

Manifold Lab Part A: Pocket Exploration

I. CONDUCTING YOUR INVESTIGATION

As first-time investigators of the *Manifold*, **your research group has been awarded a *Pocket Exploration Grant*** by the NSF. This grant comes with access to one *Pocket* of the *Manifold*, and the set of scientific equipment you are already familiar with: distance measurement tools, force meters, universal spatial anchors, and temporal perception adjustment modules (time-freezing powers).

As part of the *Pocket Exploration Grant*, **your group proposed to explore your pocket of the *Manifold***, conduct an initial study of the matter found there, and report your results back to the NSF and your peer research groups.

This hypothesis-generating study of your *Pocket* is similar in nature to the Minty Particle lab. In your research group's proposal to the NSF, you promised to construct a model of the interactions between particles of the new matter you encounter, generating hypotheses that can be tested by other researchers.

II. REPORTING YOUR RESULTS

The NSF has specific requirements for what should be included when reporting your results. This report should be formatted according to the [Overleaf template](#) you have previously used, and satisfy the criteria described in the [hypothesis-generating report rubric](#).

Here are some suggested report elements to include to get you started:

- Description of the distinct type(s) of matter found in your *Pocket*;
- Identification of physical relationships observed in the interactions between entities in your *Pocket*;

- Where appropriate, data describing these physical relationships, and representations of these relationships in mathematical form(s) suggested by the data.

As every *Pocket* is unique in its own way, the expected content and details of formatting of this report beyond the criteria above are yours to define. Each research group is the expert in the matter found in their *Pocket*, and can describe their *Pocket's* matter **in the way that they feel best reduces their data to succinct findings**. Reports may include videos, screenshots, etc. if appropriate.

In addition to the hypothesis-generating report rubric, there are some specific criteria your report must satisfy:

- Your report must offer a qualitative description of the behavior of your phenomena (how would you describe your observations in the first 30 seconds in the *Pocket*?)
- Another research group must be able to reproduce the experiments you document in your report.
- Your findings must be testable by your peer researchers (because you will be testing each others' findings).

III. NEXT STEPS

Upon submission of your *Pocket Exploration Grant Report*, the NSF sends it for peer review and requires authors to participate in the peer review of other reports. Based on the state of the report following peer review, the NSF program manager will decide whether to accept or return your submission.

To ensure adequate time for peer review, all *Pocket Exploration Grant Reports* are due midnight the day BEFORE lab.

Should the NSF return your *Pocket Exploration Grant Report* submission, they will provide instructions to help ensure its acceptance after revision.