



Dear TMS 7-12 families,

This document contains resources for engagement in mathematics over the summer. For an informative read on what tends to help (and not help) over the summer, the following article can be helpful in thinking about how we can work together to keep students' brains engaged over the summer: <https://www.gse.harvard.edu/news/uk/16/06/summer-math-loss>.

We are approaching this as a way to provide resources and information to families, while also not leaving families “on their own” to figure it all out. In short, we want to provide resources, but do not expect that everyone will run a home school all summer. (Still, talking about math can be fun!)

Here are some key components of our math resources, which are explained in detail later:

- There are clear guidelines, but there is also choice.
- We have provided both traditional practice and non-traditional ways to engage.

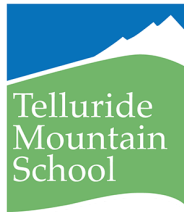
If you have questions about summer math resources, please bring questions in the fall or email Brittany Perrot.

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Components of our Summer Math Resources

1. Expectations: one hour per week

Over the summer, we want students engaged in and excited about mathematics so that they are ready to think about mathematics when they return to school. Take time on a weekly basis to engage in mathematical thinking and problem solving. Any given week, students and families have two choices.

More traditional practice	Use the provided resources, from vetted sources like Khan Academy, to practice skills that will prepare students for next year.
Non-traditional engagement	Take on problems-of-the-week, family activity ideas and more!

2. This will not be graded in the fall.

This type of engagement will prepare you to be successful next year, but it will not be handed in or graded as part of a class in the 2023-2024 school year.



Traditional Practice Resources

Online Option Benefits	Printable Option Benefits
<ul style="list-style-type: none"> ★ Self-checking ★ Easy interventions ★ Individualized <p>The Khan Academy options are helpful for being self-checking, meaning students get immediate feedback on the accuracy of their work. They also have easy options for intervention, such as 'hint' and 'get help' buttons and linked videos or notes sheets. It can also be individualized. By starting with the 'Course Challenge,' students see what they need the most practice with.</p> <p>When using the online options, students should still have paper and pencil out.</p>	<ul style="list-style-type: none"> ★ Convenient ★ Limited distractions ★ Effective for thoughtful work <p>The Printable options are helpful for their convenience; they can be quickly printed and brought on road trips, car rides, or anywhere without internet service. Without the distraction of a computer, students may be more likely to make progress on the printable options. Students may also be more likely to show their work and spend more time thinking through problems when they are on paper.</p>

Middle school math review (for students entering 7th grade in fall 2023)

Online Option	Printable Option
Khan Academy - Getting Ready for 7th Grade	📄 Entering_7th_Grade_Summer_Math_...

Pre-algebra and middle school math review (for students entering 8th grade in fall 2023)

Online Option	Printable Option
Khan Academy - Getting Ready for 8th Grade	📄 Entering_8th_Grade_Summer_Math_P...
Khan Academy - Getting Ready for Algebra 1	

Algebra 1 review and Geometry prep (for students entering 9th grade in fall 2023)

Online Option	Printable Option
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Khan Academy - Getting Ready for Geometry	Packet - Getting Ready for Geometry
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Geometry review and Algebra 2 prep (**for students entering 10th grade** in fall 2023)

Online Option	Printable Option
Khan Academy - Getting Ready for Algebra 2	Packet - Getting Ready for Algebra 2

Statistics and Advanced Algebra review (**for students entering 11th/12th grade** in fall 2023)

Online Option	Printable Option
Khan Academy - Getting Ready for Precalculus	Packet - Getting Ready for Math 11/12
Khan Academy - Getting Ready for Statistics	



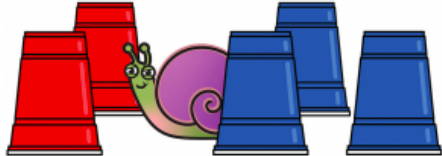
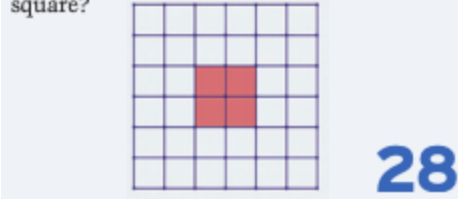
Non-traditional engagement resources

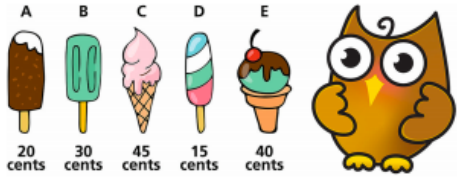
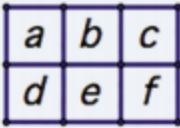
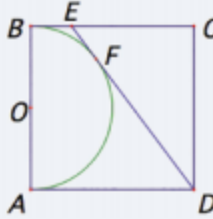
Problems for each two-week period (with a break close to July 4)

Even though these are labeled “Middle school” and “High school”, students may select either problem. Please note that some of the problems that involve more Geometry and Algebra may be more appropriate for students who have taken Geometry and Algebra courses. These will likely take more than one hour to complete thoughtfully, which is why there is only one task every two weeks. Take your time!

Problems are taken from different NCTM problem calendars (March 2019) and journals ([link](#)).

The numbers in the bottom right can be ignored. Those numbers will make it easier to reference solutions during the Zoom check-ins.

Week of:	“Middle school” tasks	“High school” tasks
June 5	<p>Choose one article from a web site, newspaper, magazine or other media outlet that uses statistics and/or a graphical representation of data.</p> <ul style="list-style-type: none"> Is the data presented in a way to tell a story? Is this story convincing? Could the data be represented to tell a different story or not? Is there bias in the story that influences the conclusions drawn from the data? Or do you think that the data is represented accurately? 	<p>Choose one article from a web site, newspaper, magazine or other media outlet that uses statistics and/or a graphical representation of data.</p> <ul style="list-style-type: none"> Is the data presented in a way to tell a story? Is this story convincing? Could the data be represented to tell a different story or not? Is there bias in the story that influences the conclusions drawn from the data? Or do you think that the data is represented accurately?
June 19	<p>Notice the snail hid 23 rocks under 5 cups (2 red cups and 3 blue cups). The cups with the same colors are hiding the same number of rocks. How many rocks are under each cup? How many solutions can you find?</p> 	<p>In the 6×6 square, the 4 center unit squares are colored red and the remaining unit squares are colored white. How many squares of any size contain at least 1 red square?</p> 
July 3	Cash or Gas?	Cash or Gas?

July 18	<p>Wonder the owl bought three treats and spent 90 cents. If Wonder bought three different treats, which treats did Wonder buy?</p>  <p>For further thought: How much money would Wonder need to buy one of each item?</p>	<p>The parallel sides of trapezoid $ABCD$ measure 52 and 39. The nonparallel sides measure 5 and 12. If the altitude of the trapezoid is m/n, where $\text{GCF}(m, n) = 1$, compute $m + n$.</p> <p style="text-align: right;">26</p>
August 1	Bridges problem	Bridges problem
August 15	<p>Arrange the numbers 1, 2, 3, 5, 7, and 9 into the 6 squares so that the two 3-digit numbers (abc and def) and three 2-digit numbers (ad, be, and cf) are all prime. Find all possible values for (abc, def).</p>  <p style="text-align: right;">21</p>	<p>Square $ABCD$ has a side length of 336. Semicircle O has diameter AB, and \overline{DE} is tangent to the semicircle at F. If $OE = m\sqrt{n}$, where n has no perfect square factor other than 1, find $m + n$.</p>  <p style="text-align: right;">30</p>
Extra ideas	Soccer for Real	Horseshoes in flight

Other creative ideas for families

Take mini logic and problem solving courses	<p>Sign up on this website: https://brilliant.org/courses/ for a free account. Try taking courses like: Logic, Joy of Problem Solving, or Number Theory, that introduce you to cool math thinking processes via puzzle-like problems. Or, work through some of the Daily Challenges!</p>
Data and Statistics in Our Society: Use the Week 1 prompt to discuss news throughout the summer.	<p>Choose one article from a web site, newspaper, magazine or other media outlet that uses statistics and/or a graphical representation of data.</p> <ul style="list-style-type: none"> Is the data presented in a way to tell a story? Is this story convincing? Could the data be represented to tell a different story or not? Is there bias in the story that influences the



	conclusions drawn from the data? Or do you think that the data is represented accurately?
Participate in the Summer Reading program at the Wilkinson Public Library (WPL)	Studies have shown that reading math-focused stories can help boost math scores in school. For younger students, Bedtime Math books or the Family Math series are good resources. For older students, work with WPL or your teachers during check-ins to identify Math/Science books to read.
Play math games	Games like Yahtzee, Racko, Blokus, Monopoly, SMATH and Set all rely on skills necessary for math, such as counting, categorizing, and building. Even playing with blocks and assembling jigsaw puzzles can help kids learn spatial skills and recognize patterns.