**MESA DAY 2019-20**

ENGINEERING LAB BOOK REQUIREMENT

**TEMPLATE**

NAMES:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 *(team member names)*

SCHOOL:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

CENTER: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

PROJECT: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

  *(e.g. MESA Machine, Prosthetic Arm, etc.)*

LEVEL (circle one): 6th gr 7/8th gr 9/10th gr 11/12th gr

1. **IDENTIFY THE PROBLEM**

*What is the challenge being worked on?*

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*What are the limits/constraints?*

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*How do you think you can you solve it?*

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1. **EXPLORE**

*Find out what others have done (research). Clearly list at least 5 sources (web pages, articles, books, etc.). Identify (cite) and describe each one (one sentence).*

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| Source #1Citation:Description:Source #2:Citation:Description:Source #3:Description:Source #4:Description:Source #5:Description: |

1. **DESIGN**

*Brainstorm ideas (at least 3) and record them. Include a sketch or drawing for each.*

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| Idea #1: |
| Idea #2: |
| Idea #3: |

*Select one of the ideas and describe a plan for building it (at least 5 sentences).*

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*Generate a list of materials for the prototype.*

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1. **CREATE**

*Using your plan, build your prototype (at least five sentences) Include a picture of the actual project prototype built.*

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1. **TRY IT OUT**

*Test your idea/prototype. Describe at least 3 trials/attempts. Use tables/charts as needed.*

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| Test #1:Criteria:Results: |
| Test #2:Criteria:Results: |
| Test #3:Criteria:Results: |

*\*Teams may include additional tables, graphs and charts of their own. Teams are not limited to only using the graph and table shown here.*

*Use of mathematical concepts/equations:*

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| Applicable math concept/equation (state concept/equation):How was the concept/equation used?(demonstrate use of concept/equation as it pertained to project): |

|  |
| --- |
| Applicable math concept/equation (state concept/equation):How was the concept/equation used?(demonstrate use of concept/equation as it pertained to project): |

1. **MAKE IT BETTER**

*How can you make the project better? What modifications will you be making (state at least 5)?*

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| Modification/Improvement #1:Modification/Improvement #2:Modification/Improvement #3:Modification/Improvement #4:Modification/Improvement #5: |

*Build and prepare competition ready project. Include a picture below.*

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