



ADMINISTRATION AND SCORING GUIDE

Math

Grades 2 through 8

Introduction

Levels	Grades 2 through 8
Languages	English and Spanish
Administration	Group Online presentation of student test forms
Duration	Screening: From 25 to 35 minutes Progress monitoring: 7 minutes
Responses	Recorded via computer during online testing
Scores	Automatically calculated when responses are submitted via online testing

The aimswebPlus® Math assessment system for Grades 2 through 8 is a set of brief, online administered, standardized measures. These measures are designed for the universal screening (or, benchmarking) of entire student classrooms at the beginning, middle, and end of the school year. In addition, most of the measures can also be used for the frequent progress monitoring of students identified as at risk. For each measure, there are up to 23 different test forms provided for screening and progress monitoring (number of forms varies by measure).

The aimswebPlus measures for students in Grades 2 through 8 are Number Comparison Fluency–Triads (NCF–T), Mental Computation Fluency (MCF), and Concepts & Applications (CA). All Math measures are available in both English and Spanish. The tasks, scoring criteria, and administration times for these measures are found in Table 1.

Table 1 Measure Descriptions

Measure	What students do	Score	Admin time
Number Comparison Fluency–Triads (NCF–T)	Compare three numbers within and across number systems to determine the relative distance between each number.	Number of items correctly answered, corrected for guessing*	3 minutes
Mental Computation Fluency (MCF)	Solve multiple-choice math computation problems.	Number of items correctly answered, corrected for guessing*	4 minutes
Concepts & Applications (CA)	Solve multiple-choice math word problems.	Number of items correctly answered	~15–25 minutes

*Note. NCF–T and MCF employ a correction for guessing when calculating the total score. Items not attempted (skipped) and items not reached are ignored in the calculation of the corrected total score. Together, NCF–T and MCF combine into the Number Sense Fluency (NSF) score, which is the simple sum of the NCF–T and MCF corrected scores. This NSF score is the basis for progress monitoring decisions.

Testing time is brief—approximately 25–35 minutes for screening—so all measures should be administered to a student in a single testing session. For progress monitoring, testing time is even briefer: approximately 7 minutes. The following table (see Table 2) provides an overview of the measures given during each screening season, as well as the measures available for progress monitoring.

Table 2 Measures by Grade, Season, and Progress Monitoring Availability

Measure	Grade	Fall	Winter	Spring	PM
Number Comparison Fluency–Triads (NCF–T)*	2–8	x	x	x	x
Mental Computation Fluency (MCF)*	2–8	x	x	x	x
Concepts & Applications (CA)	2–8	x	x	x	

*Note. When progress monitoring, both NCF–T and MCF must be administered. Together, these two measures combine into the Number Sense Fluency (NSF) score, which is the basis for progress monitoring decisions.

You must follow all directions carefully to be able to make decisions or draw conclusions about a student’s performance from the normative data (national, state, or district). Altering the instructions or the presentation of the test forms, providing hints, giving corrective feedback, or using test forms as teaching tools will invalidate any norms-based decisions. It is important that all examiners become familiar with these administration directions prior to administering any of the aimswebPlus Math measures.

In the following sections, testing conditions and aimswebPlus Math test materials are discussed. Next, test accommodations are reviewed and an overview of each Math measure is presented. Finally, the spoken directions to conduct online test sessions are provided in the appendix.

Testing Conditions

To ensure the most accurate results, all aimswebPlus Math testing should be conducted in a computer lab that is quiet and free from distractions. Try to schedule testing when students are rested and able to pay attention, so they can give their best effort.

If a test session is spoiled (e.g., testing is interrupted during the administration of any of the timed fluency measures), the student(s) can retake the test forms in question. It is suggested that you wait a few days before students retake any test forms to minimize the potential for practice effects.

Test Materials

For all of the aimswebPlus Math measures—NCF–T, MCF, and CA—the only student test materials needed are the computer stations at which students complete test forms. That is, all test directions and content are presented to the students via online administration of the aimswebPlus measures. The Spanish versions of these measures provide the same test directions and content, with all verbiage (e.g., directions, prompts, section screens, items, buttons) presented in Spanish.

When conducting group testing sessions, each student will need his/her own computer station with a mouse and headphones. As such, each computer’s hardware and software must meet TestNav 8’s minimum system requirements so that students can properly view and interact with the test content. Please visit TestNav 8’s online support website at <https://support.assessment.pearson.com/display/TN/> to view the most current system requirements and have other TestNav-related questions answered. When all computers meet minimum system requirements and prior to aimswebPlus testing, make sure each computer is working properly and that all test functionality is visible and accessible to students.

With online administration, examiners present and then supervise test sessions, ensuring that students are on task and that any student questions are answered. While examiners themselves do not present the test items to students, they must familiarize themselves with the administration and scoring procedures detailed in this guide and understand each measure’s content and purpose prior to administering the online Math measures to students.

Test Accommodations

While similar in their intent, test accommodations and test modifications differ in their impact on test scores. *Accommodations* are changes made in the test setting, timing, presentation format, or response format that minimize obstacles to perceiving or responding to test content *without* changing the test content itself. As such, the meaning of test scores and the valid application of norms is preserved. *Modifications*, on the other hand, are changes made to the testing process or content or provisions made for certain adaptive technologies or services that change the meaning of test scores. Modifications invalidate norms and are *not* permitted with the aimswebPlus Math measures.

Testing accommodations that are documented in a student’s Individual Education Plan (IEP) or 504 plan are permitted with aimswebPlus. However, not all measures allow for accommodations; these exceptions depend on whether a measure is timed (e.g., Mental Computation Fluency) and whether it is being used for screening or progress monitoring. Note that hints and corrective feedback are *never* permitted for test items.

Concepts & Applications (CA) is an *untimed* test in which students respond to multiple-choice math problems. Used only for screening, students are allowed scratch paper and pencils while taking this measure. In addition, it is important to note that CA allows students to take as much time as needed to complete the test items (i.e., untimed) and audio is available for students who would prefer to have items read to them. These two features, traditionally considered accommodations, are built into the CA measure for all students.

NCF–T and MCF are fluency measures that employ strict time limits designed to keep testing brief and to generate rate-based scores (e.g., items answered correctly per minute). As such, valid interpretation of national norms, which are an essential aspect of decision-making during benchmark testing, depend on adherence to the standard administration procedures. Accommodating students through modifying the testing environment (e.g., special lighting, adaptive furniture) is allowed for both Math fluency measures.

*Note. Students are **not** allowed to use calculators for any of the aimswebPlus Math measures.*

Number Comparison Fluency–Triads

Overview

Level: Grades 2 through 8 (Fall, Winter, Spring)

Use: Benchmarking and progress monitoring

Number Comparison Fluency–Triads assesses a student’s ability to assess magnitude and compare numbers within and across number systems. Content reflects math expectations appropriate to each grade level. Because it is a timed measure, NCF–T can also measure the level of automaticity of these skills.

The student answers multiple-choice math items, each requiring a comparison of a set of three numbers. Each item is presented as a triad of numbers, with the student determining whether the top number in the triad is closer in value to the bottom left number, the bottom right number, or exactly in between the two numbers. The student attempts as many items as possible in 3 minutes.

Each NCF–T form (3 benchmarking, 20 progress monitoring) contains 40 items, presented four per screen. Figure 1 shows a sample student test page.

Figure 1 Number Comparison Fluency–Triads Student Test Page

The figure shows a sample student test page with four triad items arranged in a 2x2 grid. Each item is presented in a white box with a gray border. The top number is centered above the three bottom numbers. The bottom numbers are arranged in a horizontal line, with a radio button to the left of each. The 'NEXT' button is a blue rectangle with white text, located in the bottom right corner of the page.

250	610
0 300	600 700
<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>
400	1,200
0 800	1,000 2,000
<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>

NEXT

Before you begin, be sure the testing area is reasonably quiet and free from distractions.

Materials Needed

Each student will need his/her own computer station that meets minimum system requirements to properly view and interact with the test content. (Please visit TestNav 8's online support website at <https://support.assessment.pearson.com/display/TN/> to view the most current system requirements and have other TestNav-related questions answered.) In addition, each student's computer station needs a mouse and headphones, with the volume set to a reasonable level.

Administration Directions

Number Comparison Fluency–Triads is administered online, with all administration directions necessary for students to complete the test included. Please see the Appendix A (English) and Appendix B (Spanish) for the spoken directions used by examiners to introduce online testing sessions to groups of students.

Scoring Rules

Students receive 1 point for each correctly answered item, with the total score corrected for guessing. This corrected NCF–T score is combined with the corrected MCF score and then reported as the Number Sense Fluency (NSF) score. The maximum total score for Number Comparison Fluency–Triads is 40 points.

Mental Computation Fluency

Overview

Level: Grades 2 through 8 (Fall, Winter, Spring)

Use: Benchmarking and progress monitoring

Mental Computation Fluency assesses a student's ability to mentally solve computation. Content reflects math expectations appropriate to each grade level. Because it is a timed measure, MCF can also measure the level of automaticity of these skills.

The student answers multiple-choice math items, each requiring one- or two-step mental computation of a math expression. The student attempts as many items as possible in 4 minutes.

Each MCF form (3 benchmarking, 20 progress monitoring) contains 42 items, presented two per screen. Figure 2 shows a sample student test page.

Figure 2 Mental Computation Fluency Student Test Page

The screenshot shows a digital test interface. It features two math problems, each in a separate box. The first problem is $2,000 + 2,000$ with three radio button options: 2,000, 4,000, and 6,000. The second problem is $3,500 - 1,500$ with three radio button options: 500, 1,500, and 2,000. At the bottom right of the interface is a blue button labeled "NEXT".

Before you begin, be sure the testing area is reasonably quiet and free from distractions.

Materials Needed

Each student will need his/her own computer station that meets minimum system requirements to properly view and interact with the test content. (Please visit TestNav 8's online support website at <https://support.assessment.pearson.com/display/TN/> to view the most current system requirements and have other TestNav-related questions answered.) In addition, each student's computer station needs a mouse and headphones, with the volume set to a reasonable level.

Administration Directions

Mental Computation Fluency is administered online, with all administration directions necessary for students to complete the test included. Please see the Appendix A (English) and Appendix B (Spanish) for the spoken directions used by examiners to introduce online testing sessions to groups of students.

Scoring Rules

Students receive 1 point for each correctly answered item, with the total score corrected for guessing. This corrected MCF score is combined with the corrected NCF–T score and then reported as the Number Sense Fluency (NSF) score. The maximum total score for Mental Computation Fluency is 42 points.

Concepts & Applications

Overview

Level: Grades 2 through 8 (Fall, Winter, Spring)

Use: Benchmarking

Concepts & Applications assesses a student's ability to solve one- and two-step word problems and his/her knowledge of essential math concepts in the areas of algebra, base ten numbers, measurement and data, geometry, fractions, statistics and probability, expressions and equations, and functions. Content reflects math expectations appropriate to each grade level.

The student answers multiple-choice math problems, each addressing an aspect of the content areas listed above. This measure has no time limit and the student attempts *all* items. Students are allowed to use scratch paper and pencils to solve test items, and audio is available for students who prefer to have the items read to them.

*Note. Students are **not** allowed to use calculators.*

Each CA form (3 benchmarking) contains between 29 and 31 items, presented one per screen. Figure 3 shows a sample student test page.

Figure 3 Concepts & Applications Student Test Page

Nora has 3 goldfish. Mina has 6 times as many goldfish as Nora. How many goldfish does Mina have?

- 2
- 4
- 18
- 36

BACK NEXT

Before you begin, be sure the testing area is reasonably quiet and free from distractions.

Materials Needed

Each student will need his/her own computer station that meets minimum system requirements to properly view and interact with the test content. (Please visit TestNav 8's online support website at <https://support.assessment.pearson.com/display/TN/> to view the most current system requirements and have other TestNav-related questions answered.) In addition, each student's computer station needs a mouse and headphones, with the volume set to a reasonable level.

Administration Directions

Concepts & Applications is administered online, with all administration directions necessary for students to complete the test included. Please see the Appendix A (English) and Appendix B (Spanish) for the spoken directions used by examiners to introduce online testing sessions to groups of students.

Scoring Rules

Students receive 1 point for each correctly answered item. The maximum total score for Concepts & Applications is 29 to 31 points, depending on the grade and season.

Appendix A

Conducting Online Test Sessions: English Spoken Directions

General Considerations

For each testing session:

- Follow the introductory script (see below) when introducing test sessions to groups of student.
- Encourage students to take any bathroom or water breaks **before** testing begins.
- Consider using a *Please do not disturb* or a *Testing in progress* sign on the door to limit interruptions and/or other distractions.
- Students are **not** allowed to use calculators for any of the aimswebPlus Math measures. However, students may use scratch paper and pencils during Concepts & Applications.
- Be an active proctor during the test session. Walk around the room, answering any questions that arise and making sure students are on task. In addition:
 - Do **not** allow students to talk during the test session.
 - Address student questions individually by going to the student with a question (i.e., students should remain in their seats).
 - Do **not** answer any questions about the test items themselves. Encourage the students to answer the test items based on what they think each item is asking and to the best of their abilities.
- During the test session, students should complete each assessment at his/her own pace. Also, note that each test session consists of several sections. Be sure each student completes all sections assigned to him/her.

Introducing Test Sessions

When students are at their computer stations and ready to begin, say:

Today you'll be taking a math test on the computer. You'll need to wear your headphones to hear the test directions. When there are words that can be read to you, you'll see a play button on the right side of the screen. Just click on the play button if you want to hear the words.

There are several parts to today's math test—make sure to keep working until the test is complete. Follow all the test directions, answer every question, and do your own work.

If you have any questions during the test, please stay seated and raise your hand—I will come over to you. Remember: Do your best! Put on your headphones now and we'll begin.

Have the students begin their test sessions. While students are testing, walk around the room to make sure students are progressing through the test and answer any question that arises.

Appendix B

Conducting Online Test Sessions: Spanish Spoken Directions

General Considerations

For each testing session:

- Follow the introductory script (see below) when introducing test sessions to groups of student.
- Encourage students to take any bathroom or water breaks **before** testing begins.
- Consider using a *Please do not disturb* or a *Testing in progress* sign on the door to limit interruptions and/or other distractions.
- Students are **not** allowed to use calculators for any of the aimswebPlus Math measures. However, students may use scratch paper and pencils during Concepts & Applications.
- Be an active proctor during the test session. Walk around the room, answering any questions that arise and making sure students are on task. In addition:
 - Do **not** allow students to talk during the test session.
 - Address student questions individually by going to the student with a question (i.e., students should remain in their seats).
 - Do **not** answer any questions about the test items themselves. Encourage the students to answer the test items based on what they think each item is asking and to the best of their abilities.
- During the test session, students should complete each assessment at his/her own pace. Also, note that each test session consists of several sections. Be sure each student completes all sections assigned to him/her.

Introducing Test Sessions

When students are at their computer stations and ready to begin, say:

Hoy vas a tomar un examen de matemáticas en la computadora. Tendrás que ponerte tus auriculares para escuchar las instrucciones del examen. Cuando haya palabras que se te pueden leer, verás un botón de inicio al lado derecho de la pantalla. Haz clic en el botón de inicio si quieres escuchar las palabras.

El examen de matemáticas de hoy tiene varias partes—asegúrate de seguir trabajando hasta que el examen esté completo. Sigue todas las instrucciones del examen, responde cada pregunta y haz tu propio trabajo.

Si tienes alguna pregunta durante el examen, por favor quédate sentado y levanta la mano—yo vendré a tu asiento. Recuerda: ¡Haz lo mejor que puedas! Ahora ponte tus auriculares y vamos a comenzar.

Have the students begin their test sessions. While students are testing, walk around the room to make sure students are progressing through the test and answer any question that arises.



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