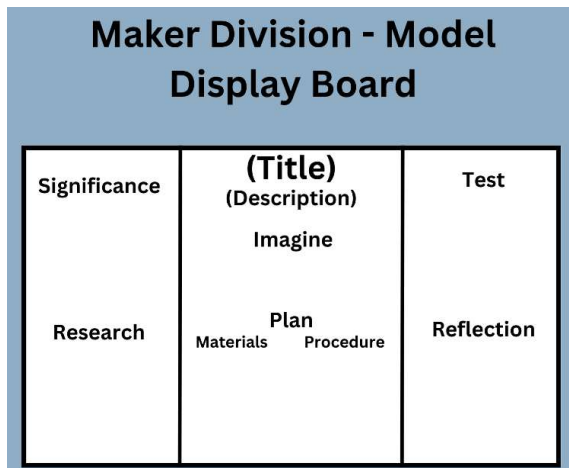## Project Overview:

Scientists and engineers use models to explain, test, and communicate new ideas. A model can demonstrate how something works, show key vocabulary and processes, or simulate a real-world system on a scale. For your project, you will research, design, build, and present a model that highlights your understanding of a chosen topic.

As you design, apply the elements of art, line, shape, color, texture, form, space, and value, to make your project both functional and visually engaging. Your model might be a scale model of the solar system, a coded program, a simulation, or a physical representation of a scientific or engineering concept.

Throughout the process, you will keep an engineering logbook to record your research, sketches, material lists, procedures, and reflections.

### Tri-Fold Board Expectations:

**Maker Division - Model Display Board**

| Significance | (Title)<br>(Description)<br><br>Imagine | Test |
|---|---|---|
| Research | Plan<br>Materials    Procedure | Reflection |

### Engineering Notebook Expectations:

- Define the problem
- Research notes
- Citations from research
- Sketches from planning
- Material lists
- Procedures for building
- Reflection

### Digital Presentation Expectations:

Students can choose to create a digital presentation in place of a tri-fold board. The presentation must include the following:

1. **Title Slide** – Include the project title, your name, and your teacher's name.
2. **Significance of Model** – Explain why your model is important and why you chose it.
3. **Research** – Share your research
4. **Imagine** – Sketch possible models you can create
5. **Plan & Model**– Show pictures of your model in action. Describe how it works, list the materials you used, and explain how you built it.
6. **Test** – Share test results or data and use key vocabulary to explain what you learned.
7. **Reflection** – Reflect on how your model could be improved and what you would change next time.

| Student Names: | | Grade: | |
|---|---|---|---|
| Teacher's Name | | Project Title: | |

| Category | Exceeds Expectations | Meets Expectations | Approaching | Beginning |
|---|---|---|---|---|
| **Title & Description (5)** | **5**<br>Creative, clear title and strong description of the model's purpose | **4**<br>Clear title and short description | **2-3**<br>Title or description is incomplete or unclear | **0-1**<br>No title or description |
| **Significance of Model (5)** | **5**<br>Thorough explanation of why the model/topic is important; connects to real-world relevance | **4**<br>Explains why the model is important | **2-3**<br>Gives a simple or vague reason | **0-1**<br>No explanation of importance |
| **Research (5)** | **5**<br>Includes detailed, accurate research with multiple credible sources; explains key terms, history, and significance | **4**<br>Includes accurate research with some key terms and details | **2-3**<br>Includes limited or partially accurate research | **0-1**<br>Minimal or no research |
| **Engineering Notebook (10)** | **10**<br>Complete with detailed notes, sketches, material lists, procedures, and thoughtful reflections | **8-9**<br>Includes most required sections; shows effort and organization | **5-7**<br>Missing sections or limited detail | **0-4**<br>Incomplete or missing logbook |
| **Imagine (10)** | **10**<br>Brainstorming shows multiple creative ideas and thoughtful consideration of materials | **8-9**<br>Shows more than one idea with some details | **5-7**<br>Shows only one simple idea with little detail | **0-4**<br>No brainstorming shown |
| **Plan (10)** | **10**<br>Detailed step-by-step plan with drawings or writing; easy for others to replicate | **8-9**<br>Clear plan but missing some details | **5-7**<br>Plan has limited steps or detail | **0-4**<br>Plan is missing or unclear |
| **Create & Build (20)** | **20**<br>Model is well-built, accurate, labeled, and visually engaging; strong application of art and design elements; originality evident | **15-19**<br>Model is complete, mostly neat, and labeled; some design or artistic elements used effectively | **10-14**<br>Model incomplete, messy, or lacking labels; minimal artistic effort | **0-9**<br>Model missing or poorly constructed |
| **Test & Reflect (10)** | **10**<br>Model tested thoroughly; reflection clearly explains outcomes, strengths, weaknesses, and improvements | **8-9**<br>Model tested with reflection on what was learned | **5-7**<br>Model tested but reflection lacks clarity or detail | **0-4**<br>No testing or reflection shown |
| **Presentation (Trifold or PowerPoint) (10)** | **10**<br>Presentation is polished, organized, and engaging; student demonstrates deep knowledge and confidence | **8-9**<br>Presentation is complete and clear | **5-7**<br>Presentation is missing parts or difficult to follow | **0-4**<br>Presentation incomplete or unclear |
| **Artistic Expression (5)** | **5**<br>Student skillfully integrates multiple elements of art; originality and creativity make the work both functional and visually engaging | **4**<br>Student includes some elements of art with clear effort toward visual appeal | **2-3**<br>Minimal effort toward artistic quality; little evidence of elements of art | **0-1**<br>No attempt to use artistic elements |

**\*\*Students/Teachers are to complete the top portion of this form and make sure it is attached to the STEAM Fair project for judges to reference, all scores are entered through the shared digital scoring form.\*\***