

*Parents' Guide to*  
**IQ TESTING**  
*and* **GIFTED**  
**EDUCATION**

*All you need to know to make  
the right decisions for your child*

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With a Special Section on  
Bright Kids with Learning Problems

David Palmer, Ph.D.



Parent Guide Books  
Long Beach, California

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*To my family*

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## INTRODUCTION

### What's In This Book?

**I**Q testing and selection for special programs is thought by some to be a mysterious and secretive domain understood only by the chosen few. It shouldn't be. To make meaningful decisions about your child's education you should have as much information as teachers, principals, school psychologists, or anyone else. In this book you'll find out how to recognize signs of giftedness and learning disabilities in your own child and learn how IQ tests and other criteria are used to select kids for special school programs. You don't necessarily need to read the chapters in order, or the book from cover to cover, to find what you're looking for. I'll outline what's ahead here so you can skip around a bit to find the exact information you want.

**Chapter One:** IQ tests can be used to make important decisions about the programs or services your child receives. For instance, IQ scores are often used when determining which students qualify for gifted education programs, or for resource programs designed to help kids with learning problems. Chapter One will help you understand what these tests measure and how to interpret the results so you can better work with those in the schools when making placement decisions for your child.

**Chapter Two:** Identifying gifted kids who need special support in school can be tricky. In fact, some kids with high IQs are better off in a regular school program. For this reason, IQ scores are usually only one of the criteria used when making placement decisions for gifted programs. Chapter Two reviews some of the other likely criteria and offers suggestions on how to work with the teacher to make sure that your child's learning needs are being met.

**Chapter Three:** If you're trying to decide whether a gifted education placement is right for your child, you'll need to understand what type of program your district is offering and how it differs from what your child is already getting. Chapter Three looks at common types of gifted programs and teaching techniques and offers specific questions for you to consider when thinking about your own child's needs. Alternatives to public school gifted programs are also considered.

**Chapter Four:** I've found that some parents are hesitant to ask questions about IQ testing and the gifted program selection process - maybe for fear of appearing pushy or overly concerned. Yet, parents need to have the same information as everyone else when it comes to making educational decisions for their children. In this chapter you'll get straight forward answers to the questions parents ask most.

**Chapter Five:** Your insights into your child's development are important, and the more knowledge you have, the better position you're in to partnership with others when selecting the best programs for your child. Chapter Five looks at some common traits of gifted kids and considers when early identification of giftedness may be needed.

**Chapter Six:** You don't necessarily have to have a high IQ to do

well in life. Other traits like personal motivation, perseverance, and creativity may be just as - or more - important when it comes to happiness and success. In fact, there is little practical advantage, and maybe a real downside, to having an extremely high IQ. This chapter considers the idea of “optimal IQ” and looks at some of the potential negative aspects of giftedness.

**Chapter Seven:** There are lots of bright or gifted kids who struggle in school. Some of these may eventually be diagnosed with a learning disability and offered support. Yet, there are many others who could benefit from special school services but are never identified. Chapter Seven focuses on how to recognize learning problems in your own child and looks at different school programs that may help.

**Chapter Eight:** IQ testing has become commonplace in our schools. But how did this practice begin? The last three chapters of this book are for parents who want a deeper look at IQ testing and issues surrounding the concept of human intelligence. In Chapter Eight you’ll get an overview of the early, sometimes bizarre, history of mental ability testing.

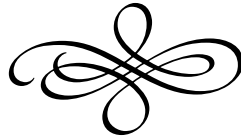
**Chapter Nine:** So what is intelligence? There really is no general agreement except to say that it’s certainly more than what is measured on an IQ test. Chapter Nine looks at different perspectives on how to define intelligence and ends with a look at the theory of multiple intelligences - the idea that IQ tests measure only a very limited band of human abilities and may seriously underestimate our real potential.

**Chapter Ten:** Where do our abilities come from? How much of what we are is due to our genetics, and how much to our experiences? Chapter Ten looks at this question by considering studies of rats, twins, adoption, birth order, and family size.

*A Note: I use the term “gifted” and “giftedness” throughout this book mostly to refer to the intellectually gifted - those that are likely to receive an unusually high score on an IQ test. Of course, there are lots of ways to be gifted, talented, exceptional, or extraordinary that can't be measured on such tests.*

# PART ONE

## *IQ Testing and Gifted Education*





# CHAPTER ONE

## A Closer Look at IQ Tests

### *What They Measure and What the Scores Mean*

Every day thousands of kids are being tested, sorted, and placed into special school programs based on a set of rules that many parents just don't understand. And why should they? Most parents don't have a background in testing and many aren't even aware that such programs exist. Their first exposure to these practices is usually when one of their own kids is in the system.

The key to helping your child get the most out of school is to understand how that system works. We'll start by looking at the basics of IQ testing - what these tests measure, how they are administered, and what the scores mean. IQ tests are often a major part of the selection criteria for school programs and these scores can be used to make important decisions about your child's education.

### **IQ and Intelligence**

Some people think of the terms "IQ" and "intelligence" as interchangeable. But, that's not true. An IQ, or *intelligence quotient*, is just a number you get from taking an IQ test, while there is no real agreement on just how to define the term intelligence. The definition may change considerably from culture to culture, and even person to person, depending on who you ask or who you believe. So, if we can't agree on what constitutes intelligence, how can we measure it on an IQ test? We really can't.

What most do agree on is that IQ tests don't tap into all, or even most, areas of intelligence. In fact, critics argue that the skills that are measured are so narrow, so limited when compared to the broad range of human abilities and talents that are important for success and happiness in life, that IQ scores can give us a very restricted and misleading view of a person's true gifts and abilities. These tests are not designed to measure things like social skills, creativity, motivation, or self-esteem - all attributes which may be just as, or even more, important to your child's achievement and satisfaction than her IQ. So then, just what are IQ tests and what are they good for?

It is generally agreed that IQ tests do measure certain skills that are important to school learning, and that IQ scores are highly correlated to school achievement. In other words, children who do well on these tests tend to be those who get better grades in school. In that regard, IQ tests can probably best be viewed as predictors of school achievement.

### **What Do IQ Tests Measure?**

While IQ tests measure certain skills that have been found to be strongly related to school achievement, each test publisher goes about measuring those skills in a different way, and may even measure quite different aspects of learning ability. The specific cognitive skills measured by each of these publishers may also change a bit every few years, as they periodically revise their tests to reflect current research and new ideas. To know exactly what learning skills (or cognitive domains) are measured by the most commonly used tests out there, you'd really need to pore over an up-to-date psychological assessment textbook. But for now, let's look at a few general areas that are commonly assessed on many IQ tests.

Remember, IQ tests are best seen as predictors of academic achievement. An IQ score only tells us how a certain child has performed on a certain test at a certain time, and says little about that child's true potential. Children can be gifted in many ways that are not measured on an IQ test.



### **Verbal Skills**

The ability to understand and use words, to understand verbally presented information and answer comprehension questions, and the capacity to analyze and solve puzzles or problems in which verbal skills are involved.

Types of IQ test activities that may be used to measure these skills include:

- Defining words
- Answering questions which deal with an understanding of everyday life or with school learning
- Comparing and contrasting verbally presented concepts or explaining abstract ideas
- Solving word problems

### **Visual (or Nonverbal or Perceptual ) Problem Solving**

The ability to solve visually presented problems and puzzles, recognize visual patterns, and identify visual details.

Types of IQ test activities that may be used to measure these skills include:

- Putting puzzles together quickly and accurately
- Putting pictures in a certain order so they tell a story
- Assembling patterned blocks to match a model
- Choosing a picture from among several choices that completes a visual pattern or puzzle (Many internet IQ tests use this type of activity)

### **Memory**

The ability to hold words, numbers, patterns, and symbols in the mind long enough to solve a problem or produce a response.

Types of IQ test activities that may be used to measure these skills include:

- Repeating back numbers, letters, or words spoken by the examiner
- Identifying specific details or events from a story that was read independently or read aloud by an examiner
- Placing colored beads or other objects on a table in a particular order after briefly viewing a model
- Remembering the sequence of objects or shapes briefly viewed in a picture or diagram.

### **Problem-Solving Speed**

The ability to think and act quickly and to use available information to swiftly solve a problem.

Types of IQ test activities that may be used to measure these skills include:

- Copying symbols in a precise order within a certain time frame (The faster you go, the more points you get)

- Deciding whether two near-identical symbols are alike or different, within a certain time frame (Again, the faster you go, the more points you get)

Take a look at some of the skills measured on IQ tests and you can see why kids with higher IQ scores generally do better in school. Someone who has a good vocabulary and strong verbal skills should be able to apply those skills to lots of school-related tasks - like reading, understanding a social studies text book, or solving math word problems on a test. In the same way, a child who shows advanced visual problem-solving ability while putting together puzzles or figuring out visual patterns would likely be good at seeing patterns or relationships in areas such as math and science. And, of course, there's an obvious connection between memory and speed of problem solving and being able to perform well at school.

## **Two Types of Tests**

There are two basic types of IQ tests - group tests and individually administered tests. Although both attempt to measure skills involved in school learning, there are some important differences in both format and content.

### **Group Tests**

Group tests are meant to be given to a large group of children at one time. They are developed to be user friendly, and can be given by teachers or others not specifically trained in IQ test administration.

When administering a group test, the teacher passes out booklets to his students, makes sure everyone understands how to correctly mark the answers to the questions, and then, reading from a script, gives directions on how to complete each section.

Depending on the type of test item and the age of the children, the teacher may read the instructions or questions out loud or the children may be asked to work independently. The teacher will also typically review sample problems in each section to be sure that everyone understands what they are to do before beginning.

Many group tests are completed in an hour or two, and can be administered in one or two sessions. Since these tests are standardized, the teacher cannot give any extra help to individual students who may need extra assistance. Rather, students may be given instructions like, "Do your best," or, "Choose the best answer and move on to the next problem" if they become stuck or frustrated.

Because group tests are designed to be administered quickly and measure only a limited set of cognitive skills, they are not considered to be as reliable or as accurate as individually administered tests. Due to these limitations, group tests are often thought of as screening assessments and many (perhaps most) districts use them primarily to select students for further testing with an individually administered IQ test.

### **Individually Administered Tests**

Individually administered tests are given in a one-on-one setting. Some common versions of these tests for school-age kids are the Wechsler Intelligence Scale for Children (or WISC - pronounced "Wisk"), the Stanford-Binet Intelligence Scale, and the Kaufman Assessment Battery for Children.

“What about internet IQ tests - the kind you can take online? Are those *real* tests, and can you believe the results?” If you’ve got an internet connection, you can easily find a website where you can take a self-administered IQ test and, often for a fee or in exchange for allowing your email address to be put on a mailing list, get an “IQ” score. But how valid are the results? It’s hard to say. Many online tests measure only limited aspects of intelligence and have not been as thoroughly researched and “standardized” (a long and expensive process that allows one person’s test scores to be compared to another’s) when compared to the traditional tests that professionals use. I’ve known many people who have taken an online test and scored in the “genius” range. So, even if the results aren’t always perfectly accurate, online tests may be a great way to get a quick ego boost.



In contrast to group IQ tests, individually administered IQ tests:

- May take longer to administer and score
- Must be given only by a qualified examiner such as a school psychologist or a clinical psychologist
- Measure a wider range of skills - typically including more specific aspects of verbal and nonverbal reasoning, tasks involving motor skills, and tasks involving speed of problem solving

Because they measure a broader range of abilities and are administered by trained examiners, individually administered IQ tests are considered to be more reliable than group tests. For this reason, many districts base educational decisions - like placement in a gifted education program or eligibility for special education services - on these scores. We'll focus on the individually administered IQ test in the rest of this chapter.

### **What's It Like to Take an Individually Administered IQ Test?**

IQ tests are standardized tests. They have been developed so that one child's score can be easily compared to another's. But for this comparison to be valid examiners must be sure to give the test in a standard way - they must use the same testing procedures for each child. For example, the same directions must be given, the same time limits must apply, and the same scoring criteria must be used. It wouldn't make sense to give one child extra time to complete a test item, or to give him hints or added encouragement, and then compare that child's score with another's who wasn't given such advantages.

While specific directions and standard administration procedures will differ a bit from test to test, there is a common set of general guidelines, a familiar flow, to all individually administered IQ tests.

- Before the examiner starts testing, he will spend some time building rapport - making small talk and checking to be sure that the child is comfortable and does not appear ill or overly anxious. This is an important part of the standardized test procedure and experienced examiners should be experts at making children feel at ease.

- Individually administered IQ tests are made up of several smaller *subtests*. Children in certain age groups are generally given the same subtests in the same order. The examiner will determine the sequence of subtests to give a child by determining his age and maybe by giving him a brief placement or *routing* test.
- Items on each subtest are presented in order of increasing difficulty. The examiner will determine by the child's age, or through the routing test, the item to begin with on each subtest - this is often called the *starting point*. Subtests are designed so that children start with items that they can pass easily, to give them a feeling of success.
- The examiner will be sure that the child understands what he is to do on each subtest before beginning. Most subtests require the examiner to give sample items so that the child has an opportunity to practice whatever the task requires before moving on to the actual test items. These sample items are generally not scored.
- The examiner will move through the subtests in the sequence dictated by the test manual for the child's age level or ability level. While administering the test, the examiner will be scoring the child's responses. Examiners are trained to do this in such a way as not to call attention to the scoring procedure - so as not to give the child any feedback regarding whether their responses are correct or not.
- The examiner will stop testing on most subtests when the child has made a certain number of errors. The subtests are designed this way so that children do not become frustrated or discouraged by being given test items that would be too difficult for their age or ability level. The test item

where the examiner stops is usually called the *ceiling item* or *stopping point*.

- Some of the subtests - usually those that involve having the child do something like put puzzles together or write things down rather than just answer questions - may be timed and scored based on the quickness of the response. The examiner will use a stopwatch or maybe a wristwatch to do this, being careful to be as unobtrusive as possible so that the child doesn't feel pressured or distracted. In my experience, most children do not even realize they are being timed.
- The examiner will do his best to continue to make the child feel comfortable throughout the IQ test, putting him at ease by making informal conversation or encouraging comments.
- Most individually administered IQ tests take about an hour and a half to administer. When the test is over, the examiner will praise the child for his effort and participation, continuing to make him feel at ease and assured.

And that's it. Most kids actually seem to enjoy being tested. They probably like the individual attention they get, and the chance to get out of class for a while.

### **Three Types of IQ Scores**

The purpose of giving an IQ test in the schools is to get a score, or set of scores, that can be used to predict a child's learning ability and make educational placement decisions. Let's take a look at the three different types of scores that you'll need to know about when interpreting IQ tests.

## Subtest Scores

As you've read, individually administered IQ tests are made up of several smaller tests called *subtests*. Each of these subtests involves a different type of activity and measures a particular area of ability. For example, a subtest that measures attention and memory skills may require the child to listen to and repeat back numbers spoken by the examiner. Another subtest measuring visual problem solving skills might involve the child putting blocks together to match a design shown in a picture. Usually around ten or so of these individual subtests are administered during an IQ test, with each taking about ten minutes to give.

Psychologists often don't report subtest scores to parents because they are not as reliable as other IQ scores, which are obtained by combining subtest scores. It's like averaging grades. Your child might get one poor grade on a spelling test but this doesn't necessarily mean he's a bad speller. If you average several of his spelling grades, however, you get a better picture of his true spelling abilities.

## Subscale Scores

A *subscale* score gives you information about a child's performance in a certain skill area - or *cognitive domain*. To arrive at subscale scores (sometimes called process scores, factor index scores, composite scores, or some other such name) two or more subtest scores are combined, based on what is being measured. For example, if three of ten subtests given during an IQ test deal largely with short-term memory skills, then the scores from these subtests may be combined into a "Short-Term Memory Subscale" score. Other subtests might be grouped into subscales that measure areas like verbal reasoning skills, visual reasoning skills, or speed of problem solving. Most individually administered IQ tests are designed to measure around five to seven subscales areas.

“School Psychologists and Clinical Psychologists? What’s the difference?” A clinical psychologist typically practices in non-educational areas with private clients, or through agencies not associated with a school district. Clinical psychologists are licensed to provide therapy and typically have some training in the administration of IQ tests - but they may not regularly administer them as part of their regular routine. A school psychologist, also called an educational psychologist, is specifically credentialed to work in the public school setting, and may also be licensed (by passing a state exam and meeting other requirements) to provide private educational therapy and testing. School psychologists often have the most experience with IQ testing as this tends to be a regular part of their job responsibilities. Some states also allow licensed psychometrists to administer IQ tests. A psychometrist is basically an expert in testing, but is not trained to provide therapy or counseling.



Subscale scores can tell you a lot about your child’s relative strengths and weaknesses. While some students do about equally well on all subscale areas, many show some pretty large differences. A child with a strong verbal reasoning subscale score and a relatively low visual (perceptual) reasoning subscale score, for instance, may learn more efficiently through lectures or just sitting down with a book, rather than through diagrams, charts, or mentally picturing an idea. A child with a relatively low score on

a subscale dealing with memory may need more repetition before basic skills are mastered. A child with a relatively low score on a subscale involving processing speed (the ability to think and act quickly) may be a perfectionist who works more slowly than others because of a tendency to check her work for accuracy before moving on.

Remember that each IQ test is organized differently, and that subscale results may be interpreted differently from test to test. Ask your child's examiner to help you review and interpret the subscale scores provided on the particular test used for your child. And remember to combine your own observations and instincts with any test scores you're reviewing when considering your child's learning needs.

### **Full Scale Score**

The *full scale* (or composite) score is what most people probably think of when they hear the term "IQ." Unlike subscale scores, which reflect a child's performance in particular skill areas, the full-scale score reflects the child's overall performance - taking into account the diverse mix of mental abilities sampled on all the subtests. It is often the full-scale IQ score that is used to make educational placement decisions regarding entrance into a gifted education program or eligibility for special education services.

While the full scale IQ may give you a good overall sense of how your child did on the test, subscale scores are more useful for understanding your child's pattern of abilities.

### **Understanding IQ Scores**

Once an IQ test has been administered, the examiner adds up the points the child earned on each of the subtests. He then

converts these points into a *standard score* by comparing the child's performance to others in the same age category. This can be done manually by using tables in a testing manual, or with the help of a software program provided by the test publisher. The subscale and the full-scale IQ standard scores are obtained in a similar way.

A standard score is a number that can be used to compare the performance of one person to another. Standard scores are designed to have a *mean* and a *standard deviation*. The mean is the average score on the test while the standard deviation deals with how scores are distributed around the mean. I won't go into these statistical concepts here, but simply say that most IQ test publishers design their tests so that the mean, the average score, is set at 100 and the standard deviation is set at 15. Often, both full-scale scores and subscale scores are designed like this. These are the types of scores we'll be considering from here on out.

## **Descriptions**

Someone receiving an IQ score of 100 has scored right at the mean - the average. Half the people in the age group she is being compared to have scored higher and half have scored lower. Of course, IQ scores are not usually exactly 100. How well someone did on an IQ test is usually determined by how far above or below the average their score falls. So how about a score of 93, how does that compare to the average? Or a score of 117, what does that mean?

Many examiners will help parents interpret their child's IQ scores by using descriptive terms for different score ranges. These terms are provided by the test publisher in the manual provided with the test.

To avoid showing our ignorance, many of us tend to smile and nod knowingly when listening to an “expert” explain something we don’t quite understand. But when reviewing your child’s test scores, don’t hesitate to ask questions. Test publishers may use different terms, theories, and statistics when describing subscale scores and test performance. Part of the examiner’s job is to explain the results of a particular IQ test in simple, everyday terms. If you don’t understand something, ask the examiner to explain it to you again, in clearer terms. You might say something like “Tell me exactly what that means,” or “Could you go over that again? I didn’t quite get it.” It’s better to spend a few minutes asking questions when you’ve got the chance than to end up with lots of question marks floating around in your head on your ride home.



Here’s an example of some commonly used descriptive terms associated with IQ scores:

<b>IQ Score</b>	<b>Descriptive Term</b>	<b>% of Population</b>
130 and above	Very superior or gifted	2.2 percent
120 to 129	Superior	6.7 percent
110 to 119	High average	16.1 percent
90 to 109	Average	50 percent
80 to 89	Low average	16.1 percent
70 to 79	Borderline Delayed	6.7 percent
69 and below	Delayed	2.2 percent

Looking at this table, you can see that half of all people taking an IQ test score between 90 and 109. And as you get further away from average, in either direction, the fewer people there are in those score categories. Only about two percent of those taking an IQ test score in the gifted range

By using descriptive terms, you should be able to get a good sense of what your child's score means. But as you can see, the score ranges are pretty broad. And keep in mind that different test publishers, researchers, and advocates may use different terms, or different score breakdowns, when describing test performance. For example, instead of calling scores between 90 and 109 average, some may say that scores between 85 and 114 are in the average range. Also, while our table calls the score range between 120 and 129 "superior," others may refer to these scores as being in the "mildly gifted" or "very bright" range. You get the idea. The words used are just that - words. Don't read too much into the terms, and keep in mind that there are no universally accepted definitions when it comes to describing IQ levels.

### **Levels of Giftedness**

IQ scores above 130 can also be categorized into different levels of giftedness.

Here's one set of terms commonly used to describe these categories:

- 130 to 144                      Moderately Gifted
- 145 to 159                     Highly Gifted
- 160 to 179                     Exceptionally Gifted
- 180 and above                Profoundly Gifted

Estimates differ when it comes to the number of children scoring in the extremes of the gifted range. This is partly because standard

scores on most traditional IQ test scores only go up to around 160, so higher IQ scores sometimes have to be estimated through a combination of different assessment instruments, some of which may not be as current or well researched as the more traditional tests.

One estimate is that:

- Fewer than 1 out of 1000 have an IQ of 145
- Fewer than 1 out of 10,000 have an IQ of 160
- Fewer than 1 out of 100,000 have an IQ of 180

### **Standard Scores and Percentiles**

Another way to interpret standard scores involves the use of percentile ranks. A percentile rank (or percentile or percentile score) indicates the percentage of other children in the same age category that the test taker scored as well as, or better than.

- For example, if a child earned a percentile rank of 27 on an IQ test, that means that she did as well as, or better than, 27 percent of the children she is being compared to.
- If a child earned a percentile rank of 95 on an IQ test, that means that she did as well as, or better than, 95 percent of the children she is being compared to.

In the same way, every possible standard score is associated with a specific percentile rank. For instance, a standard score of 90 is associated with a percentile rank of 25, a standard score of 100 is associated with a percentile rank of 50, a standard score of 110 is associated with a percentile rank of 75, and so on.

The examiner should tell you your child's percentile scores when reviewing the test results. You can also look them up yourself, once you know your child's standard score, by using a *Standard Score to Percentile Conversion Table* such as the one provided on the next page.

## Standard Scores and Percentile Ranks

Standard Score	%ile Rank	Standard Score	%ile Rank
133	99	99	47
132	98	98	45
131	98	97	42
130	98	96	39
129	97	95	37
128	97	94	34
127	96	93	32
126	96	92	30
125	95	91	27
124	95	90	25
123	94	89	23
122	93	88	21
121	92	87	19
120	91	86	18
119	90	85	16
118	88	84	14
117	87	83	13
116	86	82	12
115	84	81	10
114	82	80	9
113	81	79	8
112	79	78	7
111	77	77	6
110	75	76	5
109	73	75	5
108	70	74	4
107	68	73	4
106	65	72	3
105	63	71	3
104	61	70	2
103	58	69	2
102	55	68	2
101	53	67	1
100	50	66	1

*Note: This table is valid for all IQ scores where the mean is set at 100 and the standard deviation is 15. Most tests are organized this way. If you are reviewing a test that is organized differently (such as an older version of the Stanford-Binet Intelligence Scale where the standard deviation is set at 16) the examiner will use a different table to convert standard scores to percentiles.*

## Percentile Ranks and Percentages.

### What's the Difference?

A lot of people confuse *percentile ranks* with *percentages* when trying to interpret IQ scores. Don't let this happen to you.

Here's the difference:

- A percentile rank indicates the percentage of others that the test taker scored as well as, or better than.
- A percentage tells us how many answers out of 100 are correct.

Researchers have found that over the past several decades performance on IQ tests has improved steadily. In fact, on average, IQ scores in the U.S. and many other countries appear to have gone up by about three points every decade. Why? No one knows for sure. Strange as it seems, it continues to happen. Because of this curious phenomenon children who take the most recent revisions of an IQ test tend to score a few points lower than those who take an older version. This is because their test performance is compared to the more recent and "smarter" group of people that the test has been normed on.



For instance, if you have a test with 100 questions, and you get 65 of them right, then you got 65 percent of the questions correct.

Of course, most tests don't have exactly 100 questions, so figuring out the percentage of correct responses isn't always that

straightforward. But you can get a percentage correct on any test with any number of questions simply by dividing the number correct by the number of items on the test, and then moving the decimal over a couple of spaces to the right.

- For example, if someone gets 32 answers right on a test with 40 questions, he received 80 percent correct. Try it. Get out a calculator and divide 32 by 40. You'll get 0.8. Now move the decimal over a couple of spaces to the right and you'll get 80. 80 percent correct.

In this way, teachers and others can convert all test scores to percentages, which makes it easy to assign grades. It's a common practice. Anyone who's been to school is familiar with this grade formula for converting percentages into letter grades:

- ⇒ Percentage scores between 90 and 100 result in a grade of A
- ⇒ Percentage scores between 80 and 89 result in a grade of B
- ⇒ Percentage scores between 70 and 79 result in a grade of C
- ⇒ Percentage scores between 60 and 69 result in a grade of D
- ⇒ Percentage scores below 59 result in a grade of F.

And this is where the confusion comes in. This grading formula is so pervasive that we have become used to thinking in terms of percentages whenever we hear the root word "percent." Parents can be quite distressed to learn that their child earned a percentile rank of 68 on an IQ test, if they're thinking in terms of percentages. On a regular test, a percentage score of 68 would only earn you a letter grade of "D."

On the other hand, a *percentile rank* of 68 is pretty good. In fact, it's above average since it means that the test taker did as well as or better than 68 percent of those taking the same test. Remember that a percentile rank of 50 is exactly average and is associated with the exact average standard score of 100 on an IQ test. A percentile ranking of 68 on an IQ test is above average and associated with a standard score of 107.

### **Age Equivalent Scores**

Age equivalent scores (sometimes called test age equivalents or something similar) are the average scores, expressed in years and months, obtained by various age groups of children.

Age-equivalent scores are calculated by noting the average number of items a certain age group gets correct on a test. Any other test taker that gets the same number correct is given that age-equivalent score. For instance, if it was found that the average number of items answered correctly by children who were 10 years, 7 months of age on a particular IQ subtest was 17 out of a possible 20, then anyone getting 17 items correct on that subtest can be said to have an age equivalent score of 10-7.

While age-equivalent scores can give parents a general sense of how their child has performed, these scores are often not reported since they can be misleading and may give the impression that a test taker's performance is really much higher or lower than it actually is.

## CHAPTER ONE

### A Closer Look at IQ Tests

#### *Quick Points*

- While IQ tests don't measure all aspects of intelligence, they do measure certain skills that are associated with school learning. For this reason, IQ tests might best be thought of as predictors of school achievement.
- The specific kinds of learning skills measured by different IQ tests vary from one test publisher to the next. A few general areas that are measured on many IQ tests include:
  - Verbal Skills
  - Visual Problem-Solving Skills
  - Memory
  - Problem-Solving Speed
- The two general types of IQ tests used in the schools are the group test and the individually administered test. While both are designed to measure certain cognitive traits that are important for school learning, individually administered tests typically measure a wider range of skills and are usually considered to be more reliable.
- Individually administered IQ tests are given by a trained examiner such as a clinical or educational psychologist, and take an hour or two to administer. Examiners use the same standard testing procedures with every child, which includes establishing rapport and trying to make the child feel at ease and successful.
- IQ tests yield three types of scores: subtest scores, subscale scores, and the full scale (or composite) score.

- A subtest score reflects the child's performance on one of the individual activities within an IQ test that measures a particular skill or ability.
  - A subscale score is obtained when two or more subtests are combined to reflect the child's performance in a general area, like memory or verbal skills.
  - The full scale score is what most people think of when they hear the term "IQ," and reflects the child's overall performance on the test.
- The scores derived from IQ testing are called standard scores. Standard scores are designed so that one person's test score can be easily compared to another's.
  - Two common ways of interpreting standard scores are by using descriptive terms, like "average" or "high average," or by looking at the percentile rank associated with the score. A percentile rank tells the percentage of those that the test taker scored as well as, or better than, on a particular test. For example, if a child receives a percentile rank of 85 on a test, that means that she scored as well as, or better than, 85 percent of those in the age group that she is being compared to.