The Physics of Everyday Stuff

Physics 30 Project – Student Directed Study

**Outcome:**

**PH30-SDS1** Create and carry out a plan to explore one or more topics of personal interest relevant to Physics 30

Have you ever wondered why the sky is blue? Or what the science is behind the perfect jump shot? Or how everyone manages to stay in their seats during a rollercoaster ride? Or any other regular everyday activity or phenomena?

Yes?! Well here is your chance to explore anything and everything about the Physics of Everyday Stuff!

**Task:** To research the physics behind an everyday object, activity, or experience of personal interest to you. Then present those findings to your teacher and classmates in a format of your choice.

If you need help deciding what type of project you want to do, go to my website mswarnockv.weebly.com to find useful links and ideas for you project. Look under Science > Physics 30 > Resources.

1. **Project Proposal – Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Your Proposal includes:

* You focus question. What is the “stuff” you are going to focus on?
* What you are hoping to learn. What will you ‘get’ out of the project? What questions will the project answer?
* How does your topic relate to physics? Have you chosen a topic that relates to the outcomes of Physics 30?
* How do you plan on presenting your findings?
  + Video
  + Poster
  + Prezi/Powerpoint
  + Experiment with explanation
  + Scale Model with explanation
  + Website
  + Pamphlet
  + Other
* What materials and/or resources do you need to finish the project?

1. **Project Outline – Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Now that you know what your project is about, how are you finding the information? What have you learned so far?

* You need to have consulted at least 5 credible sources that are cited in MLA
  + How did each of these sources help you
* What new questions do you have?
* What are your next steps? What is left to do?

1. **Rough Draft – Due Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Your project should almost be done!

* You need to include all research and a detailed outline of your final project
* What do you have left to do?
* By handing in a rough draft you will receive valuable feedback that will help you create a more polished project.

1. **Final Submission – Due: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

You will be required to complete and present your project before your Departmental Exam in January. All work must be submitted on time.

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| --- | --- | --- | --- |
| **Category** | **Scoring Criteria** | **Total Points** | **Score** |
| **Topic** | There is a clear **Focus Question** that falls under the topic of “The Physics of Everyday Life”  The focus question relates to at least one of the main Physics 30 outcomes. | 5 |  |
| **Content** | Introduction:   * Topic, focus question, hypothesis (if relevant), and overall direction of project is given | 5 |  |
| Makes detailed and relevant observations through experiments and/or thorough research   * All aspects of the physics involved in the activity/experience are present   (Kinematic, Energy, Nuclear, Theoretical, Electrical, Magnetic, etc.)   * All relevant equations/definitions are present * A deeper understanding of the topic is clear based on the data presented | 50 |  |
| Conclusion:   * Includes a summary of what was learned in the project * Restates the focus question and how it was answered | 5 |  |
| **Research** | * A variety of CREDIBLE sources have been used (at least 5) * Credit is given to the original source and documented properly * Any direct quotes are cited in text | 15 |  |
| **Product** | **Product format** chosen is appropriate given the material and effectively communicates explanations | 5 |  |
| The product:  Student Directed Study Evaluation Sheet:  The of Physics of Everyday Stuff   * Is easy to follow * Free of any grammatical or spelling errors * Neat, clean and attractive * Uses graphics and/or videos appropriately and with purpose | 5 |  |
| **Presentation** | Presentation is:   * Voiced clearly * Organized * Practiced (ex. Not just reading directly from the slides, etc.) | 5 |  |
| **Self - Assessment** | Self-assessment is completed after presentation with reference to areas of strength and improvement. | 5 |  |
|  | **Total Points** | **100** |  |

ProjectProposalForm

*For my Inquiry Project I will be working on/my topics is/my focus question is:*

***Questions that stem from this topic – will drive your research:***

I am going to do the following to show my knowledge (Something using new computer skills: Prezi, iMovie, etc. Something you create: Something physical, an experiment, etc. – the options are vast – all you have to do is discuss it with me):

**Self-Assessment – The Physics of Everyday Stuff**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |
| --- |
| **Something I feel like I did really well on for this project is…..** |
|  |
| **Something I feel that I could have improved upon is……..** |
|  |
| **On a scale of 1 – 5 how much effort do you think you put into this project:** |
| **1 - 2 - 3 - 4 - 5** |

**Exemplars:**

**Physics of Sailing:** <https://docs.google.com/presentation/d/18olw_TxJjJt3BHRSNOc0QmLZt0KqtL-mC7Cd9trZVEA/edit?usp=sharing>

**Physics of Pool:** <https://docs.google.com/presentation/d/1pLff1q870LH4Y6vk86Q5UMEA_nb5Hki4UJ88nkViQLo/edit?usp=sharing>