**Introduction**

We at HQ are happy to release the **Geometry Readiness** program. This will serve as a new program designed to target the fundamental Geometric and Algebraic skills necessary to be successful in a High School Geometry course.

The Assessments were developed by the Education Department and has been reviewed by internal personnel, external experts, and franchisees representing 20 centers. The Geometry Readiness assessment was given to nearly 100 students. Both the assessments and the associated curriculum were exceptionally well-received. After an extensive review and revision process we are ready to the release the program.

Geometry Readiness is a program designed to target the fundamental Upper Elementary and Middle School Geometry skills necessary for success in a High School Geometry course. In addition, they will also receive an introduction to logic and proof. Students that complete a Geometry Readiness learning plan will be fully prepared to take High School Geometry; or, in the case they are a current High School Geometry student, they will receive foundational support to guide them through the early topics they will encounter.

Please be advised that Geometry Readiness is not meant to be a full replacement of Core 10. Students that need to be assessed on critical skills through the end of a High School Geometry course should still take Core 10.

**Release Content**

This release consists of the Geometry Readiness Pre-Assessment and a combination of new curriculum and legacy curriculum. Answer Keys for all are included on Radius, M2, and Google Drive. Post-Assessments and recommended additions can be expected soon.

**Program Objectives**

Upon completion of a Geometry Readiness Learning Plan, a student will have demonstrated a mastery of core Geometry topics found in Upper Elementary and Middle School coursework. In addition, they will encounter topics often found in the early stages of High School Geometry. 2D/3D shapes, classifying/measuring angles, perimeter and area, surface area and volume, similarity, congruence, conditional statements, symmetry, non-matrix transformations, an Introduction to Two Column Proofs, and 2D/3D Geometric Problem Solving are some of the topics they will master through a Geometry Readiness Learning Plan.

The Geometry Readiness program does not serve as a full replacement of Core 10. A formal Geometry assessment and curriculum is a project currently in progress.

**Intended Audience**

New students

New Mathnasium students preparing for, or in the early stages of, High School Geometry, a combination of Geometry Readiness and High School Fundamental Skills.

Enrichment students looking to explore the foundations of Geometry could also take this assessment.

Existing students

Any student that has completed a full Algebra I A/B Learning Plan could take this assessment as a follow-up, provided they have not completed a High School Geometry course. Students that have completed a High School Geometry course, but struggled greatly and could use the foundational work, could also take this assessment.

For students who have made significant progress toward the completion of a Core 10 Learning Plan, having them complete that plan and post-assess is likely the best course of action. For students who are in the early stages of a Core 10 plan and are just starting their High School Geometry course, you may opt to give them Geometry Readiness and put the new curriculum in front of them. As always, the best course of action is on a case-by-case basis dependent on the needs of the student in question.

Students that have already completed a Learning Plan with High School Fundamental Skills do not have to take HSFS again as part of the Geometry Readiness program.

**Test Group Results**

The Geometry Readiness assessment was given by the test group nearly 100 times. The overall question-by-question data was analyzed and combined with subjective data from the test group to inform our decision-making. In addition, the test group was tasked to provide specific feedback to the overall length of the assessment to ensure it can be administered in one sitting. Test group feedback was also used strategically to revise Prescriptives and develop new topics to fill any gaps that were identified.

**Recommendations for Administering Assessments**

The length of our Assessments is dictated by a detailed break out of critical skills that create a level of individualized Learning Plans that is a hallmark of the Mathnasium Method. The test group reported that the average length of assessment was approximately 70 minutes.

The first 16 questions (through the middle of page 4) are Algebraic review skills that could be omitted for an existing student that has already demonstrated mastery over the material.

Calculator use is not recommended on the assessment.

A formula sheet has been provided for student use. Feedback from the test group indicated that there is value in providing students with a formula sheet for the assessment and our recommendation is that you do so. However, for students enrolled in courses where they are required to memorize Geometric formulas, you may opt to not provide them with the formula sheet during their assessment.

A deeper look at initial assessment identification can be found at the end of this document.

**Accompanying Curriculum**

This curriculum release consists of 35 new Prescriptives. There are also several legacy Prescriptives included.

**Other Recommendations**

To support students, we will also be releasing soon a vocabulary packet to be completed by the student. For students who need to review basic building blocks of Geometry: points, lines, planes, dimension, etc. will have the opportunity to do so and reference it when needed. Further information regarding this material will be forthcoming.

The formula sheet should also be kept in the student’s binder for reference.

For students who have demonstrated mastery of computation skills, calculator use is permitted with the Geometry Readiness Prescriptives.

**Workout Book Assignment**

Students scoring less than 35%, we recommend WOB 4 Chapter 1.

Students scoring from 35-70%, we recommend WOB 4 Chapter 3.

Students scoring above 70%, we recommend WOB 6a.

Students in High School Geometry courses where there is a significant emphasis on Geometric Proof could be assigned WOB 6b at the start of the program.

**Questions/Feedback**

We would love to get your feedback as you put this new material in front of students. If you have any questions about the program, please contact support@mathnasium.com and the appropriate resources will provide assistance.

**Assessing a Geometry Student:**

Traditionally, our assessment process follows a standard split where a student is assessed at their previous grade/relevant course during the first 2/3 of the school year and their current grade/course the last 1/3 of the school year. Adjustments can be made based upon student/parent feedback, oral questioning, and other observations made while a student is working through the initial assessment choice. The Geometry Readiness assessment follows those initial recommendations for a student either preparing for, or in the early stages of, a High School-level Geometry course.

Geometry Readiness was developed to provide students foundational support, so that they may experience success in a Geometry course. To experience that success, they must possess the ability for “mature, logical thinking”. The Geometry Readiness curriculum will both build their Upper Elementary/Middle School Geometry skills, as well as develop the logical thinking needed to be successful.

Geometry Readiness is not intended to be a replacement of Core 10. That said, there may be instances where you are unsure as to what the appropriate initial Geometry Assessment is. This can be accomplished by spending some time with a student initially, engaging them in a series of oral questions, and determining their overall “awareness” and “vision” for Geometry. Through this, you can gather more information on the proper initial assessment choice and supporting material.

**Considerations During the Oral Assessment Process:**

As you are sitting with the student, watch the student as closely as possible with the following in mind:

* Was answering *effortless* or *effort-more* for most questions?
* Did you have to prompt the student? To what extent?
* Does the student see the connection between related concepts?
* What patterns are there in the areas where the student is strong?
* What patterns are there in the areas where the student is weak?

Students should not be given the “benefit of the doubt” as it is always a best assessment practice to make them prove to you definitively that they possess the critical skill. The “level” of the student is defined where they seriously struggle with the questions they are asked. At that point, you may stop the oral assessment and proceed to the appropriate written assessment.

**Level I students** should take the Geometry Readiness Assessment and High School Fundamental Skills. WOB Selection is defined by the WOB Assignment Guide and is dependent upon their initial score.

**Level II students** should take the Geometry Readiness Assessment and High School Fundamental Skills. Level II students could start with WOB 6a. WOB 6b is an option if they are in an area with a significant emphasis on proof and need further work in that area.

**Level III students** should take Core 10 and be assigned WOB 6c. Again, they could be assigned WOB 6b if needed.

**Level I**

Are all rectangles squares?

Are all squares rectangles?

How is a rectangle different from a square?

How is a rectangle the same as a square?

What is an angle?

What is a degree in Geometry?

What is a right angle?

Describe a circle.

What is a point in Geometry?

What is a line in Geometry?

What is a plane in Geometry?

What is the difference between a line segment and a ray?

What are parallel lines?

Draw parallel lines.

What are perpendicular lines?

Draw perpendicular lines.

If you turn 180$°$, what have you done?

If you turn 90$°$, what have you done?

If you spin 720$°$, what have you done?

The angles of a triangle always add up to?

Draw three different four-sided figures that have equal, opposite sides.

**Level II**

What is a transversal?

What happens when a transversal cuts two parallel lines?

The sum of the interior angles of a 12-sided polygon equal?

True or False: All isosceles triangles are also equilateral triangles. Explain.

State the converse of the statement: All equilateral triangles are also isosceles triangles.

Is the converse true or false? Explain.

State the Pythagorean Theorem.

Can a triangle have two right angles? Why or why not?

Find the distance between the points (5,7) and (1,2)

Prove: Vertical angles are equal.

**Level III**

Find the area of a rectangle whose length is 12cm and diagonal is 13cm.

Prove: The angle bisector of the unequal angle of an isosceles triangle is the perpendicular bisector of its base.

Prove: The opposite angles in a parallelogram are equal.

Do the points (0,0), (4,6), and (8,0) form an equilateral triangle? Explain.

Prove: An angle inscribed in a semicircle is a right angle.