JORGE E. ELORZA
Mayor

CHRISTOPHER MAHER
Superintendent

Providence Schools

Classical High School
770 Westminster Street
Providence, RI 02903
tel. 401.456.9145
fax 401.456.9155
www.providenceschools.org/classical

Classical High School

Dear Families,

On behalf of the mathematics department, welcome to your first year at Classical High School. This summer, all 9th graders have a mathematics assignment that will be an online course in addition to the required summer reading. Details can be found on the Classical High School webpage: www.classicalhighschool.org. This work is not dependent on mathematics course students are taking 2019-2020

General Information about the Required Online Course
> *How to Learn Math: For Students* is a free self-paced class for learners of all levels of mathematics produced by Stanford University. It combines important information on the brain and learning with new evidence on the best ways to effectively approach and learn math. This class gives students the information they need to become powerful math learners, corrects misconceptions they have about what math is, teaches them about their own potential to succeed, and provides strategies to approach math effectively. If they have had past negative experiences with math this will help change their relationship to one that is positive and powerful.

Guide for Parents
> How to Learn Math: for Students is designed to support learners of math in four main areas:
> - Building a positive relationship with mathematics
> - Teaching students to develop a growth mindset
> - Learning powerful mathematics strategies
> - Seeing mathematics as a living subject, important to their lives

> While the course does not teach mathematics content, some mathematical ideas are used. Everyone taking this course will need an email to register.

Time Required
> This course is taught using a theory of active engagement. This means that the students will watch short videos presenting ideas and then be asked questions to keep them focused and engaged. The questions are not graded, but completion is important if students want to receive a 'Statement of Accomplishment'. The lesson times listed below; however, times do not account for the time students take to answer the short questions, as each student will vary.

> In the first three lessons students receive key ideas about the brain and mathematics learning. In the last three sessions they will learn powerful mathematics strategies, so the lessons are longer. The last lesson is the longest session and includes videos of mathematics in sport and nature, designed by Stanford undergraduates, and provides a review of some good apps and games.

Lesson/ Concept	Running Time	No. of Questions
Lesson 1: Knocking Down the Myths About Math *Everyone can learn math well. There is no such thing as a "math person". This session gives stunning new evidence on brain growth, and considers what it means for math learners.*	13 minutes	5

Lesson 2: Math and Mindset *When individuals change their mindset from fixed to growth their learning potential increases drastically. In this session participants will be encouraged to develop a growth mindset for math.*	8 minutes	3
Lesson 3: Mistakes and Speed *Recent brain evidence shows the value of students working on challenging work and even making mistakes. But many students are afraid of mistakes and think it means they are not a math person. This session will encourage students to think positively about mistakes. It will also help debunk myths about math and speed.*	7 minutes	3
Lesson 4: Number Flexibility, Mathematical Reasoning, and Connections *In this session participants will engage in a "number talk" and see different solutions of number problems to understand and learn ways to act on numbers flexibility. Number sense is critical to all levels of math and lack of number sense is the reason that many students fail courses in algebra and beyond. Participants will also learn about the value of talking, reasoning, and making connections in math.*	21 minutes	7
Lesson 5: Number Patterns and Representations *In this session participants will see that math is a subject that is made up of connected, big ideas. They will learn about the value of sense making, intuition, and mathematical drawing. A special section on fractions will help students learn the big ideas in fractions and the value of understanding big ideas in math more generally.*	19 minutes	6
Lesson 6: Math in Life, Nature, and Work *In this session participants will see math as something valuable, exciting, and present throughout life. They will see mathematical patterns in nature and in different activities, exploring in depth the mathematics in dance and juggling. This session will review the key ideas from the course and help participants take the important strategies and ideas they have learned into their future.*	24 minutes	10

Family's Role

Students learn more from each lesson if you are able to take the time to talk about them afterward. Ideas to get conversation started include asking broad questions like, "What surprised you?" or "What are you thinking about?" or "What did you think the important ideas were?"

Below are a few ideas for discussion questions matched to ideas in each lesson:

Lesson 1: Knocking Down the Myths About Math	▪ What surprised you about the brain? ▪ Which experiences do you think "grow your math brain?" ▪ Have you ever felt "boxed in" – that certain ideas or activities just weren't meant for you? How can we resist those messages?
Lesson 2: Math and Mindset	▪ How do you think mindsets affect us? ▪ What are you going to have to do differently to take on a growth mindset in math? ▪ What messages have you received about math? If they were negative, how would you respond to those messages now?
Lesson 3: Mistakes and Speed	▪ What did you learn about mistakes that you didn't know? ▪ What behaviors that you heard about in this lesson are you going to try in math? What will they look/sound like? ▪ What do you think about the ideas about math and speed?

Lesson 4: Number Flexibility, Mathematical Reasoning, and Connections	▪ Let's try some number flexibility together and see how many different ways we can come up with. (Try 16 x 9 or 24 x 7 or 122 ÷ 8) ▪ Why do you think talk helps people learn math? ▪ What kinds of math connections did you see in this lesson that surprised you?
Lesson 5: Number Patterns and Representations	▪ How can drawing help you make sense of problems? ▪ What did you learn about fractions? ▪ Why are big ideas important? How do you think we can find them?
Lesson 6: Math in Life, Nature, and Work	▪ Where did you see math that you had never seen it before? ▪ Where else do you think we can find math? ▪ What are the big ideas from this course? What will you take back to your own math learning? ▪ What do you think we should do differently as a class/ family now that we have learned all of these ideas?

Thank you for your time and attention to this information. We look forward to meeting the Class of 2023 in the fall! If you have additional questions or concerns please feel free to contact me at Christine.Dunbar@ppsd.org.

Have a great summer!

Sincerely,

Christine M. Dunbar

Christine M. Dunbar
Mathematics Teacher Leader
Classical High School
770 Westminster Street
Providence, Rhode Island 02903