Summer Math

Attention all students entering Grade 7:

Summer Math is **A FUN WAY TO KEEP SKILLS SHARP**!
It will count as your first homework grade and will be an easy way to start the year off great in math!!

You will select a *minimum* of **two** activities, although you are welcome to choose more than that. You may also choose to work with a buddy or even a group to get outside and have some fun!!

During the summer months, skills become rusty and you can even lose some of what you learned this year. By participating in Summer Math, you will keep your math knowledge fresh and be better prepared to be successful next year.

The activities have been designed to help you connect the math you learn in school to the real world around you. You can click on the links to explore loads of digital resources to help you, and use digital photos or video to help document what you do. Have fun with it!

WHAT DO YOU HAND IN WHEN YOU RETURN IN SEPTEMBER??

Your product can be a journal/notebook where you have completed your tasks, a Powerpoint where you show what you did and reveal your solutions, a video where you show and tell what you found....get creative!
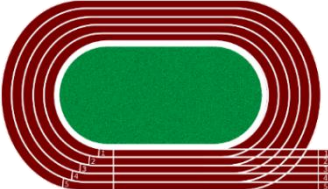
As long as you complete at LEAST 2 of the activities and show your work and solutions, you will receive credit! Remember that this product will be the first piece of work that your teacher will get from you, make sure it is neat, complete, well done, and has your name on it!!

Be sure to indicate which activities you selected. For example:
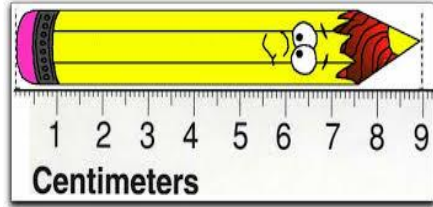Choice #1: Shopping with Unit Rates / Choice #2: Track Steps and Ratios

HAVE A WONDERFUL SUMMER AND STAY SAFE!!!
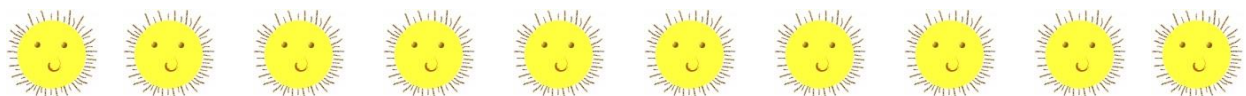
Where is the Math in Your World?
Entering Grade 7 – 2023 Summer Math Projects – Ahern Middle School
(Complete at least 2 projects - due first week of school)

Project Title	Directions	Entering Grade 7
1. **Geometric Figures in Our World**	Find the Geometric figures (see grade list) in the outdoors. Describe and explain the dimensions and purpose of figure. (things at the playground, in the backyard or school)	1. Find the area and perimeter of a space that you use during the summer. For example: your bedroom, living room, or backyard. https://www.flocabulary.com/unit/area-and-perimeter/ 2. Find the volume and surface area of a rectangular prism. An example is a box that has food in it or a box that your store things in. 3. For the rectangular prism you used above, draw a picture of the net. **Ruler: https://www.printablerulers.net/click2.php** **Volume:** https://www.youtube.com/watch?v=JijhDDJvExo **Surface Area:** https://www.youtube.com/watch?v=agIV623B3nc
2. **Track Steps and Ratios**	Measure the distance of the Middle School running track as outlined by grade.	1. What is your estimate for how many steps it will take you to walk around the track? 2. Count your steps circling around the outside edge of the track. 3. Count your steps circling around the inside of the track. 4. What is the ratio of steps on inside track compared to outside edge of track? 5. Explain why racers start in a different place at the beginning of the race. More information that may help. https://www.mathsisfun.com/activity/olympic-athletics-track.html
3. **Numbers in Nature**	Find natural objects in nature. Classify and explore number relationships as outlined by grade level. (classify and describe patterns that occur naturally)	Pine cones show the Fibonacci Spirals clearly. Here is a picture of an ordinary pine cone. Be sure to click on the buttons below the pine cones to see the patterns. http://www.maths.surrey.ac.uk/hosted-sites/R.Knott/Fibonacci/fibnat.html#section4.1.1 1. Can you see the two sets of spirals? How many are there in each set? 2. Collect some pine cones for yourself and count the spirals in both directions. *A tip: Soak the cones in water so that they close up to make counting the spirals easier.* Are all the cones identical in that the steep spiral (the one with most spiral arms) goes in the same direction? 3. What about **a pineapple**? Can you spot the same spiral pattern? How many spirals are there in each direction? Watch this video to help you understand the patterns in pineapples. *Open Letter to Nickelodeon, Re: SpongeBob's Pineapple under the Sea https://youtu.be/gBxeju8dMho*

4. Metric and Customary Systems of Measurement _[ruler illustration]_ 1 2 3 4 5 6 7 8 9 **Centimeters**	Measure an outdoor figure and provide measurements in both systems as outlined by grade level.	Find an object outside that you can measure **or** record the distance from your home to a place you visit this summer. Some places to look for objects are outside your home, at a playground, the beach or a park. An outing might be to visit a relative, a trip to the beach or park or a vacation (just somewhere that you traveled away from home). Create a table to show the dimension that you measured (length, width or distance) in a unit that makes sense for the object or distance. For example: A large object would probably be measured in feet and meters or an outing would probably be measured in miles or kilometers. You should do your measuring in customary and metric measurements. Convert the unit of measure in the customary system to the additional units so your table reflects: Feet, Inches, Yards, Miles (for distance only), Convert the unit of measure in the metric system to the additional units so your table reflects: Millimeters, Centimeters, Meters, Kilometers (for distance only). **Video for metric system review:** https://learnzillion.com/lesson_plans/7014 **Video for customary system review:** https://learnzillion.com/lesson_plans/5003-compare-and-convert-customary-units-of-length **Online Rulers:** **https://www.printablerulers.net/click2.php**
5. Shopping with Unit Rates! _[supermarket circular illustration]_	Compare unit rates (as outlined by your grade level) of products you purchase either online or in the store.	Visit the supermarket or find a weekly circular online for a supermarket. Find the unit rate in ounces of a box of cereal, a snack, a bottle of something to drink and a container of ice cream. What is the least expensive item to eat? What is the most expensive item to eat? How do you know? Please explain your thinking in a well thought out paragraph. **Review of Unit Rates** https://www.youtube.com/watch?v=liW_ALj4Qj8

6. Graphs & Tables Cost of Gym Membership by Number of Months	Online research demonstrating the use of graphs in tables in the world. (as outlined by grade level)	Find a graph online for a topic that you might be interested in finding out more about. You can google "News articles with graphs and charts" to help you locate a graph that interests you. In a well written paragraph, please describe the topic of the graph, the type of graph that represents the data and the story of the data that the graph is informing readers about. **OR** Create a line plot for a set of data that you develop based on your interests. Some examples of questions to generate your data would be: 1.What is the snowfall in January for Foxboro for the last 10 years? 2. What is the favorite ice cream flavor of each person in your family and each of your friends? 3.What is the average temperature in July in Foxboro for the last 10 years? 4. What is the height of 10 people that you know? 5. How many different types of plants do you find in your flower and/or vegetable garden and what is the number of plants for each type? 6. What is the length of at least 10 pencils that you can find in your backpack or around your house? 7. Find at least 15 pennies. Sort them by the decade that they were made and develop your line plot using this data. **You can develop data based on any topic you would like. The only requirement is that you create a line plot based on at least 10 data points.** **Ruler: https://www.printablerulers.net/click2.php** **Videos to help:** **https://learnzillion.com/lesson_plans/4782** **https://learnzillion.com/lesson_plans/6972**
7. Library Numbers 	Explore Decimals using the Dewey Decimal Numbering System that is used in the library	Visit the library or use the online catalog for the library to find a non-fiction book on a topic of your choice. Some suggested topics and books are: • **Math Theme Books** Career Ideas for Kids Who Like Math Real Life Math Series Fun With Roman Numerals See Symmetry • **Space Theme Books** Books about Planets • **Sports Theme Books** The History of _____ (Basketball related) NFL Today – The Story of _____ (Baseball related) Pro Sports Hall of Fame

Library Numbers Continued		• **Craft Theme Books** • **Cooking Theme Books** **SAILS online catalog** **http://www.sailsinc.org/** **Please note you can use any Non-Fiction book for the activity as long as it has a decimal number for its' catalog number.** Please answer the following questions related the book's Dewey Decimal Number: 1.What is the name of the book you chose and the Dewey Decimal Number associated with this book? 2. Write the book's number in expanded notation. 3.What would be the equivalent mixed number for the books' decimal catalog number? 4.Compare the number of your book to the following decimal numbers using (<, = ,>): 352.1, 650.01, 452.60 5. Add 2,356 to the book's number. 6. Subtract the book's number from 2,356. 7.Multiply the number by 25.1 8. Divide the number by 25.1. Is the quotient a whole number, a terminating decimal or a repeating decimal? If it is not one of these 3 choices, what kind of number is it? 9. Multiply the book's number by 10^3. 10. Divide the book's number by 10^2. 11. Round the book's catalog number to the nearest whole number and the nearest tenth. **If you having trouble locating a book, please ask the librarian for help.** Converting decimals to fractions: https://learnzillion.com/lesson_plans/6185-convert-decimals-to-fractions-to-the-hundredths-place-using-visual-aids Comparing decimals: https://learnzillion.com/lesson_plans/6024 Decimals in Expanded Notation: https://learnzillion.com/lesson_plans/8001-write-decimals-in-expanded-notation Rounding Decimals: https://learnzillion.com/lesson_plans/5889-round-decimals-to-the-nearest-whole-number https://learnzillion.com/lesson_plans/6848-round-decimals-to-the-nearest-tenth Multiplying and Dividing by Powers of 10: https://learnzillion.com/lesson_plans/4766 Online Hundredths Grid Paper: https://www.eduplace.com/math/hmcam/tools/blms/g5/5hmmca-mc48-mc.pdf