



Introduction and Purpose...

Occupational therapists, occupational therapy assistants and students in occupational therapy educational programs in Iowa have worked together for over six years to develop a standard task for handwriting. A standard task is an indicator of a skill performance. A standard task indicator does not tell you *why* there is a problem, just that a problem exists. Using a thermometer as an example, it indicates if there is a fever, but does not provide information about why there is a fever. Similarly, a handwriting standard task gives one standard way of looking at handwriting and has the capability of indicating if there are problems in legibility (accuracy) and fluency (rate) but does tell one why there is a problem.

The standard task team was guided by the research question: *Does near-point copying measure handwriting in a manner that will allow important decisions to be made about student performance in that domain?* (A copying task was chosen in order to minimize cognitive factors that may influence handwriting performance.) During February, May, September, and December 2000 approximately eighty occupational therapy practitioners and occupational therapy students collected handwriting data samples from children grades 1-5 across 59 school districts of Iowa. This resulted in over 13,000 samples of handwriting. According to the 2000 Department of Education student enrollment categories, this sampling of school districts included all enrollment categories of 400-599 students through the top category of 7,500+ student enrollment.

The IOWAN was a result of this research. It is a near-point copying measure of handwriting that can be used as an indicator of handwriting fluency and legibility. It was designed as a **screening tool**. The purpose of the IOWAN is to answer the question: *Is there a problem?* Comparing the student's actual score to the expected score and percentile, allows the examiner to make some interpretations about the student's skill of handwriting compared to the same gender peers, grade, and time of year.

The IOWAN was **not** designed as a diagnostic tool to entitle students into special education nor as an entrance criteria for occupational therapy services. While it may be one piece of data collected by the examiner, it cannot be used alone for that purpose. Reviewing authentic work samples (classroom handwriting samples), observing, interviewing the teacher and parents are also critical elements of student evaluation.

The IOWAN includes two different handwriting data collection passages. Examiners may chose to use one or both. The *Grade Level* passage compares the student's handwriting skills to same grade and gender students. The *Taylor* passage, which is used for all grades and genders, compares the student's handwriting skills to the same-grade students as well as allowing the examiner to view this student's writing along the developmental continuum. The difficulty of the passage does not change as it does with the *Grade Level* passages.

It is hoped that individuals such as occupational therapists, problem solving teams, teachers and consultants will use the IOWAN as a screening tool to identify problematic handwriting skills; and as a dynamic indicator to measure student progress in handwriting over time, and improve professional decision making. Not only is the IOWAN a valid and reliable tool that is simple to organize, easy to repeat, short duration, and easy to score — it represents actual student performance.



Using the IOWAN: An Overview...

The IOWAN is a curriculum-based measurement that was designed to screen handwriting accuracy (legibility) and fluency (speed). Normed on over 13, 000 students in Iowa, the user can administer this to an individual child or to a classroom. Before using this tool, reliability with the scoring must be established for scoring letters and words. This may be accomplished through training using powerpoint program, web-based program or individual training.

Following the standardized procedures in the **Administration** section of this manual, the examiner has the student copy one or two passages of the IOWAN. This may include the Taylor passage, a generic passage that was administered to all students in the sample, Grades 1-5, or the Grade Level passage, which was only administered to students in a specific grade. These passages are included in the **Passage section** of this manual (note: permission to copy and use the Grade Level passages is only granted to persons screening Iowa students). As the student copies the passage(s), the examiner makes observations.

After the student has completed the copying, the examiner scores the handwriting sample according to the Scoring section in the IOWAN Manual. There are specific criteria for scoring words (e.g., exact words are an exact copy of the text) and letters (e.g., recognizable letters in discernable words) that must be followed. The examiner must record the date, grade and gender of the student. Scores are categorized by the time of year the measurement was normed (e.g., fall, winter or spring). See the Analysis and Interpretation section for more information.

Following the scoring, the examiner has several options of reporting this data. The IOWAN includes growth charts, cover sheets, frequency charts, percentile ranks and a norms summary. A brief description of each follows. The reader is directed to the **Analysis and Interpretation** section for further details.

- **Growth Charts:** Similar to the heights and weight charts used by medical staff, the growth chart plots student performance across the grades. There are two charts for each gender (e.g., Grade Level or Taylor passage).
- **Cover Sheet:** This chart provides a visual display of the student's performance on both passages. The examiner may use the Grade or Fall/Winter/Spring Sheet, depending upon how specific they wish to report the data.
- **Frequency Charts:** This reports the numbers of exact words or recognizable letters written by students in that grade and of that gender.
- **CBM-Norms Tables:** These tables convert exact word scores and recognizable letter scores into percentile ranks. These are provided by each grade, gender and CBM period.



- CBM-Norms Summary Tables: These tables provide an overview of the mean, standard deviation, numbers of students in the sample and range of letters/words written by grade/gender and norming period.

We believe that this tool, which can be administered in under 5 minutes and scored reliably, provides one piece of critical information to answer the question “Is there a problem?”



Reproducing Pages from the IOWAN Manual

Permission is hereby granted to reproduce the Taylor passage, the Growth Charts, the Cover Sheets, Table 1 Words & Letters, and Administration page with materials/procedures/directions for instructional use (not for resale).

Permission to use the Grade Level passages has been granted only when they are used with the IOWAN and only on students in Iowa. Any other use of these passages would require additional permission from the Children's Educational Services, Inc. (address: 16526 West 78th Street, Suite 162, Eden Prairie, MN 55346-4358).



Administration...

The procedures for administering the IOWAN are listed below. These procedures MUST be followed each time in order to ensure reliability of the results.

Materials:

- Make a copy of the writing passage. The *Taylor* passage is preferred, but the *Grade Level* passage or both passages may be used. Use the *Grade Level* passage (Grades 1-5) that corresponds to the student's current grade level.
- Be sure that the student has a piece of the writing paper typically used in the classroom and the child's preferred writing utensil. If a pencil is preferred by the student, it should be sharpened and extra pencils should be available.
- Be sure that a desk (or writing surface) and a chair are available.
- A stopwatch or clock with a second hand is necessary for timing.

Procedures:

- The IOWAN can be administered in a group or individual setting.
- If both passages are used, the *Taylor* passage should be administered first.
- Ask the teacher if manuscript or cursive is expected and if the child typically uses this method. The student is allowed to print or to write in cursive. Either is acceptable.
- Hand out the *Taylor* passage first (unless it isn't used, then hand out the appropriate *Grade Level* passage).
- After the passage has been administered, write "B" for boy, and "G" for girl on the child's paper, the child's grade, and the date administered.

Directions:

When the set-up is complete, place the copy of the chosen passage in front of the student (or group). Explain that they are to write as they usually do, as well as they can, and not to erase. If they finish the passage before the 2 minutes are up, they are to start over. Then read the following:

When I say "begin" start copying the words from the story in front of you. Copy all of the words until I tell you to stop. Please (Print—Write in Cursive). If you come to a word you don't know, copy it anyway. Be sure to do your best work. When I say, "stop," put your pencil/pen down. Are there any questions?

Say "begin" and time for 2 minutes. Tell student to stop when 2 minutes has elapsed. If child continues to write, place a mark on the paper to separate words written after 2 minutes.

Collect *Taylor* passage. If also using the *Grade Level* passage, repeat the directions in exactly the same manner. Collect the *Grade Level* passage. Remember to write "B" or "G", the grade, and the date on each paper.



Scoring...

The purpose of this section is to present the scoring directions. Since the IOWAN has the student use the typical classroom paper and the district's writing curriculum, there is variability in student's handwriting. Anyone using the IOWAN should first learn proper scoring techniques and establish reliability.

General Directions:

The IOWAN produces two scores per writing sample. The first score is the number of exact words that are present; the second score is the number of recognizable letters found within discernible words as described in the scoring criteria table. The authors felt that if a reader can recognize the word, the word is considered discernible.

Some General Points:

- Obtain a copy of the district's handwriting curriculum. Since some curriculums have more than one version, be sure you have the same version that the classroom teacher is using. Use this as the "master" when looking at formation of letters.
- Score the *words first*. It appears to be more efficient to do this first.
- Score the letters next.
- Score either the *Taylor* or *Grade Level* passage first, it doesn't matter.
- You may want to use colored pencils/pens for this task. We suggest one color for scoring the words and a second color for scoring the letters.
- When counting words, put a line under each word that is scored correct.
- When counting letters, put a dot under each letter that is scored correct.
- Students may write in either manuscript or cursive style. Some students will use a combination of these styles, NO points are lost for this.
- Punctuation is NOT included in the scoring (no points given or taken away).
- When counting the number of words or letters written, remember to **subtract** any omitted words and letters and to **add** additional recognizable letters.
- If you are scoring an entire classroom, you may want to separate samples written by the boys and girls.

Specific Directions:

In order for a word or letter to be counted as recognizable, it must meet all of the criteria listed in that section (refer to Table 1 on the next page). Remember that punctuation or the style (print, cursive or a combination of both) are **not** counted as errors. See Appendix A for scoring tutorial.



Table 1 - Words & Letters

Criteria for Scoring Exact Words

Exact Words: Each word must meet ALL of the criteria to be counted.

Criteria	Examples
1. An exact copy of the text.	<ul style="list-style-type: none"> No additions or changes to the text allowed; No capital letters substituted for lower case letters.
2. Spelled correctly.	<ul style="list-style-type: none"> Words must be spelled exactly like text.
3. Letters appropriately formed according to district's curriculum. <i>*If child moves into district, make allowances for handwriting variations.</i>	<ul style="list-style-type: none"> Approximately formed does not mean exactly or perfectly, but within general acceptance; No reversals present; "t" must be crossed, "i" must be dotted;
4. Appropriate spacing.	<ul style="list-style-type: none"> Clear, even spaces between words; observe for additional spacing between last letter of one word and first letter of next word. Spacing within words should be even. No crowding or separating of letters.
5. Proportionately sized letters	<ul style="list-style-type: none"> No capital letters substituted for lower case letters. Letters such as "s" and "i" should not be the same height as "l" or "f". Look for proportionate size according to the letters within each word, not the placement on the bottom line. Letters that "float" above or below the line are still counted as long as their proportion is appropriate.

Criteria for Scoring Recognizable Letters

Recognizable Letters: Each letter that meets ALL of the following criteria is counted.

Criteria	Examples
1. Letter must be part of a discernible word.	<ul style="list-style-type: none"> Word must be recognizable as a word, but may be misspelled or have letter reversals. Word does not have to be an exact copy of the word in the text;
2. Letters must be recognizable within the context of the word.	<ul style="list-style-type: none"> If a letter within a discernible word is not recognizable, do not count that letter; Words may have reversals, but do not count letters that are reversed; Capital letters may be substituted for lower case (or lower case may be substituted for upper case) and should be counted; Letters or words that are added by the student to the passage may be counted; as long as they are within a discernible word and are recognizable.



Analysis and Interpretation...

Is there a problem? After scoring the student’s handwriting samples, you want to determine if there is a problem. The IOWAN measures both fluency (speed) and accuracy (legibility) of handwriting in a timed near point copying task.

1. We suggest you begin with the Data Table Section. If you collected the sample in the following months, use the corresponding season’s data. For example, if you administered the IOWAN in October, refer to Fall data for the child’s grade.

If you administered the IOWAN during these months	Use the data from this season...
September, October, November	Fall
December, January, February	Winter
March, April, May	Spring

2. Find the Curriculum-Based Measurement (CBM) Norms Table for the student’s gender, current grade, and season, and then determine the percentile rank for the student’s score. Record the percentile rank for the Taylor, generic passage, (Recognizable Letters and Exact Words) if this passage was administered. Record the percentile rank for the Grade Level scores (Recognizable Letters and Exact Words) if this passage was administered. Use the following statements as a guide in determining the next steps to take. For example, if the handwriting skills warrant further investigation and possible intervention, collect additional information to assist in determining why the problems are occurring and develop a plan. Using this data as well as information collected through interview, observation, record review, provides a more accurate picture of the child’s performance in this area.

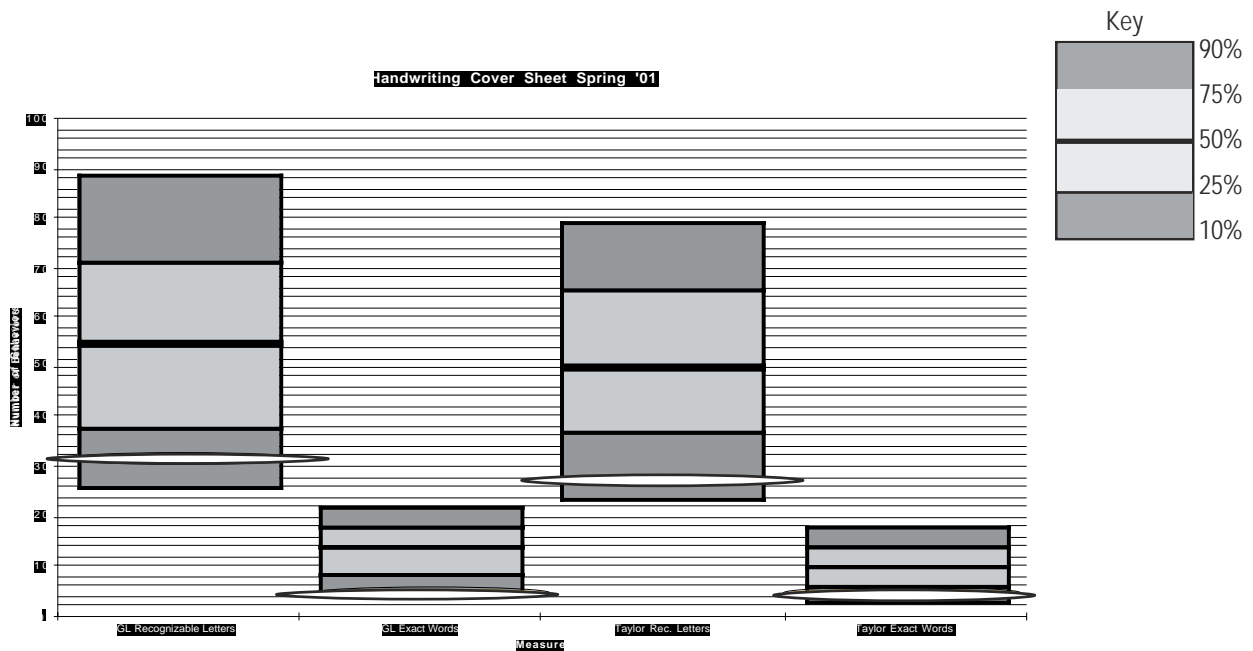
Percentile	Suggested Guidelines
1-10th percentile	Handwriting skills need further investigation;
11-25th percentile	Handwriting skills are somewhat low and may need to be monitored over the next few weeks/months;
above 25th percentile	Handwriting skills are within average range for this student.

3. You may wish to measure and plot the student’s performance on the Cover Sheets. Use the student’s handwriting score to find the matching number along the left side of the cover sheet. Place a mark on the box. The cover sheet represents the scores in a Tukey box plot. The key below provides a visual representation of the student’s score compared to peers of their grade on these statewide norms. The heavy black line represents the middle, exact



middle, score. The lighter shaded areas represent low average (10-25 percent) and high average (75-90 percent). The darker shaded areas represent 50 percent of the sample (scores between 25-75 percent).

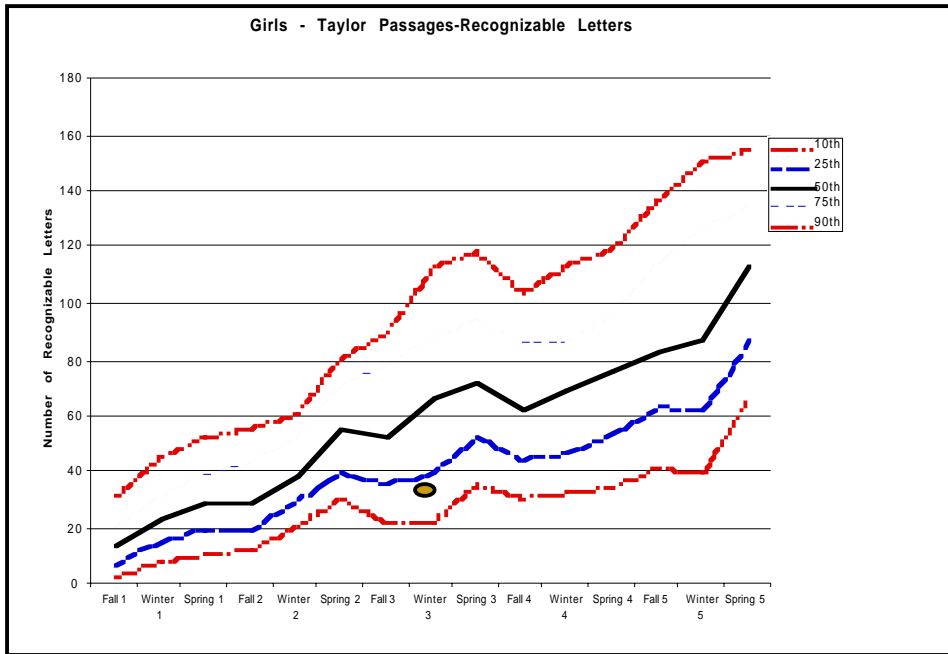
This figure represents a student’s scores on the Grade Level and Taylor passages. The scores were all within the 10-25 percent range (see oval marker).



- You may wish to plot the student’s score on a Growth Chart. (Page 10). Similar to height and weight charts used in the medical community, the growth chart can be used to determine performance as well as follow performance through several grades. Each chart contains five lines, with the centerline indicating performance at 50 percent. The two lines above the centerline indicate performance at the 75th and 90th percentile. The two lines below the centerline indicate performance at the 25th and 10th percentile. There are four charts, two for the Grade Level Passage (Exact Words and Recognizable Letters) and two for the Taylor Passage (Exact Words and Recognizable Letters).

When you use the Taylor passage you can also compare the student’s performance to developmental norms, e.g., a 3rd grade girl is scoring at the 30 percent on the winter norms, which is typical (50 percent) for a 2nd grade girl during the fall norms.

- You may use any of the above methods to analyze and interpret the results of the student’s performance. The Growth Chart can be used to monitor the student’s performance over time.



- When documenting the student’s handwriting performance, we suggest the following description of the IOWAN:

Results of screening: The IOWAN, a screening tool that measures a student’s ability to copy from a printed model during a two-minute period, was used to measure your son’s handwriting performance. Results indicate that Bo’s performance on the writing passage (generic passage) places his score at the 5th percentile for exact words copies and 8th percentile for letters that were legible. On the First Grade passage, his score was in the 5 percentile for exact words copied and 10th percentile for letters that were legible. This means that out of 100 peers, less than 9 peers were performing below Bo’s performance. We feel his handwriting skills need to be further evaluated.

In summary, the IOWAN allows you to compare the student’s performance to typical peers to answer the question: *Is there a problem?* Data has been provide din various ways to allow examiners choices in using charts, tables, and graphs. These tables and figures may also be used to monitor student progress over time.