8th Grade STEM Summer Science Project 2023

Summer Preparatory Physical Science Project (7th grade into 8th grade year)

DUE the First week of school to your Science Teacher

STUDENT NAME: _____

Scientific Summer!

This coming year in science you will be learning all about matter. You will be investigating the physical and chemical properties of matter in order to explain how matter changes (both physically and chemically), how matter interacts to form molecules and compounds, how to describe matter in motion using Newton's three laws, and how matter is involved in the transfer of energy!

As you can see you will be busy this upcoming year and the first step in becoming a great chemist/physicist is being able to connect what you do on a daily basis to science. For your summer STEM project you will be analyzing an activity you participated in this summer and relating it to a physical science concept.

For your project you will need to:

A. Explain what is scientific about what you did and how it relates to chemistry and/or physics.

1. Identify an activity you did that directly relates to a topic in physical science (physics, chemistry, engineering, biochemistry, etc.)
2. Describe what you did in paragraph form. Be specific!
3. Explain how your activity relates to a concept in chemistry, physics, or engineering. Refer to specific scientific principles and ideas (Newton's 2nd Law, gravity, electricity, blood flow, energy, chemical reactions, pH, reactivity etc.). Be sure to use correct scientific terminology and connect it to a direct science concept (**this may require some research*****). For example, if you went to an amusement park this summer you can connect your experience on the rides to energy conversions, gravity, friction, and the conservation of energy. If you spent a lot of time on the water this summer you could research water chemistry along with both the physical and chemical properties of the water.
4. All written parts must be typed or written in blue or black ink.

B. Develop a testable claim and collect data/evidence that relates to the scientific concept(s) you discussed in part A.

a. Develop a scientific claim statement and identify your independent and dependent variables for the data you are collecting.
b. Organize your data in a data table with labels.
c. Explain how the data you included enhances your discussion of the science concepts from part A. For example, if your project is about baseball and your project focuses on Newton's laws of motion, you could collect data to see how mass affects the acceleration of the baseball.
d. Include a graphical representation of your data to help support your scientific explanation.
e. Write a concluding statement that confirms or rejects your scientific claim.

C. Create a visual. Use pictures of yourself doing the activity to create a presentation (poster, storyboard, Google Slides**) that displays your activity, your scientific explanation, and the data you collected to support your claim.

D. Prepare a presentation. Be prepared to participate in a gallery walk during the first week of school to present your project.

** Any researched information must be cited to avoid plagiarism. Please include all references (books, websites, etc.) that you used for the report on a separate page title "Works Cited". List the title of the book and/or the website you used in alphabetical order.*

Any digital presentation must be done in a program that can easily be shared with your 8th grade science teacher

***Support can be provided for these projects on Wednesday, July 12 and/or Monday, July 17 (2023) at KCMS from 9:30am-1:00pm. Ms. Markosian will be at KCMS willing to help work on projects.

Be creative and have fun with this assignment. As long as you can connect your activity to a physical science concept you will have met the requirements for the project! If you have any questions during the summer you can email Mrs. Clark @ cclark@kent.k12.md.us

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STUDENT NAME: _____

This project is worth one *summative grade* and will be scored using the following rubric:

Topic	6	4	2	1
Description	Project includes a detailed description of the activity in paragraph form (5 or more sentences). The description highlights all of the key ideas of the scientific activity you participated in over the summer.	Project includes a description of the activity in paragraph form. The description highlights some, but not all, of the key ideas of the activity you participated in over the summer.	Project includes a vague description of the activity in paragraph form and briefly highlights some of the key ideas of the activity you participated in over the summer.	Project does not include a description of the activity in paragraph form and only briefly highlights some of the key ideas of the activity.
Science Connection	Project includes a detailed connection to a physical science topic in a well-developed paragraph. Description is detailed and includes information that explains the specific science concept and uses correct scientific terminology that supports the discussion.	Project includes a description connected to a physical science topic in paragraph form (5 or more sentences) but is missing some detail. Description is somewhat detailed and includes some information and scientific terminology that explains the specific science concept.	Project includes a vague connection to a physical science topic that is not in paragraph form (5 or more sentences). Description lacks detail and does not include information that explains the specific science concept. Description also lacks scientific terminology.	Project includes a vague connection to a physical science topic and it is not in paragraph form (5 or more sentences). Description is missing important details and does not include information or key scientific terminology that explains the specific science concept.
Data	Data is organized in a data table that is easy to read and analyze. Student crafted a testable claim and correctly identified the independent and dependent variable. Data is relevant, accurate, and enhances the scientific claim/activity. Graphical representation of data is correct.	Data is organized in a data table that is easy to read and analyze. Student crafted a testable claim and correctly identified the independent and dependent variable. Data is relevant, accurate, and enhances the scientific claim/activity.Graphical representation of data is mostly correct.	Data is organized in a data table. An effort to develop a testable claim was made. Student identified the independent and dependent variable with mistakes. Data is incomplete or is missing key details that would enhance the scientific explanation/activity. Graphical representation of data contains mistakes.	The claim created is not relevant and/or not testable. Data is incorrect and does not enhance the scientific explanation. Graphical data is either missing or is incorrect.
Visual	Project effectively uses visuals to enhance the project. Visuals connect directly to the topics discussed and reinforce the major science concepts included.	Project includes visuals that enhance the project. Visuals connect to the topics discussed but do not reinforce the major science concepts included.	Project includes a few visuals that connect to the project. Visuals do not directly connect to the science concepts and do not reinforce the major science concepts included.	Project includes almost no visuals. Visuals do not connect to the science concepts and do not reinforce the major science concepts included.
Organization/ Polish	Report is organized and neat. It is either typed or written in blue or black ink. Correct usage of grammar and spelling are displayed.	Report is somewhat neat. It is grammatically flawed but uses professional language	Report is grammatically flawed, but an attempt was made to use professional language.	Report is riddled with grammar errors and misspelling.
References	Sources are cited correctly.	Quotes and sources cited but may have errors.	A few quotes are cites	Quotes are not cited. Source citations are incorrect.

TOTAL POINTS EARNED /36: _____