

## Advanced Academics – Enrichment and Extension

### Student Enrichment and Extensions K-12

How can **YOU** continue to support your learning while at home?

#### PURPOSE OF ENRICHMENT AND EXTENSION

Provides extended learning opportunities and challenges to students who have already mastered, or can quickly master, the basic curriculum.

Gives the student more time to study concepts with greater depth, breadth, and complexity.

Keeps advanced students engaged and supports accelerated academic needs.

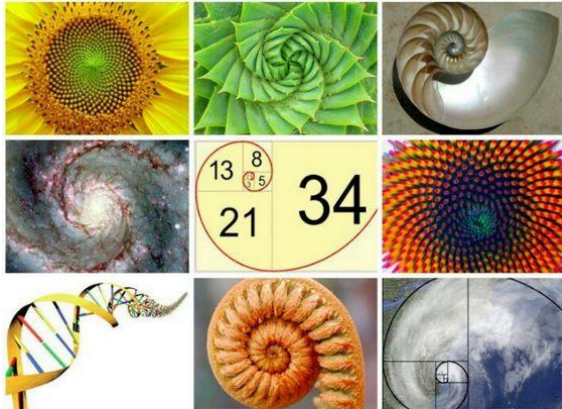
<p><i>Scavenger Hunt Walk</i></p> <p>Take a walk around the neighborhood. Look for plants, animals, and other objects found in nature such as an unusual spider web, tree bark that looks like another object, or behaviors of animals seen. Record your findings through pictures, writing, or drawings.</p>	<p><i>Work and Learn</i></p> <p>Talk to your adult family members, or neighbors about their job. What do they do each day? What connections can you make between their work and the subjects you are learning? What do they like best about their work? If they could change one thing, what would it be and why?</p>	<p><i>Make a Splash</i></p> <p>Using objects found around your house, create a model of a water slide. Use a marble or small ball to represent a rider. What happens when you raise or lower part of the slide? If you add a twist or loop, how does that impact the speed of the rider?</p>
<p><i>Design Something New</i></p> <p>Create with materials found around the house (jar lids, empty toilet paper rolls, shoeboxes, soda bottle or milk bottle caps, yarn, newspapers, etc.) What invention could you design with these materials? Or can you combine two objects to help solve a problem.</p>	<p><i>Strategy or Luck?</i></p> <p>Play a board game or card game with a family member. As you play, think about these things: <i>Is the game based on strategy or luck? In what ways could the rules of the game be changed to make it more challenging?</i> To learn more, research the history of the game and how it may have changed over time.</p>	<p><i>Strategy or Luck –II</i></p> <p>Create your own board game with a learning component. If your game is based on animals, research questions about animals to include. Will your game be based on luck or strategy? Be sure to write the directions and rules of play as you design your game.</p>
<p><i>Independent Study</i></p> <p>Make a list of 10 things that interest you, then select one to learn more about. How will you research the subject or person? In what way can you display your new knowledge? Perhaps it is to learn how to do something new (cook, sew, change the oil in your parents car, woodwork, etc.)</p>	<p><i>Master Chef</i></p> <p>Get busy in the kitchen learning how to prepare new recipes or creating recipes of your own. Do you enjoy decorating cakes or cookies? With this extra time, work on your technique. Stop and think – how is science, math, reading, and history a part of the culinary arts? How has it changed over time?</p>	<p><i>You are the Author</i></p> <p>Keep a daily journal of your experience during this pandemic. The journal could be a digital one that captures a picture from each day, an artistic one, or a personal narrative. Now is your chance to create a primary source historical document during this time.</p>

**The Four C's:** To make any learning more meaningful, think/talk about the **connections** you can make to other learning, **concepts or big ideas worth remembering**, **changes** in your attitude or thinking as a result of the learning, and **challenges** you or others may need to overcome based on the content.

### Math in Nature

“What do hurricanes, galaxies, sunflowers, Mona Lisa, and the human ear have in common?”

Have you ever heard of the Fibonacci sequence or the Golden Ratio? It is based on the research of a famous Italian mathematician and goes as follows: 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144 and on to infinity. Each number is the sum of the previous two and is found throughout nature.



Go on a nature walk outside or through the internet to find examples, such as the array of seeds in the center of a sunflower. You'll notice what looks like spiral patterns curving left and right. If you count these spirals, your total will be a Fibonacci number.

Research further to discover more about the Golden Ratio. Where are other examples of this in our world?

“Where there is matter, there is geometry.”  
~ Johannes Kepler

### Spontaneous

We often need to “think on our feet” and look for quick *creative* responses. Challenge a family member or friend to play along.

*In three minutes, how many answers can you give for things that:*

- have a coat (painted wall)
- bounce (Kid on a trampoline)
- are read (people’s minds)
- you fill (an empty stomach)
- are crunched (numbers)
- have lines (a play)
- are powerful (love)
- slide (time)
- contain the word ice (icing)

Create some of your own.

*In three minutes, how many answers can you give:*

- Multiple uses for a paperclip
- Multiple uses for a brick
- Multiple uses for a shoe
- A piece of advice
- Things that require a strategy
- Ways to earn money

### Hands-On

- With 7 sheets of notebook paper, make a freestanding structure as tall as possible.
- With a deck of cards and some Cheerios or other cereal, build a structure with the cards that will support as many Cheerios as possible.
- With a 4” x 5” piece of aluminum foil, a tub of water and a pile of pennies, create a boat with the aluminum foil to hold as many pennies as possible.

Source: Odyssey of the Mind: Spontaneous Competitions

### Think like Leonardo da Vinci

Leonardo da Vinci carried a notebook with him at all times so that he could jot down ideas, impressions, and observations as they occurred. His notebooks contained jokes and fables, the observations and thoughts of scholars he admired, letters, philosophical musings and prophecies, plans for inventions, and treaties on anatomy, botany, flight geology, water, and painting.”

*How to Think Like Leonardo da Vinci, M. Gelb*

Grab a notebook and create a list of 100 questions. Most likely you will need to return to this several times to complete. Do you notice any key themes about yourself as you complete your list? Were questions easier to formulate when you first started or as you continued to work on your list?

Take time to reflect on your list and connections to your identity as a person, student, family member, and friend. Are there questions from this list that lead you to an independent study?

**“Genius is made, not born. And human beings are gifted with an almost unlimited potential for learning and creativity.”**

*Leonardo da Vinci*

*Connecting to the World Around You:* In what ways can **YOU** make your time productive while at home?

## Enrichment in Content Areas

<b>Math and Science</b>	<p><b>Real-Life Math</b> If you have access to the internet, conduct research on how math is used in professions, such as Physical Trainer, Video Game Designer, Network Engineer, Marine Biologist, Fashion Designer, etc.</p>
	<p><b>Real World Issues</b> If you have access to the internet, conduct research on real world issues related to the field of math and/or science. Think about:</p> <ul style="list-style-type: none"> <li>• How this issue has changed over time</li> <li>• The origin of the issue</li> <li>• Ethical implications</li> </ul> <p><b>Visual Representation:</b> How could you display your research? Compile facts and figures about the issue then create a data visualization that conveys the information in a clear and compelling way.</p> <ul style="list-style-type: none"> <li>• Digitally: Create graphics and/or interactives and prepare them as if you will share them on social media and/or school website.</li> <li>• Manually: Create posters and prepare them as if you will display them in your classroom to raise awareness</li> </ul> <p><b>Or, research those “data facts” that astound people</b> to display and analyze, such as the amount of food consumed at the zoo daily/weekly; Comparison of the “area” of various animal enclosures; Sports statistics; Number of McDonalds per state; Video games; Stadium facts such as food, ticket sales, merchandise; Fashion industry, etc.)</p>
	<p><b>Higher Level Questioning</b> Use open ended problem solving tasks and questions that allow for multiple perspectives on representing mathematical thinking</p> <ul style="list-style-type: none"> <li>• “What would happen if I switched these 2 numbers/ values?”</li> <li>• “How does this problem relate to your world?”</li> <li>• “Could you reach that same answer in a different way?”</li> <li>• “Do you see a pattern? How would you extend that pattern?”</li> </ul>
	<p><b>Critical Thinking Activities</b> <b>Brain teasers</b> – Example: Four people need to cross a rickety rope bridge to get back to their camp at night. Unfortunately, they only have one flashlight and it only has enough light left for seventeen minutes. The bridge is too dangerous to cross without a flashlight, and it’s only strong enough to support two people at any given time. Each of the campers walks at a different speed. One can cross the bridge in 1 minute, another in 2 minutes, the third in 5 minutes, and the slow poke takes 10 minutes to cross. How do the campers make it across in 17 minutes?</p> <p><b>Or this scientific one:</b> What comes next in the sequence? H, Be, F, S, Mn, Kr, In, Gd, Tl, ...?</p> <p>To find more, google “Science Brain Teasers” or “Math Brain Teasers”.</p> <p><b>Strategy Games</b> such as Sudoku, Chess, Checkers, Tangrams, etc.</p>

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<b>English Language Arts</b>	<b>Create a Visual</b> Create a visual that captures the main idea or problem, important details, significance of the issue and poses potential solutions.	<b>From Nonfiction to Fiction</b> Write a fictional story that reflects the issue from a nonfiction article. >> What conflict exists? >> Is there an ethical issue to debate between characters?	<b>Compare and Contrast</b> Use a current article and compare and/or contrast it to a previously read article in order to make text-to-text connections.
	<b>Persuasive Writing</b> Has being at home given you ideas for changes to occur in school or in other areas of life? Create a blog (real or imaginary) to show your writing. Use the writing process and apply persuasive techniques.	<b>Media Messages</b> Create two contrasting media messages that use persuasive techniques to capture opposing sides of an argument. Be sure to capture the underlying reasons for both.	<b>Narrative Writing</b> Keep a daily journal of your experience during this pandemic. Now is your opportunity to create a primary source document during this historical time.
	<b>Alternate Ending</b> Create an alternate ending to the story/novel you complete. What would you do differently than the author?	<b>Write a Diary Entry</b> From the point of view of any character, write a diary entry. How might that character feel or think at that point in time? How does looking at a story from multiple perspectives make have more meaning?	<b>Soundtrack</b> If you were making a movie of the book or novel you just completed, what songs/ music would you include in the soundtrack? Why?
<b>Social Studies/History</b>	<b>Virtual Field Trip</b> Design a virtual field trip of North Carolina (or another state of your choosing) that highlights the geography, history, industry, notable historians, and remarkable attributes of that state.	<b>Online Museum</b> Create an online virtual museum documenting era of exploration, Colonial America, Revolutionary War, Civil War, Spanish America War, World Wars I & II, Cold War, Iraq War, etc.	<b>Community Problem</b> Research a community problem and identify its root causes. Create a proposal for public policy that addresses these issues and prepare a presentation that could be made to city official.
	<b>Humanity Project</b> How could you contribute to your community during this pandemic? <ul style="list-style-type: none"> <li>• Create cards and letters for neighbors, hospital patients, nursing home residents, etc.</li> <li>• Make protective masks for hospitals</li> <li>• Plan for a larger project once the quarantine is lifted</li> </ul>	<b>Graphic Novel</b> Create a graphic novel based on a historical figure or time period. <ul style="list-style-type: none"> <li>• What elements would need to be added to hold a reader’s attention?</li> <li>• What historical accuracies should be included?</li> <li>• Be sure to include time-period clothing and resources.</li> </ul>	<b>Historical Monuments</b> Explore historical monuments, such as the Parthenon, Stonehenge, Chichen Itza, and Taj Mahal. Built hundreds, even thousands of years ago and without the technological advancements of today, these monuments show that we can achieve a lot more than we think.