilities that yields a profile of strengths and weaknesses.
Differential Ability Scales

Sattler (2001) Review of the DAS

1. Good validity
2. High reliabilities
3. Excellent standardization
4. Good administration procedures
5. Good administrative guidelines and test materials
6. Helpful scoring criteria
**Differential Ability Scales**

7. GCA based on high $g$ loadings
8. Special Nonverbal Composite
9. Efficiency
10. Good Handbook
11. Co-normed with achievement tests (link to WIAT II is coming soon)
Differential Ability Scales

Age Range: 2:6 to 17:11 years

- Preschool Cognitive Battery
- School-Age Cognitive Battery
- Achievement Battery
Structure of the DAS Cognitive Battery

Ages 2:6 – 3:5
GCA Only

Ages 3:6 – 5:11
GCA and 2 Clusters

Ages 6:0 – 17:11
GCA and 3 Clusters

General Conceptual Ability
Verbal Ability
Nonverbal Ability
Reasoning Ability
Spatial Ability
Average Administration Times

<table>
<thead>
<tr>
<th>Age Range</th>
<th>All Cognitive Subtests</th>
<th>General Conceptual Ability</th>
<th>Achievement Subtests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages 2:6 to 3:6</td>
<td>35 minutes</td>
<td>25 minutes</td>
<td></td>
</tr>
<tr>
<td>Ages 3:6 - 5:11</td>
<td>65 minutes</td>
<td>40 minutes</td>
<td></td>
</tr>
<tr>
<td>Ages 6:0 - 17:11</td>
<td>65 minutes</td>
<td>50 minutes</td>
<td>15-20 minutes</td>
</tr>
</tbody>
</table>
Special Nonverbal Composite

Ages 2:6 – 3:6
- Block Building
- Picture Similarities

Ages 3:6 – 5:11
- Copying
- Pattern Construction
- Picture Similarities

Ages 6:00 – 17:11
- Pattern Construction
- Recall of Designs
- Matrices
- Sequential and Quantitative Reasoning
Preschool
Ages 2:6-3:5 Subtests

Core Cognitive Tests
- Block Building
- Verbal Comprehension
- Picture Similarities
- Naming Vocabulary

Diagnostic Tests
- Recall of Digits
- Recognition of Pictures

Copyright © by The Psychological Corporation. All rights reserved.
Preschool
Ages 3:6-5:11 Subtests

Core Cognitive Tests
- Verbal Comprehension
- Picture Similarities
- Naming Vocabulary
- Pattern Construction
- Copying
- Early Number Concepts

Diagnostic Tests
- Recall of Digits
- Recognition of Pictures
- Block Building
- Matching Letter-Like Forms*
- Recall of Objects**
School-Age 6:0 – 17:11 Subtests

**Core Cognitive Tests**
- Pattern Construction
- Word Definitions
- Similarities
- Matrices
- Sequential and Quantitative Reasoning
- Recall of Designs

**Diagnostic Tests**
- Recall of Designs
- Recognition of Pictures*
- Recall of Objects
- Speed of Information Processing

* Ages 6:0 – 7:11 only
Age Ranges

- The usual age range refers to the ages at which the subtests are ordinarily administered.

- The extended age range refers to the ages at which the subtests also can be administered for diagnostic purposes.

- The out-of-level age range refers to the ages at which the subtests can be administered to examinees who function at unusually high or low levels for their age.
Tailoring items to the child’s ability

- Starting point and Decision point based on age.
- If performance on initial set is too high or too low, extend to harder or easier items.
- Convert performance on items taken to “ability score” (does not rely on basals and ceilings)
<table>
<thead>
<tr>
<th>Cluster</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal Ability Cluster</td>
<td>Standard Score (Mean=100, SD=15)</td>
</tr>
<tr>
<td>Nonverbal Ability Cluster</td>
<td>Age Equivalent Scores</td>
</tr>
<tr>
<td>Nonverbal Reasoning Ability</td>
<td></td>
</tr>
<tr>
<td>Cluster</td>
<td></td>
</tr>
<tr>
<td>General Conceptual Ability (GCA)</td>
<td>Standard Score (Mean=100, SD=15)</td>
</tr>
<tr>
<td>Achievement Composite</td>
<td>Standard Scores (Mean=100, SD=15)</td>
</tr>
<tr>
<td></td>
<td>Percentile Scores</td>
</tr>
<tr>
<td></td>
<td>Grade Equivalents</td>
</tr>
</tbody>
</table>
Raw scores are converted to ability scores, which are based on IRT.

Ability scores are converted to $T$ scores within the examinee’s age group.

$T$ scores are summed to obtain cluster scores.

Cluster scores are summed to obtain the GCA.
Score Ranges

**GCA:**  44 to 175  
(downward extension to 25)

**Cluster Scores:**  43 to 162
Out-of-Level Testing

Full norms for many subtests and composites beyond the usual age range.

Useful for testing developmentally delayed and gifted
Standardization Sample

3475 Children

350 per year - Ages 2:6 to 4:11 years
200 per year - Ages 5:0 to 17:11 years
Fairness of Results

- Extensive Bias Analysis
- Oversampling of African/American and Hispanic Children (100+ cases from each group/item)
DAS Validity

- Satisfactory concurrent validity. GCA correlates highly with other measures of intelligence (WISC III, SB IV)
- Good construct validity.

(Sattler, 2001)
Excellent reliability (for example, average internal consistency reliability coefficients for the GCA are .90, .94, .95 for lower Preschool Level, upper Preschool Level, and School-Age Level.)

Average Standard Error of Measurement range from 2.93 to 5.13

Test-Retest Stability with median stability coefficients of .90 and .95 for GCA (Sattler, 2001)
Measures of g

- Good measures of g
  - Early Number Concepts
  - Sequential and Quantitative Reasoning
  - Verbal Comprehension
  - Matrices

- Fair measures of g
  - Similarities
  - Naming Vocabulary
Measures of $g$

- Word Definitions
- Pattern Construction
- Pattern Construction
- Recall of Designs
- Copying
- Matching Letter Forms
- Picture Similarities
- Block Building
Measures of $g$

- Poor measures of $g$
  - Recognition of Pictures
  - Recall of Digits
  - Recall of Objects
  - Speed of Information Processing
Administration, Scoring, and Interpretation by Subtest
To reduce testing time, DAS has:

- Age based start points
- Decision points (stopping point item)
  - If examinee has passed at least 3 items and failed at least 3 items in a subtest, testing stops at the decision point.
  - If the examinee has not failed at least 3 items at the first decision point, testing continues to the next decision point.
Administration

• If the examinee has not passed at least 3 items at the first decision point, items are administered from an earlier starting point and the subtest is continued from this point.

• Testing normally stops only at decision points. An alternate stopping rule may be employed when an examinee fails a series of items before reaching a decision point. The number of required items varies from subtest to subtest and is indicated on the Record Form.
Administration

- Sample items
  - Several subtests employ unscored sample items

- Teaching items
  - Some subtests include scored and some unscored teaching items to provide additional help after examinees fail items. Teaching procedures include repeating and rephrasing the question or instruction, providing clues, demonstrating the correct response, and giving positive feedback.
Block Building
Ages 2:6-3:5

Task: Reproduce 2- or 3-dimensional block designs using 4 or 8 wooden blocks. [12 items]

- Build model in front of examinee.
- Leave model for examinee, except on Item 1.
- Read directions verbatim, but naturally.
- Correct and explain rotation errors.
Second attempts are allowed when the examinee builds the tower by placing the blocks on end (small side down) and fails to complete it. Also on Items 1-7 when the structure topples before 3 seconds. Second attempts are not allowed for rotation errors.
Block Building
Core and Diagnostic

- Measures
  - Visuoperceptual ability
  - Problem-solving ability
  - Hand-eye coordination
  - Spatial orientation
  - Ability to follow verbal instructions and visual cues
  - May also involve verbal encoding strategies

- Low scores may reflect child’s inattention to examiner instructions
Verbal Comprehension
Ages 2:6-6:0

Task: Requires the examinee to show understanding of oral instructions by pointing or by performing the action that you request [36 items]

- Repeat items only once if asked.
- Read directions verbatim, but naturally.
- Make sure examinee is paying attention.
- Hold out your hand for items that include “Give me...”
Verbal Comprehension

- Start ages 2:6 to 3:11 at Item 1. Ages 4-6 begin with Item 13.
- All items are scored 0 or 1.
- Items 1 - 6 use a picture of a Teddy Bear.
- Items 7 - 18 use a variety of toys.
- Items 19 - 29 use a set of wooden objects.
- Items 30 - 36 use colored plastic chips of varying shapes.
Verbal Comprehension
Core Subtest

- Measures
  - Understanding of spoken language, including
    - Understanding of syntax
    - Knowledge of prepositional and relational concepts
    - Vocabulary knowledge
  - Ability to formulate and test alternative hypotheses (items with chips)
  - Ability to follow verbal instructions
  - Short-term auditory memory of sentences

- Low Score may reflect insufficient attention, distractibility, impulsiveness.
Picture Similarities
Ages 2:6-6:0

Task: Requires the examinee to place a picture card below the picture that it best goes with. [32 items]

- Read directions verbatim, but naturally.
- Provide teaching on all failed teaching items.
- Provide teaching on Item 3.
- Clarify ambiguous placements.
- Examinees age 2:6 - 4:5 start with Item 1, while ages 4:6 - 6 start with Item 11.
Picture Similarities
Core Subtest

Measures

- Ability to solve nonverbal problems (inductive reasoning)
- Ability to identify features of pictures
- Ability to formulate and test hypotheses about common features
- Ability to perceive and analyze visual information
- Use of verbal mediation strategies
- Ability to attach meaning to pictures
- Level of the general knowledge base
- May also involve verbal encoding strategies
Task: Requires the examinee to name real objects and pictured objects. [24 items]

- Provide teaching on all failed teaching items.
- Read directions verbatim, but naturally.
- Question appropriately.
- Ages 2:6 to 4:5 start with Item 1; ages 4:6 to 6:0 start with Item 8.
- Correct answers are shown on the Record Form.
Naming Vocabulary
Core Subtest

**Measures**
- Expressive language skills
- Vocabulary knowledge of nouns
- Ability to attach verbal labels to pictures
- Level of the general knowledge base
- General language development
- Ability to retrieve names from long-term memory
- Level of language stimulation
Recall of Objects
(Ages 4 to 17)

Task: Requires examinee to recall objects from memory. [20 items]

- Three trials are given, with exposure times of 60 seconds, 20 seconds, and 20 seconds, respectively.
- On the first trial, say the names of the objects aloud for the examinee. After the card is removed, the examinee is asked to recall as many objects as possible in any order within time limits.
- Also has delayed recall trial where you administer 2 nonverbal subtests and then administer the delayed recall trial with a time limit of 60 seconds.
- Do not tell examinee about delayed recall trial.
One point is awarded for each correctly recalled object.

If all 20 items are recalled on the first and second trials, the third trial is not administered; however, the examinee is credited with 20 points for the third trial.

If one of the 3 trials is spoiled, estimate the 3-trial score by multiplying the sum of the 2 trials by 1.5 and rounding the result up.
On the first trial the pictures are shown to the examinee as the directions are given and the pictures are named. On the 2nd and 3rd trials, the directions are given before the card is exposed.

Delayed recall should be administered after a delay between 10 and 30 minutes.

Give credit for a reasonable synonyms like “rat” for “mouse”. Don’t give credit for “rat” and “mouse”.
Recall of Objects

Measures

- Short-term and immediate-term verbal recall
- Ability to remember a number of pieces of information presented both visually and verbally
- Use of strategies for storage and retrieval of information
- Concentration and attention
Recall of Objects

Low scores may reflect
- Poor imagery for visual information
- Difficulty in integrating visual and verbal information
- Low rates of learning with repeated trials
- Lack of understanding of instructions (not naming the same objects on later trials)
Recall of Objects

A Delayed score significantly lower than the Immediate score may reflect the child’s

- Use of superficial encoding strategy on the immediate trials
- Relatively rapid loss of memory trace
- Interference effects from intervening activities
A Delayed score significantly higher than the Immediate score may reflect the child’s

- Efficient consolidation of memory trace
- Use of “deep” encoding and rehearsal strategies on immediate trials
Task: Requires examinee to reproduce 26 designs.

- The examinee must disregard the 3rd dimension when constructing the designs.
- Subtest is scored in 2 ways: standard and alternative (unspeeded). Standard scoring considers speed (within the time limits) and accuracy.
- Scores range from 0 to 5 points under standard scoring and from 0 to 2 points for alternative scoring.
- Children ages 3 to 6 begin with flat squares that have black sides and yellow sides. Children 7 and older,
begin with 3-dimensional blocks that have black sides, yellow sides, and black-and-yellow sides divided diagonally and black-and-yellow sides divided vertically.

- Items range from 2 to 9 block patterns.

- Note on the Record Form:
  - M (model) refers to cases where the examiner builds the pattern in front of the examinee and then leaves the completed model in place while the examiner builds the design.
  - P (picture) refers to cases where the examiner shows the examinee a design from the booklet and then leaves the picture in full view while the examinee completes the pattern.
Pattern Construction

- D (demonstrate) refers to cases where the examiner builds the pattern using the examinee’s own blocks and then mixes the pattern up and has the examinee try again.

- Encourage examinees not to make their design directly on the picture (except on early items).

- Rotations of 30 degrees or more receive a score of 0. When rotations occur on any item, point out the rotation to the examinee and show him how the pattern should be made.

- Timing is important because bonus points are given for quick execution in standard scoring procedure.
Begin timing when the instructions are completed. Stop timing when the examinee indicates by word or gesture that he is finished.

If you believe that time limits will invalidate the subtest, use the alternative scoring procedure. (It is described on page 221 of the Manual).

Items 24-26 are administered as part of the alternative scoring procedure only.
Scores on the Pattern Construction subtest may reflect the child’s

- **Spatial visualization ability, including**
  - Perception of spatial orientation (the preservation of relative position, size, and angles in different aspects of the design)
  - The ability to reproduce designs with objects
  - The ability to perceive and analyze visual information

- **Nonverbal reasoning ability including**
  - The use of systematic strategies (i.e., sequential assembly, hypothesis testing, or trial and error)
  - The ability to analyze (to see the components of the whole) and to synthesize (to reconstruct the whole from the components)
In addition, low scores on this subtest may reflect the child’s

- Poor motor control
- Anxiety from a timed task (standard procedure)
- Clumsiness (standard procedure)
- Excessive cautiousness (standard procedure)
Early Number Concepts
Ages 2:6-6:0

Task: Requires examinee to demonstrate knowledge of number abilities. [28 items]

- Provide teaching on all failed teaching items.
- Give a second trial on Item 1 if response is less than perfect.
- Read directions verbatim, but naturally.
- Ages 2:6 to 4:5 begin with Item 1; ages 4:6 to 6:0 begin with Item 2.
If fewer than 6 points are earned on the first administration of Item 1, administer the item again. Give the examinee the higher of the two scores obtained. (See pages 415-416 in Manual to understand scoring procedure).
Early Number Concepts
Core Subtest

- **Measures**
  - Knowledge of numerical and prenumerical concepts
  - Verbal comprehension
  - Knowledge of basic language concepts
  - Visual perception and analysis of pictures

- A low score on Item 1 (counting) may reflect a problem in verbal expression.
Task: Requires examinee to copy geometric figures. [20 items]

- Label all sheets of paper with arrow indicating top of paper.
- Present paper with longer edge as base.
- Allow examinee to erase.
- Allow spontaneous second attempt.
- Ages 3:6 to 4:11 begin with Item 1; ages 5:0 to 5:11 begin with Item 5.
We should also recognize that

- The child’s difficulty is more likely to be perceptual if the design is copied easily but incorrectly.
- Motor difficulties are indicated by slow drawing, arduous drawing, or both.
- Many erasures may indicate compulsivity (drawing has to be exactly right).
Matching Letter-Like Forms (Ages 4:0 – 5:0)

Task: Requires examinee to look at a figure on one page and identify, by pointing, that same figure on another page that contains 6 identical figures, five of which have been rotated.

Be sure to record actual responses for error analysis.
Scores on the Matching Letter-Like Forms subtest may reflect the child’s

- Ability to make visual discriminations among similar figures
- Perception and discrimination of the spatial orientation of letter-like figures
- Strategies for scanning and making visual comparisons
- Ability to follow verbal instructions and visual cues
Matching Letter-Like Forms

Low scores on this subtest may reflect the child’s

- Impulsiveness (responding without checking the response)
- Lack of experience in visual matching activities
- Normal developmental pattern (the child is simply not ready to understand the task)
Recall of Digits (Ages 3 to 17)

Task: Requires examinee to recall a sequence of digits that you read aloud. [36 items]

- Sequences range from 2 to 9 digits in length. Sequences are arranged in 8 blocks, with each block containing 2 to 5 sequences with the same number of digits.
- 1 point is awarded only when the examinee recalls all the digits in the item in the correct sequence.
- The basal rule requires you to start with Item 1 and proceed to the first item of each set until the examinee fails the first item. Then go back to the previous set and administer the remaining items in that set. If the examinee fails more than one item in a set, continue.
Recall of Digits Diagnostic Test

backward until the examinee has no more than one failure in the set. This block becomes the basal level.

- If a basal level is not established (all item sets have more than 1 error), count all the correct items to obtain the raw score.

- Test forward until the examinee passes no more than 1 item in a set. That set becomes the ceiling level.

- Credit is given for items not administered below the basal level.

- Administer items at a rate of 2 digits per second.
Scores on the Recall of Digits subtest may reflect the child’s

- Short-term auditory, sequential memory
- Oral recall of sequences of numbers (non-meaningful memory)
- Concentration and attention
Recall of Digits

In addition, low scores on this subtest may reflect the child’s

- Use of inappropriate strategies for storage or retrieval of numbers (i.e., attempting to start rehearsal or recall before the examiner has finished presenting the digit sequence)
- Distractibility and inattention
- Anxiety, poor rapport, or both
Recognition of Pictures (Ages 3 to 7)

Task: Requires examinee to find, among a group of pictures, one or more pictures that were previously shown to him. [20 items]

- All of the pictured objects in each item represent a single category.
- A picture of 1 to 4 objects is shown for 5 seconds (Items 1-15) or 10 seconds (Items 16-20). Then another picture is shown that contains the target objects.
- You must time the exposure to items carefully.
- You may query once per item by asking if there are any more target figures.
If you administer to a School-Age student, you must use the Preschool Record Form to administer this subtest.

There is a scoring key to use to score the subtest that presents the information both as you see the card and as the examinee sees the card.
Scores on the Recognition of Pictures subtest may reflect the child’s:

- Short-term visual memory
- Recognition memory for pictures
- Memory for picture detail
- Memory for picture orientation
- Use of verbal mediation strategies (shown by verbal rehearsal of names or use of verbal labels on recall)
Recognition of Pictures

In addition, low scores in this subtest may reflect the child’s

- Tendency to be distracted by competing visual information
- Use of inappropriate strategies (i.e., waiting to name all of the pictures aloud)
- Lack of understanding of instructions (as shown, i.e., by the child’s pointing to all of the drawings on the second page)
- Problems with attention and concentration
Recall of Designs (Ages 6 to 17)

Task: Requires examinee to reproduce pictured designs that are exposed to view for 5 seconds then removed. [21 items]

- Items 1-16 are scored 2, 1, or 0. Items 17-21 are scored 3, 2, 1, or 0.
- Assess the ability to encode and retain visual-spatial information and use motor skills, short-term visual recall, spatial orientation, and drawing skills.
- Paper should be cut into sheets approximately 4” x 5”.
The examinee is allowed to draw the designs a second time if the second drawing is done spontaneously. Erasing is permitted.

Be sure to write the number of the design in the upper right hand corner of each sheet for later scoring.

Follow the scoring procedures on pages 417-431 in the Manual.

Added lines are acceptable if they are due to poor coordination or if the examinee indicates that they are not intended to be part of the final design.

Small gaps are acceptable if they appear to be due to crudeness rather than a failure to remember.

Decorative additions as well as overworked, feathered, or scribbled lines are generally acceptable.

One of the edges of the paper can be used as one line of the drawing.
Recall of Designs

Scores on the Recall of Designs subtest may reflect the child’s

- Short-term visual recall
- Perception of spatial organization (the preservation of relative position, size, and angles in different aspects of the design)
- Drawing skills
Recall of Designs

In addition, low scores on this subtest may reflect the child’s

- Poor retention or poor retrieval (or both) of whole visual images
- Interference in recall from previous designs (i.e., perseveration)
Recall of Designs

We should also recognize that

- Low scores are more likely to reflect memory or visual-spatial difficulties if the design is copied easily but incorrectly.
- Motor difficulties are indicated by slow drawing, arduous drawing, or both.
- Many erasures may indicate compulsivity (drawing has to be exactly right).
Word Definitions (Ages 6 to 17)

Task: Requires examinee to define words that you present orally. [42 items]

- Evaluates acquired verbal knowledge, language comprehension, and fluency.
- Examples of correct and incorrect responses are listed in alphabetical order in the Manual for scoring.
- You may repeat the word, spell the word, or write it out on paper at examinee request.
Scores on the Word Definitions subtest may reflect the child’s

- Vocabulary knowledge
- Ability to formulate definitions of words
- Expressive language skills, including verbal fluency
- Level of general knowledge base
- Verbal conceptualization
- Abstract thinking
- Long-term information retrieval
- Verbal inhibition, that is, unwillingness to give open-ended verbal responses when uncertain
Matrices (Ages 6 to 17)

Task: Requires examinee to select the correct response that best completes a matrix. [33 items]

- Evaluates nonverbal inductive reasoning ability, ability to formulate and test hypotheses, verbal mediation, and visual perception.
- Correct responses are highlighted in bold blue ink on the Record Form, which must be shielded from the examinee.
- Be sure to turn the booklet sideways for correct presentation.
Scores on the Matrices subtest may reflect the child’s
- Nonverbal inductive reasoning, including
  - The ability to identify rules governing features or variables in abstract figures
  - The ability to formulate and test hypotheses about relationships
- Use of verbal mediation strategies involving labeling of diagrams
- Perception of visual detail and spatial orientation in drawings

In addition, low scores on this subtest may reflect the child’s
- Poor understanding of verbal instructions or visual cues
- Impulsivity (responding too rapidly)
- Inflexibility in choosing solution strategies
Similarities
(Ages 6 to 17)

Task: Requires examinee to tell how words go together, what they all are, or how they are similar [34 items]

- Scoring examples are listed in alphabetical order in the Manual.
- You may repeat a word one time only.
- Credit is given for a superordinate class response but not for a subordinate response.
- You must question incorrect responses that show some understanding of the concept.
- First 2 items are teaching items if the examinee gives an incorrect response.
Scores on the Similarities subtest may reflect the child’s

- Verbal inductive reasoning ability, including
  - The ability to relate words to superordinate categories
  - The ability to formulate hypotheses about common features
- Vocabulary and general verbal development
- Level of the general knowledge base
- Logical and abstract thinking abilities
- Ability to distinguish between essential and superficial features

In addition, low scores on this subtest may reflect the child’s

- Verbal inhibition (unwillingness to make verbal responses when uncertain)
- Failure to consider all three stimulus words
Sequential and Quantitative Reasoning (Ages 6 to 17)

Task: Requires examinee to solve problems dealing with sequential and quantitative material. [39 items]

- You can use a separate piece of paper instead of the booklet if you wish.
- For Items 1 to 15, the examinee draws the missing figure.
- For Items 16-39, the examinee responds orally. Written answers would also be acceptable.
Scores on the Sequential and Quantitative Reasoning subtest may reflect the child’s
- Ability to perceive sequential patterns or relationships in figures or numbers
- Ability to draw conclusions from known facts or principles (inductive reasoning)
- Analytical reasoning ability (the process of separating a problem or situation into its components)
- Ability to formulate and test hypotheses
- Perception and attachment of meaning to pictures (Set A)
- Long-term information retrieval (Set B)
- Lack of knowledge of numerals, basic number facts, and basic arithmetic operations (for Set B)
- Inflexibility in choosing solution strategies
Speed of Information Processing (Ages 6 to 17)

Task: Requires examinee to mark the circle with the most boxes in a row or to mark the highest number in a row. Measures mental speed.

- Use the age appropriate booklet.
- Almost all examinees should be successful at this task. You must time the exposure to items carefully.
- You may query once per item by asking if there are any more target figures.
Scores on the Speed of Information Processing subtest may reflect the child’s:

- Speed in performing simple mental operations
- Ability to work fast under time pressure
- Ability to make quantitative comparisons rapidly
- Sequential strategies for making comparisons
- Short-term, numerical memory
- Basic understanding of ordinal number concepts
- Recognition of single- and multi-digit numbers and their place values (for items using numerals)
In addition, low scores on this subtest may reflect the child’s:

- Inefficient balance between speed and accuracy - either overly cautious, sacrificing speed for the sake of accuracy, or overly impulsive, sacrificing accuracy for the sake of speed
- Poor motivation for tasks involving numbers
- Problems with attention and concentration
Achievement Subtests
Scores on the Basic Number Skills subtest may reflect the child’s:

- Skill in applying a range of arithmetic operations
- Ability to recognize and express the names of numerals

In addition, low scores on this subtest may reflect the child’s:

- Poor understanding of the meaning of the operands (+, -, x, ÷)
- Non-mastery of basic number concepts
- Poor attention or motivation
Scores on the Spelling subtest may reflect the child’s

- Knowledge and recall of correct spellings
- Retention of facts (the conventional spelling of words)
- Knowledge of spelling rules

In addition, low scores on this subtest may reflect the child’s

- Poor visual memory (often shown in difficulties in recall of letters or whole words)
- Poor auditory-sequential memory (often shown in inadequate skills in phonetic spelling of regular words)
- Poor skills in phonological segmentation of words, into component sounds or syllables
- Poor knowledge of letters, letter sounds, or letter combinations
- Poor auditory discrimination of sound
Scores on the Word Reading subtest may reflect the child’s
- Recognition of printed words
- Visual and auditory working memory
- Skills in word analysis without additional contextual cues
- Vocabulary knowledge

In addition, low scores on this subtest may reflect the child’s
- Poor visual memory (often shown in limited whole-word sight vocabulary and which may also be associated with an overdependence on basic phonetic strategies)
- Poor auditory-sequential memory (often shown in inadequate skills in the phonetic analysis of regular words)
- Poor skills in phonetic segmentation of words into component sounds or syllables
- Poor skills in sound blending
- Poor knowledge of letters, letter sounds, or letter combinations
Scores on the Verbal Ability cluster may reflect the child’s:

- Knowledge of verbal concepts
- Language comprehension and expression
- Level of vocabulary development
- General knowledge base

In addition, low scores on this cluster may reflect the child’s:

- Problems with processing auditory cues
- Problems with verbal memory
- Lack of language stimulation from experiences and educational opportunities
- Undiagnosed hearing loss or history of hearing difficulties not conveyed prior to testing
Scores on the Nonverbal Ability cluster may reflect the child’s

- Perceptions of spatial orientation (the preservation of relative position, size, and angles in different aspects of the design)
- Nonverbal reasoning ability
- Perceptual-motor skills (the ability to see, understand, and respond with a motor action as an organized unit or pattern of functioning)
- Understanding of simple instructions and visual cues
- Ability to identify important elements of a visual stimulus

In addition, low scores on this cluster may reflect the child’s

- Overdependence on verbal instructions or auditory cues
- Inability to use verbal mediation strategies
Scores on the Verbal Ability cluster reflects the child’s:

- Knowledge of verbal concepts
- Level of vocabulary development
- Expressive-language ability
- General knowledge base
- Retrieval of factual information from long-term memory

In addition, low scores on this cluster may reflect the child’s:

- Verbal inhibition (unwillingness to make verbal responses when uncertain)
- Undiagnosed hearing loss or history of hearing difficulties not conveyed prior to testing
Scores on the Nonverbal Reasoning Ability cluster may reflect the child’s

- Inductive reasoning, including
  - An ability to identify rules that govern features or variables in abstract, visual problems
  - An ability to formulate and test hypotheses
- Understanding of simple verbal instructions and visual cues
- Use of verbal mediation strategies

In addition, low scores on this cluster may reflect the child’s

- Overdependence on visual instructions or auditory cues
- Inflexibility in choosing alternative solutions
- Impulsiveness (responding without checking the response)
Spatial Ability (Ages 6 to 17)

Scores on the Spatial Ability cluster may reflect:

- Ability in spatial imagery and visualization
- Perception of spatial orientation (the preservation of relative position, size, and angles in different aspects of the design)
- Analytic thinking (the separation of the whole into its component parts)
- Attention to visual detail

In addition, low scores on this cluster may reflect the child’s:

- Poor understanding of simple verbal instructions
- Poor eye-hand coordination
Systematic Interpretation of Test Scores
Interpretation

Two Stage Procedure

- Analysis of DAS composite and subtest scores
- Interpretation of profile by drawing inferences from and formulating hypotheses about the nature of the underlying processes that may best explain the score profile
Steps for Analyzing the Child’s Profile

Stage 1: Comparison of Cluster Standard Scores and the GCA Score
Stage 2: Comparison of Cluster Standard Scores with One Another
Steps for Analyzing the Child's Profile

Stage 3: Comparison of Within-Cluster Subtest T Scores with One Another

Stage 4: Comparison of Subtest T Scores with the Mean T Score of the Core Subtests
Steps for Analyzing the Child’s Profile

Stage 5: Comparisons Between Ability and Achievement
Elliott (1990) looked at children with LD

- tend to score lower on the diagnostic subtests relative to their performance on the core subtests
- greatest differences were shown on the Recall of Objects, Recognition of Pictures, and Speed of Information Processing subtests
Kercher & Sandoval (1991) looked at children with reading disabilities

- scores were significantly lower than typical children on the Recall of Digits and Recall of Objects diagnostic subtests

McIntosh & Gridley (1993) examined children with various LD

- found 6 distinct profile patterns; 1 group had a relative weakness in the Nonverbal Reasoning cluster, suggesting a major difficulty with fluid reasoning or with the integration of visual and verbal information
McIntosh (1999) studied preschool children to explore if the DAS could discriminate between typical and at-risk preschoolers.

- At-risk group showed their greatest differences in comparison to typical peers on the Picture Similarities core subtest and the Recall of Digits diagnostic subtest.
Please contact me at

Donna Rury Smith, Ed.D.
Clinical Measurement Consultant
The Psychological Corporation
2817 Berry Trace
Schertz, TX 78154
(210) 566-6812
donna_smith@harcourt.com
www.PsychCorp.com for website