

## Quick Reference Guide to Score Types

For detailed explanations of the score types below, refer to “Score Types Explained,” beginning on page 127.

| Score Type                            | Short Description   | Use/Misuse Information   |
|---------------------------------------|---|--|
| <b>Grade Equivalent (GE)</b>          | A decimal number that describes a student’s location on an achievement continuum in terms of grade and months at which the typical student received this score (for example, 3.2 is third grade and two months into that grade) | Grade equivalents are particularly suited to estimating a student’s developmental status or year-to-year growth of students in elementary school, as scores indicate typical achievement in common curriculum for each grade level. They are ill suited to identifying a student’s standing within a group or to diagnosing areas of relative strength and weakness. |
| <b>National Percentile Rank (NPR)</b> | A percentile rank indicating the status or relative rank of a student’s score compared with a nationally representative sample of examinees   | NPRs are useful for discussing a student’s test results with parents and for determining areas of relative strength and weakness for a student, class, or grade group. They are less useful than grade equivalents, however, for estimating or monitoring growth. Do <b>not</b> average NPRs.  |
| <b>Normal Curve Equivalent (NCE)</b>  | Normalized standard scores that range from 1 to 99 with a mean of 50 and a standard deviation of 21.06 in the large norm group from which they were derived   | NCE scores can be interpreted in much the same way as percentile ranks, but unlike percentile ranks, NCEs CAN be averaged when describing group performance or when checking growth over time. For these reasons, NCE scores are often used in program evaluations for reporting growth and judging improvement.   |
| <b>Percent Correct (%C)</b>           | The result of dividing the number of questions a student answered correctly on a test by the total number of test questions and then multiplying by 100   | Do not confuse percent-correct scores with percentile ranks—the two are quite different.   |
| <b>Percentile Rank (PR)</b>           | A score from 1 to 99 that indicates the percentage of students in a particular group that scored at or below the score of the student   | PRs are especially useful for determining areas of <i>relative</i> strength and weakness for an individual student, a class, or a grade group. They are less useful than grade equivalents, however, for estimating or monitoring growth. Do <b>not</b> average PRs.   |
| <b>Raw Score (RS)</b>                 | The number of questions a student answered correctly on a test  | Raw scores are usually converted to other types of scores for interpretation purposes.   |

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| Score Type                 | Short Description  | Use/Misuse Information  |
|----------------------------|--|---|
| <b>Standard Score (SS)</b> | A number that describes a student's location on an achievement continuum with the scale based on the <i>Iowa Assessments</i> test subjects' growth model | The table on page 130 shows the standard scores that correspond to typical performance (median) of grade groups on each <i>Iowa Assessments</i> test in the spring of the year.   |
| <b>Stanine (S)</b>         | Normalized standard scores that range from 1 to 9 and have an average value of 5   | Stanines are coarse groupings of percentile ranks, so they are less precise indicators of student achievement than percentile ranks. Do <b>not</b> use stanines to describe a student's developmental level or to measure growth. |

Additional score types and the abbreviations you may see on score reports are defined below.

| Score Type   | Short Description  |
|--|--|
| <b>Grade Equivalent, 2005 Norms (AltGE)</b>                | Alternative grade-equivalent score based on 2005 norms. (Score is offered in conjunction with 2011 norms-based score.)   |
| <b>Lexile®</b>   | A score obtained from the <i>Iowa Assessments</i> Reading test that can help match a student with reading material of an appropriate difficulty level. It also gives an idea of how well a reader will comprehend a text. (For more information on Lexiles, see page 133.) |
| <b>Local Percentile Rank (LPR)</b>                         | Percentile rank based on the school system's or building's own data as opposed to the national-based normative information   |
| <b>Local Stanine (LS)</b>                                  | A stanine based on the school system's or building's own data as opposed to the national-based normative information   |
| <b>National Percent Correct for Skills (SKILLNPC)</b>      | The percentage of test questions students in the national norming sample answered correctly for a particular skill (Avg % Correct Nation)  |
| <b>National Stanine (NS)</b>                               | A normalized standard score that ranges from 1 to 9 and has an average value of 5 indicating the student's status or relative rank compared with a nationally representative sample of examinees   |
| <b>National Stanine, 2005 Norms (AltST1)</b>               | Alternative national stanine score based on 2005 norms. (Score is offered in conjunction with 2011 norms-based scores.)  |
| <b>Number Attempted (No. Att.)</b>                         | The number of items an individual attempted to answer on a test  |
| <b>Percent Correct for Skills (SKILLPC)</b>                | The percentage of test questions the student answered correctly for a particular skill (% Correct)   |
| <b>Percentile Rank, 2005 Norms (AltPR1)</b>                | Alternative national percentile rank score based on 2005 norms. (Score is offered in conjunction with 2011 norms-based scores.)  |
| <b>Percentile Rank of Average SS, School Norms (SCHPR)</b> | Norms based on weighted frequency distributions of building averages   |

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| Score Type                                     | Short Description   |
|--|---|
| <b>Private/Catholic Percentile Rank (PRIV)</b> | National percentile rank score based on students in Catholic and other private schools in the national norm sample  |
| <b>Quantile<sup>®</sup></b>                    | A score obtained from the <i>Iowa Assessments</i> Mathematics test that enables a teacher to determine the mathematics skills a student is ready for and which ones require further instruction. (For more information on Quantiles, see page 133.) |
| <b>Standard Score, 2005 Norms (AltSS)</b>      | Alternative developmental standard score based on 2005 norms. (Score is offered in conjunction with 2011 norms-based score.)  |

You may see the scores below on combined reports—those reporting scores from both the *Iowa Assessments* and the *Cognitive Abilities Test (CogAT)*.

| Score Type  | Short Description  |
|---|--|
| <b>Age Percentile Rank (APR)</b>  | A percentile rank indicating the status or relative rank of a student's score compared with a nationally representative sample of <i>CogAT</i> examinees of a similar age                                |
| <b>Ability Profile (AP)</b>   | Summarizes information about the level and pattern of the student's reasoning abilities and is linked to suggestions for teaching strategies located at <a href="http://www.cogat.com">www.cogat.com</a> |
| <b>Age Stanine (AS)</b>   | A stanine indicating the status or relative rank of a student's score compared with a nationally representative sample of <i>CogAT</i> examinees of a similar age  |
| <b>Grade Percentile Rank (GPR)</b>  | A percentile rank indicating the status or relative rank of a student's score compared with a nationally representative sample of <i>CogAT</i> examinees of a similar grade                              |
| <b>Grade Stanine (GS)</b>   | A stanine indicating the status or relative rank of a student's score compared with a nationally representative sample of <i>CogAT</i> examinees of a similar grade                                      |
| <b>Predicted Standard Score (PSS)</b>   | The standard score that the student can be expected to receive on the <i>Iowa Assessments</i> based on his or her performance on <i>CogAT</i>  |
| <b>Standard Score/ Predicted Standard Score Difference (SSDiff)</b>                     | The difference between the actual observed <i>Iowa Assessments</i> standard score and the predicted SS (that is, SS – PSS)   |
| <b>Predicted National Percentile Rank (PNPR)</b>  | The national percentile rank that the student can be expected to receive on the <i>Iowa Assessments</i> based on his or her performance on <i>CogAT</i>  |
| <b>National Percentile Rank/Predicted National Percentile Rank Difference (NPRDiff)</b> | The difference between the actual observed <i>Iowa Assessments</i> national percentile rank and the predicted national percentile rank (NPR – PNPR)  |
| <b>Predicted Grade Equivalent (PGE)</b>   | The grade equivalent score that the student can be expected to receive on the <i>Iowa Assessments</i> based on his or her performance on <i>CogAT</i>  |

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| Score Type  | Short Description   |
|---|---|
| <b>Grade Equivalent/<br/>Predicted Grade<br/>Equivalent<br/>Difference<br/>(GEDIFF)</b> | The difference between the actual observed <i>Iowa Assessments</i> grade equivalent and the predicted grade equivalent (GE – PGE)         |
| <b>Universal Scale<br/>Score (USS)</b>  | A point on a continuous growth scale of cognitive development from kindergarten through grade 12 for <i>CogAT</i>                         |
| <b>Standard Age<br/>Score (SAS)</b>   | A normalized standard score, having a mean of 100 and a standard deviation of 16, provided for each battery and composite on <i>CogAT</i> |

## Score Types Explained

This topic provides more detail and examples to explain the scores summarized on the first page of the “Quick Reference Guide to Score Types.”

### Raw Score (RS)

The number of questions a student answers correctly on a test is the student’s raw score.

Test raw scores take on additional meaning when they are converted to scale scores such as grade equivalents or percentile ranks. The following example illustrates why raw scores are usually converted to other types of scores for interpretation purposes.

**Example:** If Nicki answered 10 items correctly on both a math test and a science test, do not assume that her level of achievement in the two areas is the same. The meaning of her raw scores depends on how many questions are on each test and how hard or easy the questions are.

### Percent Correct (PC)

When the raw score is divided by the total number of questions and that result is multiplied by 100, the percent-correct score is obtained.

Like raw scores, percent-correct scores have little meaning by themselves. They tell you what percentage of the questions a student answered correctly on a test, but unless you know something about the overall difficulty of the test, this information is not very helpful.

**Example:** If Nicki answered 10 items correctly on a 10-item math test and 10 items correctly on a 12-item science test, her PC scores are 100 and 83, respectively.

**Note:** Percent-correct scores are **not** the same as percentile ranks, which are described on page 130. The two are quite different in meaning and interpretation.

### Grade Equivalent (GE)

A grade equivalent is a number that describes a student’s location on an achievement continuum. The continuum is a number line that shows the lowest level of knowledge or skill on one end (lowest numbers) and the highest level of development on the other end (highest numbers).

The GE is a decimal number that describes performance in terms of grade level and months. The digits to the left of the decimal point represent the grade and those to the right represent the month within that grade.

**Example:** If Nicki, a sixth grade student, gets a GE of 7.8 on the Vocabulary test, her score is like the one a typical student at the end of the eighth month of seventh grade is likely to get on that same sixth-grade Vocabulary test. A GE of 7.8 does **not** indicate that Nicki is capable of doing work at the late seventh-grade level.

The GE corresponding to a given raw score on any test indicates the grade level and number of months of instruction at which the typical student has obtained this raw score.

The table below shows the grade equivalent assigned to the median raw score of students tested in the spring of each grade. As the table shows, the average yearly growth is 10 months, by definition. High-achieving students typically gain more than 10 months in a year, and it is reasonable to expect low-achieving students to gain less than 10 months in a year.

|               |     |     |     |     |     |     |     |     |     |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>Grade:</b> | K   | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |
| <b>GE:</b>    | K.8 | 1.8 | 2.8 | 3.8 | 4.8 | 5.8 | 6.8 | 7.8 | 8.8 |

### ***Avoid Common Misunderstandings***

Grade equivalents are particularly useful and convenient for these purposes:

- measuring individual growth from one year to the next
- estimating a student’s developmental status in terms of grade level

But GEs are sometimes misinterpreted and misused. Consider the following examples:

**Grade-Level Placement** – If a fourth grade student earns a GE of 6.2 on a fourth grade reading test, should she be moved to the sixth grade? *No*—The GE estimates only a student’s developmental level; it does not provide a prescription for grade placement. A GE that is much higher or lower than the student’s grade level is mainly a sign of exceptional performance.

**Student Strengths and Weaknesses** – Identical grade equivalents earned on tests in different subject areas do NOT necessarily represent identical performance levels. It may be misleading to use grade equivalents to determine a student’s areas of greatest strength or weakness, especially when the student has scored well above or below average. For this reason, status scores, such as percentile ranks, are recommended for identifying relative strengths and weaknesses.

In summary, grade equivalents are well suited to estimating a student’s developmental status or year-to-year growth. They are ill suited to identifying a student’s standing within a group or to diagnosing areas of relative strength and weakness.

## The Meaning of “On Grade Level”

Our recommendation about the use of the term “on grade level” is as follows:

A student is *on grade level* if his or her score was like the average performance for students in the same grade who were tested at about the same time of year.

The table below presents “on grade level” score ranges for Reading based on three score types—percentile ranks, standard scores, and grade equivalents. This approach makes clear that “on grade level” is defined as a range of student performance on a developmental continuum rather than any precise score. If what is average or typical is defined too narrowly (for example, defining average as exactly the 50th percentile), most people would have to be considered atypical with respect to the characteristic in question. Assigning a precise number to “average” does not take the chance for error and student variability into account.

Illustration of “On Grade Level” Definitions for Reading

| Grade | Percentile Ranks | Standard Scores | Grade Equivalents |
|-------|------------------|-----------------|-------------------|
| 3     | 25–75 (50)       | 170–204 (185)   | 2.9–5.1 (3.8)     |
| 4     | 25–75 (50)       | 181–223 (200)   | 3.5–6.5 (4.8)     |
| 5     | 25–75 (50)       | 191–239 (214)   | 4.2–7.9 (5.8)     |
| 6     | 25–75 (50)       | 200–253 (227)   | 4.8–9.1 (6.8)     |
| 7     | 25–75 (50)       | 210–266 (239)   | 5.5–10.5 (7.8)    |
| 8     | 25–75 (50)       | 219–279 (250)   | 6.2–12.2 (8.8)    |

**Note:** Values in parentheses correspond to the 50th percentile.

**Example:** Consider a student who took the *Iowa Assessments* Reading test in the spring of grade 5. The student with a grade equivalent score of 5.4 is *on grade level* because her score is in the range 4.2–7.9, which corresponds to the performance of students scoring in the “average” range during the spring months of grade 5.

The example above illustrates our recommended use of the term “on grade level.” It is based on the commonly accepted notion of what “average” means—performance between the 25th and 75th percentiles. Using this range, above the bottom quarter and below the upper quarter of student performance, discourages educators from overinterpreting small differences in student performances.

### Standard Score (SS)

The standard score is a number that describes a student’s location on an achievement continuum or scale.

The standard-score scale for the *Iowa Assessments* was established by assigning a score of 200 to the median performance of students in the spring of grade 4 and 250 to the median performance of students in the spring of grade 8.

The table on the following page shows the standard scores that correspond to typical performance (median) of grade groups on each *Iowa Assessments* test in the spring of the year.

| Grade: | K   | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| SS:    | 130 | 150 | 168 | 185 | 200 | 214 | 227 | 239 | 250 | 260 |

The scale shows that average annual growth decreases as students move up from one grade to the next.

For example, the growth from grade 1 to grade 2 averages 18 standard-score units but from grade 7 to grade 8, the average is only 11 units. To interpret the SS, use the values associated with typical performance in each grade as reference points. For example, a score of 244 on the *Iowa Assessments* Reading test means that the student’s reading performance is a little more than halfway between spring of grade 7 (239) and spring of grade 8 (250), or about like that of the typical eighth grade student in the late fall.

The main advantage of the standard-score scale is that it mirrors reality better than the grade-equivalent scale. That is, it shows that year-to-year growth is usually not as great at the upper grades as it is at the lower grades. (Recall that the grade-equivalent scale shows equal average annual growth—10 months—between any pair of grades.) Despite this advantage, the standard scores are much more difficult to interpret than grade equivalents. Consequently, when teachers and counselors wish to estimate a student’s annual growth or current developmental level, grade equivalents are the scores of choice.

### Percentile Rank (PR)

A student’s percentile rank indicates the percentage of students in a particular group that scored at or below the score of the student. It shows the student’s relative position or rank in a group of students who are in the same grade and who were tested at the same time of year (fall, midyear, or spring).

**Example:** If Toni earned a percentile rank of 72 on the Computation test, it means that she scored higher than 72 percent of the students in the group with which she is being compared. It also means that 28 percent of the group scored higher than Toni. Percentile ranks range from 1 to 99.

A student’s percentile rank from a given test can vary depending on which group is used to determine the ranking. A student is simultaneously a member of many different groups: all students in her classroom, her building, her school system, her state, and the nation. Comparisons with groups differentiated by other factors such as public versus private status can also be made. Different kinds of norms are available with the *Iowa Assessments* to permit schools to make the most relevant comparisons involving their students.

A **National Percentile Rank** shows a student’s standing within the group of students in the same grade who were tested at the same time of year during the national standardization. This large group of students attended schools that are representative of schools throughout the nation in terms of geographic region, enrollment size, and socioeconomic status. Tables in the *Iowa Assessments Norms and Score Conversions Guide* can be used to convert standard scores to national percentile ranks for each of three time periods—fall, midyear, and spring.

A student's **Local Percentile Rank** shows a student's standing within the group of students in the same grade in the local school system. A student's national percentile rank and local percentile rank may be quite different.

**Example:** Kent's Vocabulary raw score may correspond to a national percentile rank of 67 and a local percentile rank of 52. Kent's lower ranking in the local group suggests that the average achievement of the local group is higher than the average achievement of the national group. This example underscores the need to know which comparison group is being used when a percentile rank is being interpreted.

Most schools can benefit from having both national and local percentile ranks available for each student. Local norms permit an interpretation of individual achievement in terms of local conditions—particular curricular sequence, emphasis, and breadth of content coverage.

National norms allow you to view student achievement against that of a large representative sample of students in the same grade.

Percentile ranks are especially useful for profile analysis—determining the areas of relative strength and weakness for an individual student, a class, or a grade group. However, they are less useful than grade equivalents for estimating or monitoring growth.

Percentile ranks are different from percent-correct (%C) scores, but the two are often confused. The percentile rank shows a student's relative standing or rank in a group of 100. The percent-correct score indicates what percentage of the items on a test a student answered correctly. This score simply tells how close the student came to a perfect score—all items correct. It does not involve comparing the score with the scores of other students. Thus, these two types of scores provide quite different information about a student's test performance.

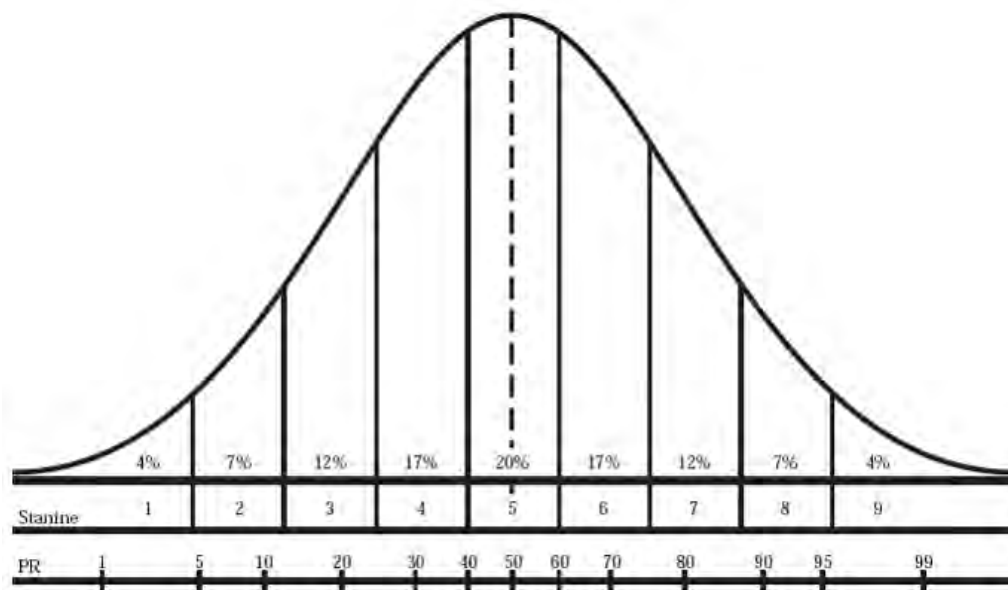
Because of the statistical properties of the percentile-rank scale, percentile ranks should not be averaged. If an average percentile rank is needed for a group, average the standard scores for students in the group. Then use a table in the *Iowa Assessments Norms and Score Conversions Guide* to find the percentile rank corresponding to the average.

### **Stanine (S)**

Stanines are normalized standard scores that range from 1 to 9 and have an average value of 5. They also can be considered groupings of percentile ranks, as the graph on the next page shows.



## Relationship of Stanines and Percentile Ranks



Like percentile ranks, the stanine that corresponds to a given raw score depends on which group is being referenced. As with percentile ranks, both national stanines and local stanines could be calculated for a student and their values on a given test may be different. Tables for converting percentile ranks to stanines are also provided in the separate *Iowa Assessments Norms and Score Conversions Guide*.

Because stanines are coarse groupings of percentile ranks, they are less precise indicators of student achievement than are percentile ranks. For example, percentile ranks of 24 and 39 are both in the 4th stanine. However, 23 and 24 are consecutive percentile ranks that are in different stanines (3 and 4, respectively), which points out the potential misconceptions that could arise when using stanines. Nonetheless, stanines are convenient scores to use to help students and parents identify areas of strength and weakness that might be represented by a set of test scores. Referring to a graphic such as the bell curve graph on the previous page can be helpful during parent conferences or in classroom score-interpretation sessions with students.

Stanines can be used to describe a student's relative position in a norm group or to identify strengths and weaknesses, but they should not be used to describe a student's developmental level or to measure growth.

### Lexile Scores

A Lexile score is a measure of reading ability based on a student's results from a standardized reading test. The Lexile measure is shown as a number with an "L" after it; for example, 820L is 820 Lexile. MetaMetrics®, an educational measurement and research organization, developed the Lexile Framework, which evaluates both reading ability and text complexity on the same scale. The Lexile score helps educators and parents select books and other reading materials at an appropriate level of difficulty for an individual student. Read more about using Lexile scores at [www.lexile.com](http://www.lexile.com).