A close up of a sign

Description automatically generatedPaulding County High School

Academy of Science Research and Medicine

STEM Certified Magnet Program

STEM JOURNAL – Engineering Design Process Format

Required – Graphing composition book

Project/Problem Based Learning (PBL) –

Claim Evidence Reasoning (CER) -

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| --- | --- |
| Academy  of | Ask a question based on a natural or scientific phenomenon. |
| Science | State your claim after collecting evidence and data. This a single sentence that shows a relationship between the independent and dependent variable. Can be written as an If \_\_\_then \_\_\_ statement. |
| Research  & | Research your question by collecting data and making calculations. Data should be recorded in tables. Graphs should be made to display your data. Use your data and evidence to state your claim. |
| Medicine | Make your conclusions and improvements. Your conclusion should show how or why the data are relevant and support the claim. You should justify why the evidence is important to the claim. Your conclusion should always indicate the relationship to one or more scientific or math principles. Describe how you would modify and make improvements to future experiments. |

STEM Notebook Order –

1. Ask the question.
2. Research your question.
3. State your claim.
4. Make your conclusions and improvements.

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| --- | --- | --- | --- | --- |
|  | 1 point | 2-4 points | 5-7 points | 8-10 points |
| Ask a question. | The question is not written in STEM journal. | ------------------- | ------------------- | The question is stated at the start of the process in the STEM journal. |
| State your claim. | Claim completely missing. | Claim not written as a single sentence and relationship of independent and dependent variables is not clear. | Claim not written as a single sentence or relationship of independent and dependent variables is not clear. | Claim is written as a single sentence. Clearly shows the relationship between the independent and dependent variables. |
| Research your question by collecting data and making calculations. | No data or calculations written. | Minimal data recorded and calculations do not show all work. | Moderate data recorded and calculations do show some work. | Data recorded throughout experiment. All calculations are shown and worked out. |
| Tables and graphs | No tables or graphs made. | Tables or graphs missing or partially made. | Graphs and tables of relevant data are present but not labeled properly. | Graphs and tables of relevant data are labeled properly. |
| Make your conclusions and improvements. | No conclusions or improvements made. | Your conclusion is missing 1 or more of the following components:  -explaining the relationship between the evidence and claim.  -using specific relevant evidence.  -showing the relationship to one or more scientific math principle. | Your conclusion somewhat explains the relationship between the evidence and the claim. You use some examples of evidence in your justification. Somewhat show the relationship to one or more scientific or math principles. | Your conclusion clearly explains the relationship between the evidence and the claim. You use specific examples of relevant evidence in your justification. Clearly show the relationship to one or more scientific or math principles. |
| Make your conclusions and improvements. | Improvements to future experiment missing. | Vague improvements addressed. | Improvements addressed and somewhat specific. | Improvements for the next steps are described. |

STEM Notebook Rubric