**STEM Fair Project Schedule**

**Group: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Block: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| **Check off when complete:** | **Date completed** | **Teacher Initials** |
| 1. Find a Real World problem to solve & connect to a mentor
 |  |  |
| 1. Research & Imagine:

Design model/prototype & get approvalDevelop model or prototype |  |  |
| 1. Plan investigation & get approval

Carry out investigation(Use “I” voice) |  |  |
| 1. Analyze and interpret data using mathematical & computational thinking

(Use “I” voice) |  |  |
| 1. Redesign solution/model/prototype & retest

(Use “I” voice) |  |  |
| 1. Create an argument from evidence

(Use “I” voice) |  |  |
| 1. Peer Review & Bibliography
 |  |  |
| 1. Mentor collaboration
 |  |  |
| 1. Obtain, evaluate and communicate info on a Display Board
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| 1. Online reflection & schedule complete
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1. **Define a Real World problem to solve & connect with a mentor:**

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| **Answer the following questions:** | **Y** | **N** |
| Is the topic original, or does the project present an original variation to a commonly done project? |  |  |
| Have they connected, found a contact or plan to connect with a mentor online or in person to give them advice? |  |  |
| Has the student avoided the topics listed in the table below? |  |  |



1. **Research & Imagine: Design, develop and use a models or prototype**

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| **Answer the following questions:** | **Y** | **N** |
| Has the student identified all the necessary key terms/vocabulary for their topic? |  |  |
| Does their research provide the necessary information to design, build and test their model? |  |  |
| Are there at least three sources of information that can easily be found on the subject? |  |  |
| Does the student have enough time to design, build and test their model before it is due? |  |  |

1. **Plan and carry out investigation**

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| **Answer the following questions:** | **Y** | **N** |
| Are the changes to the independent/dependent variables measurable using a number that represents a quantity such as a count, length, width, weight, voltage, time, etc? Or, just as good, is the variable one that is simply present or not present? Ex. Lights on in one trial, then lights off in another trial |  |  |
| Is it possible to control other factors that might influence the data that is collected during the experiment, so that they do not interfere with the results? |  |  |
| Is the experiment safe to perform? |  |  |
| Are the independent and dependent variables measurable? |  |  |
| Has the student identified all relevant dependent variables, and are they caused by the independent variables (are they dependent on the independent variables)? |  |  |
| Has the student identified all relevant controlled variables? |  |  |
| Can all controlled variables be held constant during the experiment? |  |  |
| Is the hypothesis based on research? |  |  |
| Does the hypothesis include the dependent and independent variables? |  |  |
| Has the hypothesis been worded in such a way that it can be tested? |  |  |
| Are all necessary materials described and included in the list? |  |  |
| Are the procedures listed in a clear, logical order, like a recipe that can be followed by someone who is not familiar with your set up? |  |  |
| Does the procedure detail the number of times to repeat the experiment (should be at least three times), and is that number of repetitions sufficient to provide reliable data? |  |  |
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| Approval to conduct test? |  |  |

1. **Analyze and interpret data using mathematical & computational thinking**

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| **Answer the following questions:** | **Y** | **N** |
| Is there sufficient data to know that your hypothesis is correct? |  |  |
| Has the data been summarized with an average (if appropriate)? Are all calculations correct (if necessary)? |  |  |
| Are the charts labeled properly, clearly labeling data types collected and units of measurement? |  |  |
| Has the appropriate graph type been selected (bar graph, line graph, best fit line, etc)? |  |  |
| Does the graph have a title, are the axis labeled (including units)? |  |  |
| Is the independent variable on the x-axis and the dependent variable on the y-axis? |  |  |
| Is the data plotted correctly and clearly on the graph? Does the graph have the proper scale? |  |  |
| Is the solution original, creative or a combination of existing innovations? |  |  |
| Is the model structurally correct? Or described? Has there been good attention to detail? |  |  |
| Is the model labelled in a clear manner? Does the model show a demonstration of deep knowledge and/or engineering? |  |  |

1. **Redesign solution, model and/or prototype**

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| **Answer the following questions:** | **Y** | **N** |
| How can you improve your solution? If time, make adjustments and try again!! |  |  |
| Does the student summarize and evaluate the procedure or innovation, making comments about its success and effectiveness? Sources of error? Improvements? |  |  |
| Does the student suggest changes in the experimental procedure and/or possibilities for further study? |  |  |

1. **Create an argument from evidence**

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| **Answer the following questions:** | **Y** | **N** |
| Does the student summarize the results and use it to support the findings? |  |  |
| Does the conclusions state that the student proved or disproved his/her hypothesis? |  |  |
| Has an effective solution to a problem been devised? |  |  |
| Does the solution have clear human benefits, advancement of knowledge, and/or economic applications? |  |  |

1. **Display board: Obtain, evaluate and communicate information**
* Title
* Problem
* Model/prototype
* Investigation & Redesign
* Analysis & Interpretation
* Conclusion: Argument from evidence
* Acknowledgements & Bibliography

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| **Answer the following questions:** | **Y** | **N** |
| Are the sections on the display board organized like a newspaper so that they are easy to follow? |  |  |
| Is the text font large enough to be read easily? |  |  |
| Does the title catch people’s attention and is it large enough to be read from across the room? |  |  |
| Do you use pictures, graphs, and diagrams effectively to convey info about the project? |  |  |

1. **Bibliography**

|  |  |  |
| --- | --- | --- |
| **Answer the following questions:** | **Y** | **N** |
| Are there at least three sources? |  |  |
| Are there a variety of sources (journals, papers, websites)? |  |  |
| Are the sources of information relevant to the project topic and do they cover the critical terms and concepts for the project? |  |  |
| Does each of the sources include all of the information necessary to properly identify the source (author’s name, the title, the date and where it was published)? |  |  |
| Optional: Has the proper format been followed for each of the sources?Use an APA style online generator to help you create your bibliography.Ex. <http://www.citationmachine.net/apa/cite-a-website> |  |  |