



**United Nations Sustainable Development
Goals Open Pedagogy Fellowship
“Home Science Investigations”
Sample Assignment
SDG Goal #4: Quality Education**



Introduction

People try to explain the phenomena of our world scientifically through investigation and experimentation. Although this is often depicted to occur in sterile labs with white coats and beakers, science can be performed anywhere and by anyone! In this class, instead of unit tests, you will be conducting your own scientific investigations based on our class content.

Throughout this course, you will select a concept of your choice that we have already examined, and you will explore it further with a hands-on investigation of your own. You will be surprised to find how many experiments can be completed at home with easy to find, everyday objects!

Learning Objectives:

- Demonstrate/investigate a scientific concept in a familiar, everyday setting
- Analyze how scientific explanations apply to this new setting
- Communicate your process, observations and conclusions to a wider audience

Part 1: Everyday Science (50%)

1. Select one of the concepts that we have been covering in class during the last few weeks.
2. Find a way to demonstrate this concept on your own with everyday materials, or a way to investigate it in a new context. If you are uncertain about the type of investigation you would like to carry out for this assignment, consider visiting the following resources:

Possible Demonstrations:

[Steve Spangler Science](#)

[The Exploratorium](#)

[Physics Girl](#)

[BBC Earth Lab](#)

[Scientific American](#)

Possible Investigations:

[Science Buddies - Physics Ideas](#)

[Science Buddies - Environmental Science Ideas](#)

[All Science Fair Projects](#)

[PhyPhox: Using your smartphone for physics experiments](#)

Keep in mind that these ideas are starting points, but you are free to make variations to the project you choose as you wish as long as you feel you are being challenged. You can also combine multiple ideas into a single project, if you wish!

3. Carry out this demonstration/investigation independently or with friends and family. Science is a social endeavor and the observations and reflections of others may deepen your understanding of the activity while also making it more enjoyable. .
4. Keep a record of the following:
 - What was your original idea?
 - What materials did you use?
 - What did you do, specifically?
 - What did you observe?

Take photos or a video of your investigation for Part 2. If you were working with someone else, you might want to have them record their own observations and answers to each of the above questions (optional).

Part 2: Share your findings (50%)

You can present your findings through a video, a narrated slideshow, or a blog-type post. Your presentation should:

- explain the science concept you were investigating and why you chose it
- describe your investigation in detail (your answers to the questions in Part 1)
- explain how your investigation relates to what you learned in class

Other items to include, if appropriate: any problems you encountered, techniques that had to be refined, surprises, or suggestions for future investigations. You will share your final presentations with a small group of your classmates during class.

Originality	15 pts Unique and original	10 pts Adds to existing experiment		5 pts Performs existing experiment		0 pts Did not do work
Difficulty	20 pts Science Hero	10 pts Hard	5 pts Moderate	2.5 pts Easy	0 pts Exceedingly Easy	
Science Communication	10 pts Above & Beyond	9 pts Meets Expectations	8 pts Minor Issues	7 pts Some Issues	6 pts Many Issues	0 pts No credit
Visual Presentation	5 pts Complete Visual Evidence of Experiment		3 pts Some Visual Evidence		0 pts No Visual Evidence	
Relevance	5 pts Relevance Explained		2.5 pts Relevance Apparent		0 pts No Relevance	
Followed Directions	5 pts Perfect	4 pts One Issue	3 pts Some Issues	2 pts Many Issues	0 pts Missed a lot of directions	

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