Let's Go Learn

Understanding and Interpreting the Let's Go Learn
DOMA Pre-Algebra

Overview: The *Diagnostic Online Math Assessment (DOMA) Pre-Algebra* was built on the Let's Go Learn OAASIS™ platform, which uses adaptive assessment technology to intelligently decide which specific test items will be given to each student. Based on individual student performance during the pre-screening and assessment, *DOMA*, with OAASIS's help, adjusts in item and construct selection. The purpose of OAASIS is to maximize the diagnostic range of the assessment in the fewest number of questions presented to a student.

Test Duration: Our philosophy in designing *DOMA Pre-Algebra* was to create a valid and reliable assessment. However, this cannot be achieved as a "quick" assessment. When completed, the assessment will provide teachers with solid diagnostic information on the students who have taken it. As you prepare to administer *DOMA Pre-Algebra*, please keep the following in mind:

- On average, this assessment will take between 25 to 45 minutes to complete. Struggling students with more gaps in their abilities may take longer.
- Choose a testing duration appropriate for your class. This assessment can be taken in multiple sittings. *DOMA Pre-Algebra* can be stopped at any time, and when resumed, it will continue where your students have left off.
- The biggest variable in student assessment is the student himself or herself. Be sure to stress to students the seriousness of taking this diagnostic assessment and monitor them as they are being assessed. Watch for fatigue; stop the assessment if you feel it is necessary and continue later.

Pre-Screening: *DOMA Pre-Algebra* uses a 14-question pre-screening test in order to help reduce testing time and test fatigue. Each of the pre-screening questions represents the highest level of difficulty in one of the 14 constructs that comprise *DOMA Pre-Algebra*. In addition, these questions are free response items meaning the chance of guessing correctly is extremely low. For example, students may be asked to enter in the fraction or decimal number answer rather than select from multiple choices. If the student correctly answers a pre-screening question, the corresponding construct is not tested in its entirety; instead it is assumed that the student has mastery of that construct. However, Geometry is an exception. Full Geometry construct testing is given to all students. The *DOMA Pre-Algebra* report will note whether mastery is demonstrated by the pre-screening or through complete construct assessment.

Foundation Skills: The Foundation Skills section of *DOMA Pre-Algebra* is an optional section, administered only when a student's pattern of errors suggests that there may be a deficit in either math facts or reading comprehension. *DOMA Pre-Algebra* assumes both a perfunctory understanding of basic math and English-language proficiency; if errors suggest that the student does not have one of these, *DOMA Pre-Algebra* stops the test and administers this section.

How the Constructs are Organized: *DOMA Pre-Algebra* is comprised of 14 testing constructs that represent prerequisite knowledge necessary for success in Algebra I. These constructs are listed below in the order in which they are organized in the assessment:

- Integer Operations
- Fraction Operations
- Decimal Operations
- Comparing and Converting
- Estimating and Rounding
- Evaluating Exponents
- Ratios and Proportions
- Simplifying Expressions
- Coordinate Graphing
- Linear Functions and Extending Patterns
- Simple Equations
- Geometry
- Interpreting Data
- Simple Probability

Each construct represents a set of questions containing a minimum of 5 to a maximum of 12 questions. And each question represents a specific sub-skill that is a part of the construct. The reason we use sets of questions is to increase the validity of our assessments in making judgments of mastery or non-mastery on any particular construct. This reduces the risk that a single incorrectly answered question will skew the results.

How to Read the Construct Mastery Report: When reading the Construct Mastery Report, you will find several important pieces of information:

- The first thing you will notice on the Construct Mastery Report is a brief summary of the pre-screening presenting the percentage correct. This will give you an overall understanding of the student's success on this assessment.

- For quick reference, each numbered construct heading is marked with either a **green filled circle** (indicating mastery), a **yellow half-filled circle** (indicating partial mastery), or a **red empty circle** (indicating non-mastery).

- Under each numbered construct heading you will find a red result sentence, indicating mastery or non-mastery of the construct. You will find one of these three result sentences:

  - **Mastery demonstrated by pre-screening.** This indicates that the student successfully answered the pre-screening question, and the individual sub-skills were not tested.

  - **Mastery demonstrated by complete construct testing.** This indicates that the student did not answer the pre-screening question correctly, but after having

answered all the sub-skill questions, showed mastery of the sub-skill with a score of 75% or higher.

- o **Partial-Mastery demonstrated by construct testing.** This indicates that the student did not answer the pre-screening question correctly, but after having answered all the sub-skill questions, showed mastery of the sub-skill with a score less than 75% but greater than or equal to 50%.

- o **Non-Mastery demonstrated by construct testing.** This indicates that the student did not answer the pre-screening question correctly and also failed to demonstrate significant mastery in a portion of the construct questions.

- In the Construct Mastery Report, each of the 14 strands is broken down further into individual question sub-skills. Next to each question sub-skill, you will find one of three marks:

  - o nt : "nt" indicates that a particular sub-skill was not tested, either because the student correctly answered a pre-screening question for the construct in which it was located, or because the student reached a ceiling of knowledge in that construct. If a student misses either 4 construct questions in a row or misses 50% or more of the construct questions, the testing of that sub-skill stops to reduce frustrating the student and causing test fatigue.

  - o (+) : A plus sign indicates that the individual question sub-skill was tested and that the student answered correctly.

  - o (-) : A negative sign indicates that the individual question sub-skill was tested but that the student answered incorrectly.

How Valid are the Results for Questions and Constructs?:

- On the question level, treat a (+), (-), or (nt) response as a screening indicator for any particular sub-skill. Due to practical limits for total test time, multiple questions cannot be asked for each question sub-skill. Thus, at the question level, *DOMA Pre-Algebra* results are only a "screening." Teachers may need to follow up with additional evaluations if they wish to determine definitive mastery or non-mastery of sub-skills.
- On the construct level, the indication of "mastery", "partial mastery", or "non-mastery" is diagnostic and thus can be interpreted with a high degree of certainty. Each construct uses multiple questions to determine its results. Or in the case of "pre-screening mastery," the most difficult sub-skill question is used to test the student's understanding. And the responses are keyed in by the student, thus eliminating the relatively high possibly of a lucky multiple choice guess.

What This Means for Instruction: When planning differentiated instruction for students, based on the *DOMA Pre-Algebra test*, use the following guidelines:

- Instruction should begin with non-mastered constructs (indicated by a red "priority" flag), as these show areas where students are not fully prepared to enter Algebra I.
- Also, pay attention to potential gaps in knowledge, indicated by negative signs next to sub-skills within mastered constructs. These gaps could be preventing students from advancing.

Happy Assessing!