**Magnet Biology- STEM/STEAM Project**: **2019**

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|  | **Science** | **Engineering- NEW 2019** | **Arts- NEW 2019** |
| **Turn In #1:**  **Idea (proposals)**  ~Feb 11 | Research proposal (see blog). Must include control, experimental group(s), independent & dependent variables | Thorough paragraph explaining the biological concept/ process and what you plan to construct (with sketch). | Thorough paragraph  Explaining the biological  concept/ process  and what you plan to create  (with sketch). FYI- typical  ‘Cell Models’ are NOT an  option |
| **Turn In #2:**  **Specific Plan of Procedures & Implementation**  ~Feb 28 | Introduction and Methods (detailed procedure of how you will collect quantitative data) | Engineering Plan/ Storyboard | Design Plan |
| **Turn In #3:**  **Check in**  \*TBD- likely the last week of March | Results (Data Charts & Graphs) | Prototypes (may take a video & share with me on google drive) | Video- Must be shared with  me on google drive |
| **Turn in #4:**  **STEAM Symposium**  **April 25** | Trifold Poster with your Procedures & Results (including pictures) and Formal Lab Report (procedure will be given on blog) | Physical Product and Trifold poster with your ‘timeline’ of procedures, construction & assembly (with pictures) | Final Presentation (*this will*  *vary, depending on your*  *product*); Likely will include  a trifold boardand/or:  Video/ Prezi/ PPt |
| **Turn In 5:**  **Logbook** | Science Logbook. Should include all dates data was collected and pictures throughout the duration. \*Recommended: do these in a ‘bound’ Composition Notebook | Engineering Logbook. Should include a minimum of 1 entry/ week (with specific dates) detailing your progress. Pictures must be included. \*Recommended: do these in a ‘bound’ Composition Notebook | Organized ‘Cornell style’  Notes  (chronological order, meaning  a ‘timeline’, and be sure to  date all entries) of your ideas,  progress on reaching your  final ‘product’ & revisions that  were made along the way.  \*Recommended: do these in  a ‘bound’ Composition  Notebook |

**SCIENCE:**

Perform a controlled experiment. NO VERTEBRATES may be used under any circumstances! Data collected must be quantitative with MULTIPLE trials. Detailed instructions are on my blog, so review the procedures thoroughly *(\*this project was the only option in previous years*).

**ENGINEERING:**

Design and engineer a ‘solution’ to a real-world ‘problem’ that pertains to biology (ex- an ecological issue)

<https://www.thisiscolossal.com/2018/10/system-001/>

**ART:**

Create a product (ex: a painting) that ‘mimics’ a process or significant ‘event’ in living things (animals, plants, bacteria, etc.)

<https://www.thisiscolossal.com/2018/11/sea-turtle-kinetic-sculpture-by-derek-hugger/>

Read this regarding science in the news or ‘big data’ visualized as art. The product must ‘convey a message’, about science in the news (or in politics)

<https://www.thisiscolossal.com/2014/07/a-sculptural-cloud-of-plastic-bottles-to-illustrate-one-hour-of-trash-in-nyc/>

***Other fine arts ideas:***

**DANCE:**

Dance your phD… <https://youtu.be/0nqhopRhju4>

Read and interpret a scientific journal article

Choreograph a piece to communicate the scientific findings

**MUSIC:**

AVTS: Create a science youtube channel

Must work with audio, visual, etc.

**THEATER:**

Many plays have been written about scientific history (These Shining Lives, Photograph 51)

* Write a script
* Perform by doing your own interpretation via a monologue or scene

\*Other unique STEM/ STEAM ideas will be considered, but only if you give clear, concise and THOROUGH details in your FIRST SUBMITTED PROPOSAL.

A bibliography/ works cited page must be included for each project (EVERYONE will be required to do some research). Must be in APA format.

**ALL PROJECTS MUST BE YOUR OWN WORK**. Experts in each field will be reviewing and critiquing your projects. Taking an ‘easy way out’ will be reflected in the grade you receive (project is 10 % of your final grade, which is ~ 2 test grades).

***~ Five projects/ class will be selected to present at the STEAM Symposium***. This will be based on the results of turn-in #3 (see the above chart)