

SPACEWALK PROJECT GUIDELINES

Physical Science III

You Quarter Project will have three phases. Phase I helps you to lay the preliminary groundwork for your study and product. Phase II reflect on the process of creating your product. And, Phase III provides you with the opportunity to answer your diving question via the Claim-Evidence-Reasoning model and prepare for your “Spacewalk” presentation.

I hope you thoroughly enjoy this opportunity to dig deeply into this scientific study of your choice! I look forward to helping you!

PHASE I

Below are the steps you must tackle in order to successfully complete Phase I. The preliminary work for these steps must be completed in your notebook. Final determinations and understandings should be typed into a Google doc for Steps 3-5. Your document should begin with a title. A full page must be dedicated to your title. And, use the following headers for each section: Driving Question, Background, and End Product. Here is a visual of what Phase I will look like. You may need to use more pages.

1
<p>Project Title Your Name(s) Course Title Thorp High School Due Date</p>

2
<p>PHASE I</p> <p>Driving Question</p> <p>Write your paper here. Write your paper here.</p> <p>Background</p> <p>Write your paper here. Write your paper here. Write your paper here.</p> <p>Write your paper here. Write your paper here. Write your paper here.</p> <p>Write your paper here.</p> <p>Write your paper here. Write your paper here.</p>

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<p>paper here. Write your paper here. Write your paper here.</p> <p>Write your paper here. Write your paper here. Write your paper here. Write your paper here.</p> <p>Write your paper here. Write your paper here. Write your paper here.</p> <p>Write your paper here. Write your paper here. Write your paper here.</p> <p>Write your paper here. Write your paper here. Write your paper here.</p> <p>Write your paper here. Write your paper here. Write your paper here.</p>

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<p>Write your paper here. Write your paper here. Write your paper here.</p> <p>End Product</p> <p>Write your paper here. Write your paper here. Write your paper here.</p> <p>Write your paper here.</p> <p>Write your paper here. Write your paper here. Write your paper here.</p>

Step 1. Complete the 20/20 Vision Task

Begin by completing the 20/20 Vision Task. For this activity, you will make a table that includes two columns. The left column should have 20 Sensory and Intellectual Observations and the right should have 20 measurable I Wonder Statements.

Step 2. Choose a Topic of Interest

Evaluate your 20/20 Vision Table. You may choose your most favorite observation or statement, and this observation or statement will serve as the inspiration for your study. Or, you can think of an activity or concept that you enjoy and relate astronomy to it. Regardless of how you choose it, your topic of choice you must address one of the following learning elements (see #1 and #2 below) that relates to Earth's place in the Universe (WSS SCI.ESS1):

- 1) The Universe and Its Stars (WSS SCI.ESS1.A)
 - a) How light spectra from stars are used to determine their characteristics, processes, and lifecycles.
 - b) How solar activity creates the elements through nuclear fusion.
 - c) How the development of technologies has provided the astronomical data that provide the empirical evidence of the Big Bang theory.
- 2) Earth and the Solar System (WSS SCI.ESS1.B)
 - a) How Kepler's laws describe the common features of the motions of orbiting objects.
 - b) How observations from astronomy and space probes provide evidence for explanations of solar system formation.
 - c) How cyclical changes in Earth's tilt and orbit, occurring over tens of hundreds of thousands of years, cause cycles of ice ages and other gradual climate changes.

Step 3. Create a Driving Question

Great driving questions: make you want to learn something new; connect to your life; require research, investigation, and reflection; lead to debate and discussion; and with diligence and dedication are answerable. Some driving question stems have been listed below to help you to formulate the driving question for your project. Or, you may choose to use the Driving Question tool (see Mrs. Steinbach) to create your question.

- How can ____ improve ____?
- How can ____ be applied to ____?
- How can ____ change ____?
- How would I design a new ____?
- How does ____ affect ____?
- What impact did/does ____ have on ____?
- What makes a good/effective ____?
- How do/does ____ impact my community?
- What is the relationship between ____ and ____?
- What would ____ be without ____?
- If I were in charge of ____, what would I change?
- How can I use ____ to inspire ____?
- What if ____?
- How might my community change if ____?

Step 4. Conduct Background Research

Determine and define key terms and concepts that are related to the topic of your study.

It is IMPORTANT that you cite any source (e.g., book, online, article, classroom, etc.) you use to help you in your background research. These sources must be reliable and accurate. Use APA format. Your Resources must be listed on the last page of your Google doc (see Phase III later in this guideline document).

- Parenthetical Citation
 - Paraphrased Idea
 - The normal adult resting heart rate ranges from 60 to 100 beats per minute (Laskowski, 2018).
 - According to Laskowski (2018), normal adult resting heart rate ranges from 60 to 100 beats per minute.
 - Direct Quote
 - “The normal resting heart rate for adults ranges from 60 to 100 beats per minute” (Laskowski, 2018, p. 1).
 - According to Laskowski (2018), “normal resting heart rate for adults ranges from 60 to 100 beats per minute” (p. 1).
- Reference List

Please see [Purdue University OWL](#) for citation help with all reference types (e.g., journal articles, books, online content, etc.).

 - Webpage or Online Content
 - Laskowski, E. R. (2018). Heart Rate: What’s Normal? – Mayo Clinic. Retrieved from <https://www.mayoclinic.org/healthy-lifestyle/fitness/expert-answers/heart-rate/faq-20057979>

Step 5. Prepare a Project Product Description

What product will you create to showcase your newfound understandings? A product may be a constructed object, scientific experiment, service, podcast, system, work of art, script, video, an invention, event, an improvement to an existing product, etc. Once you have chosen the type of product you will create, craft a paragraph or two that describes your end product. (NOTE: After you have a complete and proficient product, all team members will professionally present their projects to an audience of fifth and/or sixth grade students. We will call this presentation event a “Spacewalk.”)




Step 6. Conduct a Peer Review

Upon completion of Phase I, students will conduct a peer review using the following form.

<p>Phase I Peer Feedback</p> <p>Team Being Reviewed: _____</p> <p>Reviewer: _____</p> <p>I/We like...</p> <p>I/We wonder...</p> <p>Next steps...</p>

PHASE I CHECK-LIST*Physical Science III*

Project Manager(s): _____

Phase I Tasks	Quality		
	 It's Missing	 Please Revisit	 Good Start
<input type="checkbox"/> Completion of the 20/20 Vision Task			
<input type="checkbox"/> Learning Element Project Will Address (<i>circle</i>): #1 or #2			
<input type="checkbox"/> Creation of a Challenging Driving Question			
<input type="checkbox"/> Completion of Thorough Background Research			
<input type="checkbox"/> Proper Listing and Citation of Resources			
<input type="checkbox"/> Proper Formatting of Phase I Paper			
<input type="checkbox"/> Proper Spelling and Grammar			

PHASE II

Below are the steps you must tackle in order to successfully complete Phase II. The preliminary work for these steps must be completed in your notebook. Final determinations and understandings for Step 9 should be typed into the Google doc you started for Phase I. Use the following header: Product Reflection. Below is a visual of what Phase II will look like. You may need to use more or less pages.

6
PHASE II
Product Reflection
Write your paper here. Write your paper here. Write your paper here.
Write your paper here. Write your paper here. Write your paper here.
Write your paper here. Write your paper here. Write your paper here.
Write your paper here.
Write your paper here. Write your paper here. Write your paper here.

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Write your paper here. Write your paper here. Write your paper here.
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Write your paper here. Write your paper here. Write your paper here. Write your paper here.
Write your paper here.
Write your paper here. Write your paper here. Write your paper here.

Step 7. Maintain a Work Log Through Notebook Entries and/or a Scrum Poster

Throughout the process of creating your end product, you will record your journey in your notebook. This will be done through Daily Meeting Notebook Entries and keeping a Scrum Poster

- **Daily Meeting Notebook Entry**
Each class period will start with a daily meeting that takes no more than 5-7 minutes. Before you begin your meeting, each person must prepare for the meeting by answering the following questions in his/her notebook:
 - What is today's date?
 - What have I accomplished since the last meeting?
 - What am I going to work on between now and the next meeting?
 - What issues or concerns do I have about the project?

- **Scrum Poster**

The purpose of this poster is to maintain effective collaboration and organization during a complex project. Below is a visual representation of a scrum poster.

PBI stands for Project Backlog Interface and identifies the features of your project.

PBI's	To Do	In Progress

Fun Facts:

- Scrum is a term used in the game of Rugby. It is a method of restarting play that involves players packing closely together in order to get possession of the ball.
- Scrum posters are used in industry, most notably to complete complex software design projects.

As you add project features to the “PBI’s” column, related tasks must be written down on post-it notes and placed in the “To Do” column. When a team member works on a select task, he/she should write his/her name on the post-it note and move it into the “In Progress” column.

Step 8. Peer Review

When your project product is complete, students will conduct a peer review using the following form. After evaluating your feedback, return to Step 7 to make any adjustments and/or improvements.

<p>Phase II Peer Feedback</p> <p>Team Being Reviewed: _____</p> <p>Reviewer: _____</p> <p>I/We like...</p> <p>I/We wonder...</p> <p>Next steps...</p>
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Step 9. Write a Product Reflection

When you have your final project product complete, you will reflect on your experience by answering the following questions.

- As compared to your “End Product” vision in Phase I, what major aspects did you change in the development of your end product? Why?
- Did you encounter any limitations? Explain.
- If you could complete this project again, would you change anything? Explain.
- What worked really well? Explain.

PHASE II CHECK-LIST*Physical Science III*

Project Manager(s): _____

Phase II Tasks	Quality		
	 It's Missing	 Please Revisit	 Good Start
<input type="checkbox"/> Notebook Entries			
<input type="checkbox"/> Work Log and/or Scrum Poster			
<input type="checkbox"/> Complete and Proficient Product			
<input type="checkbox"/> Completion of Product Reflection			
<input type="checkbox"/> Proper Formatting of Phase II Paper			
<input type="checkbox"/> Proper Spelling and Grammar			

PHASE III

Below are the steps you must tackle in order to successfully complete Phase III. The preliminary work for these steps must be completed in your notebook. You are tasked with answering your diving question via the Claim-Evidence-Reasoning model and preparing for your “Spacewalk” presentation. Step 9 should be typed into the Google doc you created for Phase I and II. Use the following header: Scientific Explanation. Page 8 below is a visual of what Phase III will look like. You may need to use more or less pages. (Remember page 9 was created as part of Phase I.)

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<p>PHASE III</p> <p>Scientific Explanation</p> <p>Write your paper here. Write your paper here. Write your paper here.</p> <p>Write your paper here. Write your paper here.</p> <p>Write your paper here. Write your paper here.</p> <p>Write your paper here. Write your paper here.</p> <p>Write your paper here. Write your paper here.</p> <p>Write your paper here.</p>

9
<p>Resources</p> <p>Author Last Name and First Initial(s). (Date). Resource Title. Etc.</p> <p>Author Last Name and First Initial(s). (Date). Resource Title. Etc.</p>

Step 10. Write a Scientific Explanation

When you have your final project product complete, you will reflect on your experience by answering your driving question, providing evidence from your project to support your answer, and explaining why the evidence you chose supports your answer to your driving question. Be sure to use key terms and concepts learned during this project in your explanation.




Step 11. Prepare your “Spacewalk” Presentation

You will need to prepare for our “Spacewalk” event. This event will be conducted in a gallery walk style. In other words, you will be charged with actively engaging your audience in order to help them to build their knowledge and higher-order thinking in regard to astronomy.

PHASE III CHECK-LIST

Physical Science III

Project Manager(s): _____

Phase III Tasks	Quality		
	 It's Missing	 Please Revisit	 Good Start
<input type="checkbox"/> Completion of Scientific Explanation			
<input type="checkbox"/> Proper Formatting of Phase III Paper			
<input type="checkbox"/> Proper Spelling and Grammar			
<input type="checkbox"/>			

SPACEWALK PROJECT PACING GUIDE

DATE

GOAL

JANUARY

Monday, 1/28/2019 *No School, Weather*

FEBRUARY

Monday, 2/4 *No School, Weather*

Monday, 2/11..... Complete PHASE 1 STEP 1 and Start STEP 2

Monday, 2/18..... Complete PHASE 1 STEP 2 and Start STEP 3

Monday, 2/25..... *No School, Weather*

MARCH

Monday, 3/4 *No School, Spring Break*

Monday, 3/11..... Complete PHASE 1 STEP 3 and Start PHASE 1 STEP 4

Monday, 3/18..... Complete PHASE 1 STEPS 4-5

Friday, 3/22 First Peer Review (STEP 6) & Instructor Review, Graded

Monday, 3/25..... Work On PHASE 2 STEP 7

APRIL

Monday, 4/1 Complete PHASE 2 STEP 7

Monday, 4/8 Complete PHASE 2 STEP 7

Monday, 4/15..... Complete PHASE 2 STEP 9

Monday, 4/22..... Complete PHASE 3 STEP 10

Monday, 4/29..... Complete PHASE 3 STEP 10 and Start PHASE 1 STEP 11

Friday, 5/3..... Second Peer Review (STEP 8) & Instructor Review, Graded

Monday, 5/6 Complete PHASE 3 STEP 11

MAY

Monday, 5/13..... PRESENT PROJECT