



Background Research Plan Worksheet

Name: _____

1. What is the **question** you are going try to answer with an experiment?

2. List the **keywords** and phrases from your question and the topic in general. (Hint: Use an encyclopedia to help you)

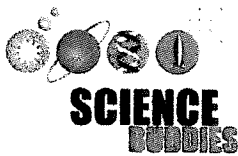
3. Now use your keywords to build some **questions to guide your background research**. Develop at least two or three from each “question word.” Don’t worry about whether you already know the answer to the question—you’ll find the answers when you do your background research. And don’t forget to “network” with knowledgeable adults who can help guide you toward good materials!

Question Word	Possible Questions (you can think of others)	Substitute your keywords (or variations of your keywords) for the blanks in the previous column. Write down the relevant questions and use them to guide your background research.
Why	Why does ____ happen? Why does ____ ? Why _____ ?	
How	How does ____ happen? How does ____ work? How does ____ detect ____ ? How does one measure ____ ? How do we use ____ ? How _____ ?	

Question Word	Possible Questions (you can think of others)	Substitute your keywords (or variations of your keywords) for the blanks in the previous column. Write down the relevant questions and use them to guide your background research.
Who	Who needs ____? Who discovered ____? Who invented ____? Who ____?	
What	What causes ____ to increase/decrease? What is ____ made of? What are the characteristics of ____? What is the relationship between ____ and ____? What do we use ____ for? What ____?	
When	When does ____ cause ____? When was ____ discovered? When ____?	
Where	Where does ____ occur? Where does ____ get used? Where ____?	

4. To analyze the results from experiments you might need to know some **key formulas or equations**. Think about your own experiment and write down any step or task that requires a formula or equation. Don't worry about whether you already know what the formula or equation is—you'll find the actual equation when you do your background research.

List steps or tasks that may require a formula or equation:



Grading Rubric: Science Project Research Plan

Name:		Date:	
0 = No Evidence 1 = Some Evidence 2 = Clearly Evident			
Has the student identified all the keywords in the science fair project question?	0	1	2
Has the student developed a complete list of research questions using the question word table?	0	1	2
Have all irrelevant questions been thrown out?	0	1	2
Will the answers to the research questions provide the necessary information to design an experiment and predict the outcome?	0	1	2
Do one or more of the research questions specifically ask about any equipment or techniques needed to perform an experiment? (if applicable)	0	1	2
Total Score: (To convert to 100 points scale: Total Score x 10)		<u> </u> /10	
Comments: 			

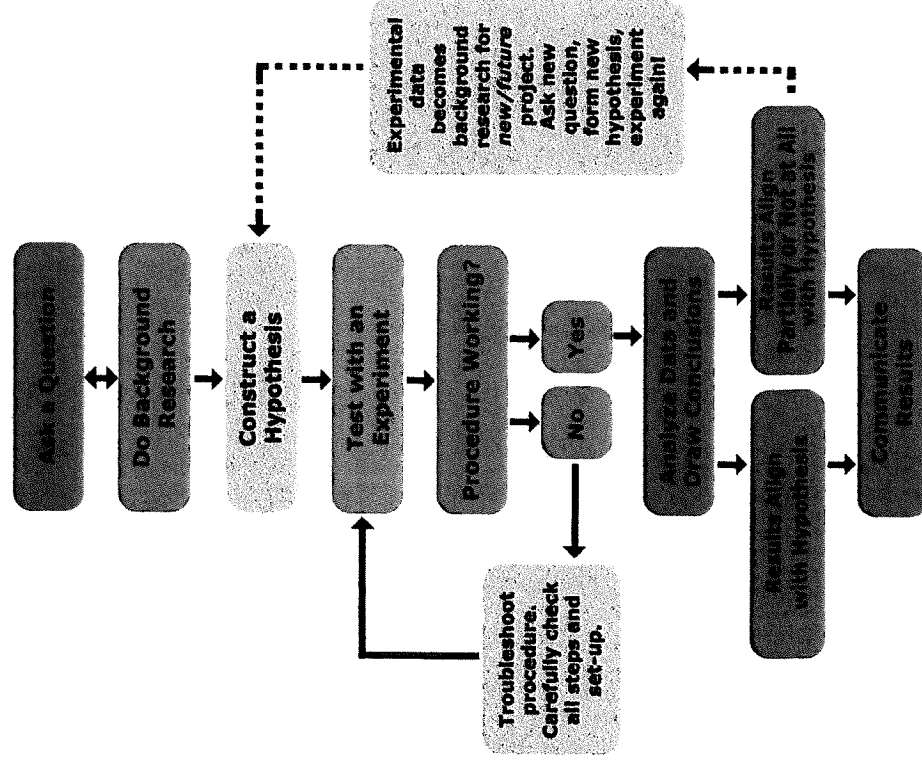
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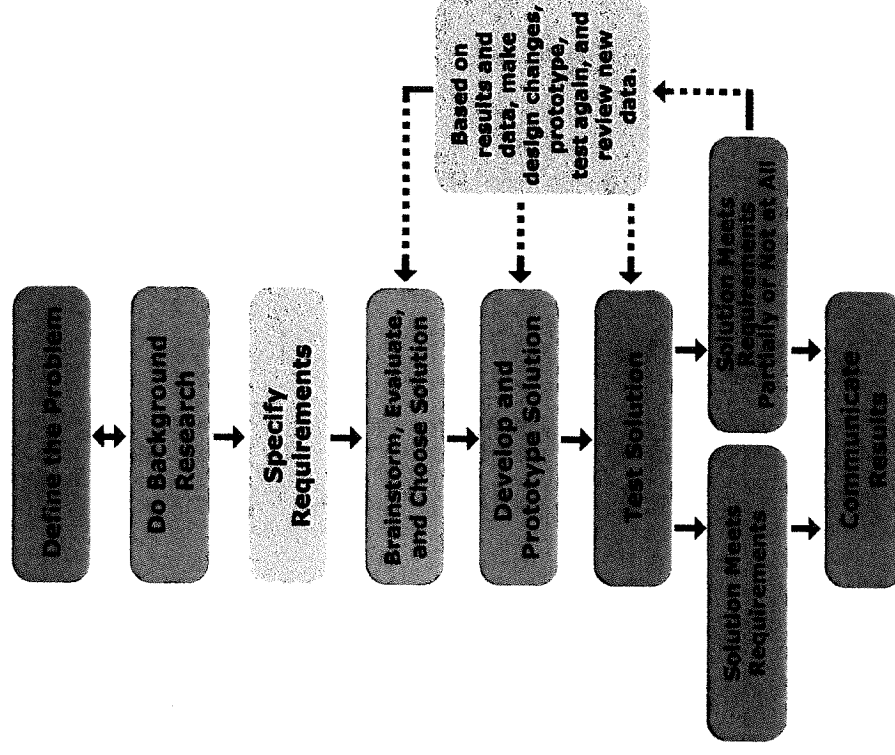
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Comparing the Scientific Method and the Engineering Design Process

Scientific Method



Engineering Design Process



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