What is a STEAM Capstone Project?

A STEAM Capstone Project affords a student an opportunity to collaborate with a mentor or work independently to pursue a project that applies science, technology, engineering design, arts, and math to the real world in an area of interest to the student.

We encourage students to connect their projects to community issues or opportunities here in beautiful Gulf Shores, and to integrate real-world learning experiences, including interviews, observations, and collaborations with local businesses or academics.

Why should I complete a capstone project?

A STEAM Capstone Project is designed to prepare a student for university and business through the opportunity to plan, research, complete, and present a self-directed project reflecting a personal career or academic interest or a connection to the Gulf Coast.

A capstone project affords a student an opportunity to work with a mentor on a topic of interest and is a visible demonstration to our local community of a student's skills and abilities.

The project showcases above-and-beyond achievement on a student resume and college application and can be a differentiator for especially competitive college programs and scholarships.

An interdisciplinary project enables students to synthesize learning and apply skills or investigate issues across multiple areas of interest and demonstrate the most important components of their high-school learning.

Who is eligible to complete a project?

Students interested in doing a STEAM Capstone Project as part of the requirements for a Seal of Excellence in STEAM must do a project that includes the following components and meets the criteria described below.

Students interested in also pursuing a Seal of Excellence in Career and Technical Education (CTE) can use the same criteria described below to fulfill the CTE Capstone Project requirements. In other words, it is possible to do one project that fulfills both the CTE Capstone Project requirement and the STEAM Capstone project requirement for the Seals of Excellence. NOTE: Refer to the Course Catalog for other requirements to earn a Seal of Excellence.

Applied Design Academy students will complete the research-based STEAM Capstone Project as a requirement of the engineering curriculum during their 11th grade year.

GSHS students pursuing the Seal of Excellence in STEAM will complete their STEAM Capstone Project through a designated STEAM or CTE course. CTE courses where students could complete a STEAM Capstone Project include:

- Culinary Arts
- IT Fundamentals
- Engineering

- Introduction to Robotics
- Health Science
- Sports Medicine
- Hospitality and Tourism
- NJROTC

What Are the Requirements for a STEAM Capstone Project?

A STEAM Capstone Project has the following four components:

1. **PROJECT PLAN (PROPOSAL)**

   The student creates and implements a plan for an integrated STEAM project. The project should address a specific community need or opportunity in and around Gulf Shores.

   The project plan should show how the student will apply principles of science, technology, engineering, arts, and math to the real world in an area of interest to the student.

   The project plan should follow design thinking best practices, including the creation of real impact at the intersection of human desirability, technological feasibility, and business viability.

   The plan must culminate in any one of the following: a service, a physical product, a prototype, a design, a movie, a poster, a model, a sketch, a CAD file, a display, a computer program, a technology, an application of technology, a conceptual map, an analysis, a survey, or a patent filing.

   Projects that are not appropriate for a STEAM Capstone would be a paid job, shadowing a STEAM professional, a report or presentation based only on book or internet research, demonstrating or teaching a skill, creating a work of art or performance, serving as a mentor, tutor, or coach, or any non-STEM project.

2. **PAPER**

   A research paper that outlines background information, research methodology, data, results, and conclusions of the project.

   In addition to demonstrating an understanding of STEAM concepts and application of relevant practices, the paper showcases brilliant communication skills and stalwart scholarship, citing multiple credible and current sources.

3. **PORTFOLIO**

   The portfolio documents the process of completing the project and should include a reflection journal plus at least two other relevant forms of evidence of completion of requirements, such as: experimentation results, spreadsheets, data files, analyses, calculations, blueprints, drawings, surveys, interview results, audio files, video clips, images, the final paper, and a copy of the presentation.

   The reflection journal should demonstrate the design thinking process as a series of daily reflections, plans, notes, thoughts, sketches, images, ideas, brainstorms, matrices, contacts, hunches, tools, meeting notes, and conclusions.

   The overall portfolio should demonstrate documentation of the entire project in a clear and compelling format.

4. **PORTFOLIO**

Have fun and tell us what you learned!

This presentation isn't meant to be a boring, stiff, or dry event.

We want you to relax and be yourself as you tell the story to our learning community and our invited guests of what you set out to accomplish, what you learned along the way, and how you completed the project or failed to complete it.

The scientific and engineering design process matters most.

We want to celebrate failure to achieve a desired goal if you learned valuable lessons along the way and can communicate your learnings.

Your presentation should provide a summary of the research paper and give evidence of meeting the STEAM criteria in a professional manner. To earn STEAM Honors, the student must score a minimum of 80% proficiency on the paper, portfolio, and presentation components.