Linked Learning Fall 9th grade project

Our goal for you, as a 9th grader, is to be able to think scientifically. This means to gather, organize, represent, and analyze/interpret data. This will help you to start thinking about appropriate tests to answer a question before communicating the results.

**Question**: How can you implement a SMART goal for exercise to improve your physical health?

You will create a hypothesis to answer the essential question, develop a SMART goal to test that hypothesis and test that goal for the next 10 weeks. During that time you will collect data. At the end, you will analyze your data and draw conclusions. Your product will be in the format of scientific lab report.

All of your work will be kept in your scientific notebook, which you will turn in with your final paper.

**Project Timeline**

|  |  |  |  |
| --- | --- | --- | --- |
| **Section** | **Description** | **Due date** | **Teacher signature** |
| **LAUNCH** |  | September 11, 2017 |  |
| **Hypothesis (**background introduction**)** | If…..then statement with variables, citations | September 12/13, 2017 | Biology Teacher |
| **SMART goal (**procedure**)** | \*You may use the Fitness Gram as a physical health goal | September 14/15, 2017 | Health Teacher |
| **Weekly progress checks**  *Students have an advisor, who they will conference with each week regarding their progress. Advisors expect to see:*  *1) Student calendar highlighting what they have done and what they plan to do for the next 2 weeks, 2) data collection and 3) progress reflection.* | \*Tracking progress (how much and when) on Fitness Gram and data table  \*Reflections which include:   * How did you meet your goals-what was easy, what was difficult, and how did you overcome the difficulties? * What did you learn about yourself?   \*Revisit hypothesis and revise as needed | September 21/22, 2017  September 28/29, 2017  October 5/6, 2017  October 12/13, 2017  October 19/20, 2017  October 26/27, 2017  November 2/3, 2017  November 8/9, 2017 | Advisor |
| **Final data table, graphs and data analysis** | \*Typed with Excel spreadsheets | November 16/17, 2017 | Math teacher |
| **Draft of paper in lab write-up format including conclusion and abstract** | A conclusion connects results to hypothesis and next steps. The abstract is the claim, 3 pieces of evidence (both qualitative and quantitative) and reasoning that supports the evidence to the claim. | November 27, 2017 | Advisor |
| **Final paper** | Typed-12 font, 1 inch margins, double spaced, graphs and data tables embedded within text | December 4, 2017 | Advisor |

S.M.A.R.T.

* Specific
  + Explains how to safely and effectively do the chosen exercise(s)
  + Calendar showing times/dates of exercise, sets/reps, and intensity when applicable
* Measurable
  + Describes **quantitative** measurement that will show how well the exercise plan worked
  + Calendar shows when progress is being checked (includes baseline)
  + Measurements are taken at the start, throughout the project, and at the end.
* Attainable
  + Possible/practical/reasonable for the student to accomplish, given all circumstances
  + Includes **intrinsic** and **extrinsic** motivators
* Relevant
  + Explains how improvement would help in any aspect of the student’s life
  + Exercise must be something new or more than what the student has already been doing
* Time-bounded
  + Includes calendar with planned exercises and measurements

Week 1

**Background / Introduction**

What is the **purpose** of this self-experiment, and why is it important?

* Explain your goal, in general?
* Identify the type of exercise your goal involves (Muscular Strength, Muscular Endurance, Cardiorespiratory Endurance, Flexibility), and describe its definition in your own words.
* Explain how this goal **relevant** to you (why did you choose this goal)?
* Explain all of the ways this exercise project benefits you (consider physical, mental, social, and academic benefits)?
* What other skills does this project help you develop?

What is your **hypothesis**?

* Use an “If I…, then…” statement.
* Be very **specific**, including what you can do now and what you want to be able to do.
* Make sure your goal is both **measurable** and **attainable** for you.
* Include the duration (length of **time**) of this project and frequency (how often) of your exercises.

Week 3

**Methods**

What did you do?

* Explain what specific exercises you did and how to properly perform the exercises (refer to PE teacher).
* Include your warm-ups and cool-downs.
* Include when, how often, and where you exercised.

What support did you have, and how did you stay motivated?

* Explain what challenges you needed to overcome and how you did so, including how you made time for your exercises.
* Describe all of the things that motivated you to stick with your plans to exercise. Be specific!

How did you measure your progress?

* Explain how you kept track of your planned exercises.
* Explain what kind of quantitative (numbers) data you collected.
* Explain what kind of qualitative data you collected to describe your experiences throughout the project.

Week 10

**Results / Data Analysis**

* Create a data table and line-graph of your measurements
  + Include the title, independent variable, and dependent variable on both.
  + Include the properly labeled x and y axes with appropriate units.
  + It should be clear what the numbers represent without reading the rest of your report.
* Summarize your quantitative data (in words, explain the graph as though you’re talking to a blind person.
  + Consider the shape/slope of the graph, the highest and lowest measurements, the starting and ending measurements, etc.
* Describe your quantitative data (explain your experience, physically and mentally throughout the project).
* Include comments about any changes to the methods you made throughout the project.

Week 11

**Discussion / Conclusion**

* Re-state your hypothesis, and explain how your results compared to your specific goal.
* Explain why you got the results you did, including anything unexpected in the **Results** section.
* Explain what you could have done better (be specific!), and how doing so would affect your results.
  + If you had difficulty staying motivated, you should focus on this question a lot.
* Explain how you feel about continuing the exercises after this project and what you could do differently.
* Explain what you gained/learned throughout the project (refer to the benefits you mentioned in the **Background / Introduction** section).
* Give advice to someone, based on your experiences with this project.

**Abstract**

* In 150-250 words, summarize your whole lab report, including the most important information from each section.
* Note: the **Abstract** will be on its own page by itself, before the **Background / Introduction** section.