

**Ask-A-Scientist Office Hours Worksheet**

*Please fill in the two boxes below.*

| Name: |  |
| --- | --- |
| Date of the Office Hours: |  |

Instructions on completing the worksheet

The worksheet was designed to help you reflect on your research design and research progress so far. The information will prepare you and our scientist for the office hours session. Completing and submitting the worksheet is **COMPULSORY**. Please send your completed worksheet to ask-a-scientist@emerginginvestigators.org **five business days** before the session. Your registration for the office hours will only be confirmed upon receiving your worksheet submission. If you have difficulty submitting the worksheet on time, please email us so we can help whenever possible.

* Respond to the questions appropriate to your stage of the research process.

The overall worksheet structure should work whether you are planning your project or have been working on it. Questions, however, are differentiated using the symbols below to gather information appropriate to your stage. You only need to answer the one(s) appropriate to your case.

**Research in the planning stage** (e.g., background reading, hypostasis refinement, and research design)

**Research in the implementation stage** (e.g., conducting experiments; gathering, analyzing, and interpreting data; and manuscript preparation)

* Try to complete as many sections as possible.

Providing sufficient information in the worksheet would lower the time needed for you to explain to our scientist the basics of your research during the session and maximize the time allowed for discussion. Please, at least, finish all sections relevant to the discussion you plan for this office hours session.

* Remember to indicate the aspects you want advice on.

If you are unsure about one aspect of the research or want to have some feedback on your design or progress, please list your questions at the end of the corresponding section, where you are reminded to do so with a question mark symbol.

As much as we want to help you with all questions, there is a 30-minute time limit for one session. If you want to make sure some questions are addressed, please indicate the priority for these questions.

**Section 1** Background of your research

1. **Please describe your research questions. Why are these questions interesting to you and/or important to society?**
2. **Please state your hypothesis.**
3. **Is your hypothesis based on some preliminary observations in life, theories read about in books and articles, or findings of existing research in the field?**
4. **Can you provide a list of key readings that you have completed for the project and feel useful for us to have the necessary background knowledge?**

It would be best if the readings were hyperlinked. Items in your list need not be formatted following a specific style, but please be reminded that JEI adopts a modified version of MLA8 format. Please refer to our [referencing guidelines](https://emerginginvestigators.org/submissions/references) for more details.

1. **Have you conducted a literature review for your project? Have you found scholarly pieces** (e.g., research articles, dissertations, and theses) **relevant to your research topic?**

**If so, are there inconsistencies in their findings? Is the existing research limited in some ways? How would your research contribute to addressing the inconsistencies and mitigating the limitations?**

| Help with solid fillDo you have questions about laying a foundation for your project? |
| --- |

**Section 2** Experimental design and data collection

1. **Types of sources of data**

| Aspiration with solid fill | * What data do you need to test the hypothesis?
* Will the data be gathered first-hand or sourced from existing databases?
 |
| --- | --- |
| Building Brick Wall with solid fill | * What data have you collected? How were they collected (first-hand or from a database)?
* Is the data on hand sufficient to verify the hypothesis? If so, are your data limited in some respects? If not, what data are you planning to collect?
 |

1. **Please recount your methods for gathering data with adequate details. Depending on the nature of your project, these may include, e.g.,** experiments, surveys, simulations, analysis of non-numerical data (sometimes using computer algorithms), etc.
	1. **How were the methods chosen** (e.g., designed yourself or adapted from other published studies)**?**
	2. **Are all the required recourses and instruments available?**
	3. **Can you share the reasons for the key experimental decisions** (e.g., selecting a solution concentration)**? Has the validity of the methods been tested** (e.g., a questionnaire measuring what it is designed for)?
	4. **Are there known limitations in the methods adopted? If so, what are they?**

| Aspiration with solid fill | The above questions apply to the methods you plan to adopt. |
| --- | --- |
| Building Brick Wall with solid fill | Please consider the above questions with the procedures that have been performed and are planned in mind. |

| Help with solid fillDo you have questions about experimental design and data collection? |
| --- |

**Section 3** Data analysis and visualisation

1. **Data processing**

| Aspiration with solid fill | Will the raw data be converted into or used to derive another measure? Why is the processing necessary? |
| --- | --- |
| Building Brick Wall with solid fill | * Have the raw data been converted into or used to derive another measure? Why was the processing performed?
* Were the raw data modified (e.g., smoothened or having data points dropped)? How would the modification be justified?
 |

1. **Statistical analysis**

| Aspiration with solid fill | What statistical tests will you perform? Why would you choose these tests? How will you interpret the test results? |
| --- | --- |
| Building Brick Wall with solid fill | What statistical tests have you performed? Why did you choose these tests? What do the test results tell you? |

If you are uncertain about what statistical analysis to perform and how to do it, our [statistics guide](https://emerginginvestigators.org/documents/stats_guide) will give you a gentle introduction. You can then explore a wealth of online materials for a deeper understanding.

1. **Data visualization**

| Aspiration with solid fill | How will you display your results? Why would certain ways of presentation be used (e.g., figures versus tables, scatter plots versus boxplots)? |
| --- | --- |
| Building Brick Wall with solid fill | * How have you visualized your results? Why did you choose the current visualization method over other alternatives?
* Please include the plots and tables you have made below if you want feedback on this aspect.
 |

Data visualization does not end with making a table or plotting a figure. Extra formatting and captioning are necessary for your visualizations to be ready for submission. See our [guidelines for formatting visualizations](https://emerginginvestigators.org/submissions/figures) for more ideas.

1. **Experimental uncertainty**

| Aspiration with solid fill | * Will you repeat the procedures multiple times?
* Are there any anticipated uncertainties related to the methods adopted? Can the methods be refined in any way to reduce experimental uncertainty?
 |
| --- | --- |
| Building Brick Wall with solid fill | * Were the procedures repeated multiple times? Are the results consistent? What might have contributed to the discrepancy?
* Are there any uncertainties in your results? Can they be addressed with refined experiments?
 |

| Help with solid fillDo you have questions about data analysis and visualization? |
| --- |

**Section 4** Data interpretation and discussion

1. **Have you found some results reported in existing studies that can be compared with yours? If so, please list the reported results.**
2. **Comparing results with predictions and previous findings**

| Aspiration with solid fill | * What results will support your hypothesis?
* Could the results be influenced by other uncontrolled or uncontrollable factors? If so, can the influence be minimized with a refined experimental design?
 |
| --- | --- |
| Building Brick Wall with solid fill | * Are your results consistent with those in the existing studies? Are there any inconsistencies? What might have caused the differences?
* Are your results supportive of the hypothesis? If not, what might have caused the hypothesis to be refuted?
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1. **Should your findings be considered with other limitations in mind? How would these limitations affect your results?**
2. **Reflecting on your research project, do you have suggestions for future research on similar topics?**

| Help with solid fillDo you have questions about data interpretation and discussion? |
| --- |

**Section 5** Additional questions

Please list additional questions that you would like to discuss but find hard to fit into the preceding sections.

| Clapping hands with solid fill**Great job completing this worksheet!** Clapping hands with solid fillPlease email the completed worksheet to the Ask-A-Scientist team (ask-a-scientist@emerginginvestigators.org) to confirm your office hours registration. We look forward to meeting you there. |
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