In order to be awarded full Sprayberry STEM academy honors and receive your cord at graduation, you must complete you're a senior STEM capstone project. Because we have three distinct STEM pathways, each of you have different passions and areas of expertise in different fields so there will be a few options in completing your capstone project.

Option 1: Problem Analysis: Research, formal report, and presentation
In this option you will choose to research a problem in a STEM related area. You will define the problem and determine the significance of why it should be studied. You will then conduct a literature review including but not limited to scholarly journals, academic websites, and books. After conducting the literature review, you will determine where there is a lack of research and what should be research moving forward. You will finish with a theoretical methodology on how the research would be conducted. This will all be in typed in a formal report written in correct APA usage. At the end of spring semester you will present your topic, research, and theoretical methodology to a panel of teachers, academics, and STEM community partners in a 10-15 presentation. Your paper and presentation will then be evaluated to determine if you meet the qualifications of representing Sprayberry as a STEM Scholar student.

Option 2: STEM internship and presentation
In this option you will be responsible for finding and completing an internship program in a STEM field. The STEM partner must be approved by me. You will need to complete a minimum of 100 hours of on-site experience to be completed by the end of March 21. Each week you will keep a detailed account of what you did on site along with the hours you completed that will be signed off by your mentor and turned in to my after competition of the internship. At the end of spring semester you will present your experience to a panel of teachers, academics and STEM community partners in a 10-15 minute presentation. You presentation will need to include (but is not limited to) how the internship is related to a STEM field, what were your expectations going into the internship, what were your responsibilities, what does the company/partner do that benefits STEM knowledge and experience, how have you grown as a STEM scholar through this experience. Your mentor's evaluation of your work along with your presentation will be evaluated to determine if you meet the qualifications of representing Sprayberry as a STEM scholar student.

Option 3: Engineering/Creation, and presentation
In this option you will be investigating a STEM problem that can be solved through a novel construction, either through manual construction or computer engineering (i.e app or software). You will define the problem and determine the significance of why it needs to be solved. You will then determine how to solve the problem and create the solution. You will thoroughly document your original plans, your work process, how you had to make changes along the way, and obviously, your finished construction/program. Your finished construction/program must be able to solve the original problem, or if it cannot, you must provide evidence to how it can be modified to meet the original needs. At the end of spring semester you will present your experience to a panel of teachers, academics and STEM community partners in a 10-15 minute presentation along with showcasing your construction/program. Your creation along with your presentation will be evaluated to determine if you meet the qualifications of representing Sprayberry as a STEM scholar student.

Tentative Timeline:
(note that dates are subject to change due to changes in scheduling due to COVID-19)

9-1-2020
Students must determine which option they are planning on pursuing

9-23-2020
Options 1 and 3: Initial Problems must be submitted to Dr. Oldham for approval
Option 2: Mentor/internship contact information must be submitted to Dr. Oldham for approval

10-30-2020
Option 1: Annotated Bibliography of a minimum of 5 different sources
Option 2: Deadline for internship/mentor program to be approved
Option 3: Initial draft/blueprint of design concept needs to submitted for evaluation

12-9-2020
Option 1: Annotated Bibliography of a minimum of 10 different sources (can include previous sources) from at least three different mediums, i.e. academic journals, dissertations, academic websites, books, etc. Must be in correct APA format
Option 2: Hours sheets/journal documentation due for fall semester
Option 3: Documentation of construction progress from fall semester

2-10-2021
Option 1: Methodology due
Option 2: Hours sheets/journals due
Option 3:Documentation of construction progress

3-10-2021
Option 1: Formal paper due
Option 2: All 100 hours of internship hours must be completed and forms turned in
Option 3: Documentation of completed construction

3-13-2021
All options: Presentations due to Dr. Oldham for approval

Week of 4-19 to 4-23
Students will sign up for a time to complete their 10-15 minute presentation with community members.