MSTC Junior Research Summer Assignment

We will start MSTC Junior Research in the fall with a series of discussions and presentations related to this summer's reading assignment.

1. Choose one book to read. Read it.

<u>Outliers: The Story of Success</u> by Malcom Gladwell	**<u>Atomic Habits: An Easy & Proven Way to Build Good Habits & Break Bad Ones</u> by James Clear**
In <u>Outliers</u>, Gladwell shares the stories of extremely successful people, and instead of focusing on their intelligence and ambition, looks at the role that things like their family, their birthplace, or even their birth date, can play in their success. As a result, Gladwell shares with us insights on how to make the most of human potential.	In <u>Atomic Habits</u>, Clear reveals practical strategies that will teach you to change your habits and enable you to reach your goals. Bad habits repeat themselves, not because you don't want to change, but because you have the wrong system for change. You do not rise to the level of your goals. You fall to the level of your systems. Drawing on ideas from biology, psychology, and neuroscience, Clear creates an easy-to-understand guide for making good habits inevitable and bad habits impossible.

2. After reading, select a quote from the book that grabs your attention, speaks to you, or you strongly agree/disagree with. Be prepared to address why you chose this particular quote. Be ready with this quote, it is your attendance question on Day 1. Our first two weeks of class will be discussing these two books. You will have some individual assignments, a group presentation, and a reflective summative essay.

<u>MSTC Capstone- Junior Research</u>

What: From *August 12th, 2025- April 16th, 2027* you will work on finding a mentor, beginning research, and completing your own independent project, presenting it at 3 (1 junior year, 2 senior year) science fairs and a research symposium, writing a research paper, and creating a research poster.

How: You will find a mentor doing active research, you will work with them, and starting mid October 2025, your research block will be completely dedicated to research.

Things you need to know about your MSTC Research Project…..

- You **DO NOT** need to start this summer! You can wait and start next semester as part of the MSTC Junior Research class.
- Any hours you log this summer will **NOT** count toward your grade in MSTC Junior Research.
- You will be required to participate in the district science fair in February. It does not have to be related to your capstone project. The best science fair projects are started early and DO NOT require a mentor.

How do you decide what you want to research?

- What are you most interested in? What area of science/math? What topics within that area? You are not required to do research in what you might think of as a traditional STEM field. Students have done research in economics or education, for example.
- How do you enjoy spending your time? You will be spending 360+ hours over the next two years in this area.

- Most students will work with a professor on an existing idea or project or will help continue a professor's research on a new project or line of research. Research what projects are ongoing in the lab as you will be doing something that relates to it.

How do you search for a mentor?

- Talk to current juniors and seniors about their projects and mentors.
- Speak to family, friends and neighbors.
- Spend time on UK's website reading about the work being conducted in various departments. Check out this link (https://our.uky.edu/research-opportunities) for a bunch of helpful resources. The section titled ***Volunteer Research Opportunities*** lists projects that are actively seeking researchers. If a project doesn't list a required college degree, it is something you might want to explore. If it is looking for undergraduate students it is a potential opportunity for you as well. If you scroll further down the page there is another section titled ***UK Campus Research Opportunities*** that is a great starting point if you are trying to narrow down areas of interest based on your interests.
- If you decide to contact a mentor, consider using the template I have provided on Canvas, also keep track of who you email, we will compile a group list so that we aren't overwhelming people with emails.

What does your mentor need to know?

- They are committing to work with you for two years. You will need to log approximately 120 hours as a junior, 40 hours over the summer after your junior year, and approximately 200 hours as a senior.
- You will be required to complete an independent research project, this is WAY more than a shadowing experience.
- You will be required to keep a detailed lab journal/log and have your mentor sign off every six weeks.
- When school starts, your availability as a junior will be during your assigned fourth block or after school. Checking out of fourth block on a regular basis, however, will not start until the October/November timeframe. Senior year, you may have room for a double research block.
- UK and MSTC require several safety forms to be completed. They can be found at https://our.uky.edu/students/high-school-students if you scroll down near the bottom of the page to the section titled: **Minors in Labs.**
- If you decide to look outside of UK- the institution or company must have a policy about working with minors.

You will need to submit a copy of all of these completed forms to Mrs. Pelphrey on Canvas as soon as they are completed. It is not appropriate for you to work with someone until these papers are signed.

Before the first day of Junior Research:

Fill out this form to start figuring out what type of research you want to do https://bit.ly/4jFYXl7	Go to Symposium and choose projects that interest you, take notes, write down the names of the labs, and mentors, send yourself a copy of the assignment	Over the summer, spend some time researching areas of research. Come to class **Day 1** with a list of **5 types** of research you could see yourself doing, feeling ambitious, find those types of research at UK and write down the names.