

Acuity Scan/Score Guide

The scanning and scoring of paper/pencil tests is one of Acuity's flexible features. Customers have varying levels of sophistication in technology infrastructure, and flexible administration modes enable the gradual transition to online testing, if that is the goal. Acuity allows customers to test online via paper/pencil or use a combination of these two modes and still receive integrated reporting. This document addresses important issues related to scanning and scoring paper-based test administrations and is provided to help districts and schools develop strategies best suited to local resources and staff support.

Scanning Options

1. Local Scanning and Scoring: Districts/schools may choose to scan and score documents locally. There are some key considerations using this model. For example:
 - Where will the answer sheets be scanned (central scan center within the district or school-based scan centers)?
 - What procedures need to be in place to ensure a satisfactory degree of accuracy and timely reporting?
 - Will the customer use answer sheets developed and sold by CTB or develop documents locally?
 - What type of scanner is required for local scanning? How many will be needed?
 - Will the customer pre-code the student answer sheets with biographic and demographic information, contract with an outside vendor or ask teachers or other personnel to hand-bubble this information?
 - Contract with CTB/McGraw-Hill for scanning and scoring at a per document cost.

Answer Sheet Options

1. Purchase CTB/McGraw-Hill answer sheets: CTB/McGraw-Hill sells four answer sheets that accommodate 45-60 questions. The answer sheets have multiple-choice values that range from A-E.
 - The first Acuity answer sheet contains A-D answer choices and there is an “X” bubble choice at the end of each answer choice for each of the 45 questions. Students will darken the “X” bubble on constructed response questions, and then write their answers to the questions on a separate sheet of paper. This darkened “X” bubble lets Acuity know that this is a constructed response question. The answer sheet also has a teacher use area which allows teachers to score the constructed response questions directly on the answer sheet. This allows multiple choice and constructed response questions to be scored at once. Educators also have the ability to score the constructed response questions online if they so choose. Acuity online option provides a quick and user-friendly format that enables the teacher to accomplish this task and quickly for multiple student records.
 - The second answer sheet provides A-E answer choices with 60 questions which can be used with Acuity Algebra Proficiency tests as well as other Acuity assessments
 - The Third answer sheet allows for A-D answer choices and 60 questions. This sheet allows for multiple choice items only.
 - The fourth answer sheet accommodates alpha numeric student identification IDs *only* if the student ID begins with letters A-E. The Acuity answer sheet contains A-D answer choices and there is an “X” bubble choice at the end of each answer choice for each of the 60 questions. Students will darken the “X” bubble on constructed response questions, and then write their answers to the questions on a separate sheet of paper

If desired, the customer may contract with CTB/McGraw-Hill to provide minor customization to this answer sheets (e.g. district logo).

2. Develop answer sheets locally or through a 3rd party: If desired, customers may develop answer sheets locally for scanning and scoring using Acuity; alternatively, customers may contract with a 3rd party to create answer sheets.

Considerations when developing answer sheets locally or through a 3rd party contractor:

- The answer sheet will need to be created following CTB/McGraw-Hill design requirements.
- When creating answer sheets, the customer will need to write/install a scanner program to accept the new answer sheets and provide Acuity’s required scan output file. If desired, CTB/McGraw-Hill can write /install a scanner program for an additional charge.
- Answer sheet printing must be done outside of the Acuity software.

- Answer sheet scanning: All Acuity tools would be available to the customer or 3rd party contractor.
- Results upload: Acuity user interface supports direct upload. The CTB/McGraw-Hill Implementation Team may wish to upload initial data to validate the scan process and to make sure upload information is accurate.
- Process scan exceptions: Acuity provides a user interface to support exception processing – not recommended for 3rd party contractors unless they have SIS management rights.

Scanner Options

CTB/McGraw-Hill currently supports two types of scanners:

1. OpticalMarkRead Scanners : The following Scantron scanners are supported:

- **Scantron:** OpScan/ Insight 2, OpScan/Insight 4, OpScan 6, OpScan 8, OpScan 10, Insight 150 and 5000i. The paper scanning capacity of these scanners per hour ranges up to 10,000/hr.

Considerations when selecting OMR scanners:

- The more pages that are scanned per hour, the more expensive the scanner will be.
- Each scanner has software to create local forms; Scantron uses Scantools Plus. This Software **will need** to be purchased with the scanners.
- CTB/McGraw-Hill will provide a form definition and exit routine program for the above software at no cost; that will allow the scanner to read Acuity answer sheets and produce an output file that can be read by Acuity.
- In general, OMR scanners are more accurate than image scanners and are recommended for customers with large student populations (those scanning several thousand sheets centrally).

Note* A barcode reader will need to be purchased with the scanner if the you will be using barcodes on the answer sheets

2. Image Scanners: The following image scanners are recommended:

- **Fujitsu**
- **Brother**

NOTE: Though the above are recommended, most TWAIN compliant scanners will work and testing may need to be completed to verify the compatibility for those scanners. Image scanners must be TWAIN compliant.

TWAIN is a standard software protocol and applications programming interface (API) that regulates communication between software applications and imaging devices such as scanners and digital cameras. Most Imaging devices have TWAIN compliant drivers that come with the scanner.

Considerations when selecting Image scanners:

- ADF image scanners are recommended for faster scanning.
- Image scanners cost less, but are less accurate than OMR scanners.
- Scanning error rates, resulting from human error, may be higher with image scanners.
- Answer sheets can be printed on demand by the school/district from within the scanning software provided by CTB/McGraw-Hill
- Software also provides pre-slugging of student data onto answer sheet for greater accuracy.
- Scanning speed ranges from 15 to 100+ pages per minute depending on Image scanner.
- No additional software needs to be purchased for Image scanning with Acuity.

Answer sheet Pre-coding for OMR answer sheets

- The pre-coding process involves printing student and test identification information onto the answer sheets prior to test administration.
- CTB/McGraw-Hill highly recommends pre-coding for accuracy
- Pre-coding is highly recommended for accuracy and to reduce the amount of exception processing needed to score the tests.
- The pre-coding process relies upon up-to-date roster information to produce the best set of pre-coded answer forms.
- There are two recommended ways for pre-coding: barcodes or pre-slugging (pre-filling the bubbles).
- The Acuity answer sheets support either method.
- The bar-coding tends to provide a lower cost alternative to pre-slugging as form alignment in the printer is not as critical during the printing process.
- The barcodes are also less subject to errors caused by form skew during the scanning process.
- Minimum identifiers for pre-slugging and bar-coding are student number and test number. These identifiers are used by the Acuity application to match the answer sheets to the student and assignment.
- The pre-coding may include other data such as first name, last name, grade, school, class, teacher which can be useful for distribution of the answer sheets.
- It is possible to do pre-slugging or bar-coding at the district/school level; for bar-coding, Acuity provides barcodes to be printed on Avery 5263 labels directly from the Acuity Online Assessment System(labels are not provided). If bar-codes will be directly printed on the answer sheet(no labels) or if the answer sheets will be pre-slugged, it is recommended this be done by CTB/McGraw-Hill or a third party printing service that can guarantee the quality and accuracy of the printing (look below for third party options).
- Pre-slugging or bar-coding software is available on the market but is not supported by CTB/McGraw-Hill.
- The pre-coding process will generally require 2 to 3 weeks prior to test administration if bar-codes will be printed on the answer sheets(no labels).
- CTB/McGraw-Hill can pre-code answer sheets for a per-document fee

Local or 3rd Party OMR Answer Sheet Pre-coding

Customers with the technology capacity may pre-code answer sheets; alternatively, customers may contract with a 3rd party for pre-coding.

Considerations for local or 3rd party pre-coding:

- Local or 3rd party pre-coding will require software not supported by CTB/McGraw-Hill.
- Local bar-coding will also require software if bar-coding will be accomplished outside of the Acuity online system's label option and a barcode reader not supported by CTB/McGraw-Hill.
- Two weeks prior to the test administration date, the customer will be required to provide a final roster file of the students who will be tested and their test assignments.
- Minimum identifiers for pre-coding and bar-coding are student number and test number.
- Other useful data fields for identification include: first name, last name, school, teacher, and grade.