NASA's Deep Impact Mission: Decision Making

Module Planning Guide

The Learning Cycle

Activity	Teacher Materials	Student Materials	Approximate Time*	Standards Addressed	Process Skills
CAPTIVATE					
• Capture the Issue	• Teacher Guide	• Student Listening Notes Sheet • Interview Summary Sheet	• 180 minutes	**Grades 5-8 – Science Standards** • Science As Inquiry • Science and Technology • Science in Personal and Social Perspectives • History and Nature of Science	• Questioning • Predicting
RESEARCH					
• Timing is Everything	• Teacher Guide	• Student Planning Guide • Building a Scenario Group Sheet • Earth-based Observatories • Earth Orbital Facilities • Deep Impact Spacecraft and the Deep Space Network	• 270 Minutes	**Grades 5-8 – Science Standards** • Science As Inquiry • Earth and Space Science **Grades 6-8 – Math Standards** • Problem Solving • Data Analysis and Probability **Grades K-12 Technology Standards** • Technology Research Tools • Technology problem-solving and decision-making tools	• Gather data • Interpret data
CLARIFY					
• Clarifying the Issues	• Teacher Guide	• Defend This! • What Goes Around Comes Around • Interview Summary Sheets	• 180 Minutes	**Grades 5-8** • Science As Inquiry • Science and Technology • Science in Personal and Social Perspectives • History and Nature of Science	• Inference • Communicating
REFINE					
• Refining the Issues • Critiquing Ideas	• Teacher Guide • Assessment Guide	• Communicating, Questioning, and Listening • Public Forum Role Sheet	• 360 Minutes or more	**Grades 5-8** • Science As Inquiry • Science and Technology • Science in Personal and Social Perspectives • History and Nature of Science	• Inference • Communicating • Questioning

DECIDE					
• The Decision	• Teacher Guide	• Peer Review Checklist	• 360 Minutes or more	**Grades 5-8** • Science As Inquiry • Science and Technology • Science in Personal and Social Perspectives History and Nature of Science	• Conclusions • Communicating

(View a full text of the National Science Education Standards.)

(View a full text of the Principles and Standards for School Mathematics.)

(View a full text of McREL's Compendium of Standards and Benchmarks for K-12 Education.)

Approximate time for the complete unit is three to six weeks.

Materials lists for each teacher guide in this module.

Below is a quick reference list to each teacher guide and accompanying materials for your convenience.

Capture the Issue
For the teacher:
- Listening Notes Example transparency

For each student:
- Deep Impact Mission fact sheet
- Deep Impact interview summary sheet:
  Dr. Michael F. A'Hearn
- Listening Notes sheet
- Highlighters (optional)
- Appendix G: Rule-Based Strategy (optional)

Timing is Everything
For each student:
Student planning guide
- Building a Scenario
- One of each strategy information sheet
  - Deep Impact Spacecraft
  - Earth-based Observatories
  - Earth Orbital Facilities
- Deep Impact Ephemeris Data student spreadsheet
- Computer with Internet connection
- Library
- Appendix F: Decision-making Process (optional)

Clarifying the Issues
For each student:
Student Presentation Guide, "Defend This!"
- Completed observation Strategy Information Sheets (Deep Impact Spacecraft, Earth-based Observatories, and Earth Orbital Facilities)

- Deep Impact interview summary sheets:
  - Dr. Karen J. Meech
  - Brian Muirhead
  - John Marriott
- Four Listening Notes sheets
- Student Text, "What Goes Around Comes Around"
- Presentation materials if necessary (poster board, computer disks, etc.)

Refining the Issues

For each student:

- "Public Forum Role Sheets"
- Completed Student Presentation Guides, "Defend This!" (from last activity)
- Assessment Guide, "Critiquing Ideas"
- Student Text, "Communicating, Questioning, and Listening"
- Prepared presentation aids (poster board, computer disks, etc.)

The Decision

For each student:

- "Peer Review Checklist"