

# NASA's Deep Impact Mission: Decision Making

## Defend This!

### STUDENT PRESENTATION GUIDE

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#### BACKGROUND INFORMATION

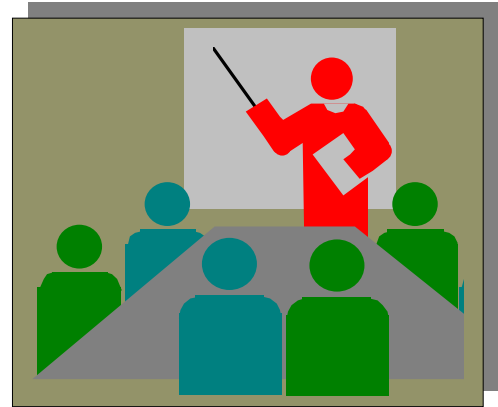
In this activity, you and your group will build a case for a particular observation strategy, and a presentation that you will use to inform and convince others in the activity that follows.

Use your group's research on its chosen observation strategy from the last activity to prepare your presentation, as well as a defense that takes into account the cost, risk and benefits, and quality (meeting science objectives). Your group's presentation should include a specific plan that includes the observation strategy and arguments and evidence supporting the use of the strategy. You should give specific details for implementing that strategy, techniques and methods for communicating your group's assertions and ideas, as well as pros and cons (risks versus benefits) for that strategy.

Use the following guidelines to help prepare to "defend this!"

#### PRESENTATION PREPRATION GUIDELINES

1. Provide a "description" of the observation strategy your group supports.
2. What evidence supports your strategy? What evidence or data does not support your strategy, or possibly even directly opposes it? Use as much specific subject matter as possible in this section.



3. What arguments, or logical reasoning, will you make to support your strategy? Use mathematics wherever possible – to organize evidence (spreadsheet sorting, tabular displays), and to analyze evidence (numerical formulas, graphical analyses, plotting data).
  
4. What strategies will you use to present your arguments? Be prepared to present an explanation or illustration that clearly displays:
  - How your group generated its evidence or data.
  - What process your group used to analyze its evidence.
  - How your group’s analysis leads to the conclusion that this observation strategy is superior.
  - Mathematical evidence in support of your strategy (any visual representations of the above, including use of poster boards, transparencies, computer graphics, etc.)
  
5. How will your group satisfy the following stakeholders, considering that each will have different concerns and questions, and often these will depend on numerous human factors? For each person, anticipate what the representative group is most concerned with, and how they might react to different aspects of your plan. (Try to find at least one aspect that would prove disagreeable to each group.)  
How will your group satisfy or counter their question or concern?
  - Mission Scientist
  - Mission Engineer
  - Space Agency Administrator
  - Astronomer
  - Environmentalist
  - Public Citizen
  - Education and Public Outreach Manager

6. How does your observation strategy provide benefits in excess of the risks or costs? How does it minimize undesirable side effects? How does it minimize costs? What back-up measures will be built into your chosen method, thereby even further reducing the risk? (Remember that risk itself cannot ever be completely eliminated.) Be very systematic and objective in your approach, both in determining the positive balance your group hopes to portray, as well as considerate of the audiences you will address. Use mathematics (probability estimates, cost figures and analyses, successes, percentages, etc.) wherever possible.
  
7. How will the technology inherent in your strategy lead to an advancement in the science, and vice-versa?
  
8. What creative and interest-generating techniques and materials will your group use to make its presentation? (Remember that people, not scoring machinery, will determine the observation strategy considered most worthy for the mission.)