Name:

Re-Designing the Classroom

Phase 1: Research & Explore

Final Deliverable: Research Paragraph on Form Follows Function. Includes research & information on student questionnaire. Additionally includes items 'purchased' within budget. Research-based explanation of 'purchased' item for innovative artifact in Maker's Space.

Student Checklist:

- ❑ I have completed a student questionnaire.
- ❑ I have researched "best practices" in designing a traditional classroom.
- ❑ I have researched "best practices" in designing a maker's space.
- ❑ I have researched Maker's Spaces (including images) and the design elements that they can include.
- ❑ I have found reliable sources to include in my research paragraph.
- ❑ I have used my 'budget' to make proposed improvements to the Maker's Space. My budget has not exceeded the purchase of 10 items or the purchase price of $2000.
- ❑ I have written a paragraph, which includes information from the student questionnaire, best practices for designing Maker's Spaces, and my proposed purchases.

- ❑ All information included is backed by research and includes phrases such as "studies show" or "research states"
- ❑ My paragraph has been edited and is free from convention errors.

Phase 2: Design Process

Final Deliverable: Successfully scale classroom as a team.

Student Checklist:

- ❑ I have successfully scaled the classroom to an appropriate scale.
- ❑ My drawings of the classroom include measurement information.
- ❑ My drawings of the classroom are created in "plan" style.
- ❑ I have drawn the various elements in the classroom to scale
- ❑ I have made the elements of the classroom manipulable (cut out the pieces) so that I can re-design the space.
- ❑ I have included the 'purchased element' to scale on my 2D classroom.

Phase 3: Create and Solve

Final Deliverable: Manipulate classroom elements to analyze design options. Include image of detailed 2D model in final write-up.

Student Checklist:

- ❑ I have manipulated classroom elements in order to create a research-based prototype of the re-designed classroom.
- ❑ I have tested and collaborated on creating a classroom space.
- ❑ I have come to my own "best" design option and I have taken a photo of this design plan to include in my final write up.

Phase 4: 3D Model

Final Deliverable: Create a 3D Model of your architectural plan.

Student Checklist:

- ❑ <mark>I have designed a 3D model of the re-designed Maker's Space and my design is reflective of my 2D plan.</mark>
- ❑ I have provided an image of this 3D model in my final write-up.

Phase 5: Reflection

Final Deliverable: Reflection on iterative process of design and final design.

Student Checklist:

- ❑ I have included the reflection on the design process in my final write-up.
- ❑ I have engaged in the reflection process.
- ❑ My writing is free from convention errors.

Final Write-Up Outline

Paragraph 1 –2: Include findings from student questionnaire and research with references. Include r<mark>esearch-based explanation of 'purchased' item for</mark> innovative <mark>artifact in Maker's Space.</mark> 10-15 sentences.

- ❑ In my student questionnaire I interviewed several students who had very bold opinions on what they liked, disliked, and what they would like to see in this classroom if it were Re-Designed. They didn't like that the class was very full of shelves and tools on one end, and almost empty on the other end. Some things they did like were the shelves to hold backpacks and tools, as well as the T. V. for teachers and students to present to the class on. They suggested that we move the whiteboards closer to the tables and add extra tables and chairs throughout the classroom, as this would make the tables feel less crowded. Having a place to draw out designs and write down basic ideas for assignments and projects can help solidify your thoughts and allows you to make an **idea** into a **final plan**. Studies have shown that students are up to 10% more productive when they feel that they have their own personal space and work area, as they feel less distracted and stay on task more. More specifically, in 2019, it was reported that personal study space sharpens the mind and improves student concentration.

- ❑

- ❑ From what my fellow students suggested, I have decided to more evenly spread out the shelves and tool holders, and to move the whiteboard closer to the tables. I have also decided to add 2 extra tables and more chairs scattered throughout the classroom. This will make the classroom feel more spread out and give students more space. From the studies and surveys that I have read, I have realized what would make our Maker Space a better work environment, and what I need to purchase to make that happen. The 2 extra tables that I have

added to the classroom cost $387.02 ($193.51 each) and the 8 chairs I have bought to spread throughout the classroom cost $648 ($81 each), which brings us to a grand total of $1035.02 spent on my re-design of the classroom, with $964.98 left in my budget.

❑ Links for purchases:

Paragraph 3: Share your thought process on the re-design of the classroom during the planning and scaling phase. What design elements have you decided to change? How are you ensuring that form follows function? How has your prototype changed with collaboration? How have you both tested and refined the plans for this space? 5-7 sentences.

*I had one goal for my plan, was to make my Maker Space Re-Design a place where me and my fellow students would enjoy learning and could get work done efficiently. When interviewing my fellow students, their answers mostly followed the same structure of that the shelves, tables, and chairs are very squished together, and do not optimize all the space that we have been given in the room. After I interviewed them, I was able to blend and mix up my ideas for the Maker Space, and theirs. Taking their requests into consideration, my Re-Design has added and rotated the desks so that they all face a common place where the teacher can present to the students beside the T. V. Rotating them all this way, we utilize storage capacity, and open more space for bookshelves and tool holders to go. Then, with all the extra storage capacity, I moved around the shelves and tool holders to revolve around the tables. In doing this, I am making sure that our **Maker Space** has more room for students to **make things**, making sure that our Makers Space's form will follow its function. This gives the Makers Space more open space for students to sit, and evenly distributes the tool shelves.*

share image of plan
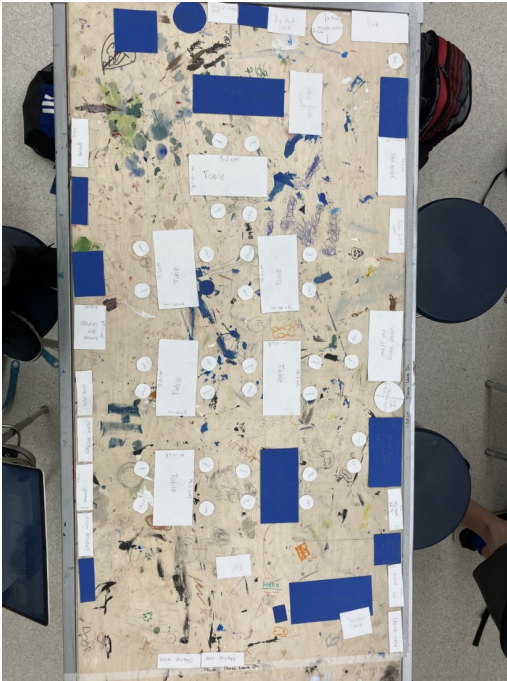
Paragraph 4: Reflection on the final project. Explain your redesign.

share an image/video of 3D model

When I first started this project, I did not know what my peers would want for the Re-Design. I asked the people in my group, and they suggested that I spread out the layout of the classroom, as it is very chaotically squished together. While choosing the purchases for **my Maker Space**, I kept this in mind. When making my 2D plan, I decided to add 2 extra tables and 8 extra chairs, to give students more space and room to work in, as this can increase productivity. When placing all the objects together in my 2D plan, I spread out the tool holders and bookshelves, as well as scattered the extra tables and chairs in an orderly fashion, which allows students to spread out, and not all clump around in one table. In the last couple of days in this project, I finally put my plans into motion, and made my 3D model. This model reflected my ideas for the Re-Design, my peers' ideas, and all the hard work I had put into the project in the weeks before. It also reflected my determination to Re-Design our Maker Space into a place where students could focus, learn, and express themselves in creativity.
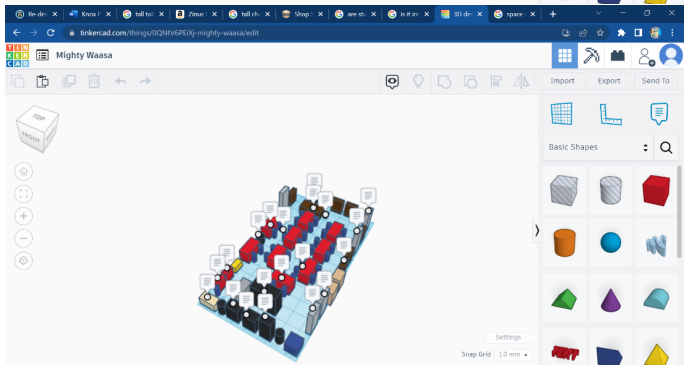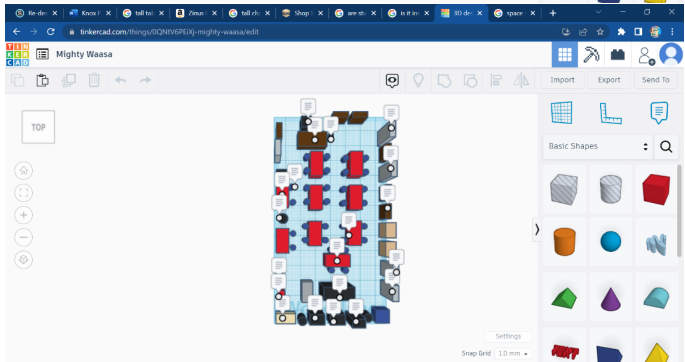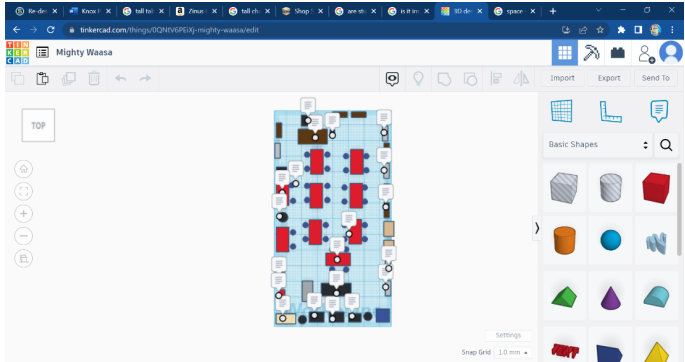
Rubric

Explore Criteria	Grading Scale			
Research Students plan and employ effective research strategies to locate information and other resource for their intellectual or creative pursuits.	**4** *Excellent*	**3** *Good*	**2** *Satisfactory*	**1** *Needs Improvement*
Data & Design Students can use data and research to identify trends and design opportunities	**4** *Excellent*	**3** *Good*	**2** *Satisfactory*	**1** *Needs Improvement*

Create and Solve Criteria	Grading Scale			
Design Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems. Students critically analyse design options to decide on the most promising solution.	**4** *Excellent*	**3** *Good*	**2** *Satisfactory*	**1** *Needs Improvement*
Build, Test, and Evaluate Students develop, test and refine prototypes as part of the cyclical design process.	**4** *Excellent*	**3** *Good*	**2** *Satisfactory*	**1** *Needs Improvement*

Showcase Criteria	Grading Scale			
2D & 3D Models Students effectively used plans and 2D models to create 3D models. Students explore multiple architectural design options by reconfiguring 3D and 2D Models.	**4** *Excellent*	**3** *Good*	**2** *Satisfactory*	**1** *Needs Improvement*
Communication of Ideas Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.	**4** *Excellent*	**3** *Good*	**2** *Satisfactory*	**1** *Needs Improvement*