

Interpreting Cognitive Tests

There are 2 forms of Cognitive Tests:

Group-Administered Cognitive Tests: are often done with other students (though they may be done individually) by a trained school staff member (teacher, coordinator, etc.) The most commonly-used tests in Adams 12 are the [CogAT](#), the [NNAT](#) non-verbal test and the [Torrance Test of Creativity](#). These are not IQ tests, but they do test cognitive ability which can correlate to IQ.

Individually Administered IQ Tests: are done one-on-one with a licensed school psychologist trained in such assessments. These give an [Intelligence Quotient \(IQ\)](#) score. The most commonly used tests in Adams 12 are the Wechsler tests: the [WPPSI](#) for Pre-K to 2nd grade, and the [WISC](#) for grades 3 – 12.

Cognitive Tests are one component of a student's Body of Evidence for GT identification. *Academic Achievement, Demonstrated Performance* and *Behavioral Characteristics* are also considered.

Percentile scores: Although different tests often have various scoring systems and terminology, most usually convert scores to National Percentile Rankings (NPRs). The *general guideline for gifted identification is scores at or above the 95th percentile*. This does not refer to the percentage the student got correct on the test, but indicates that the student did better than 95% of students nationwide. Find out more about [score distributions](#) for cognitive tests.





Testing Administration

Group Administered Cognitive Assessments

- Usually done in a group setting (may also be 1 on 1)
- Administered by teacher or school staff member trained in cognitive assessments
- Usually multiple choice
- May be done paper/pencil or on computer
- Does not give actual Intelligence Quotient (IQ), but a cognitive assessment which correlates to IQ
- Most commonly used: [CogAT](#), the [NNAT](#), the [Torrance Test of Creative Thinking \(TTCT\)](#)

Individually Administered IQ Tests

- Done individually with tester
- Administered by licensed school psychologist trained in IQ assessments
- Answers could be more open-ended
- Often includes manipulatives, oral answers and written answers
- Calculates a Full-scale Intelligence Quotient (IQ)
- Most commonly used: [WPPSI](#), [WISC](#), [Differential Abilities Scale \(DAS\)](#), [Kaufman Assessment Battery for Children \(KABC\)](#)



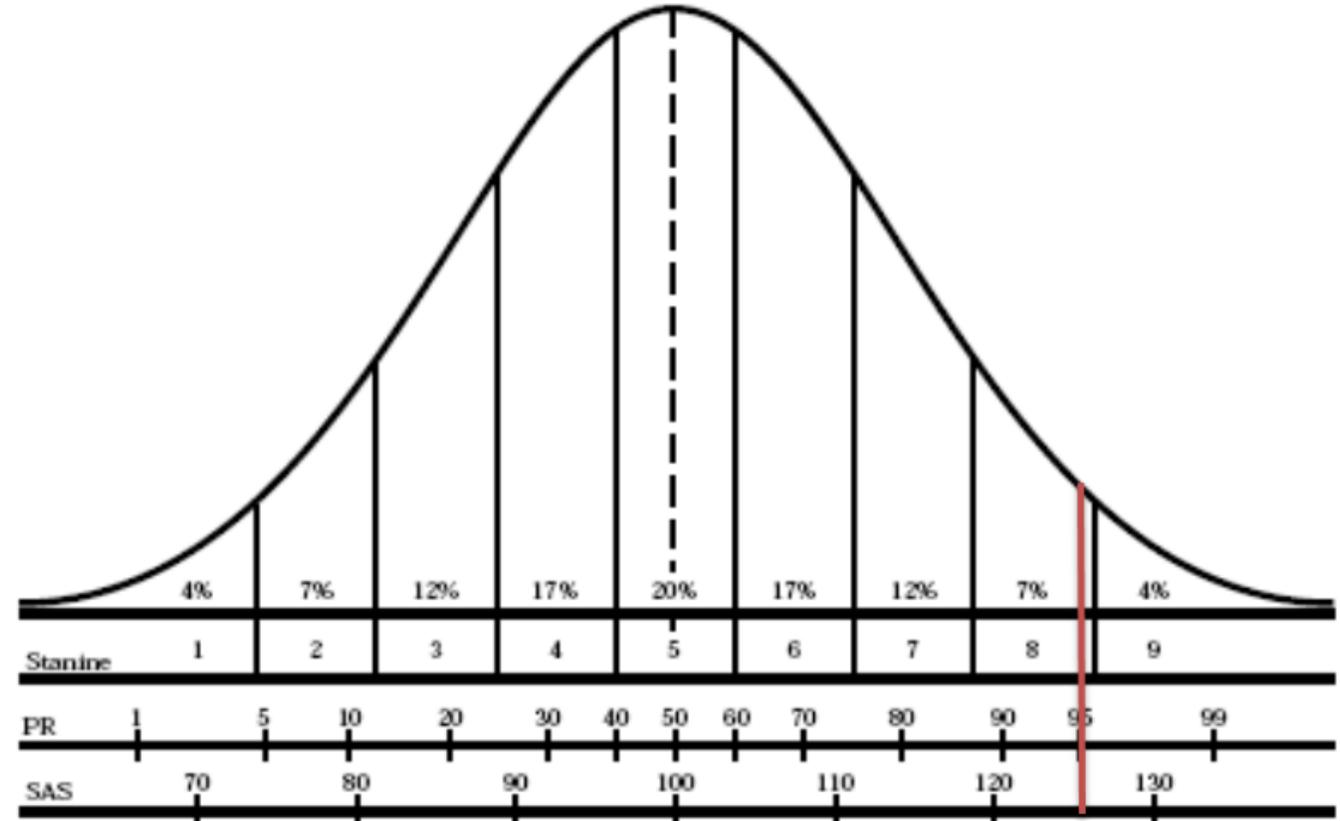
Testing Terminology

- **Raw Score (RS):** the number of questions answered correctly
- **Standard Age Score (SAS) or Naglieri Ability Index (NAI):** Raw scores are converted to SAS based on how other students of the same age did on the same test. These are distributed along a continuum with the mean being at a 100. [For the NNAT this is called the Naglieri Ability Index (NAI). On the TTCT the composite of the standard scores is called the Creativity Index (CI).]
- **National Percentile Rank (NPR):** shows the student's standing within a nationally represented group of same-age students. A percentile rank of 58 means the student scored as well or better than 58 percent of other children the same age. NPRs *do not* represent the percentage of test items the student answered correctly.
- **Stanine:** a simpler way to say 'standard nine', it is a system dividing test results into 9 groups. Scores in groups 1-3 are below average, scores in groups 4-6 are average and scores in groups 7-9 are above average. Stanines *do not* represent the percentage of test items the student answered correctly.



Score Distribution

- Cognitive scores are usually distributed along a normal curve
- Average range is typically an SAS between 90-110
 - Mean SAS = 100
 - Standard deviation usually 15 or 16
- Gifted range is typically 1.5 standard deviations above the norm
 - This is usually about a 124 SAS, or 95th percentile
 - [Guidelines from Colorado Dept of Education]



GT benchmark =
95th %ile



Cognitive Abilities Test (CogAT)

- [Group-administered](#) norm-referenced test published by [Riverside](#).
- Includes the following testing batteries:
 - Verbal: indicates strength in reading comprehension, critical thinking, and writing
 - Quantitative: indicates strength in problem solving in mathematics and other disciplines
 - Non-verbal: indicates strength in advanced problem solving and adapting cognitive strategies
- Administration is multiple choice (paper/pencil or online); approximately 90 minutes total duration.
- For a detailed explanation on interpreting CogAT testing reports, see this [link](#).
- Interpret your student's [CogAT Ability Profile](#) (must have Score Profile on computer-generated report.)





Naglieri Non-Verbal Abilities Test (NNAT)

- [Group-administered](#) norm-referenced test published by [Pearson](#).
- A high **Nonverbal Ability Index (NAI)** score indicates strength in reasoning and problem-solving as measured on nonverbal test activities
 - Average NAI = 100; GT range usually 124
- Administration is multiple choice (paper/pencil or online); approximately 30 minutes total duration.
- Students solve a variety of progressive matrices puzzles (see [sample test](#).)
- See more info on [how to interpret NNAT test reports](#)
- See the [test author's website](#)





Creativity Tests

- [Torrance Test of Creative Thinking \(TTCT\)](#) measures fluency, originality, elaboration and abstract thinking.
 - TTCT calculates a composite Creativity Index (CI) which is related to a National Percentile Ranking (NPR)
 - 30 minute administration
 - Open-ended prompts (*not* multiple choice)
 - [NPR article](#) on the history of the TTCT
- Other creativity tests include:
 - [Profile of Creative Abilities \(PCA\)](#)
 - [Draw A Person \(DAP\)](#)





IQ Tests

- Measure Intelligence Quotient (IQ)
 - Mean IQ = 100
 - Also calculated as National Percentile Ranks (NPRs)
- Can only be administered by a licensed school psychologist trained in IQ testing
- One on one administration, often takes over 1 hour
- Usually reports several index, battery or subtest scores (like Verbal Comprehension, Visual-spatial processing, etc.)
- May or may not factor in elements like processing time
- Some have a greater verbal load than others
- Most common are the [WPPSI](#), [WISC](#), [DAS](#), [KABC](#) & [RIAS](#)





Wechsler Intelligence Scales for Children (WISC)

- [Intelligence \(IQ\) test](#) administered by licensed school psychologist
- Most recent version is the [WISC-V](#) (2014)
- Reports on the following index scores:
 - Verbal Comprehension: measures verbal reasoning & concept formation
 - Visual Spatial Processing: involves organizing visual information & part-whole relationships
 - Fluid Reasoning: measures inductive reasoning skills, conceptual & classification ability
 - Working Memory: measures short-term memory & concentration ability
 - Processing Speed: measures how rapidly students can process information without error
 - **Full Scale IQ (FSIQ)**: derived from a combination of all subtests
 - **General Ability Index (GAI)**: is a composite unaffected by the Working Memory or Processing Speed subtests. Thus, it better reflects higher-level reasoning (often preferred for GT identification.)



Wechsler Preschool & Primary Scales of Intelligence (WPPSI)

- [Intelligence \(IQ\) test](#) administered by licensed school psychologist
- Most recent version is the [WPPSI-IV](#) (2012)
- Reports on the following index scores:
 - Verbal Comprehension: measures verbal reasoning & concept formation
 - Visual Spatial Processing: involves organizing visual information & part-whole relationships
 - Fluid Reasoning: measures inductive reasoning skills, conceptual & classification ability
 - Working Memory: measures short-term memory & concentration ability
 - Processing Speed: measures how rapidly students can process information without error
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