**Biomedical Innovation Summer Assignment 2023**

Part of BI this year will be choosing to either participate in an internship or in a research project that you design. If you do not have transportation to your internship during the week, you will need to design your own research project. **YOU are responsible for setting up your internship!**

*If you choose to participate in an internship, your summer assignment is to*

1. Research 3 positions that you are interested in. For each position, research the education requirements for the career, the average salary in this area, daily tasks and responsibilities, and write a reflection on why you are interested in the career and what you hope to gain from your internship experience if you get the position (basically a career journal). Include APA citations!
2. Write a generic cover letter that can be used for shadowing/internship positions. It should introduce yourself, explains why you are interested in the position, and what skills you have that you can contribute. Please be formal--you are representing Lassiter, STEM, and the PLTW Biomedical Program.
3. Write a resume that you can send along with your cover letters. It should be no more than one page and should look professional--no clip art or crazy graphics. Keep it simple. UVA has several good samples: <https://career.virginia.edu/resumes/creating-your-resume/resume-samples>
4. **Your cover letter and resume must be submitted to me by 6/24 so that I can approve them before you send them for positions! Please email to** [**lauren.jackson2@cobbk12.org**](mailto:lauren.jackson2@cobbk12.org)
5. Please make sure you tweak your cover letter for each position. You want to make sure that you are emphasizing skills that will be useful in that position. You must cc [**lauren.jackson2@cobbk12.org**](mailto:lauren.jackson2@cobbk12.org)on the email to get credit for it. **I recommend you also have a parent/guardian edit it before you send it so that you are making a strong first impression. You must send a cover letter and resume to 5 possible internship/shadowing positions by 7/17. You can of course send more, but the minimum is 5.**

**Again, you must follow the due dates in order to get full credit.**

*If you choose the design your own research project, your summer assignment is to*

1. Brainstorm 5 ideas for your research project. It can be research that is done in the classroom using any of the PLTW equipment or it can be research in a laboratory at a local university or college. KSU and GT have several interesting projects going on. Reach out to the professors if you see something that interests you. You never know what opportunities might come from it!
2. Choose your best two ideas and complete the following:
   1. Research question: What question are you trying to answer? Make sure it is specific! If you are participating in research in a lab, this may be a small project within a larger project that the lab works on. **Your research question must be novel and impactful. “**Which fertilizer helps plants grow the best” and comparable questions are below your level.
   2. Background: Find at least 5 sources about your research topic and summarize what is already known about your topic. In a cohesive manner, include:
      1. Justification- Why is your question important? Does it affect millions of people each year? Is it a major environmental concern?
      2. Background information-what basic information does the reader need before reading your paper? What previous studies have been done? What gaps still remain in the field that you hope to address?
      3. Brief summary of how you will address your question- What methods do you plan to use?
   3. Hypothesis: Make a prediction about what you expect the outcome to be **based on research**. It should not be a random guess. You will eventually have to do a literature review, so keep up with any good sources that you find. Blogs and wikipedia are not reliable sources and may not be used. Make sure it is clear what your independent and dependent variables are.
   4. Experimental design: Write an initial design brief that describes how you would approach this problem. This is just the initial design phase! I do not expect it to be perfect, but by now you know that you need to be as specific and descriptive as possible and that you include the appropriate controls. You need to include materials so that you know what you’ll need at the beginning of the school year.
   5. Citations: Any sources that you find need to be cited in APA format. I expect at least 5 per idea! At least 2 of them must be from a scholarly journal. Science, New England Journal of Medicine, Nature, PNAS, are all good places to start. Google scholar is a life saver.

\*Note: your research project may also be designing/building something or designing some sort of project/innovation that has a product outcome. For instance, I have seen students design a knee brace based on a particular medical condition, design a cancer treatment facility incorporating design that takes mental health into consideration. The goal is for you to research a problem and come up with a solution, but you must be able to gather some sort of **quantitative** data that you can analyze. It does not necessarily need to be traditional bench research. Feel free to think outside the box!