

The NewsHour with Jim Lehrer
Science Unit Study

Submitted by:

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October 30, 2006

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NewsHour with Jim Lehrer Science Unit Study

EXECUTIVE SUMMARY

The NewsHour with Jim Lehrer received a three-year National Science Foundation grant from Fall 2003 to Spring 2006 to develop, produce and air science reports during the regularly televised news program. The Online NewsHour Web site extends the reach of the science reports by housing the broadcast transcripts of the science reports, as well as information, graphics, and links that enhance the televised segments. In addition, EXTRA, a feature within the Web site designed for teachers and students, provides lesson plans and resources to support the use of the science segments in the classroom.

NewsHour producers contracted with ROCKMAN *ET AL* to conduct the external evaluation of the grant activities. The purpose of the evaluation was to assist the Science Unit in understanding the impact of the science reports and online resources and assessing the value and impact of the resources to their various audiences. The evaluation team designed and implemented three focused studies. Study 1 was designed to gather data on the science segments aired periodically during the nightly newscast from a broad television and radio audience; Study 2 gathered face-to-face, in-depth feedback from focus group participants on the science segments and the Web site, Online NewsHour; Study 3 focused on the usability and value of the EXTRA online science lessons as science curriculum resources for high school teachers and students. Findings from the evaluation will help the team meet the needs of their various audiences for future activities and projects.

Study Participants

The participants in Study 1 and Study 2 reflected the NewsHour viewer population – established in their career and well educated. A total of 586 viewers nationwide completed an online survey with feedback about the science segments that aired during the term of the project. The vast majority of respondents worked in professional careers including education, science-technology-engineering, and business. Eighteen percent listed themselves as retired. Respondents resided in forty-six states and several foreign countries including: Australia (10), Japan (6), Canada (5), Nigeria (2), and one each from Great Britain, Spain, China, Chile, Micronesia, Germany, and South Africa.

A total of 126 viewers took part in focus groups, which were held in ten cities. Most participants worked as professionals, all were familiar with the NewsHour and many were regular viewers of show. The groups were equally divided with 50% of the participants male and 50% female. The age range of the participants was mid-thirties to late sixties. About 30% of the participants were retired.

A total of 47 teachers piloted the online lessons developed for high school science classes. Seventy-nine percent of the respondents were female (N = 37) and twenty-two percent were male (N = 10), the majority taught in suburban locations (62%), followed by urban (22%) and rural (17%). Participating teachers represented twenty-one states and Canada. On average, respondents had taught 17 years, with a range of 1 year to 39 years.

A total of 1733 high school students submitted either an online or paper survey. Fifty-one percent of the students were female and 46% were male. Students spanned four grade levels: 30% in 9th grade, 30% in 10th grade, 21% in 11th grade and 18% in 12th grade.

Study 1 Findings

Viewer feedback was very positive. Over 80% of responding viewers and listeners of the televised science reports believed that the subject and content of the segments were informative, important and interesting. Over 75% believed that the topics were presented well, were about the right length, pace and depth, and contained informative graphics and/or animations.

Survey respondents who explored the Web site were equally enthusiastic. They especially appreciated the additional information found on the site. Many respondents mentioned the transcripts of the show as particularly useful. Over 87% of respondents found the site user-friendly and easy to navigate, and believed that the resources were comprehensive and that the content on the site was thought provoking.

Study 2 Findings

The focus group participants were overwhelmingly enthusiastic about the NewsHour television show and the science segments. Participants believed that the level of the science presented was, and should continue to be, high – that interviewers and scientists can set their standards high and ask the audience to reach that level. The support of the visuals, explanations by scientists, and a beginning, middle, and end to the report, added to the viewer's comprehension and enjoyment of the segments.

Most people reported that the contents of the segments were worthy of special reports, current issues were presented, and the science was understandable. They also felt that the experts who were interviewed added validity and clarity to the segments.

Evaluators noticed that the science segments often prompted a debate among the participants during the focus groups. It was clear that the programs stimulated intelligent, well-informed discussion among a diverse group of viewers.

Focus group participants found the Web site stimulating and exciting. Whereas some of the televised science segments left participants with questions, the Web site answered their questions and extended their knowledge and stimulated further interest in the topic.

Participants were impressed with the range of science issues archived on the Web site. One participant summed-up the overall thoughts of most focus group participants when he stated, “the site is user friendly, well organized, very informative, with great pictures. Loved it!”

Study 3 Findings

Teachers were very pleased with the lessons they piloted. There was strong consensus that the lessons enhanced their students’ understanding of the science topic. A vast majority, over 80% of the teachers, agreed that all aspects of the lessons were appropriate, useful, and valuable. They also agreed that most of the assignments and materials were the right level for their students.

The experiment component of the lessons presented difficulties for many of the teachers. Most of the problems involved Internet access, which they found to be slow or the website to be inaccessible due to school network restrictions. Some teachers reported that they had to rewrite instructions to the experiment for students of differing ability levels.

Teachers were quite favorable about the NewsHour Web site. Over 80% of the respondents agreed that the site was easy to navigate, that the layout of the articles was clear, that students understood the content of the articles, that photos and graphics enticed them to continue reading the information on the site, and that the experiment added to their students’ comprehension of the lesson topic.

Teachers also saw the Web site as a valuable teaching resource. They were impressed that the lessons focused on current topics and that so much useful information was located on one site. They appreciated the organization of the site, and that the resources varied and were interesting to the students and themselves. Teachers also mentioned that the Web site presented information at a level that was understandable to the majority of their students.

The participating high school science students also gave positive ratings to the EXTRA lessons. A high percentage of them (over 80%) reported that the overall level of the lessons was about right – directions were clear, the length of the lessons were appropriate, and the resources helped students understand the science concepts. Over half of the students reported that their knowledge increased and that they planned to learn more about the topic they studied.

Over 70% of the student respondents found the lesson interesting, thought that the content was interesting, and believed that the experiment added to their overall understanding. Written comments supported these high ratings. When asked what they liked best about the lesson, students highlighted the experiment, new information about the topics, and the Internet based activities.

Students who used the Web site (64% of all respondents) reported that the layout was clear, the content was understandable, the photos and graphics encouraged additional learning, and that the site was easy to navigate. The main negative comments focused on the difficulty of viewing the streaming videos. This problem was frustrating for many classes.

Overall Summary

There is no doubt that the Science Unit has produced a high quality product that is popular with the NewsHour public, based on the data we collected. Participants valued the content of the science segments, the quality of the production, and news-worthiness of the topics.

On average, participants in all three studies rated the content of the science reports, the features within the reports, and the overall aspects of the reports in the positive range of the rating scale. Focus group participants and students agreed that their interest in the topic of the science segment/lesson increased after they viewed the segment or finished the lesson. The general public (unknown viewers who submitted an online survey) agreed that the segments increased their knowledge of the subject and increased their interest in the topic.

Across all three studies, participants reported that they found the Online NewsHour Web site valuable. The information was interesting, and the graphics, animations, and transcripts were mentioned as adding to the overall learning experience. Participants had few problems with the Web site, however, teachers, as mentioned, had problems with the streaming videos.

The primary recommendation by participants was to add a banner to the science segment to show additional information, such as the names of the interviewees, their affiliation, acronyms and information about the Web site. They also suggested reducing footage of people talking.

Participants suggested adding Web site links to the research cited in the archived science segments, and checking existing links to ensure that they are active. Another recommendation was to add a search tool for the site.

The NewsHour Science Unit Summative Evaluation Report

INTRODUCTION

This is the summative evaluation report of the NewsHour with Jim Lehrer Science Reports project funded by the National Science Foundation (NSF). The NewsHour producers determined that the creation of a Science Unit would fill a major gap in their coverage capabilities and sought support from NSF. The mission of the Science Unit was to document significant science research projects in progress and to report on major scientific achievements and discoveries of interest to their audience. The NewsHour with Jim Lehrer received a three-year NSF grant from Fall 2003 to Spring 2006 to develop, produce and air science reports during the regularly televised news programs. The Online NewsHour Web site extends the reach of the science reports by housing the broadcast transcripts of the science reports, as well as information, graphics, and links that enhance the televised segments. In addition, EXTRA, a feature within the Web site designed for teachers and students, provides resources to support the use of the science segments in the classroom. During the term of the project, NewsHour aired 52 science reports. Data were collected on 47 of the aired reports. In addition to the science reports, the Science Unit team also produced 26 Studio Segments.

NewsHour producers contracted with ROCKMAN *ET AL* to conduct the external evaluation of the grant activities. ROCKMAN *ET AL* is an independent research and evaluation firm based in San Francisco, California, Chicago, Illinois and Bloomington, Indiana with experience conducting research on media-focused projects. The purpose of the evaluation was to assist the Science Unit in understanding the value and impact of the science reports and online resources to the NewsHour's various audiences. Findings from the evaluation will help the team meet the needs of their various audiences for future activities and projects.

This is the summative evaluation report of the NewsHour with Jim Lehrer Science Reports project funded by the National Science Foundation (NSF). Findings from years one and two were previously shared with the NewsHour producers, the Advisory Board and the NSF program manager. This report discusses the aggregated findings from the three years of the project, October 2003 through May 2006.

METHODOLOGY

Evaluators collaborated with the Science Unit team to determine the most effective means of gathering data from a nationwide audience of NewsHour with Jim Lehrer viewers, from Online NewsHour users, and from high school science teachers and students. The evaluation team designed and implemented three focused studies. Study 1

was designed to gather data on the science segments aired periodically during the nightly newscast from a broad television and radio audience; Study 2 gathered face-to-face, in-depth feedback from focus group participants on the science segments and the Web site, Online NewsHour; Study 3 focused on the usability and value of the EXTRA online science lessons as science curriculum resources for high school teachers and students. Study 1 was implemented during the first year of the grant project and continued for the entire term of the project. Study 2 was implemented during the second year of the project and ran through year three. Study 3 was implemented during the third year of the project.

The numbers of participants in the overall study are presented in Table 1, below. Detailed information regarding the participants will be presented in the specific study sections.

Table 1: Total Evaluation Participants

	Participant Numbers			
	Year 1	Year 2	Year 3	Total
Study 1: Nationwide Audience	133	195	259	586
Study 2: Focus Groups		37	89	126
Study 3: Teachers			47	47
Study 3: Students			1734	1734

Throughout the three years of the grant project data were collected from 2,493 participants.

Evaluators used a variety of instruments to gather the data:

- Online surveys were designed to elicit feedback from the general NewsHour television viewer.
- Paper and online surveys were designed to collect feedback from high school science teachers and students about the Online NewsHour Web site resources and science lessons.
- A discussion protocol and a paper survey were designed for use with the focus group participants.

Initial drafts of the instruments were developed by ROCKMAN *ET AL* and sent to the NewsHour science project team for review. The online surveys were located on the ROCKMAN *ET AL* server to ensure the confidentiality of the information and encourage full and honest responses. Student names were not requested on the paper version of the student survey to ensure anonymity. Samples of the evaluation instruments can be found in Appendix C.

Quantitative and qualitative data were collected, analyzed and reported for each of the three studies.

Study 1: NewsHour Audience Study

The goal of Study 1 was to gather the NewsHour television and radio audience's reactions to the grant produced science reports. The online survey format was an opportunity to gather feedback from a nationwide audience following each aired science report. Viewers generally considered the NewsHour television show as an entity; therefore, isolating the ten to twelve minute science reports from the overall NewsHour program became a challenge for evaluators. Study 1 also included respondents' experience with the Online NewsHour Web site.

METHODOLOGY

To reach audience members, the Online NewsHour team placed a link to the Rockman survey on the *Online NewsHour Science Reports* front page inviting visitors to give feedback about the science reports. The survey link was also inserted in e-mail alerts sent to individuals announcing the airing of a new science report. And finally, the survey link was included in the emails sent to prospective focus group participants with a request to complete the survey.

The survey was designed to gather viewers' opinions about the science reports in general, and also about specific Web site features. Questions about the televised science segments were structured to give viewers descriptive information about each science segment with the idea that they might recognize and recall the segment. Other questions were general in scope to capture specific feedback about the television show and the Online NewsHour Web site. Directions on the survey stated that the survey was organized into two sections; participants were instructed to complete Section 1 only if they watched or listened to the NewsHour show, and to complete Section 2 only if they had visited the Web site.

As an incentive to completing the survey respondents were entered into an annual random drawing for one of five Amazon.com gift certificates each valued at \$50.00.

PARTICIPANTS

In aggregate, 586 television viewers and radio listeners submitted an online survey during the three-year evaluation. Sixty percent of the respondents were male and forty percent were female. The majority of respondents (42%) were between 51 and 65 years old. The total number of respondents by age group follows: 16-22 years old (13), 23-35 years old (80), 36-50 years old (134), 51-65 years old (244), and over 65 (105). Forty-one percent of respondents reported their highest educational degree as a BA/BS, 32% had completed a master's degree, 11% a PhD, and 13% had completed high school.

The vast majority of respondents worked in professional careers including education, science-technology-engineering, and business. Eighteen percent listed themselves as retired. Overall, the participant population reflected the NewsHour viewer population – established in their careers and well educated. Respondents resided in forty-six states and several foreign countries including: Australia (10), Japan (6), Canada (5), Nigeria (2), and one each from Great Britain, Spain, China, Chile, Micronesia, Germany, and South Africa.

A question from the producers prompted evaluators to ask how the respondents (n = 454) discovered the online survey. Fifty-four percent of the respondents found the survey link on the NewsHour Web site, thirty-one percent received an email that included the survey URL, and seven percent heard about it from a friend or as a result of their participation in a focus group. For the third year of data collection (n = 259) another question was added to the survey to determine whether or not respondents were members of their local PBS station. Two-thirds of these respondents were PBS members.

Evaluators also asked how respondents usually got information about science topics in which they were interested. Respondents could check more than one choice from the list provided. On average, respondents chose five resources. Table 2, below, shows the science sources from the most often chosen to least often chosen.

Table 2: Where Respondents Find Scientific Information (N=586)

	Number of times chosen
Watch television programs	500
Read newspaper articles	462
Visit Web sites	403
Buy/read books	375
Visit museums	323
Listen to radio programs	313
Subscribe to magazines	299
Attend lectures	205
Watch videos/DVDs	121
Belong to groups or clubs	102
Use related software products	68

Over 50% of the respondents learned about science from television programs, from articles in newspapers, books and magazines, from visiting Web sites, and from museums and radio programs.

NewsHour producers were also interested in learning about the frequency with which respondents watched the NewsHour. On average, respondents watched or listened to the NewsHour a few times a week, and 33% reported watching or listening to the show every day. Eighty-eight percent reported having seen or heard one or more science reports on the show, and seventy-one percent reported that they had visited the Online NewsHour Web site.

FINDINGS

Television Science Reports

Seventy percent of respondents reported learning about the project-produced science reports through normal viewing of The NewsHour television program. Twenty-two percent learned about the reports from the Online NewsHour web site. Twelve percent of the respondents received an email message announcing a specific science segment would be aired. On average, respondents reported viewing four different science reports, with a range from zero to 14. Eighty-six percent of respondents reported seeing at least one science segment.

Throughout the three years that the survey ran, the list of science reports was continually updated – new titles were added and titles of older segments were removed. Therefore, at any given time that the survey was accessed by an individual respondent, there were approximately 15 report titles listed.

From that list, survey respondents chose which of the science reports they had either seen, not seen or couldn't recall seeing. Table 3, below, displays the number of respondents who had seen each science report. Science topics are reported in the chronological order of airing. When reading this table it is important to recall that the completion of each survey occurred at any given time during the three years, therefore, no comparisons can be drawn regarding the number of viewers per report. Also, science reports were shown to the focus group participants, which might account for certain reports with higher numbers (e.g., Climate Change).

Table 3: Aired Science Reports in the Study (n = 505)

Report Title	Saw	Report Title	Saw
Tracking Hurricanes (10/1/03)	47	Deep Sea Chemicals (2/16/05)	48
Hydrogen Fuel (10/20/03)	52	Women in Science (2/22/05)	48
Robotic Arms (11/18/03)	50	Science of Aging (2/28/05)	63
Computer Worms and Viruses (12/1/03)	28	Clearing the Air (3/28/05)	53
Hubble and Webb Telescopes (12/22/03)	62	Creation Conflict (3/28/05)	94
Mars Exploration Rovers (1/5/04)	86	Robots in Space (3/29/05)	28
Making the Case to Save Hubble (3/30/04)	39	Body Chemicals (6/24/05)	26
Global Warming (4/21/04)	29	Deep Impact (6/29/05)	88
Electronic Voting (5/5/04)	57	Climate Change (7/5/05)	104
Climate Impact on Species Extinction (5/20/04)	50	Space Shuttle Launch (7/12/05)	86
Return of the Cicada (5/26/04)	50	Space-Age Sports (7/14/05)	21
Earthquake Prediction (6/2/04)	53	Tornado Science (7/25/05)	77
Pigs and Politics (6/3/04)	25	Chimeric Animals (8/16/05)	42
Spacecraft Cassini (7/1/04)	53	Levee Failures (10/20/05)	98
Alien Invasion (7/1/04)	43	New Orleans Toxins (11/8/05)	91
Adult Stem Cells (7/14/04)	41	LEDs: Changing Lightbulbs (11/10/05)	42
Nanotechnology (7/16/04)	33	Wind Power (11/29/05)	68
Saving the Everglades (7/19/04)	28	Comet Clues (1/16/06)	51
Tracking Pollution (9/7/04)	59	Rovers Roll (1/25/06)	51
Missile Defense (9/21/04)	58	Lost World (3/10/06)	21
Hurricanes (9/27/04)	77	Shrinking Landscape (4/4/06)	20
The Teen Brain (10/13/04)	80	Fossil Fish Find (4/6/06)	11
Polar Warming (11/8/04)	88	Learning the Lessons of San Francisco (4/12/06)	4
Dying Reefs (2/1/05)	77		

The science reports listed in Table 3 were organized into five overall topics: animals and insects (6 reports), astronomy (8 reports), environmental science (17 reports), human biology (7 reports), and technology (9 reports). About twice as many environmental science based reports were produced as the other topics.

Survey respondents were asked to write comments about the reports they viewed or heard. Representative comments follow:

Just excellent, timely and professional coverage.

Usually clear and concise - usually present enough information.

I am always especially interested in the astro reports -- they offer hope that we still are curious about our planet and it's origins and hence our own place in the universe.

Your science experts are really great to listen to. I like their enthusiasm and ability to communicate to the general audience.

I remember them as being very informative and captivating my interest.

You do a good job overall, especially on space missions.

Good in general, sometimes superficial, sometimes presentation of different perspectives is unbalanced and/or overly simplistic. For example, in discussing Evolution you might pair a Creationist against a politician or social scientist rather than a biologist.

The film footage is very useful in seeing the locations that are discussed. I don't think that footage of talking heads (experts) is good, but you can have experts do voice over of the location footage.

When controversial topics are covered (environmental matters, energy, endangered species, challenges to evolution, etc.), please tell and show us more about all sides of the issue.

I am more interested in politics than science. But I find the NewsHour reports interesting and helpful in keeping me informed about events in the scientific community.

About twenty percent of the Year 3 respondents mentioned the Lost World report in the comment section (shown during that period). They appeared to be intrigued by this topic and the comments were very positive. One person captured the general thoughts on this show, "Report on Lost World Discovered in New Guinea was outstanding. Amazed that such an environment still exists."

Survey questions followed that focused on the content of the reports and on general aspects of the science reports. Using a 4-point scale, from 1 = Disagree to 4 = Agree, on average, respondents were very positive about the content of the reports. Table 4, on the following page, shows the mean and the percent of respondents who agreed or somewhat agreed, for each content related statement.

Table 4: Content of the Science Reports (n= 513)

	Mean (SD)	Percent Agree/ Somewhat agree
The content of the science reports was informative.	3.82 (.457)	80%
Information in the reports was important.	3.81 (.438)	86%
I learned something new about the subject of the reports.	3.79 (.496)	86%
The report/topic held my interest.	3.78 (.482)	86%
The content was presented at an appropriate level for my understanding.	3.74 (.569)	84%
The reports increased my interest in the topics.	3.62 (.592)	84%
The report made me more aware of the application of science in everyday life.	3.44 (.795)	77%
My questions were answered by the end of the report.	3.17 (.722)	76%

Scale of 1 = Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Agree

The first six statements in Table 4 had means in the highest range with over 80% of the respondents agreeing to somewhat agreeing with each statement on the content of the reports. Two statements had means in the Somewhat Agree (3.0) rating range, which although lower, remained positive with over 75% of the respondents rating these statements positively. These data suggest that people found the content of the science reports to be informative, interesting, and understandable.

Table 5 shows the mean and the percent of respondents who agreed or somewhat agreed with each statement.

Table 5: Aspects of the Science Reports (n = 505)

	Mean (SD)	Percent Agree/ Somewhat agree
I found the presentation style to be effective.	3.73 (.521)	86%
The length of the science reports was appropriate.	3.54 (.640)	81%
The pacing of the reports was just right.	3.53 (.638)	81%
The reports contained informative graphics and/or animations.	3.46 (.743)	76%
The depth of the reports was appropriate.	3.40 (.743)	77%

Scale of 1 = Disagree, 2 = Somewhat disagree, 3 = Somewhat agree, 4 = Agree

Using the same Disagree /Agree 4-point scale, respondents were also very positive about the general aspects of the reports. On average, respondents agreed that the presentation style of the science segments was effective, rating this aspect the highest. Again the percentages of respondents who agreed to somewhat agreed with the listed aspects of the science segments were quite high – all above 75%.

Several respondents offered suggestions on how to improve the reports:

Some of the science reports could be longer and in greater depth, especially the ones about health and medicine.

On occasion I would like to see a scientific panel discuss new findings/ideas in the scientific field.

Science segments need to tell viewers 1) how this topic affects the viewer (monetarily, health-wise, etc) and 2) spell out exactly what the viewer can do to make the necessary changes in everyday life (carpool, use public transportation, campaign for better public transportation, etc). In order to grab the viewer's attention, mention at the beginning of the segment why they should care and close the segment with what they can do. Numbering steps and actually typing them up on the screen, along with website info (on the screen) make it more likely for viewers to act.

Try to not 'dumb-down' the more technical shows too much. Specifically, NASA, Hubble Space telescope or tsunami programs.

I wish additional facts were scrolled along bottom, plus their source, WHILE the various 'experts' were speaking. Ditto this during political debates...

Online NewsHour

About 80% (408) of the survey respondents completed the section on Online NewsHour. On average, respondents visited the Web site monthly, with 23% visiting the site once a week or more.

Respondents were asked which components of the Web site they had explored. Table 6 displays the number of times each component was chosen and the percent of respondents who chose each one.

Table 6: Components of the Web Site (n = 265)

	Number of times chosen	Percent of respondents
Photo Gallery	199	75%
Resources/Features: links to other information or sites	186	70%
Interactives: animations, maps	162	61%
Forum: read only	68	26%
EXTRA: lesson plans for teachers	51	19%
Forum: participated in the discussion with an expert	10	4%

The Photo Gallery, Resources and Features, and Interactives available on the site were the components explored by over 60% of the respondents. These same components were frequently mentioned in written comments on the value of the Web site (see comments below Table 7). In comparison, few people used the Forum or EXTRA.

Using a 4-point Agree/Disagree scale, on average, respondents ratings were favorable regarding the Web site aspects listed below in Table 7. The table displays the mean and percent of respondents who agreed or somewhat agreed with the statements on content, presentation and navigation.

Table 7: Aspects of the Web Site (n = 94)

	Mean (SD)	Agree/ Somewhat agree
I found it easy to find what I was looking for.	3.35 (.742)	89%
The additional resources were comprehensive.	3.33 (.758)	87%
The content was provocative.	3.29 (.762)	87%
The visuals enticed me to read the linked information.	3.27 (.751)	85%

Scale of 1 to 4 with 1 = Disagree, 2 = Somewhat disagree, 3 = Somewhat agree, 4 = Agree

On average, respondents rated the aspects positively with means ranging from 3.27 to 3.35 for the statements in Table 7; and 85% to 89% of the respondents rated the Web site aspects in the agree to somewhat agree range. The high percentage of participants who rated the Web aspects positively suggests that the site is user-friendly and interesting to visitors.

Respondents wrote many positive comments about the Web site. Examples follow:

Great resources for helping my children with their science reports for school.

The interactives. Because they tend to involve you in the story more than just reading or observing. One tends to recall more information with this method of learning or assimilating.

For general interest articles – the text of the report. For specific articles like Mars Rover and Nano – pix and interactives. For both types of articles – hyperlinks.

Full text of a segment is valuable because I can go back to something I know I missed, as I just did with the California flood issue. The interactive section, links, timeline are also valuable.

This is the first time I have visited the site...inspired by the program this eve...Lost World. I intend to make it part of my daily Internet activity... Valuable because it is exciting to read about positive and informative material instead of all the negative newscasts and programs of other stations!!!

The visuals, photos, maps, charts were all useful. The site was easy to use and the trip to "Lost World" was exciting. I used NASA sites to follow the Rovers, and also the deep impact of the comet. I would like links from the Science portion of the News Hour to NASA sites, Hubble links, the current survey underway of the moons of Saturn, and links for Pluto and Neptune.

Video stream of segments. I don't see the show all the time and the video stream of shows I have missed is great. Like the broadcast, it gets me well acquainted with the topic and then I can choose whether or not to look into it further.

Respondents were given the opportunity to write comments in several open-ended question areas on what they would like to see added to Online NewsHour, and what topics they would suggest for science reports. A complete list of suggestions is attached in Appendix A at the end of this report.

The most often requested item in the comments section focused on Web links.

Respondents suggested:

Add links on the Web site to other science sites.

Easier links from the site for pursuing topics in depth.

Greater detail in the links, links to authorities for commentary, graphs, analysis or real-time presentations on addendum subject matter.

I would really appreciate links and suggested reading, and/or links to the works of scientists that are interviewed on the News Hour.

Other participants suggested:

Have a brief segment on the NewsHour about the online support available. Maybe repeat it on a different weekday so over a period of a month it would be seen once on each weekday.

New "discoveries" or findings of the week similar to the Washington weekly summary with Shields and Brooks.

Make archived programs easier to access.

Survey participants were also asked to add comments about the value of the Web site. Respondents noted the interactivity of the resources and the completeness of the site. Several of their comments follow:

Doing this survey, I realize that I don't spend enough time looking at the website, even though I watch the broadcast nearly every day. In particular, I would probably get more out of the Science stories if I did visit the website more often. Guess I'll sign up for the email alerts, too.

The structure of the website is such that I can get to the article or information I am seeking in three clicks or less.

The archives are brilliant. The fact that all the conversations are transcribed and available really sets the Online NewsHour miles ahead of other similar sites.

The interactive nature of the website is helpful and compelling. The streaming video allows me to see the shows I've missed.

Additional information (a) helped to fill in any gaps in the original presentation and (b) allowed me to send students to view the information in certain classes that I teach, particularly for non-science majors.

While most respondents had no problems accessing the site, the one Web based frustration mentioned was the difficulty some had finding Online NewsHour on the PBS Web site, and once there, finding the science archives link.

Summary

Overall viewer feedback was very positive. Over 80% of responding viewers of the televised science reports believed that the subject and content of the segments were informative, important and interesting. Over 75% believed that the topics were presented well, about the right length, pace and depth, and contained informative graphics and/or animations.

While comments about the televised science reports were overwhelmingly positive, some viewers suggested that the reports were biased because they were so evenly balanced and

in reality scientific evidence is stronger for one view than the other, e.g. Global warming, and Evolution versus Intelligent Design. Others would like the reports lengthened so that additional in-depth information can be included. Many people commented on their desire to see science regularly presented on the NewsHour television show.

Representative comments regarding the science reports follow:

I am very pleased that you are offering the science reports. It is good to acknowledge that there are other things important and interesting on and to the Earth other than human beings and their crisis. Science information has the power to enrich and improve our lives, and guide our decisions. Most other reporting seems to be replaying the same old human tunes over and over again. I would hope your future programs present the information in more depth, and you begin to offer the science segments more often.

Great show. Don't try to make the science reports too "gimmicky" as over-hyping the information tends to lead to irresponsible reporting. Serious, in-depth non-bias reporting of science is difficult to find...you provide a valuable niche.

After reviewing the titles, I'm sorry I missed them. I will pay closer attention from now on not to miss them.

Perhaps regularly scheduled features such as Science Tuesday, Health Friday, etc. There is sufficient important news in these features to warrant devoting a large portion of a show to each.

It is really great that you have added science stories to the mix of News Hour features. I will sign up for the e-mail alerts and will become a more regular viewer.

Have the science report occur on the same day every week.

Keep up the good work. The News Hour is the most balanced and thorough news available; the science reports are a real bonus. Thank you.

Respondents who explored the Web site were equally enthusiastic. They especially appreciated the additional information found on the site, and the graphics, maps and animations. Many respondents mentioned the transcripts of the show as particularly useful. Over 87% of respondents found the site user-friendly and easy to navigate, believed that the resources were comprehensive and that the content on the site was thought provoking.

Many online respondents mentioned the value of the NewsHour with Jim Lehrer. Most were grateful for the unbiased, balanced reporting of the news, and the professionalism of the reporters.

A final comment from a respondent captured the vision of the Science Unit team:

I'm a big fan of the NewsHour for news. Science news is an important part of our understanding of our world. Even if I would appreciate more in-depth or longer features perhaps that wouldn't serve the greatest number of people. I would hope that by featuring science regularly on the NewsHour that more people can be reached and coaxed into becoming excited about pursuing more in-depth information.

Study 2: Focus Groups

The second study, spanning two years, centered on focus groups comprised of NewsHour viewers. Focus groups were used to support the quantitative feedback and to allow the researcher to hear viewers' thoughts in depth. The focus group setting encourages people to freely discuss the subject in a relaxed, semi-structured setting.

METHODOLOGY

A pilot focus group was held in San Francisco in October 2004 to test the focus group protocol and short survey. Both instruments were revised based on feedback from this group. Participants for the pilot focus group were recruited from the online survey respondents.

PBS stations in targeted cities were contacted by evaluators and asked to help with recruiting focus group participants by contacting their membership. As an incentive to participate, participants were paid \$100, served light refreshments, and, where possible, the focus group sessions were held at the PBS station. Throughout 2005 and 2006 focus groups were held in nine cities: Los Angeles, Philadelphia, Chicago, Portland, Seattle, New York, Houston, Tampa, and St. Paul. Two to three groups of 6-8 people were held in each city.

Each focus group ran for approximately two hours. During the session participants viewed two science segment videos. NewsHour producers helped to choose the videos that would be shown. Each video ran between 10 to 12 minutes long. While watching the video participants jotted down their thoughts and reactions to the science segments based on prompts (liked best, liked least, suggested changes) that were posted around the room. After viewing the videos, participants were asked to complete a brief survey prior to a discussion facilitated by the evaluator. A discussion followed the viewing of each report and lasted about half an hour. For the final half hour of the session participants shared laptop computers to explore the Online NewsHour Web site and offer their feedback on the site.

PARTICIPANTS

A total of 126 viewers participated in the focus groups. Most participants worked as professionals, all were familiar with the NewsHour, and many were regular viewers of show. The groups were equally divided with 50% of the participants male and 50% female. The age range of the participants was mid-thirties to late sixties, although one couple was 85 and 90 years old. About 30% of the participants were retired. A list of participants' current or former professions is provided below in Table 8.

Table 8: Participants' Current or Former Profession

Account manager	Exec. Director	Property/facilities manager
Admin/Human Resources	Finance	Professor
Adult educator	Graduate student	Psychologist
Advertising	Graphic Designer	Publishing production
Airline Pilot	Health care	Researcher
Art therapist	High School Science	Scientist/Mathematician
Attorney	Teacher	Service provider
Chemical Engineer	Information technology	Special education teacher
Composer/musician	Investment Banker	Social worker
Computer Consultant	Management Training	Student
Computer sales	Marketing	Technologist at neuro- psychiatric institute
Computer programmer CPA	Nutrition product distributor	Teacher
Editor	Parent	Television/theater
Engineer		

FINDINGS

Twenty different science report segments were shown in focus group sessions. One-half (50%) of the reports were shown to two groups, over one-third (40%) were shown one time, and two reports were shown three times. The titles of the science segments shown at focus groups are listed in Table 9 on the following page.

Survey Results

Before commencing a general discussion, participants completed a short paper survey following each video. This allowed evaluators to gather first impression feedback, before group members heard the other participants' opinions. Each participant completed two surveys per session, therefore, 252 surveys were analyzed.

Participants were asked to rate their interest in the subject of the science reports prior to viewing the segment and then after having seen the videos, to rate how much of the content was new, how much their knowledge increased about the topic, and how likely it would be for them to learn more about the topic. An additional question about the level of science in the reports was added after four of the reports had been shown. All rating scales used by respondents were a 1=4 Likert-type scale, except for the scale for the level of science, which was a 1= 3 Likert-type scale. The average ratings for each report are shown in Table 9, scales are shown below the table. The number of focus group participants follows each science report title in parentheses.

Table 9: Average Ratings for Each Science Report (N=252)

	Interest before ¹	Interest after ¹	New content ²	Increased knowledge ³	Learn more ⁴	Science level ⁵
	Mean	Mean	Mean	Mean	Mean	Mean
<i>Robots in Space (n = 16)</i>	2.63	2.87	2.88	2.69	3.06	1.81
<i>Saving the Everglades (n = 16)</i>	2.81	3.47	2.50	3.00	3.19	2.00
<i>Stem Cells (n = 17)</i>	3.18	3.41	2.35	2.82	3.35	2.12
<i>Polar Warming (n = 8)</i>	3.63	3.75	2.13	2.75	3.50	2.00
<i>Global Warming (n = 8)</i>	3.14	3.43	2.13	2.50	3.38	1.63
<i>Women in Science (n = 19)</i>	2.83	3.22	2.42	2.79	3.11	1.87
<i>Nuclear Challenge (n = 19)</i>	2.63	3.26	2.58	3.00	3.05	2.29
<i>Nanotechnology (n = 7)</i>	3.00	3.57	2.86	3.29	3.17	2.00
<i>Tracking Air Pollution (n = 13)</i>	3.08	3.46	2.38	3.08	3.31	1.85
<i>Body Chemicals (n = 13)</i>	3.31	3.38	2.31	2.69	3.46	2.00
<i>Toxic New Orleans (n = 6)</i>	3.17	3.33	2.50	2.83	3.00	1.33
<i>Cape Wind Power (n = 10)</i>	2.70	3.33	3.10	2.80	3.50	1.30
<i>LEDs (n = 8)</i>	2.38	3.25	2.50	3.00	3.25	2.00
<i>Chimeric Animals (n = 8)</i>	3.00	3.13	2.50	2.63	3.25	1.88
<i>Airliner Defense (n = 4)</i>	2.75	3.75	2.75	3.75	3.75	2.00
<i>Tsunami (n = 13)</i>	3.23	3.77	2.62	3.38	3.50	NA
<i>Aging (n = 21)</i>	3.00	3.38	2.90	3.14	3.57	NA
<i>Teen Brain (n = 15)</i>	2.60	3.47	2.47	2.93	3.47	NA
<i>Coral Reefs (n = 24)</i>	2.63	3.42	2.42	2.88	3.25	NA
<i>Adult Stem Cells (n = 6)</i>	3.33	3.50	2.17	3.50	3.50	2.00
Overall science reports	2.91¹	3.38¹	2.53²	2.94³	3.31⁴	1.91⁵

¹Scale: 1 = Not interested, 2 = Somewhat interested, 3 = Interested, 4 = Very interested

²Scale: 1 = None, 2 = Some, 3 = Most, 4 = All

³Scale: 1 = Not at all, 2 = Slight amount, 3 = Moderate amount, 4 = A great deal

⁴Scale: 1 = Not at all likely, 2 = Not very likely, 3 = Likely, and 4 = Very likely

⁵Scale: 1 = Too basic, 2 = About right, 3 = Too advanced

On average, participants reported that they were interested in each topic. Sixty-four percent of respondents rated their interest in the topics as ‘interested or very interested’ before viewing the video. Participant interest in the topic of the video increased to 87% after viewing the video. A paired sample test, with $p < .01$, showed that for the overall mean, participants’ interest increased significantly following the viewing of the science reports.

About half (48%) of participants reported that “most to all” of the content of the science segments was new to them, 70% reported that their knowledge about the topics increased a “moderate amount or a great deal” as a result of watching the videos, and 88% reported that they were “likely to very likely” to learn more about the topics. Seventy-eight percent of the respondents chose “about right” for the level of science used in the reports.

Statistical analysis showed that there were no differences between any of the topics for interest, new content, increased knowledge, learning additional information or science level.

Participants were then asked whether they agreed or disagreed with a series of statements about the issues included in each of the science report videos. The percentages of participants who agreed with each statement are presented below in Table 10.

Table 10: Issues Included in the Science Reports (N = 252)

	Percent who agreed
The topic was a current issue.	96%
Scientists appeared knowledgeable.	96%
The topic was placed in a social context.	76%
The topic was tied to everyday life.	74%
The report presented a problem and offered solutions.	55%
The report discussed the impact of the topic on national/international policy.	51%
The report presented the economic impact of research.	31%

Scale: 1 = Agree, 0 = Disagree

Nearly all respondents agreed that the topics were current issues and that the scientists appeared knowledgeable. Over 50% of respondents agreed with all but one of the issues listed above. Most participants agreed that the reports were current, were important to

society, were solution oriented, and impacted policy. Data also suggest that the economic impact of the research was not presented in many of the reports.

The final question on the survey asked participants to rate how important it was to them that these issues be included in science reports. The average ratings are presented in Table 11.

Table 11: Importance of Issues to include in the Science Reports (N = 252)

	Mean	Percent rating of 3 or 4
The report presents a problem and offers solutions.	3.17	77%
The topic is a current issue.	3.15	77%
The topic is tied to everyday life.	3.07	71%
The report discusses the impact of the topic on national/international policy.	2.89	69%
The report presents the economic impact of research.	2.69	58%

Scale: 1 = Not at all important, 2 = Somewhat important, 3 = Important, 4 = Very important

From 58% to 77% of participants believed, on average, that all the issues were important for the science segments. Over 70% of respondents rated the top three issues as most important for the segments to include. It is interesting to note that while the economic impact was not included in many of the reports according to participant feedback (see Table 11), it is also the least important issue to participants.

Group Discussion

A general discussion was held following the viewing of each science report. While watching the video participants were asked to think about what they found most interesting, what was least interesting, and what changes they would suggest. These questions then became the focus of the discussion. This section of the report discusses comments from the focus group participants that would apply in general to the science reports. Specific feedback on each report can be found in Appendix D.

Liked Most

Feedback from the focus group participants was consistently positive. Most people reported that the segments were interesting, that the topics were worthy of special reports, that current issues were presented and that the science was understandable. One participant explained, "This was an excellent presentation of the background and the problem." Others noted that they appreciated the "balance between facts and specific

personal experiences”, and that the producers did a good job of providing enough information for them to understand the topics. Participants also commented on the variety of science reports, expressing their appreciation of seeing science “in context”.

Participants appreciated the quality of the videos. They thought the graphics and other visuals added to their interest in the topic and helped them to understand the science presented. “More graphics” was a common suggestion. They valued the balance of animations, footage that presented the problem, and the interviews.

Participants agreed that the pace was appropriate and that the length of each segment was “about right.” They also felt that the experts who were interviewed added validity to the topic. “I liked having the quotes for a variety of researchers. They give the topic credibility and keep the viewers interest longer.”

Participants noted that the science segments were in keeping with the general NewsHour philosophy of educating the viewer. For example, one participant said: “They present the issue and then let us decide what we think.” Others felt that the science segments raised their awareness of the particular topic they viewed and made them want to get involved or do additional research on the topic.

Participants believed that there was “a considerable amount of information given in a short time period.” Although the amount of information was appreciated, it was also an aspect that caused some concern. People recognized that there was a limit to the amount and level of information that producers could impart based on available time allotted to the segments.

In general, participants reported that the content was presented well and at a level that most people understood. Most agreed that the NewsHour audience would be interested in technical information and even if they were not familiar with the science topic that they would generally understand a higher level of science. A participant stated, “ I enjoyed the factual presentation versus an overly dramatic approach.”

Liked Least

There were few negative comments that could be generalized for all the science reports. Because the reports piqued the participants’ interest, one area of constructive feedback was to end the segment with information about how viewers can follow-up on the topic, either to learn more or to help affect change. One person suggested, “Pose a question to the audience at the end of the show, what can you do to help...in your community or home.”

The geographic location of the reports seemed to affect the participants. Their preference was that reports include several locations to show the universality of the problem or solution. Comments such as, “how does that affect me in (Florida)” were common. A regional specific focus (e.g. Cape Wind) impacted the ability to generalize for some of the participants. After viewing Body Chemicals, one person commented, “With the California focus some in the national audience might think of tree huggers.”

Other general concerns were that computer screens are difficult to see on television, that computer shots were “meaningless,” that acronyms should be defined and presented as a subtitle when used, and that adding the expert’s title or affiliation would be helpful for context or to determine any bias. Another mentioned, “I like to hear expert opinions, but I prefer voice over dialogue of things they are showing in the field.”

Suggestions

Participants also offered suggestions for how to improve the segments. Many mentioned adding graphics, animations and video specific to the topic and reducing shots of reporters talking.

Specific ideas were:

- Adding subtitles of people speaking would be helpful.
- Need to focus data on a more national level for a national audience-reference other cities.
- Create a more ‘Why Should I Care’ attitude at the start of the segment.
- Show the banner of the person’s name and where they are from a little longer.

Online NewsHour Web site

Participants explored the Online NewsHour Web site for the final 20 minutes of each focus group session. The facilitator showed the group how to locate the site, click on science reports, and then locate and click on science archives. Participants were instructed to choose a science report that contained a Special Report link. While exploring this area participants were asked to think about the site’s user-friendliness, about which areas and supplemental material was useful, and whether the resources added to the science report they had just seen. A short discussion followed the Web exploration.

Overall feedback on the website was extremely positive. For the majority of participants this was the first time they had visited the site. Participants reported that the site was easy to navigate, they were able to find resources easily, and that it was a “well designed site.” Many mentioned that the Web site offered an opportunity for follow-up to the television segments.

Accessing Online NewsHour from pbs.org and then finding the science area on the site was the only problem for participants. They noted that the font size was small and the link to the science reports was located in a list of other site resources in a sidebar.

Comments included:

The site seems to have more details and explanation of the issues.

I like the depth of follow-thru reporting. I would like to see more streaming video and graphics.

Terrific links, Q & As, documentation – very powerful tool.

The site is much more science based than the TV segments.

Several participants were educators and parents who mentioned specifically the value of the site's resources for teachers and parents. They said that the lesson plans would be useful for home-schooling and as a way for parents to augment the science curriculum. They also thought that teachers would find the resources helpful to the curriculum.

Suggestions to improve the Web site were:

- Increase the font size, especially on the page that lists the archived reports.
- Continue to update the site by increasing streaming video.
- Add downloadable plug-in links.
- Allow users to enlarge pictures.
- Add a glossary of terms used in the science reports.
- Be able to find reports by date shown as well as topic.
- Make the “slide-show” work as one expects, rather than having to click on each individual photo.
- Add links to organizations/task-forces that support the topic.
- Add a list of museums in cities that have an exhibition on this topic.
- Add “search” tool.
- Add links to research data, original sources, scientists that are interviewed.

SUMMARY

The focus group participants were overwhelmingly enthusiastic about NewsHour in general, the science segments, and the Web site. Respondents believed that the level of science should be high – that interviewers and scientists can set their standards high and ask the audience to reach that level. The support of visuals, explanations by scientists, and a beginning, middle, and end to the report add to the viewer's comprehension.

Evaluators noticed that the science segments often prompted a debate among the participants. The programs stimulated intelligent, well-informed discussion among a diverse group of viewers.

Most people reported that the segments were interesting, that the topics were worthy of special reports, that current issues were presented, and the science was understandable. They also felt that the experts who were interviewed added validity and clarity to the topic.

Others commented:

Normally, news touches on many things, but one doesn't learn anything – Lehrer is more in depth and leaves you thinking about something.

Awareness, when someone comes up with a campaign in the future, you'll be more responsive...when someone starts to suggest alternatives. May influence future policy-making.

I think they do a really good job on awareness wise. I never thought about this and wouldn't think about it...but now I'll wonder about it. There is awareness.

Everyone found the Web site stimulating and exciting. Whereas some of the televised science segments left participants with questions, the Web site answered those questions and extended participant knowledge and interest in the topic.

Participants were impressed with the range of science issues archived on the Web site. One participant summed-up the overall thoughts of most focus group participants when he stated, "the site is user friendly, well organized, very informative, with great pictures. Loved it!"

Study 3: High School Study

The NSF-funded Science Unit project included a component designed to support the use of the grant-produced science reports by high school science teachers. The *Online NewsHour* Web site includes a section titled EXTRA for that purpose.

EXTRA provides students and teachers with online information and resources that “match school subject areas with important developments from around the world and around the country.” The grant project team hired high school science teachers to write lesson plans based on the science reports created for the television show. The lesson plans are available to all teachers at no cost.

As the area is further developed and refined, feedback from teachers will help the EXTRA team determine which aspects of the lessons were successful, where challenges for teachers and students exist, and how to best meet teacher needs.

Evaluators used the online environment to gather usability feedback on surveys from teachers and their students. The surveys were designed to explore teacher and student opinions about the lessons, and to gather feedback on the EXTRA Web site components. Teacher participants were expected to pilot a science lesson, to complete the teacher survey and to administer the student survey. Teachers were paid a \$100 honorarium per lesson taught.

METHODOLOGY

During the second year of the Science Unit project evaluators used an email alert listserv sent out from the EXTRA team as a means of contacting science teachers to ask about their knowledge and use of the *Online NewsHour* Web site. This resulted in a small sample of 16 teachers responding on a survey, of which only nine had seen or used the resources on the site. Therefore, evaluators changed directions and designed a pilot study for teachers to use the science lesson plans located on the Web site.

In the fall 2005, postings of the pilot study were placed on the National Science Teachers Association (NSTA) Web site as a means of generating participants. Evaluators also compiled a list of 308 high school science teachers nationwide who had participated in various ROCKMAN studies of science materials. In addition, 75 teachers were culled from the Magnet Schools of America Web site. This resulted in a list of 383 teachers to contact for possible participation. Teachers were contacted by email and asked to complete an online sign-up survey if they were interested in participating in the study. The email explained that participating teachers would be required to pilot a lesson located on the

Online NewsHour Web site, to complete an online survey and that their students would also need to complete a survey following the teaching of the lesson. As compensation teachers would receive \$100.

Seventy-seven teachers (20 %) responded to the email request by completing the sign-up survey; one teacher responded to the posting on the NSTA Web site. Teachers were asked to provide demographic information, and to choose up to three lessons they would be interested in teaching from the list of lesson plans posted on the science section of EXTRA. To ensure that the maximum number of lessons would be piloted, evaluators assigned each teacher one of their three lessons. Mid-way through the study, two additional lessons were listed on the site and teachers who had already completed one lesson were offered the opportunity to teach a second lesson. Ten teachers taught multiple lessons.

PARTICIPANTS

Of the seventy-eight teachers who completed and submitted a sign-up survey, a total of 47 actually taught one or more lessons. For unknown reasons 13 teachers never responded to the email assigning them a lesson. Six teachers who had committed to participate wrote that they were unable to participate because they “ran out of time” as the school year progressed, and 13 teachers who had committed to teaching a lesson did not respond to numerous emails sent to them requesting the status of their participation.

The following demographic data represents the 47 teachers who participated. Seventy-nine percent of the respondents were female (N = 37) and twenty-two percent were male (N = 10), the majority taught in suburban locations (62%), followed by urban (22%) and rural (17%). The final group of participating teachers represented twenty-one states and Canada. Teacher’s ages ranged from 23-25 (24%), 36-50 (33%), 51-65 (37%), to over 65 (6%). On average, respondents had taught 17 years, with a range of 1 year to 39 years.

The average enrollment of the high schools was 1290, with a range of 19 students at the smallest school to 3300 at the largest (two schools were K-12). Eleven teachers worked in schools with student enrollment of 500 or less, eight teachers worked in schools of 501-1000, ten worked in schools of 1001-1500, ten worked in schools of 1501-2000, and eight worked in schools larger than 2000. The average number of students per teacher participating in the study was 47, with a range from 9 to 160 students per teacher.

A total of 1733 high school students submitted either an online or paper survey. Fifty-one percent of the students were female and 46% were male. Students spanned four grade levels: 30% in 9th grade, 30% in 10th grade, 21% in 11th grade and 18% in 12th grade.

TEACHER FINDINGS

The three-part survey for the teachers was designed to gather useful information about the online lesson plans developed for Online NewsHour and their perception of Web site components. Teachers were asked to respond to questions about the overall lesson or lessons they field tested, about specific pedagogical aspects of the lesson from the teacher and the student perspective, to share the strengths and weaknesses of the lesson, and any adaptations they had to make for their students. Teachers were also asked to respond to the NewsHour Web site—how useful the information provided was and if it was easy to navigate. They were asked to describe the value of the site and any difficulties they experienced when using the Web-based resources.

Background

Teachers were asked about current events resources they used in their science classrooms. Nearly all participants (41 of 47) stated that they used current events as a curriculum resource. The resources most often cited were: the Internet (31), newspapers (30), magazines (25 – Science World, Time, Newsweek), and television (10 – PBS, NOVA, CNN).

Prior to participating in the study few participants (9) had visited the Online NewsHour Web site. Of those who did, three visited the site monthly and six visited every few months. Four teachers had used information from Online NewsHour in their curriculum previous to the study. Following their participation in the study, thirty-nine of the participants asked to have their email address added to the NewsHour Science Alert email listserv as they were interested in staying current with the information and lessons provided on the site.

Online NewsHour EXTRA Lessons

Overall, 59 lessons were taught representing 19 different lesson plans. The lesson plans, followed in parentheses by the number of times they were taught, were: Alternate Energy Sources (4), Tsunami (1), Hybrid Autos (3), From the Lab to the Dinner Table (2), Earthquakes (4), Human Cloning (3), Stem Cells (6), Hazardous Chemicals (5), Intelligent Design (5), NASA's Return to Flight (2), AIDS (5), SARS (3), Mercury in the Environment (2), Are the Weather and Climate Changing (2), Stellar Fingerprints (3), Anthrax (3), Global Warming (3), Gulf Coast States (2), and Rovers on Mars (1). Other than the Tsunami and Rovers on Mars lessons, each lesson was taught multiple times.

The following lessons were either not chosen by any participants or were chosen by teachers who eventually dropped out of the study: Nanotechnology, Mars, What is a Dirty Bomb, The Digital Copyright Fight. These lessons, therefore, were not piloted.

Teacher participants believed that overall level of the science lessons and assignments was about right (88%). They felt strongly that the lessons enhanced their students understanding of the lesson topic (95%). In response to a question that asked respondents to explain how the lesson enhanced their students understanding, respondents mentioned:

Students were able to explore information beyond what I present in class (or have time to). In a way it forced them to carry a classroom discussion outside of the room when they did the research. (AIDS)

I think that the reading that they did that went along with the lesson gave them a better understanding of AIDS and I think that the personal stories that they read and wrote a response to made them realize that real people are being affected by this pandemic. Having a real story with a face and a name to associate it with brought it all home for them. (AIDS)

Students appreciated the timeliness of the project. They like interactive sites also. (Alternate Energy Sources)

Each group became EXPERT in one earthquake event. Also "fence construction" allowed them to experience the effects of plates colliding. (Earthquakes)

I know that the students knew what global warming was, but I do not think that they were aware of how many aspects were affected by it. I also know that they were not aware that there could be benefits to global warming. (Global Warming)

We had been studying waste disposal, composting, pollution, and toxic waste problems. This lesson added depth and background information, especially the government intervention and the EPA. (Hazardous Chemicals)

This lesson approached learning at all levels. The students enjoyed the radio portion, and the structure. (Stem cells)

My students like the computer room and making power point presentations. This lesson helped focus them. (Are the weather and climate changing?)

It was great. I received some great textbook entries from my students and I realized how little my students understood about anthrax before the lesson. (Anthrax)

Teachers were then asked to use a four-point agree/disagree scale, to rate specific aspects of the science lessons. On average, teachers agreed with most of the statements regarding the lesson they piloted. Table 12 shows the average rating for each aspect and the percent of teachers who gave each variable a rating of 3 or 4.

Table 12: Aspects of Lesson Plan (N = 59)

	Mean (SD)	Percent Agree/Somewhat agree
The lesson complemented and enhanced the subject I teach.	3.78 (.460)	98%
The lesson was appropriate for the grade level I teach.	3.67 (.574)	95%
The topic appealed to my students.	3.49 (.626)	93%
The length of the science lesson was appropriate.	3.47 (.754)	88%
Lesson plans were easy to use.	3.44 (.702)	88%
The materials and resources promoted student understanding of concepts.	3.41 (.702)	91%
The content of the lesson held the students' interest.	3.37 (.771)	88%
The directions for using the lesson plan were clear.	3.37 (.717)	86%
Handouts supplied in the lesson were useful.	3.31 (.900)	85%
Background information provided on the Web site was sufficient.	3.29 (.720)	85%
Students generally enjoyed the online EXTRA lesson.	3.24 (.793)	85%
National Standards links provided were useful.	3.24 (.885)	85%
The site contained informative graphics and/or animations.	3.16 (.938)	82%
The experiment added to the overall understanding of the students.	3.07 (.986)	73%

Scale of 1 = Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Agree

Participating teachers were very positive about the specific aspects of the lessons they piloted. On average, all fourteen variables were rated in the Somewhat agree to Agree range and from 80% to 98% of the teachers rated thirteen aspect variables in the positive rating ranges (3 or 4).

The variable concerning the experiment received the lowest rating. According to teacher comments, this occurred for several reasons: some lessons did not include an experiment, teachers had to amend the experiment directions and materials, and there were problems accessing and using the Web site.

Teachers were asked to comment on the strengths of the lessons. In general teachers reported that the lessons:

- Increased student awareness and understanding of the topic.
- Offered a breadth of the subjects within the lesson.
- Were well organized with useful resources and links.
- Guided students to do their own research.
- Covered relevant topics connected to current issues.
- Included interesting information and a variety of activities.
- Exposed students to various viewpoints.
- Allowed students to consider the impact of science on society.

Teacher comments and ratings suggest that the online lessons had a positive impact on the high school science curriculum.

Teachers were also asked to share any weaknesses in the lesson plans. Comments centered on three main areas – time, Internet, and difficulty. Time was an important factor because of the pressures on teachers to complete their district curriculum. Teachers mentioned that lessons had to be modified to accommodate the periods available for any one topic. On average teachers spent three periods on a lesson and reported that this was too long. One teacher explained, “Required too much class time. Was set up for 2 block periods, which is equal to 4 class periods. In order to cover all the areas I feel I need to cover in a year - it is hard to justify spending almost a whole week on stem cells, even though I find the topic very interesting.” Another wrote, “My main criticism of the lesson is that it does not fit well into the recommended two periods.”

Nearly 20% of the teachers reported that they experienced Internet problems. Some of them stated that the streaming video was slow or incompatible with their school network, “Students (and I) were frustrated by the fact that we could not stream the video news story and interview into the room. This was due to the fact that our school network had many users and the streaming kept stopping.” Some noted that the links in the lessons did “not have enough updated information at the sites students were directed to,” that “some of the answers were hard to find on the Web links,” and that the sites were “not easy for the lower ability students to negotiate.”

For over a third of the lessons, teachers mentioned that the directions and content were difficult for students to follow. A few participants wrote that they had to “rewrite the directions for the students so that they were more user-friendly,” and that “the experiment portion required a fair amount of modification before using in the classroom.” Another added, “I have a mixture of ability levels, as everyone does. My EEN students were

totally lost. They couldn't read it, understand it, or even get into the subject matter. All the words confused them.” Others commented that there was too much reading for the students and that they would prefer more interactive content.

Two-thirds of the teachers stated that they completed the lesson as designed, however, half of all respondents adapted some aspect of the lesson to fit their instructional needs or student abilities. Most adaptations were simple such as correcting spelling errors, reformatting worksheets, or adding additional Web sites for research. A few cited that they had to give background information prior to beginning the lesson. Many mentioned rewriting sections of the lesson for clarification. Examples of these changes were:

I rewrote the groupings and the Web assignments (links), as it was not straightforward to get to the links. (Earthquakes)

I printed out the discussion questions, and we made a concept map for the transcript (participants and basic viewpoints) to help students keep it straight. (Intelligent Design)

I had to re-write the experiment portion to conform to a format the students could follow. Many of the question sheets had to be re-written and modified to meet the language skills of my students. (NASA)

I provided additional URLs with reliable stem cell information for updates. (Stem Cells)

Other teachers added to the lesson to increase the content information. Examples of additions follow:

I expanded the group Web activity to include class PowerPoint and other presentations. We revised the questions a little. (Global warming)

The labs sections were modified to make them more challenging, due to the level of prior knowledge of the students. (Earthquakes)

I added a lot. I had a debate that worked in a circle format where they all constructed or used their persuasive arguments and then traveled from student to student debating the topic. (Stem Cells)

A teacher added a comment that would be useful for all lessons. She wrote, “Give more details to the students as to how to negotiate the website. Give more clues in the questions, such as keywords, to let the students know what articles would be the most helpful in finding answers to the questions.”

Over 80% of the lessons implemented in the classroom were assessed. Teachers explained that they added questions about the lesson to the unit test, and observed and graded classroom discussions, class work, and reports. Teachers also assessed oral

presentations, role-playing activities, and debates. One teacher shared an example of a multi-layered assessment:

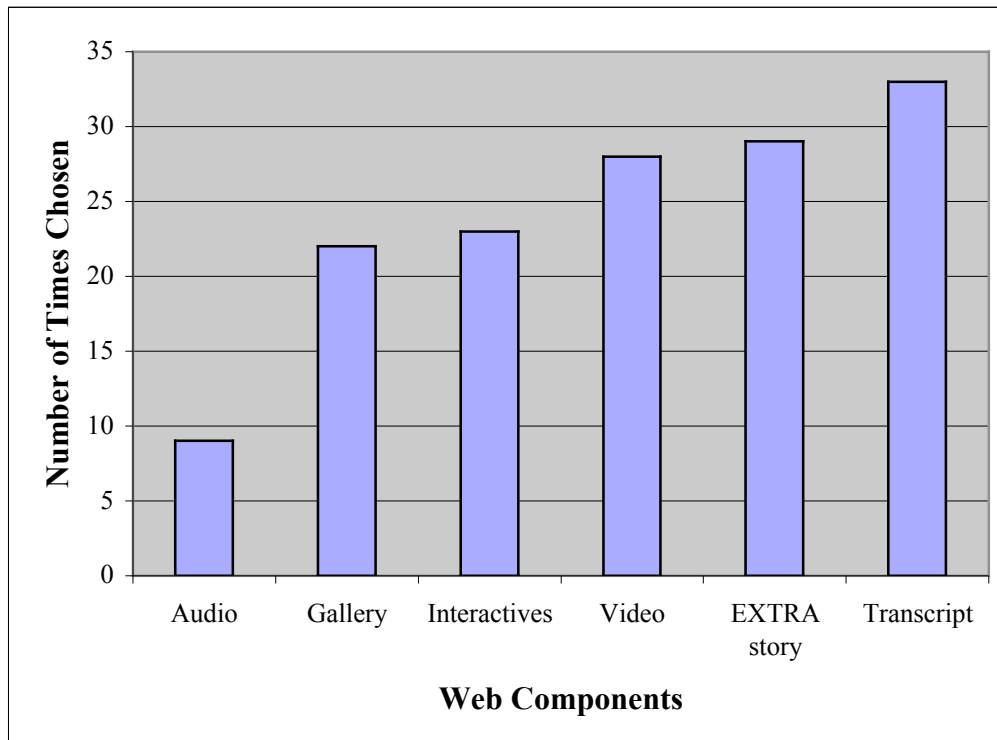
Students were videotaped in the role-playing scenario. Each student had to submit a written summary of their character and points made in the town meeting. Students were also assessed on their involvement in the question and answer session once each community member presented their concerns. Answers to questions for the Internet activity were graded.

Specific comments on strengths, weaknesses, and suggestions for each lesson can be found in Appendix B.

Online NewsHour Web Site

We were also interested in feedback from the teachers regarding the Web site. Teachers were asked to check the components of the Web site they had visited or used as a result of participating in the study. Figure 1 below shows the online components and the number of times each was chosen.

Figure 1: Teacher Use of Web Site Components (N = 59)



Most teachers used the transcripts of the science reports, the Online EXTRA stories, and the video component when teaching the science lessons. Usage of the components depended on the online activities required in the lesson.

Participating teachers were asked to rate their overall experience using the *Online NewsHour* Web site. Teachers used a 4-point Agree/Disagree scale to rate the variables.

Table 13: Web Site Components (N = 59)

	Mean (SD)	Percent Agree/Somewhat agree
The layout of the articles was clear.	3.58 (.596)	95%
I found it easy to find what I was looking for.	3.50 (.707)	91%
The content was easy for students to understand.	3.36 (.693)	88%
The experiment added to my students' understanding of the topic.	3.30 (.911)	85%
The photos and graphics enticed me to read the linked information.	3.21 (.731)	86%
The extension activities complemented the overall lesson.	3.60 (.618)	71% (n = 45)

Scale of 1 = Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Agree

On average, teachers agreed that the Web site was easy to use, easy for the students to comprehend, and that the various resources added to the lesson. Teachers added comments to explain their ratings. Most of the comments were associated with lower ratings and therefore, highlighted problems. Teachers mentioned that time was a factor and that students may have needed additional background to understand the lesson, that links did not work or were old and therefore, teachers had to find current links for their students, and that there was no experiment for the lesson.

Teachers were then asked to describe the value of the Web site. Most often mentioned was that the site contained current, well-organized, useful information all in one location, that students could understand the information presented on the site, and that the resources were varied and interesting to both teachers and students. Illustrative teacher comments were:

Linking current news directly to an associated lesson. Often the news is old by the time I can find the time to develop a lesson.

The links within the articles were very helpful to my students. It provided the extra information that they needed.

The video footage was the best because it explained the information and included examples and visuals.

All the resources. I found them useful because then I don't have to go and find them somewhere else.

I loved all the different current topics. It is really nice to have so much information organized on a single site.

While the majority of teachers (53%) had no difficulty using the Web site, problems were reported by a third of the teachers. Teachers wrote that the primary problem was with the videos – that downloading of videos was very slow, or that the school server would not allow access to videos. Several teachers mentioned problems accessing the PBS Web site.

Several comments focused on this issue:

The kinks with the web page not loading kills the lesson. Not being able to access the pages is a real bummer.

I had planned on showing the classes the interviews via the streaming video on my Smartboard. However, I was unable to do this because my school district restricts data streaming on the network. I believe that viewing the interviews in addition to reading the transcripts would have been much more effective for my classes.

I would use this lesson again if capability to download the videos is made available.

Teachers were asked to share ideas of what they would like to see added to the EXTRA teacher resource area. General suggestions were:

Perhaps an area where other teachers write about useful tips to accompany these lessons. Also, examples of student work may be helpful.

Updates on sidebars of sites the students use. Many articles were old.

Easily downloadable student worksheets to use so teacher does not need to make one up.

Some health and nutrition topics would be good.

More interactive websites. Handouts that the students can download and type into.

Astronomy topics, oceanography topics, meteorology topics, and geology topics are all useful in the class I teach.

Have the same lesson geared for different grades or different reading levels.

Providing us with a short lesson assessment will help us assure that the kids are reading for content and comprehension.

I would like to see "Printer friendly version" to the online transcripts so if teachers want to print it, they can do so without wasting so much graphic space and having to cut and paste. I would like a link to where we can purchase the video of the NEWSHOUR the day the special report aired.

Possibly a registered user option that can save video segments to playback in full screen mode. Current option is streaming only with small, embedded player.

And finally teachers were given the opportunity to add any additional comments. Those who added comments were grateful for the opportunity to participate in the study and to discover the variety of lessons on the site. Several comments are included below:

Thank you for this opportunity. The students' interest level, as you will see on the surveys, has increased 100%. I am going for my National Board Certification right now and I am using some of this lesson in my Portfolio!

What I have seen looks great, and I am excited about finding more and using the site more often in my classes.

I think you have a really good list of topics. Very contemporary information, controversial and you have interviewers that are willing to play the devils advocate.

STUDENT FINDINGS

The survey focused on obtaining student feedback about the lesson they were taught. It was divided into two main sections, one on the lesson itself and the second about the NewsHour Web site. The survey was available for input online or as a paper version. A third of the teachers used the paper version with their students; all other students submitted the survey online. A total of 1734 students submitted surveys. Although student data is not usually considered reliable, the number of participants in this study lends credibility to the data.

The Science Lesson

Students were asked to think about the topic of the lesson and rate their interest in that topic before the lesson and following the lesson. The rating scale was 1 = Not interested to 4 = Very interested. On average, student interest in the lesson topic increased from before the lesson (Somewhat interested) to after the lesson (Interested) for all 19 science lessons. Alternative Energy Sources received the lowest means (before = 1.71, after = 2.12) and Global Warming received the highest (before = 2.27, after = 3.11). In fact, Global Warming had a statistically significant higher student interest rating as a topic after the lesson was taught, than 10 of the other lesson topics.

Students were then asked to rate a series of short questions about what they had learned. Student feedback indicated that:

- 95% found the reading level of the material to be about right or easy.
- 50% reported that some of the topic they studied was new, 37% rated most of it as new.
- 50% indicated that their knowledge of the topic increased a moderate amount (rating of 3 on a 1 to 4-point scale).
- 88% reported that the overall level of the science lesson and the assignments were about right.
- 50% agreed that they planned to learn more about the topic because of the lesson they studied.

Students were asked to rate several aspects of the science lesson. Table 14 shows the means and standard deviation for each aspect and the percentage of students who agreed or somewhat agreed with each variable.

Table 14: Aspects of the Science Lesson (N = 1734)

	Mean (SD)	Percent who rated 3 or 4
The lesson directions were clear.	3.24 (.774)	85%
The length of the lesson was appropriate.	3.24 (.828)	85%
The materials and resources helped me understand the science concepts.	3.23 (.773)	87%
The experiment added to my overall understanding of the topic.	3.05 (.934)	71%
I found the lesson interesting.	3.05 (.913)	78%
The content of the lesson held my interest.	2.97 (.916)	75%

Scale of 1 = Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Agree

Overall, the students agreed with the various aspects of the lesson. Means for the six variables were in the positive ranges and over 70% of all respondents gave the variables a rating of 3 or 4. These data suggest that the students found the topic interesting and learned by using the materials and resources available on the site.

The variable, *The experiment added to my overall understanding of the topic*, had a lower percent of students giving a positive rating because many students, rather than skipping

this variable, gave it a negative rating even though they did not conduct any experiment, “I chose disagree because we did not do an experiment with this lesson.”

Additional analysis showed that for all lessons, Global Warming had the highest means for clear directions, for the length of lesson being appropriate, for having helpful materials and resources, and for interesting content. Students rated the Mercury in the Environment lesson highest for the experiment, and Stem Cells as the most interesting lesson. The Gulf Coast States lesson received the lowest means for all the variables in Table 14.

Students were asked to explain any ratings they gave that were either “Somewhat disagree” or “Disagree”. Most comments fell into four categories, which were that they didn’t like, or weren’t interested in the topic, that the directions were confusing, or terms were too difficult, that they “weren’t into science,” or that they already knew about the topic “so the material wasn’t very new and exciting.” One student explained, “Some of the lesson directions on the NewsHour website were very difficult to understand. For example, the activity involving styrofoam and toothpicks to demonstrate moving plates was extremely difficult to understand because it simply said to place the pieces ‘perpendicular’ to each other, which could lead to a large variety of different outcomes. It would have been better if there had been pictures or diagrams to look at as reference/examples.”

Finally students were asked to check the resources they used, or that their teacher used, to help them understand the concepts of the lesson. They were also asked to indicate whether or not the resource was helpful. The table below shows this information by the percentage of students who reported using each resource. Not all students completed this table on the survey. Depending on the variable, from 22% to 55% of all student respondents answered each question (the percent of respondents is listed in parenthesis after each resource). The percent of those who found the resource helpful reflects only those respondents who used the resource, not the entire population of respondents.

Table 15: Lesson Resources (N = 1734)

	Used the resource	Was helpful
Visited the Online NewsHour Web site (n = 55%)	55%	84%
Read Online NewsHour articles (n = 55%)	55%	85%
Used information from other Web sites (not NewsHour) (n = 51%)	51%	87%
Viewed pictures/graphics to enhance the topic (n = 49%)	49%	86%
Completed worksheets created by NewsHour (n = 41%)	41%	82%
Read NewsHour transcripts (n = 37%)	37%	74%
Used charts, maps, tables created by NewsHour (n = 34%)	33%	78%
Conducted an experiment (n = 29%)	29%	76%
Used the glossary provided (n = 27%)	27%	71%
Viewed Online NewsHour videos (n = 22%)	22%	63%

The most used resources were visiting the Web site, reading transcripts, and using information from other Web sites. Least used were Online videos, using the glossary, and conducting an experiment. Student comments indicated that teachers had problems downloading the videos, which would account for the low rate of use.

Online NewsHour Web site

Students were asked to rate their overall experience using the Online NewsHour Web site. Not all students used the site, 64% of all responding students answered this section. Table 16 displays the ratings (Agree/disagree scale) by student respondents. The total percentage of students rating the variables in the positive ranges is included in the table. This percentage reflects the percent of those who responded to this section.

Table 16: Use of Online NewsHour Web Site (n = 1107)

	Mean (SD)	Percent choosing 3 or 4
The layout of the articles was clear.	3.11 (.848)	83%
The content presented on the site was easy to understand.	3.10 (.839)	82%
The experiment added to my overall understanding of the topic. (n = 874)	2.99 (.942)	78%
I found it easy to find what I was looking for on the Online site.	2.93 (.918)	76%
The photos and graphics made me want to learn more about the topic.	2.89 (.899)	74%
I plan to go back to Online NewsHour to learn about other topics.	2.34 (1.025)	50%

Scale of 1 = Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Agree

The means for five of the six variables were in the Somewhat agree rating range, and from 74% to 83% of the students agreed with the statements. Half of the respondents to this section plan to return to Online NewsHour to learn about other topics. Given the difficulties accessing and using components of the Web site, this positive response suggests that the site appealed to many students.

Students were then asked to explain if they experienced difficulties using the Web site. Twenty-three percent experienced some difficulty using the site. Examples of their explanations were that:

- The video did not work or was slow.
“Your streaming videos do not work well when a lot of people are using the internet in a network.”
“We could not run any of the videos or documentaries on the site.”
- The answers to worksheet questions were hard to find.
“It was too difficult to find information. This led to fading interest in the topic”
“Couldn’t find the info, so I used a different site”
- Links did not work.
“Some of the web pages were not working properly.”
“I had trouble getting onto some sections of the website. Some of the links were difficult to locate.”
- The site contained a lot of information.

“There was so much stuff there that it did take me a little while to find what I was looking for.”

“It was somewhat confusing finding information in the layout of the Online NewsHour web.”

Overall

Students were asked to share what they liked best about the science lesson, what they didn't like about it, and to offer suggestions on how to make the lesson more interesting or understandable in a series of open-ended questions located in the final section of the survey.

In general, students found the topics of the science lessons to be interesting. Most of their comments were positive and many students mentioned using computers often as one of the highlights of the lesson. Those who had the opportunity to do an experiment or create a product, such as a PowerPoint presentation or a poster, also mentioned these activities as highlights. Given the age of the student population it is not surprising that most of the negative comments centered on being bored with the topic or finding the work too difficult. Student comments for each lesson are provided in Appendix E.

Student respondents also offered suggestions for how to improve the lesson they were taught. Most mentioned adding an experiment, and adding video and graphics “to show us what happens and how to do things,” “more hands-on.” They also suggested that the lessons should “relate the topic to current scientific issues,” that student debates be added to the lessons “so the students can have a better understanding of it making room for more open discussion,” that articles and directions use understandable language, offer simple instructions, and require fewer worksheets.

SUMMARY

Teacher participants were very pleased with the lessons they piloted. There was strong consensus that the lessons enhanced their students' understanding of the topic. A vast majority, over 80%, of the teachers agreed that all aspects of the lessons were appropriate, useful, and valuable. They also agreed that most of the assignments and materials were the right level for their students.

The experiment component of the lessons presented difficulties for the teachers. Most of the problems involved Internet access, which was slow or incompatible due to school network restrictions. Some teachers reported that they had to rewrite instructions to the experiment for students of differing ability levels.

Teachers reported favorably on the NewsHour Web site. Over 80% of the respondents agreed that the site was easy to navigate, that the layout of the articles was clear, that students understood the content of the articles, that photos and graphics enticed them to continue reading the information on the site, and that the experiment added to their students' comprehension of the lesson topic.

Teachers found the Web site to be a valuable teaching resource. They were impressed that the lessons focused on current topics and that so much useful information was located on one site. They appreciated the organization of the site, and found the resources varied and interesting for the students and themselves. Teachers also mentioned that the Web site presented information at a level that was understandable to the majority of their students.

On the whole, teachers were enthusiastic about participating in the study.

Teacher comments included:

Now that I have used one activity, I will definitely be visiting your website more often for ideas. Thank you for the opportunity to offer this activity to my students.

Thank you for providing a service to school teachers. I like the internet for lessons but have trouble finding the time to put lessons together. This was a good lesson.

It was a well put together lesson that made the students think, which I liked. They are seniors and thinking through the hows and whys is important.

Only one participant stated that she was not planning to use other lessons on the NewsHour EXTRA Web site, all other participants were planning on using other lessons.

The high school science student participants also gave positive ratings to the EXTRA lessons. A high percentage of students (over 80%) reported that the overall level of the lessons was about right – directions were clear, the length of the lessons were appropriate, and the resources helped students understand the science concepts. Over half of the students reported that their knowledge increased and that they planned to learn more about the topic they studied.

Over 70% of the respondents found the lesson interesting, thought that the content was interesting, and believed that the experiment added to their overall understanding. Written comments support these ratings. When asked what they liked best about the lesson, students highlighted the experiment, new information about the topics, and the Internet based activities.

Students mentioned:

I really liked this assignment because it was actually interesting rather than doing a report or something like that. it was more hands on which was better.

Thanks for the interesting lesson! A pleasant change from normal classroom science.

This website was really helpful and easy to understand, I think that most people will be able to understand the content.

Students who used the Web site (64% of all respondents) reported that the layout was clear, the content was understandable, the photos and graphics encouraged additional learning, and that the site was easy to navigate. The main negative comments focused on the difficulty of viewing the streaming videos. This problem was the basis of great frustration for many classes.

Overall Recommendations

The recommendations emerged from our data from both focus group participants and from the teachers and students who participated in our study. These recommendations are offered for the consideration of the NewsHour staff.

Focus Group Participants

- Increase the number of science segments that include streaming video.
- Viewers of NewsHour were “activists,” they want to get actively involved. Provide links to science museums/museums that have exhibits to extend the aired segment. Help viewers access what is available to them – provide links to organizations that support the science segment topic.
- Provide links to the researchers interviewed and to the research discussed in the segment.
- Introduce the topic’s problem early in the segment to capture the viewers’ interest.
- Continue to stretch viewers’ ability to understand the science behind the topic.

Teachers and Students

- Create an online tutorial for how to negotiate the site, how to use the site effectively, what to expect to find for each lesson e.g. glossary, links, transcript, video, etc.
- Encourage lesson authors to include interactive resources and to be aware of too much written material.
- Develop a web site activity page. “Many students are not as comfortable with the Internet as adults believe. There was a lot of wasted time with errors in entering the URLs. In an on-line page, these can be clickable links.
- Offer additional research suggestions for further study, or keywords to use in a search.
- Continually review and update links and articles cited in the lessons to ensure accuracy.
- List material costs. If expensive, offer alternatives.
- Pilot lessons prior to adding them to the Web site.
- Add instructions on how to download videos to avoid streaming problems, as possible.
- Differentiate the curriculum for grades and ability.
- Add interactive activities to all lessons. Students suggested, “More things that are interactive and can get the brain working because just reading gets boring” and “make the website more interactive.”

Appendix A: Online Survey Respondents Suggestions for Science Reports – Year 3

- Results of various space probes to the planets
- 1. Alternate Energy Sources - viability of solar, wind, geothermal in various locations of the U.S. - the world. 2. Compatibility - animals/ecosystems/people. 3. Every Day Activities for Every Day People to conserve/reduce/reuse our earth's resources. 4. The Truth about Energy-Efficient Vehicles. 5. Green-Advertising - Corporations that advertise "green" but act to harm the environment. 6. Projections of Changing Weather Patterns due to Global Warming. 7. Planning for results of Global warming. 8. Cleaning up greyfields (brownfields) in cities that have been polluted. 9. GMO's - Genetically Modified Organisms- where they are in our environment and known and unknown consequences. 10. How to best support those who are supporting our living planet in a positive way to promote the continuance of life.
- Would love to see a comprehensive series on "peak energy" when it will or has occurred and its likely impacts. this is very important to know and no one is dealing with it. please do something on this important subject. i believe it is the most important issue facing civilization. many of the issues being discussed today can be traced directly to this issue. my guess is that this very issue is being ignored because of its potential impacts which are considerable economically, socially, militarily, and personally. . give the public the information and hope they take the necessary action. just google "peak energy impacts" and spend a few minutes to review some of the data. the authors of much of the info will certainly be available for on air comments.
- Environmental. Antarctica research station. How do we insure an adequate supply of clean water in the future? How is the increasing world population going to affect our quality of living?
- Ecological Economics, where did the "1st" Americans come from?, invasive species, more on global warming, stem cell research, hazardous algal blooms, sea floor spreading, falling in love as "madness", risk probability of common events.
- More on developments in cognitive psychology, especially "the emotional brain" and "extended mind"/ distributed processing hypotheses (e.g. seen in the construction of new robots).
- Reports on subjects of immediate interest -- the effect of pesticides/additives/preservatives on fetus/infants. latest reports on causes and treatments of breast cancer. skin cancer trends. aging theories.

- Consumer fraud: ie: food labels geared for a grown male when a product is geared for kids, or mislabeling of non-archival artwork (giclees, iris 'prints' etc) as archival and thus charging prime price rather than reproduction price.
- Fusion power used to be considered the answer to the bulk of our energy problems. What research is being done? Has science given up on harnessing this?
- More social science, astronomy, anthropology, archeology.
- What about looking at science education in elementary schools/ middle schools, to see what kids are doing where science is being well-taught.
- What is Science? What phenomenon can science study? What phenomenon cannot be investigated by scientific methods?
- More on the oceans.
- Disappearance of rainforests.
- genetic engineering in food crops, more about current topics of debate (like stem cell research and global climate change)
- Russian crew investigating "Atlantis" between the Yucatan and Cuba.
- Microscopis "extremophiles" found in caves and used in medical research.
- Science photo of the day--and image with a brief comment.
- Genetic Modified Foods. What is Monsonto doing to our food? And what kinds of health issues are being monitored when we eat these foods?
- The impact of digital technology in everyday life.
- Green/resource 'sustainable' business models and technologies.
- Excessive packaging of products and how this adds to global waste.
- Stem cells, brain imaging's impact on understanding of cognitive function, effects of hormones on the brain
- autism epidemic ..autism in children. teaching options for autistic children
- Meeting the world's growing water demand. JL Newshour has done pieces on this before, but there are pieces to this problem that would be great for dedicated science stories.

- Climate Manipulation is a very HOT subject right now. We have always heard that clouds can be seeded, but no one has ever done an investigative report outlining the progress HAARP has made in using it as our defense in the nuclear arena. This topic is well discussed on the internet, yet important information like this is never explained in total, that being how Russia has the technology to alter weather conditions for purposes of destruction, and now we have it. This is a HOT topic at school, one that you should share with me, the viewer.
- Difference between scientific method and belief systems. 2. Problems with news coverage of science, especially the need to "balance" conclusions accepted by the overwhelming majority of scientists and those of a tiny minority, leaving viewers with the idea that it is 50-50.
- Global warming issues (e.g. the recent exploration of the Arctic finding minerals and prompting a land rush)
Environmental issues affect us all - there are many topics here from air, water and land.
Topical subjects include the natural disaster du jour: earthquake, hurricane, unusual weather (floods) - address the science behind it and who is studying various aspects.
Is how science gets funded part of the scope of this survey? What has happened to federal funding in the past decade? Hmm that gets into politics, eh?
How are we managing our natural resources?
By the way, "intelligent design" has no place in scientific discussion.
- The Sun is a Variable Star. This explains most large scale weather changes, mass extinctions, Ice Ages and a host of other formerly mysterious terrestrial processes. I would like to claim this is a new idea, but it is not. Please see "The Sun and the Welfare of Man" by G. G. Abbot D.Sc. Vol. Two, The Smithsonian Series, Chapter XIV "Our Sun a Variable Star".
- The Steady State Universe. (Current psuedoscience suggests a Big Bang only about 14 billion years ago created the Universe. That would make the Universe only about 28 billion light years in diameter. This is absurd. The Universe is infinite in age and areal extent. Remember, any irreversable process would have reached completion an infinite time period ago, therefore all existing processes are reversable. All universal integration processes are in balance with disintegration process, hence a "steady state" exists.
- Changes in oceans and Great Lakes (which hold 20% of fresh water in the world). Interdependence of mankind and enviroment. Implications of significant increase of elderly as % of population.
- MY INTEREST IS WEATHER; AND IN THINGS EXTRATERRESTRIAL

- The role and importance of international conservation science NGOs in saving habitat and species in developing countries. E.G. the International Conservation division of the Wildlife Conservation Society based in the Bronx, New York.
- More sea floor spread, plate techtonics and physical geography shows. The New Madrid fault of the midsouth is a subject endless public interest. The (est)7.9 earthquake of 1811-12 is mostly unknown to virtually everyone alive today and the ones that do know about it can't find out much about it in local museums or libraries. The recent Sumatran tidal wave disaster of 2004 made for some very interesting scientific televison.
- Ageing, complementary medicine.
How politics has affected decisions in science during the current administration.
Science and math education in US vs the rest of the world.
- You should do more in-depth reporting of current scientific discoveries. It never works to patronize your audience by assuming too little. Challenging your audience with more accurate scientific terms and some math could be effective. You are dealing with a serious audience that would be interested in greater depth.
- Science based analysis of political issues. In particular applying a scientific method to political issues. Examination of claims made by analysis of the science and numbers.
- Science that promotes a greater understanding of the natural environment with less emphasis on 'isn't science wonderful' gadgetry to offset the overly commercial and man made ; to restore a sense of wonder
- Controlling insects with pheremones; The decline of worldwide honeybee populations and its implications; Where is fuzzy logic and chaos theory today; The business of vaccines
- emerging science
- nutrition
air and water pollution
medical breakthroughs
- Successful conservation efforts; ecological issues
- Rare diseases and insufficient research
- More reports on medical research.
- neurobiology and human evolution

- Politicization of science. Interview Mr. Chris Mooney, author of "The Republican War on Science"
- More on prescription drugs
- There should be coverage about the role government funded R&D has in seeding new technology and the severe effects of continued reductions in nonmilitary R&D funding on the future of the United States. There is continued lip service being paid to this issue, but research funding has steadily declined since 1972.
- Nutrition and Cancer. How eating right could prevent cancer
- Importance of reproducibility to distinguish science from metaphysics
- More information on alternative energy.
- group IQ differences
- Human activity does not cause the earth to warm, for natural disasters to occur and carbon dioxide is not toxic but the life blood of all O₂ breathing creatures.
- In general the 'scientific' and lack of scientific mindsets I encounter fall short of 'making a difference' because any understanding of science and technology as a human enterprise is lacking. The more we understand what scientific understanding is about, what it involves, how it evolves, along with relating to other human enterprises, the more wholistically-informed, proficient in and peacefully-engaged with our opportunities to co-creating with the rest of the world's populations and cultures a 'quality of life information economy' we can become,
- Helping NewsHour viewers/listeners/webbers, etc., gain abilities in the 'big picture' of science, past, present and future, would be what I recommend for 'first steps' in the NewsHour's Science Reports.
- What is and isn't known (in terms of science) about evolution?
- more energy and environments reports
- How to entice more students into science, but also how to make basic science training a requirement for all students (in high school) in a format that is exciting?
SECOND - The State of Environment (air, water, waste and land-use management issues) THIRD - How the media can play a role in Science Training.
- women in physics, detailed review of NASA spending, robots vs man in space, neuron activity in cognition

- medical research
- lead poisoning; mercury in fish
- More Astronomy
- The changing and erratic weather patters and the increase is more dangerous storms, i.e. hurricanes, tornados
- How Americans tend to over-package their products...and cause more waste.
- Popularization of science in various media, percent of foreign students studying science here and stay in USA, quality science web sites.
- The science of petroleum -- where it is, how fast it's running out, etc.
Quantum computing
- science of curiosity
- i think that you should do follow ups on things you have reported before and not just wait for big events.
- A story that explains what is a theory. A story that explains what is a model and how is it created.
- A more detailed analysis of the galaxy we live in.
- The organisms that live on our skin and on our bodies
- Global Warming
- nuclear power.
- global warming biotechnology astronomy
- Avian & "Spanish" flu research; global climate changes; how scientists determine which evidence is scientific; how to evaluate "scientific" reports in the news/on the Web; the value and limitations of science inquiry; science and societal issues; "ideal" science vs. corporate/government-sponsored research and "agendas".
- Environmental science topics. Reactions of plants to increased levels of carbon-dioxide.
- A balanced view of "Evolution" vs. "Intelligent Design"

- Plate tectonics, seafloor spread, geographical events
- More examination of gene therapy and also the concept of biological advances which will increase the human life span

- String theory

- Conservation issues (more "green" enviro stories versus "brown" enviro stories). There are issues like eco-tourism, wetlands protection in Brazil, and species protection stories happening all over the world.

- wet lands, animals, anything to do with our world

- 1.) Do we really need the space shuttles as compared to the wealth of less expensive and more fruitful space missions.
2.) How effective is current popularization of science.
3.) Methods for increasing interest in the sciences.
4.) Science ethics.

- physics, computer science theory, biotechnologies, famine crisis in third world countries and possible solutions, energy alternatives revisited, global warming status and climate change trends, organic foods -- what health benefits and GMO foods is there a down side, turning Vegan -- the biophysical changes on the human body measured at time intervals, obesity and women--what role does it have in endometriosis and severe menopause symptoms, male menopause--real or contrived, social security crisis--what will happen to the post-baby boomers after they retire at 67, 68, 69, 70+ will there be any money left?, genius born or built--the growing gap in SAT scores between the classes, more to come...

- More depth on the issues in the news, ie: global warming, stem cell research, evolution, etc.

- Global warming, prehistoric native Americans, Lake Superior

- more ornithology, natural history, botany

- Bird flu, evolution, Arctic National Refuge, Global warming, alternative energy, Endangered Species Act and vanishing species.

- super volcanoes and the danger of Yellow Stone Park eruption.

- environmental toxin
The Cholesterol Myth - why animal fats are good for you

- continuous information on global warming. possibility of bio hazards post katrina. how the massive housing developments throughout most of the united states is affecting the environment(or not affecting it)

- NASA and NOAA's Earth science research is taking a severe budget hit. Can the News Hour ask scientists who want to go to Mars and beyond and policy makers why that is more important than studying Earth from space?
- water /drought/ advances in water science... ditto about snow science... dams, removal etc.
- Viewers need an authoritative piece that starts to dispell the mystery about how common activities can accumulate and aggravate hidden injuries until disabilities are generated that cost jobs and lifestyles for millions of people. Spending time with the physical or occupational therapists that are using evidence-based therapies for these injuries would go a long way to advancing general understanding about how to appreciate the importance of ergonomic preventions and injury recovery accommodations.
- Cutting edge medical discoveries; new energy technologies; current archaeological discoveries
- Genetics (DNA)related to forensics, top-funded government programs at universities, computer privacy (or lack thereof) vis-a-vis our government.
- Evolution. Polls show only about 30% of Americans believe in it!
- lost languages - I'd like to know more about how languages are changing in a flat world and how technology and demographics are accelerating changes and how native languages are being saved or recorded / climate change I'd like to know more about what's happening in the southern hemisphere / environmental impacts of war in Irag and Darfur and Katrina - more about what's being done to clean up and prevent environmental losses / women scientists - who are they and what are they up to - do they change the way we look at science or understand it? / science and faith - we hear about the conflict but is it real or just an artifact of history that keeps being played out?
- bird flu
- * disease ecology, human biology (people don't understand the basics)
* is it ethical to encourage girls to go into science, math, engineering?
* grassroots scientists, public involvement
- I would like to hear more archaeological information. Although I know many would consider archaeology a social science rather than a science, Valley of the Kings, the Mediterranean shipwreck. I would also like to have seen something on the fossils of the "little people" that were found.

- I would like to know more about alternative engines for automobiles that will be available in the near future.
- alternate energy sources, wind , wave power, solar ,ocean temperature differentials, alternate fuels etc.
- Report on recovering endangered species.
Loss of wilderness and its effect on wildlife.
- Genetic medical advances
- Mathematics, The new paradigms i.e. topics involving the subjects of such books as well as examples of their applications, as : Wolfram's the New Science, E.O. Wilson's Consilience, Sociobiology and the debates at Harvard that took place between E.O. Wilsion and S.J.Gould.
- Further updates and explanations about Evolution.
- Nanotechnology
- Toxicology , foods and the environment.
- Atmospheric dust; water resources; geologic hazards; climate change; evolution
- I'd like to see more about the science of forestry as used for wildlife management. Not the politics of forestry, but how it is actually used by professional wildlife biologists to benefit wildlife species.
- endangered primates
inappropriate use of primates in advertising
- integral consciousness (Ken Wilber, philosopher, scientist); more on global warming, alternative energies, etc.
- 1) Roger Payne on whale songs 2)Laurie Marker on cheetah conservation
3) Ed Wilson on Earthwatch "citizen science" 4) Dr. Pat Wright on Madagascar lemurs
- Subjects related to conservation, evolution, ecology, microenvironments, genetic manipulation; agricultural genetics, deforestation, climate change, environmental change due to human interaction/intervention, among others.
- What would be the effect of a limited nuclear exchange, say between Pakistan and India or the USA and Iran? Locally and globally over time. WE NEED TO KNOW!! How many human beings can the earth support and still have a little room for other life forms? Why are poll workers being indicted in OHIO?!?

What ABOUT the last two Presidential elections? All the frogs are allegedly dying. What does this portend?

- more coverage of mathematics
- Any studies you do of rain forests, prairie restoration, the effects of our antiquated mining laws and give-a-way pricing for oil, minerals, ores that lie beneath the surface and can be sold separate from the surface land, (a seeming absurd contradiction in terms) cause me to stop whatever else I might be doing and pay attention. Given the decline in population of the middle section of our country, is prairie restoration a real possibility? Could its restoration help to store carbon, help clean water, slow the loss of deep water aquifers that are being drained to irrigate crops that are often supported by subsidies from the Dept. of Agriculture?
- Long-term NASA space missions that are continuously productive (years after launch), but not in the headlines anymore.
- Electricity and magnetism?
- More on nanotechnology, domestic science education, allow more foreign students to attend graduate school here, reality of money and pie in the sky space plans of government and NASA.
- Personally I would like to know how scientific information is used by our Federal Government in making policies that should not be politically motivated.
- I'm curious about astrological predictions; I've never put any stock in that but find it interesting/amazing that many do. It would be helpful to explore that subject - to debunk it or validate it.
- Lack of gov't oversight for safe food, too many additives in food, Superfund sites, Creutzfeld-Jacob disease, advertising by drug companies, renewable energy, clean oceans and rivers, safety of nanoparticles in daily use
- Following up to correct the "pseudo-science strategy" of global warming is an appropriate story to tell.
- RENEWABLE ENERGY SOURCES
GREAT LAKES ECO-SYSTEM
- Things I'm interested in are things that happen around us; ie. volcanoes, tornados, hurricanes, things being done to improve the environment.
- Marketing of prescription drugs

- Global Warming, endangered animal species, new discovers involving the planets and their respective moons, simple environmentally safe household cleaners and their chemical composition, dutch elm disease, new findings in aids research
- science of oil, fuel economy;
- I would love to see more about topics relative to weather and its affects on everyday life. In particular any new information on how better to detect tornadoes!
- Global warming [detailed examples], feasibility of a common ground between science and theology, tenability of man in space in the next 25 years in that it is safer and cheaper to send probes and the like.
- Plate tectonics and seafloor spread
- Any earth climate change stories.
- nutrition-related topics, genetic predisposition to chronic illnesses
- Diseases in the third world? What do those people face? Are we at risk in our clean/comfortable environments? **MORE ON GLOBAL CLIMATE CHANGE AND THE ENERGY FUTURE AND ALTERNATIVE ENERGY OPTIONS AND THE NEED TO TAKE THIS SERIOUSLY! NOT JUST INFORMATION BUT PRESENTED IN SUCH A WAY AS TO BRING ABOUT CHANGES IN THE WAY PEOPLE LIVE!**
- Revisit former issues that were controversial at the time they were first looked at. For example, how has the performance of the Alaskan pipeline matched up with the predictions of its impact on nature before it was built.

Appendix B: Focus Group Participant Comments and Suggestions

Report	Comments and Suggestions
Tsunami	<ul style="list-style-type: none"> • Include a discussion of the Richter scale supported by a graph that shows that earthquake levels increase exponentially. • Acronyms, such as NOAA, and other scientific terms should be defined along the bottom of the screen each time they are used.
Science of Aging	<ul style="list-style-type: none"> • Participants commented that the beginning of the segment did not “grab their attention”, the pace was slow, and the woman shopping was uninteresting footage. • Add interviews with the calorie-restricted dieters and introduce other cultures, their diets and how long they live.
Coral Reefs	<ul style="list-style-type: none"> • Interview fishermen and cruise ship employees. Some thought the segment was too “editorial, not balanced enough.” • Add a worldwide graphic, “a visual representation of world and reefs, illustrating how they were and how they are now so you can see the change.”
Teen Brains	<ul style="list-style-type: none"> • Include more scientific research “This segment got too moral – didn’t stick to scientific research”
Robots in Space	<ul style="list-style-type: none"> • State the problem – show two sides, pro robot, pro human, and then show where we are going from here. • I liked the simulations and the graphics that were in there... I liked seeing the faces of the researchers. I thought they did a nice job of mixing the visuals. • I liked it when they were discussing the challenges and how they were perceiving things.
Saving the Everglades	<ul style="list-style-type: none"> • The social implications were not fully addressed • Show a graphic of a chain of impact of things that have occurred in the everglades... what the impact was. • Use a wide variety of camera angles when filming. • Add IDs under the speakers. “I like them because I look up the people on the internet to see who they are and what else they do.” • Show a healthy plant on the screen so you can see comparison.
Stem Cells	<ul style="list-style-type: none"> • Definition of types of Stem cells earlier in show. • Add a discussion about creating new lines.
Polar Warming	<ul style="list-style-type: none"> • Need a visual to show how it would shrink over years. • Add graphics. • Include a clear beginning, middle, and end. • Wasn’t enough of a societal impact. How does it impact me? • They could maybe have parts 1 and 2. If you could double the length of that you could answer some of these questions.
Women in Science	<ul style="list-style-type: none"> • Pose a question to the audience at the end of the show, what can you do to help...in your community or home. • Begin with “the controversy is...and here is one place that has a solution.” • A bar chart or pie chart as a visual to the statistics. • What can we learn from Korea? What other countries are ahead of the game? • Write underneath who was speaking –name and the school they are from.
Nuclear Challenge	<ul style="list-style-type: none"> • The graphics were very good. • The presentation of facts was clear. • The narrator had the right amount of intonation in his presentation. • The interviewees were each knowledgeable in their field. It was a grisly subject that was made without pandering to fears. • Some parts were too technical and difficult to understand.
Nanotechnology	<ul style="list-style-type: none"> • Begin with how the subject relates to every day life to draw viewers into the topic. • Confusing in the beginning.
Tracking Air Pollution	<ul style="list-style-type: none"> • Acknowledged social problem but didn’t present a solution. • Mention other effects beside pulmonary that are affected by pollution. • Talk about how much more of a problem pollution is going to be in the future w/o change. • Talk about ethics of companies being ethical with their products (Ford cars in China with lower pollution laws) • Empirical vs Practical point of view.

	<ul style="list-style-type: none"> • Need to focus data on a more national level for a more national audience-reference other cities.
Body Chemicals	<ul style="list-style-type: none"> • Reduce background noise of the kids. • Subtitles of people speaking would be helpful. • Include an ending that further discusses the issue. • Make it clear to people how this topic specifically affects YOU! • More risk analysis, less scare tactics.
Toxic New Orleans	<ul style="list-style-type: none"> • Add visual of the size of problem. • Delete guy working at his desk. • Add local responses and experiences. • Explain impact of mold. • Add more science.
Cape Wind Power	<ul style="list-style-type: none"> • Add local's views. • Any adverse impact of constructing wind farms. • Too many "cut-aways". • Impact of Danish project – any problems?
LEDs	<ul style="list-style-type: none"> • Animations/graphs were low-tech. • Add more details. • Compare the performance of LED's to traditional light bulbs. • Explain the elements in the colors. Other alternatives?
Chimeric Animals	<ul style="list-style-type: none"> • Better introduction to story. • Guest speakers were not engaging • Consequences of intervention were missing. • Slow.
Airliner Defense	<ul style="list-style-type: none"> • Add more situations – need to have a greater impact. • Present additional information on why system may not be needed.
Adult Stem Cells	<ul style="list-style-type: none"> • I liked the graphics also. I would have liked to see more of that and less of mice running around in cages. • For a non-scientific person it was a good balance between pros and cons, experts were respectful in disagreeing. • Give more details about who they were interviewing (e.g., professor of...). • The national and international level of debate is what makes good science.

Appendix C: Teacher Comments For Each Lesson

Lesson	How lesson enhanced curriculum	Strengths of lesson	Weaknesses of lesson
AIDS	<ul style="list-style-type: none"> the personal stories that they read and wrote a response to made them realize that real people are being affected by this pandemic. Having a real story with a face and a name to associate it with brought it all home for them. More worldwide exposure, current treatments, better understanding of epidemics and the spreadability of disease (esp. HIV) 	<ul style="list-style-type: none"> Worldwide exposure. Many links. Many different opinions. Updated and current. Graphics. Making them aware of the differences in the way AIDS affects different parts of the world and that the outcome for people infected is very different depending on their location. 	<ul style="list-style-type: none"> Not easy for the "average" student to negotiate all the links and all the articles to find answers to the questions.
Anthrax	<ul style="list-style-type: none"> It was great. I received some great text book entries from my students and I realized how little my students understood about anthrax before the lesson. 	<ul style="list-style-type: none"> The fact that it was something that they have all heard about but knew very little about. 	<ul style="list-style-type: none"> Some of the answers were hard to find on the weblinks.
Are weather and climate changing?		<ul style="list-style-type: none"> There was lots of information and lesson provided different areas for the students to concentrate with their power point presentation. 	
Earthquakes	<ul style="list-style-type: none"> Each group became EXPERT in one earthquake event. Also "fence construction" allowed them to experience the effects of plates colliding. 	<ul style="list-style-type: none"> Specific analysis questions. Hand-outs for students and for teacher. Easy to use and assemble, as well as to follow. Current events were recent enough that the students remembered them 	<ul style="list-style-type: none"> Hard to navigate through the site. More videos
From lab to dinner table	<ul style="list-style-type: none"> Overall, it made them think more about GMO's and the issues surrounding them. 	<ul style="list-style-type: none"> acting out the transcript. the readings were interesting and links to other web sites informative. 	<ul style="list-style-type: none"> Not interactive enough, no hands on. More policy based.
Gulf Coast states	<ul style="list-style-type: none"> We have some refugees from Louisiana in our school and it was interesting to hear from them with this information. 	<ul style="list-style-type: none"> The lesson was organized and overall information was very good and appropriate. 	<ul style="list-style-type: none"> Gulf Coast States was the topic but a lot of info was about the storm (Katrina) and more about that area than other areas in the states.
Hybrid autos	<ul style="list-style-type: none"> The students that really don't care much for environmental issues really paid attention to this one. 	<ul style="list-style-type: none"> The awareness of a current issue and the connections the lesson has to environmental issues. I thought that the "how stuff works lesson" was very useful in explaining hybrid cars. 	<ul style="list-style-type: none"> The experiment needs to be different and use materials most science teachers have. Directions and handouts were not specific enough.
Intelligent design	<ul style="list-style-type: none"> Defining the issues and topics. Differentiation of science and religion. 	<ul style="list-style-type: none"> The support material was clear and easy for the students to use. 	<ul style="list-style-type: none"> More directed questions would have been useful for the readings. More specifics

		<ul style="list-style-type: none"> • The fact that it is current and experts were asked questions and had a discussion. 	for background would also have been helpful.
Lesson	How lesson enhanced curriculum	Strengths of lesson	Weaknesses of lesson
Human cloning	<ul style="list-style-type: none"> • I feel that the students definitely got the idea that there is a lot of controversy surrounding the information from the human genome project. Instead of calling the lesson "Human Cloning," I would make a broader category listing of it on your web site. 	<ul style="list-style-type: none"> • The post-its/concept maps was good for the students. • Allowing students to work together to clarify their thinking processes and giving students a voice for expressing what they think. 	<ul style="list-style-type: none"> • The "Ethics Debate" provided on line was very boring for 14 year olds and didn't talk about the large/general issues dealing with Cloning. The speakers focused on very specific concerns (insurance ramifications, welfare reform) that the students didn't understand and were not interested in. • I didn't find that the role-playing activity in the Reading Circle was very helpful for the group. Students were confused because they didn't understand how their role ultimately contributed to interpreting the Extra story on Genetic Ethics. For the second class I taught, I skipped this role-playing process and simply let student groups identify ethical dilemmas. I listed these on the board and then let each student group choose which dilemma they wanted to complete using the decision-making six-step process. This seemed to work better. I did require the group to appoint an Icon Crafter, however, so that their presentation included a visual piece as well.
Mercury in environment	<ul style="list-style-type: none"> • The videos were great and the discussion was great. 	<ul style="list-style-type: none"> • The main strength was its variation of activities. 	<ul style="list-style-type: none"> • It was weak in the area of providing a clear purpose, especially for the activity where the students calculated the percent ingredients in coal. • The lab was time consuming to set up. The lab was also moderately expensive. To get a class set of 5 bags of beads it cost about \$20.00 There is a error on the lab chart for the student copy, the chart lists sodium and it should be silicon.

Lesson	How lesson enhanced curriculum	Strengths of lesson	Weaknesses of lesson
NASA's return to flight	<ul style="list-style-type: none"> Many of the students found the material to be engaging and challenging. 	<ul style="list-style-type: none"> It was straightforward and easy to understand. It laid out the objective clearly for me. 	<ul style="list-style-type: none"> It relied on better access to computers than we have available in our school. Some of the addresses the students were asked to access were awkward to use. Streamlining the hot links would help greatly.
SARS	<ul style="list-style-type: none"> We have been studying bacteria and diseases, and the website helped the students learn about the World Health Organization and how they track diseases and learn about new ones 	<ul style="list-style-type: none"> The interview was the strength because this is where the students learn how the World Health Organization's Communicable Disease Sections handles new diseases. 	<ul style="list-style-type: none"> In the homework/extension activity #1, the website where the students could find out about other diseases that the WHO tracked was not available. You could, however, find them by going to the WHO website and following links. Students (and I) were frustrated by the fact that we could not stream the video news story and interview into the room. This was due to the fact that our school network had many users and the streaming kept stopping. It would be much better if the teacher could download the video and save it to a CD or hard drive and play it later. This would avoid the streaming problem. I probably will not use the resource again, because not being able to watch the news story itself and the interview was a big negative. Handouts, graphics, experiment-- there were none with the lesson.
Stellar fingerprints	<ul style="list-style-type: none"> Actually doing the calculations to compare size and volume really drove home the point...much better than just reading or listening to the information. I felt that the lesson brought in greater relevance, from the standpoint of reading charts and graphs, than previous attempts to relate the photoelectric effect in chemistry class to Astronomy. 	<ul style="list-style-type: none"> Cross-curricular opportunities to link chemistry to astronomy Emphasized real applications of math in science 	<ul style="list-style-type: none"> Technical glitches with the overhead "C". too many formulas to choose from, would liked to have seen a comparison of planetary volumes in addition to diameters.
Lesson	How lesson enhanced curriculum	Strengths of lesson	Weaknesses of lesson
Stem cells	<ul style="list-style-type: none"> This is not normally a topic we teach, but it tied in nicely with our genetics 	<ul style="list-style-type: none"> It was straightforward, and aimed at providing an introduction and then 	<ul style="list-style-type: none"> Students did not have enough background. I had to spend 1/2 hour talking about

	<p>unit.</p> <ul style="list-style-type: none"> • Students were able to function with limited guidance outside the material provided and produce high quality advocacy brochures. Most showed new understanding of subject in a debate. • It provided excellent background information on all aspects of the topic 	<p>building upon it during the lesson. By the time students were finished they knew what stem cells were and the nature of the controversy surrounding their use in research. Questions about when life begins are inherently interesting to this age group, so it is a good choice for them.</p> <ul style="list-style-type: none"> • All of the web resources. In particular, I like the video footage. • Independent investigation, and cooperative learning. Students had to make compromises with their idealism • The fact that it allows students to consider the impacts of science on society. 	<p>misinformation that is out there and errors promoted by the media.</p> <ul style="list-style-type: none"> • Required too much class time. Was set up for 2 block periods, which is equal to 4 class periods. In order to cover all the areas I feel I need to cover in a year - it is hard to justify spending almost a whole week on stem cells, even though I find the topic very interesting. • It did not have enough updated information at the sites students were directed to for answers to their worksheet (research) questions. They were also confused about the different types of stem cells and their capabilities. • The article titled "political Science" that we were given possible questions to, was not readily accessible from the home page. We had to go into a different Political Science article about cloning to find the one about stem cells.
Hazardous chemicals	<ul style="list-style-type: none"> • We had been studying waste disposal, composting, pollution, and toxic waste problems. This lesson added depth and background information, especially the government intervention and the EPA. 	<ul style="list-style-type: none"> • Information on the website was helpful and interesting. 	
Tsunami	<ul style="list-style-type: none"> • Had them look at more material and in a more meaningful way because it was interactive and each student could investigate what they wanted when they wanted. 	<ul style="list-style-type: none"> • timely subject-good animation-the link to waves was very good 	<ul style="list-style-type: none"> • long time before video streamed, we were not sure if it was loading.

Appendix D: Student Comments For Each Lesson

Lesson	Liked Best	Liked Least
AIDS (184 responses)	<ul style="list-style-type: none"> That the lessons were interesting and they were able to learn much more about the topic (34 students). <i>It helped me understand the topic better by explaining it thoroughly.</i> <i>It was interesting because AIDS is such a big topic and there's a lot to know about it.</i> <i>I liked that I learned a lot from doing the lesson. It kept my interest throughout the whole activity.</i> <i>Discussing the topic in a group format. I liked the fact that we were teaching each other.</i> 	<ul style="list-style-type: none"> Using the websites and the internet to find research (25 students). <i>It was really hard to follow the website with the questions that were given to us in class.</i> <i>Some of the information was difficult to find and it felt as though you didn't know where to start.</i> <i>There was a lot of work to do in a short period of time. Also, many of the questions for the webquest worksheet took a LOT of time to find between the three websites given.</i>
Alternate Energy Sources (231 responses)	<ul style="list-style-type: none"> Learning about the topic (27 students) <i>I enjoyed learning about the different energy resources and it was easy to understand.</i> <i>Learning about how people are trying to create alternate energy sources and helping our environment.</i> The group-work (17 students) <i>I liked the project when we would do either a poster or a PowerPoint with a group. I really like group work and was glad to be able to do it.</i> <i>The projects were helpful and fun.</i> 	<ul style="list-style-type: none"> The lessons were boring (11 students)
Anthrax (79 responses)	<ul style="list-style-type: none"> That they were able to learn new things about the topic (27 students) <i>The topic was really presented well, and it was easy to hold my interest and learn new things with my new-found excitement.</i> <i>I thought there was some interesting info. I learned a lot more than I previously knew about the information that was given.</i> The experiment and hands-on activities (8 students) <i>I am more of a hands-on person so I really liked the experiment. Seeing something makes me understand the concept better.</i> 	<ul style="list-style-type: none"> The difficulty of finding information that was needed (29 students) <i>It was hard to find information.</i> <i>Web site was confusing.</i>
Are the World's Weather and Climate Changing? (51 responses)	<ul style="list-style-type: none"> The topic was interesting and they were able to learn new things (18 students) <i>It was about a topic which actually seems relevant, since it is occurring now and will be a major factor in our future.</i> <i>You could see the actual movement of the weather and see how it forms and you can</i> 	<ul style="list-style-type: none"> That the lesson was too long and sometimes boring (7 students) <i>It did not keep me interested the entire time.</i>

	<p><i>predict what would happen.</i></p> <ul style="list-style-type: none"> The power-point presentations they were able to create (7 students) <p><i>We got to do a PowerPoint and not just a report.</i></p>	
<p>Earthquakes (106 responses)</p>	<ul style="list-style-type: none"> The hands-on activities (projects/labs) (18 students) <p><i>I liked having to do an experiment along with the lesson provided.</i></p> <p><i>I enjoyed the experience using the slinky and the rope.</i></p> <ul style="list-style-type: none"> The lesson was very clear and easy to understand (10 students) <p><i>It was informative and clear. It explained the lessons clearly.</i></p> <p><i>I liked learning about earthquakes and how they occur. i also enjoyed learning about where they occur and how often.</i></p>	<ul style="list-style-type: none"> The Web site (8 students) <p><i>How the website was set up, the unclear instructions, no pictures, and the language and tone of the site is not flexible enough for someone who is not familiar with scientific vocabulary.</i></p>
<p>From the Lab to the Dinner Table (19 responses)</p>	<ul style="list-style-type: none"> Learning about the GMOs (genetically modified foods) (5 students) <p><i>I liked learning about applications of GMOs in the world, such as comparing the reactions of the USA versus the EU versus some African countries.</i></p> <p><i>I liked learning through the case studies that they gave as examples to show how GMOs are affecting the environment and also as ways of showing peoples reactions and biases toward GMOs.</i></p>	<ul style="list-style-type: none"> The readings (transcripts, articles, interviews, etc.) <p><i>I think it would have helped to do something hands-on, reading articles got kind of boring.</i></p> <ul style="list-style-type: none"> The lesson was not detailed enough (3 students) <p><i>I didn't like the brevity and shallow depth of the lesson. I wish I had a better understanding and lessons at a more advanced level that were more detailed."</i></p> <p><i>I wish that there had been more in depth descriptions of how GMOs are produced that makes it simple and easy to understand the procedure and thought process that went behind the production of GMOs.</i></p>
<p>Global Warming (43 responses)</p>	<ul style="list-style-type: none"> Learning more about global warming and how to prevent it (15 students) <p><i>Learning how to prevent global warming and keep our environment healthy.</i></p> <p><i>It educated me on the issue of global warming and how much of a threat it is to the world.</i></p> <ul style="list-style-type: none"> The presentations/power-points (6 students) <p><i>The Presentations were good because it was great to be able to get to know information well enough to teach it, and every group brought a lot of new information to the class.</i></p> <p><i>I liked that the lesson got everyone involved and we were able to share what we learned.</i></p>	<ul style="list-style-type: none"> That the lessons became repetitive (4 students) <p><i>I did not think that there was a lot of variation in the information that was given.</i></p>
<p>Gulf Coast/Katrina (43 responses)</p>	<ul style="list-style-type: none"> The pictures (8 students) <p><i>The pictures were good because it made it mire understandable.</i></p>	<ul style="list-style-type: none"> The reading (5 students) <p><i>Too much to read.</i></p>

Hazardous Chemicals (17 responses)	<ul style="list-style-type: none"> Learning about the different chemicals in the environment and how they effect the environment (6 students) <p><i>I liked finding different information on the different tragedies and understanding what the affects it does on the environment.</i></p>	<ul style="list-style-type: none"> The length of the lesson (3 students) <p><i>Lesson was too long.</i></p>
Human Cloning (125 responses)	<ul style="list-style-type: none"> The class-work that was done (debates, discussions, and experiments) (18 students) <p><i>That we were able to debate about the topic.</i></p>	<ul style="list-style-type: none"> The reading (17 students) <p><i>I really didn't like that we had to read all the info and not actually watch or see something about it.</i></p>
Hurricanes (45 responses)	<ul style="list-style-type: none"> Creating the posters (4 students) <p>he part when we worked together to make a poster.</p> <ul style="list-style-type: none"> Working on the computers (4 students) <p><i>When we got to use the computers.</i></p>	<ul style="list-style-type: none"> Having to do the research on the topic/finding information (10 students) <p><i>I didn't like all the info that we needed to collect.</i></p>
Hybrid Cars (53 responses)	<ul style="list-style-type: none"> Learning more about hybrid cars (14 students) <p><i>I liked learning about how the hybrid cars save the environment.</i></p> <ul style="list-style-type: none"> The experiments/hands-on activities (10 students) <p><i>The experiment was fun and easy to learn.</i></p>	<ul style="list-style-type: none"> The readings (12 students) <p><i>I didn't like reading the articles on the computer because, they did not make much sense to me.</i></p>
Intelligent Design (223 responses)	<ul style="list-style-type: none"> The debates and hearing others' thoughts (67 students) <p><i>The debate was fun, it helped me understand a little better.</i></p>	<ul style="list-style-type: none"> The lack of information about the topic that was given (20 students) <p><i>I did not like the amount of background info, more info would help understand more info helps.</i></p>
Mars Rover (16 responses)	<ul style="list-style-type: none"> The pictures that were shown (4 students) <p><i>Certainly the pictures were amazing.</i></p>	<ul style="list-style-type: none"> The readings that were given (5 students) <p><i>I thought there was a little too much reading. It was very hard to take in all that information in one sitting.</i></p>
Mercury Pollution (24 responses)	<ul style="list-style-type: none"> The lab (10 students) <p><i>Hands on experience in the lab.</i></p>	<ul style="list-style-type: none"> The lesson was a bit confusing at times (6 students) <p><i>Some of it was a little confusing but, eventually, understandable.</i></p>
NASA (56 responses)	<ul style="list-style-type: none"> The experiment (22 students) <p><i>I liked doing the experiment, it was simple and fun at the same time.</i></p>	<ul style="list-style-type: none"> The readings and doing the research (10 students) <p><i>There was too much reading.</i></p>
SARS (52 responses)	<ul style="list-style-type: none"> Watching the video (11 students) <p><i>That there were videos & it helped move things along.</i></p>	<ul style="list-style-type: none"> The there was much difficulty trying to download the movie onto the computer (11 students) <p><i>It took way too long to download the videos - you should let the teacher download it else where other than on the Internet.</i></p>
The Spectra of Stars (60 responses)	<ul style="list-style-type: none"> Learning about planets (10 students) 	<ul style="list-style-type: none"> The math that had to be done (20 students) <p><i>The math I had to do to get there.</i></p>
Stellar Fingerprints (48 responses)	<ul style="list-style-type: none"> The hands-on activities/the experiments (15 students) <p><i>The direct visuals and hands on experiments supplementing the lesson.</i></p>	<ul style="list-style-type: none"> The worksheets (8 students) <p><i>I didn't like some of the worksheets because they were worded badly.</i></p>
Stem Cells	<ul style="list-style-type: none"> Learning about the topic (23 students) <p><i>Learning about something that was currently</i></p>	<ul style="list-style-type: none"> The lack of information and resources that were given (8 students)

(120 responses)	<i>going on in the world.</i>	<i>I didn't like how there were some gaps in this field. Hopefully there will be new information which will fill these gaps in the near future.</i>
Tsunami (55 responses)	<ul style="list-style-type: none"> • The topic was interesting and they were able to learn new things (14 students) <i>It was a good topic to learn about.</i> • The pictures that they were able to view (9 students) <i>I liked looking at the pictures and seeing how it really was for the people who lived there.</i> • The topic was easy and clear (8 students) <i>It was very clear.</i> • Learning about what the tsunami victims had to go through (8 students) <i>That it was very easy to understand and it was interesting to learn about what the people actually did go through!</i> • Using the computers (5 students) <i>Going to the computer lab.</i> 	<ul style="list-style-type: none"> • Nothing (20 students) • The research and the websites (7 students) <i>How the website they gave me on the paper didn't have any information on the topic we were doing.</i> • That there were not enough pictures and too much reading (6 students) <i>There was too much reading involved. Not enough pictures.</i>

Appendix E: Evaluation Instruments

Online Survey

The NewsHour with Jim Lehrer received a National Science Foundation grant to develop science reports to air on The NewsHour television show. ROCKMAN *ET AL* is working with The NewsHour to assess the value and usefulness of the science reports. We need your help. Your feedback on this survey is important to the success of the project.

ROCKMAN *ET AL* is an independent research company; all information gathered for this project will be reported in aggregate - no individual names are used. The information you share will help the program managers as they plan additional science-based reports.

Following the submission of this survey your email address will be entered into a random drawing for one of five **Amazon.com gift certificates valued at \$50.00 each.**

A. Background

1. Please complete the background information below. Your name and email are required to be entered into the drawing.

Name:	First: Last:
Age:	<input type="radio"/> under 15 <input type="radio"/> 16-22 <input type="radio"/> 23-35 <input type="radio"/> 36-50 <input type="radio"/> 51-65 <input type="radio"/> over 65
Gender:	<input type="radio"/> male <input type="radio"/> female
PBS member?	<input type="radio"/> I am a member of my local PBS station <input type="radio"/> I am not a member of my local PBS station
Highest educational attainment:	<input type="checkbox"/> Some high school <input type="checkbox"/> High School <input type="checkbox"/> BA/BS <input type="checkbox"/> Masters <input type="checkbox"/> PhD <input type="checkbox"/> Other/Professional Degree in:
Occupation:	
Location:	City: State/(Country):
Email (for prize drawing):	
How did you learn about this survey? 1. NewsHour Web site 2. email alert 3. friend	

2. In general, how often do you watch or listen to the NewsHour with Jim Lehrer?

I never watch/listen it	I watch/listen about once a month	I watch/listen two or three times a month	I watch/listen once a week	I watch/listen a few times a week	I watch/listen every day
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Please check the boxes below that apply to your viewing/listening.

a. I have seen or heard one or more science reports on The NewsHour with Jim Lehrer television show.

<input type="radio"/> Yes	<input type="radio"/> No
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b. I have visited the Online NewsHour web site.

<input type="radio"/> Yes	<input type="radio"/> No
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4. How do you usually get information about science topics that interest you? (check all that apply)

- | | |
|--|--|
| <input type="checkbox"/> Attend lectures | <input type="checkbox"/> Watch television programs |
| <input type="checkbox"/> Read newspaper articles | <input type="checkbox"/> Listening to radio programs |
| <input type="checkbox"/> Buy/Read books | <input type="checkbox"/> Subscribe to magazines |
| <input type="checkbox"/> Purchase/Watch videos/DVDs | <input type="checkbox"/> Belong to groups or clubs |
| <input type="checkbox"/> Use related software products | <input type="checkbox"/> Visit Web sites |
| <input type="checkbox"/> Visiting Museums | Other: |



This survey has two main sections: Section B focuses on The NewsHour with Jim Lehrer television show. Section C focuses on the science reports highlighted on the Online NewsHour web site.

**If you have watched the television show please complete Section B, below.
If not, skip to section C.**

B. NewsHour Television Science Reports

5. Which reports have you viewed or listened to? (check all that apply)

	I saw this report	I didn't see this report	I don't recall
Comet Clues (1/16/06)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rovers Roll On (1/25/06)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lost World (3/10/06)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shrinking Landscape - Louisiana (4/4/06)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fossil Find (4/6/06)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learning the Lessons of San Francisco (4/12/06)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. If you have specific comments about one of the programs, please include them below.

7. How did you hear about the science reports? (check all that apply)

<input type="checkbox"/>	From a friend or colleague
<input type="checkbox"/>	From the NewsHour television program
<input type="checkbox"/>	From the NewsHour Web site
<input type="checkbox"/>	E-mail alert
<input type="checkbox"/>	Other:

8. Using the scale please check the button that indicates your level of overall agreement for each of the following statements.

	Agree	Somewhat agree	Somewhat disagree	Disagree
The content of the science reports was presented at an appropriate level for my understanding.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I learned something new about the subject of the reports.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My questions were answered by the end of the reports.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The reports increased my interest in the topic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The reports made me more aware of the application of science in everyday life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The reports/topics held my interest.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information in the reports was important.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The content of the science reports was informative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Please rate the following aspects of the science reports in general.

	Agree	Somewhat agree	Somewhat disagree	Disagree
I found the presentation style to be effective (e.g. format, style, tone).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The length of the science reports was appropriate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The pacing of the reports was just right.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The depth of the reports was appropriate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The reports contained informative graphics and/or animations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you have visited the NewsHour Online web site
please complete Section C, below.

If not, skip to question 16.

C. Online NewsHour Science Reports

10. In general, how often do you visit the Online NewsHour Web site?

I rarely visit it	I visit about 4 - 6 times a year	I visit it monthly	I visit once a week	I visit a few times a week	I visit every day
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Have you registered to receive science report email alerts?

<input type="radio"/> Yes	<input type="radio"/> No
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12. I have explored the following components of the online science reports. (check all that apply)

<input type="checkbox"/>	Photo Gallery
<input type="checkbox"/>	Interactives: animations, maps
<input type="checkbox"/>	Resources/Features: links to other information or sites
<input type="checkbox"/>	Forum: participated in the discussion with an expert
<input type="checkbox"/>	Forum: read only
<input type="checkbox"/>	EXTRA: lesson plans for teachers

13. Think about using the web site. . .

	Agree	Somewhat agree	Somewhat disagree	Disagree
I found it easy to find what I was looking for.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The visuals enticed me to read the linked information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The additional resources (interactives, photos, links, etc.) were comprehensive and useful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The content was provocative.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. What components of the web site did you find most valuable and why?

15. What, if anything, would you like to see added to Online NewsHour?

16. In general are there any topics that you would suggest for a science report?

17. Do you have any additional comments?

18. As a follow-up to the survey we are planning to hold several focus groups to gather additional in-depth information. If this sounds like something you are interested in doing, please check the box below. We will contact you with more information.

<input type="checkbox"/> I am willing to participate in a focus group	Phone # <input style="width: 50px;" type="text"/> - <input style="width: 50px;" type="text"/>
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Thanks for your help. Your name will be added into the drawing!

Please press the submit button one time only.



Questions? Contact jane@rockman.com

Focus Group Survey

Your answers to the following questions will help to guide the producers as they develop additional science unit segments. Please check only one box for each question.

1. Please think about the topic you have just seen in the video and rate your interest level prior to viewing it and following the viewing.

	Not interested	Somewhat interested	Interested	Very interested
Before viewing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After viewing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. How much of the content was new to you?

- None of it
 Some of it
 Most of it
 All of it

3. How much did your knowledge increase about this topic by watching the science segment?

- Not at all
 Slight amount
 Moderate amount
 A great deal

4. If you saw a show or article related to the topic in this video, would you watch/read it?

Not at all likely Not very likely Likely Very likely

5. Please rate the level of science in the report.

Too basic About right Too advanced

6. Choose Yes or No for the statements in the table below.

	Yes	No
The topic was a current issue.		
The report presented a problem and offered solutions.		
The report discussed the impact of the topic on national/international policy.		
The report presented the economic impact of research.		
The topic was placed in a social context.		
Scientists appeared knowledgeable.		
The topic was tied to everyday life.		

7. In general, how important to you is it that the science reports include the following features?

	Not at all important	Somewhat important	Important	Very important	No Opinion
The topic is a current issue.					
The report presents a problem and offers solutions.					
The report discusses the impact of the topic on national/international policy.					
The report presents the economic impact of research.					
The topic is tied to everyday life.					

Teacher Survey

THE NEWSHOUR with JIM LEHRER
Teacher Survey

The NewsHour with Jim Lehrer received a National Science Foundation grant to develop science reports to air on The NewsHour television show. ROCKMAN *ET AL* is working with the NewsHour to assess the value and usefulness of the online lessons to high school science teachers.

Thank you for your interest in the NewsHour and your help with this study, please continue to visit the *Online NewsHour* Web site to see all the previously aired reports and to enjoy new ones as they are developed.

<http://www.pbs.org/newshour>

A. Background

1. Please complete the background information below.

Name:	First: Last:
Age:	<input type="radio"/> 23-35 <input type="radio"/> 36-50 <input type="radio"/> 51-65 <input type="radio"/> over 65
Gender:	<input type="radio"/> male <input type="radio"/> female
Years taught:	
School setting:	<input type="radio"/> urban <input type="radio"/> suburban <input type="radio"/> rural
School size: (number of students)	
Lesson topic:	
Number of students participating in the field test lesson:	

2. Do you use current events resources in the classroom? Yes No

3. If yes, where do you find them? (in general)

4. Do you receive email alerts from NewsHour regarding upcoming science news reports?

Yes No No, please add my email to the list

5. Previous to participating in this study, had you visited the <i>Online NewsHour</i> Web site?	<input type="radio"/> Yes <input type="radio"/> No
6. If yes, how often did you visit the site?	<input type="checkbox"/> Every few months <input type="checkbox"/> About once a month <input type="checkbox"/> Weekly <input type="checkbox"/> Almost daily
7. Previous to this study, had you used any information from <i>Online NewsHour</i> in your curriculum?	<input type="radio"/> Yes <input type="radio"/> No

8. To date, what parts of the Web site have you visited or used? (check all that apply)	<input type="checkbox"/>	Video
	<input type="checkbox"/>	Audio only
	<input type="checkbox"/>	Transcript of NewsHour show
	<input type="checkbox"/>	Photo Gallery
	<input type="checkbox"/>	Interactives: animations, maps
	<input type="checkbox"/>	Online EXTRA story
	<input type="checkbox"/>	EXTRA Lesson Plans

B. Field Test Lesson

9. How many class periods did you spend on the lesson?

10. Please rate the overall level of the science lesson and assignments.

Too basic	About right	Too advanced
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Do you think the lesson plan enhanced your students understanding of this topic? Yes No

12. Please explain why or why not.

13. Please rate the following aspects of the science lesson.

	Disagree	Somewhat disagree	Somewhat agree	Agree
Lesson plans were easy to use.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The length of the science lesson was appropriate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The materials and resources promoted student understanding of concepts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The experiment added to the overall understanding of the students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The site contained informative graphics and/or animations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The content of the lesson held the students' interest.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The topic appealed to my students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Disagree	Somewhat disagree	Somewhat agree	Agree
The lesson complemented and enhanced the subject I teach.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Handouts supplied by the lesson were useful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Background information provided on the Web site was sufficient.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The lesson was appropriate for the grade level I teach.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Students generally enjoyed the online EXTRA lesson.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The directions for using the lesson plan were clear.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
National Standards links provided were useful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. Please add any comments, either positive or negative, to explain any of your ratings in the table above.

15. What were the main strengths of the lesson plan?

16. What were the main weaknesses of the lesson plan?

17. Was the lesson complete as written?	<input type="radio"/> Yes <input type="radio"/> No
If you had to adapt the lesson please explain briefly:	
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>	

18. Did you assess the lesson you taught?	<input type="radio"/> Yes <input type="radio"/> No
If yes, please explain how you assessed your students:	
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>	

C. Online NewsHour Web Site

19. Overall, what was your experience using the *Online NewsHour* Web site? (Skip statements that are not applicable)

	Disagree	Somewhat disagree	Somewhat agree	Agree
I found it easy to find what I was looking for.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The photos and graphics enticed me to read the linked information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The layout of the articles was clear.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The experiment added to my student's understanding of the topic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The content was easy for students to understand.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The extension activities complemented the overall lesson.



20. Please add any comments, either positive or negative, to explain any of your ratings in the table above.

21. What about the Web site did you find most valuable and why?

22. Did you experience any difficulties using the Web-based resources? Yes No
If yes, please explain:

22. What, if anything, would you like to see added to Online NewsHour and/or NewsHour EXTRA for Teachers?

23. Are you planning to use other lessons on the NewsHour Web site? Yes No

24. Do you have any additional comments?

25. I would like to field test another Online NewsHour science lesson

26. I would be willing to participate in other studies.

27. Please send my check for \$100 to:

Thanks for your feedback.

Please press the submit button one time only.



Questions? Contact jane@rockman.com

High School Student Survey

We are interested in what you think about the NewsHour science lesson you recently completed. Please answer the following questions as honestly and completely as possible. Your answers will have an impact on making the science lesson the best it can be for teachers and students to use and enjoy. All your responses are treated confidentially. Thanks for your help!

A. BACKGROUND

Teacher's Name: _____

Grade level: 9th 10th 11th 12th **Your gender:** Male Female

Topic of the lesson: _____

B. SCIENCE LESSON

2. Please think about the topic of the science lesson you studied in class and compare your interest in that topic before your teacher taught the lesson and then after the overall lesson was finished.

	Not interested	Somewhat interested	Interested	Very interested
Before the science lesson	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After the science lesson	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. The information I read while learning about this topic was:

Easy to understand Moderate Too difficult

3. How much about the topic was new to you?

None of it Some of it Most of it All of it

4. From the overall lesson, how much did your knowledge increase about this topic?

Not at all Slight amount Moderate amount A great deal

5. Please rate the level of the overall science lesson and assignments.

Too basic About right Too advanced

6. Because of what we studied in class I plan to learn more about this topic.

Strongly disagree Disagree Agree Strongly agree

7. First, check the resources you or your teacher used to help you understand the concepts of the lesson (check all that apply).

Second, circle “yes” or “no” to indicate whether or not the resource helped you understand the topic.

	Did this	Was helpful	
		yes	no
Visited the Online NewsHour Web site	<input type="checkbox"/>	yes	no
Viewed Online NewsHour Videos	<input type="checkbox"/>	yes	no
Read NewsHour TV transcript	<input type="checkbox"/>	yes	no
Read Online NewsHour articles	<input type="checkbox"/>	yes	no
Conducted an experiment	<input type="checkbox"/>	yes	no
Completed worksheets created by NewsHour	<input type="checkbox"/>	yes	no
Used charts, maps, tables created by NewsHour	<input type="checkbox"/>	yes	no
Used information from other Web sites (not NewsHour)	<input type="checkbox"/>	yes	no
Used the glossary provided by NewsHour	<input type="checkbox"/>	yes	no
Viewed pictures/graphics to enhance the topic	<input type="checkbox"/>	yes	no

8. If you circled “No” for any of the statements in the table above, please explain:

9. Please rate the following aspects of the science lesson in general.

	Disagree	Somewhat disagree	Somewhat agree	Agree
The lesson directions were clear.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The length of the science lesson was appropriate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The materials and resources helped me understand the science concepts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The experiment(s) added to my overall understanding of the topic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The content of the lesson held my interest.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I found the lesson interesting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. If you chose disagree or somewhat disagree for any of the statements in the table above, please explain:

C. Online NewsHour Web Site

Please complete the following questions only if you used the Online NewsHour Web site to support the lesson.

If you didn't visit the Web site then skip this section and continue to
Section D. Overall Feedback.

11. Overall, what was your experience using the Online NewsHour website?

	Disagree	Somewhat disagree	Somewhat agree	Agree
I found it easy to find what I was looking for on the Online NewsHour site.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The photos and graphics made me want to learn more about the topic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The layout of the articles was clear.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The experiment(s) added to my overall understanding of the topic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The content presented on the site was easy to understand.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I plan to go back to Online NewsHour to learn about other topics.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Did you experience any difficulties using the Online NewsHour Web site?

Yes No

If you had a problem, please briefly explain:

D. Overall Feedback

13. What did you like best about the science lesson?

14. What didn't you like?

15. I liked the way my teacher presented the lesson. Yes No

16. Do you have any suggestions for how to make the lesson more interesting or understandable?

Thanks for your feedback!