

# Exploring Life's Origins

## Summative Evaluation

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## EXECUTIVE SUMMARY

*Exploring Life's Origins* is a project funded by the National Science Foundation through the Discovery Corps Postdoctoral Fellowship. Janet Iwasa was the recipient of this grant, and her goals were to help the public understand research on the origins of life conducted in the labs of Dr. Jack Szostak from Harvard University/Massachusetts General Hospital and the Center for Origins Research by creating molecular visualizations based on the research and communicating to the public scientific research concepts related to the origins of life. The science communication portion of this project was delivered at the Museum of Science, using a series of live presentations, a multimedia computer kiosk, and a website.

This summative evaluation aimed to understand how successfully each of the three delivery methods conveyed the intended educational content as well as how visitors felt about their experiences. Another purpose of the evaluation was to better understand how, if at all, the three different delivery methods differed in their ability to convey the intended messages. For this reason, the evaluation sought to compare visitor learning across the three delivery methods.

Findings revealed that visitor learning related closely to the intended main messages of the experiences. These messages were:

- Life may have formed spontaneously from simple compounds.
- RNA is thought to be important to early life.
- Life started with a simple cell.
- The first cells were thought to be composed of two parts: RNA and a membrane.

Visitors had generally positive reactions to all three of the *Exploring Life's Origins* experiences. This was true for both men and women, as well as for visitors with and without formal education in the sciences, suggesting that the project deliverables were received similarly regardless of gender or science background.

Visitors did respond to the content differently based on the delivery method experienced and educational background. Visitors to the website rated the content and vocabulary as “too simple,” which contrasts with visitors to the live presentation and computer kiosk, who found the content and vocabulary to be at an appropriate level. In addition, visitors to the website felt there was too little information, again contrasting with the visitors to the kiosk, who felt there was an appropriate amount of information, and visitors to the live presentations, some of whom felt there was too much information or that the content needed to be simplified.

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# I. INTRODUCTION

## ABOUT THE PROJECT

*Exploring Life's Origins* is a project funded by the National Science Foundation through the Discovery Corps Postdoctoral Fellowship. Janet Iwasa was the recipient of this grant, and her goals were to help the public understand research on the origins of life conducted in the labs of Dr. Jack Szostak from Harvard University/Massachusetts General Hospital and the Center for Origins Research by doing two things:

1. Creating molecular visualizations based on the research and
2. Communicating to the public scientific research concepts related to the origins of life.

Between May 2008 and February 2009, the science communication portion of this project was delivered at the Museum of Science (MOS). This communication portion of the project was led by Janet Iwasa, in conjunction with assistance from MOS staff. Three different methods were used to communicate to visitors the scientific and research concepts related to the origins of life:

- A series of live presentations on the MOS's Current Science & Technology stage, which took place between April and July 2008;
- A multimedia computer kiosk on the exhibit hall floors of the MOS, which was installed in September 2008; and
- A project website (<http://exploringorigins.org/index.html>), which went live in May 2008.

All three of these delivery methods addressed the same educational messages. These messages were the following:

- Life may have formed spontaneously from simple compounds.
- RNA is thought to be important to early life.
- Life started with a simple cell.
- The first cells were thought to be composed of two parts: RNA and a membrane.

## ABOUT THE EVALUATION

The purpose of this summative evaluation was to understand how successfully each of the three delivery methods conveyed the intended messages as well as how visitors felt about their experiences. Therefore, questions were included about what visitors learned, their feelings about the level at which the content was presented, how the experience could be improved, and the value of various aspects of the program. Another purpose of the evaluation was to better understand how, if at all, the three different delivery methods differed in their ability to convey the intended messages. For this reason, the evaluation sought to compare visitor learning across the three delivery methods. Similar questions were asked across all three to facilitate comparison.

In addition to this summative evaluation, formative evaluations were conducted on the live presentations and computer kiosk. The purpose of these evaluations were to help Janet Iwasa make informed decisions about changes to her project deliverables based on the needs and desires of visitors. These reports can be found in Appendices A and B, respectively.

The planning of this evaluation began in March 2008. Data for this project were collected May 2008 through February 2009. The final report was released in July of 2009.

## II. METHODS

Surveys were used to collect data from users of all the project delivery methods: the computer kiosk, presentations, and website. These surveys measured visitor learning and perceptions of the experience, as well as compared these areas across the different project deliverables. Although similar questions were asked on all the surveys, different participant recruitment methods were used due to the differences in the visitors' experiences with the project deliverables. In addition, the surveys were collected from different audiences including Museum of Science visitors and members of the Museum's E-News list. Evaluators targeted visitors for the evaluation who were 13 years of age or older because it was felt that people younger than 13 would not be able to understand the *Exploring Life's Origins* content.

**TABLE 1. Number of visitors who participated in data collection activities.**

Visitor experience	Participants
Computer kiosk	40
Live presentation	87
Website	61

### 1. COMPUTER KIOSK SURVEY

Data for this experience were collected between November 2008 and January 2009. A total of 40 visitors were surveyed following their interaction with the computer kiosk. Visitors were selected for participation if they interacted with the activity for more than one minute and if they were the age of 13 years or older. Visitors were not asked to participate in the evaluation if they had interacted with the kiosk for less than one minute because it was felt that they would not be able to learn anything from the kiosk unless they had used it for at least this amount of time. After a group completed their interaction with the kiosk, they were approached and the primary user was asked to complete the survey. A copy of the computer kiosk survey used can be found in Appendix C.

### 2. PRESENTATION SURVEY

Data for this experience were collected between May and July of 2008. A total of 71 visitors completed surveys following a live presentation. Surveys were distributed to all visitors older than 13 years of age as they arrived for a presentation, and evaluators continued to hand surveys out to arriving audience members through the first two slides of the presentation. Arriving audience members were not given the survey after this point because it was felt that they had missed too much of the presentation. Audience members were asked to complete the survey following the completion of the presentation. Evaluators then collected the surveys. Data were collected only during *Exploring Life's Origins* presentations presented by Janet Iwasa. The presentation survey used can be found in Appendix D.

### 3. WEBSITE SURVEY

Data from this experience were collected between November 2008 and February 2009. Participants for this online survey were recruited using two methods:

- By sending a link to the online survey to randomly selected MOS E-News list members; and
- Through a link placed on the *Origins of Life* website.

Between these two methods, a total of 61 responses were collected.

Email was used to send a link to the online survey for a random selection of subscribers to the Museum's E-News list. A total of 702 email addresses were selected for inclusion in the online survey, which was initially sent on November 20, 2009. The email invitation asked recipients to spend five minutes browsing the website, and to take a survey following their experience. In return for their participation, they were invited to sign up to enter a drawing for one of two pairs of tickets to MOS's Omni Theater (Appendix E). To increase the return rate for the survey, a second email was sent on December 17, 2008. A total of 22 responses were collected using this method.

In order to increase the number of surveys collected about the website, a link to the feedback survey was placed on the website. The following text was placed at the bottom of the website with a link to the survey, "The Museum of Science is looking for feedback about this website! To fill out a brief survey, please click here" (Appendix E). A total of 39 responses were collected using this method. This survey link was meant to collect data from visitors who found *Exploring Life's Origins* on their own, possibly due to their interest in the topic. In order to differentiate between visitors who found the website on their own and those who found it through the Museum email solicitation, different survey links were provided. However, because there was overlap in the dates when surveys were collected through the website and through email solicitation, it is likely that some visitors who answered the survey through the website were part of the email solicitation list. Visitors who answered the survey using the link on the *Exploring Life's Origins* website were not invited to enter a drawing for two pairs of tickets to MOS's Omni Theater. Copies of the two website surveys can be found in Appendix F.

### 4. DEMOGRAPHICS OF PARTICIPANTS

Evaluators did not try to control for demographics of study participants when collecting data. The demographic information collected centered on factors that were perceived to potentially impact the visitor experience, including gender, age, and education level. This provided an indication of who used the components and also allowed evaluators to investigate whether the different audiences had different experiences with or reactions to the three different delivery methods (live presentations, computer kiosk, and website). Full demographics of all study participants can be found in the tables below.



**TABLE 2. Gender of study participants. (N=188)**

	Count	%
Female	91	49%
Male	87	46%
No response	10	5%

**TABLE 3. Age of study participants. (N=188)**

	Count	%
13 - 17	25	13%
18 - 24	30	16%
25 - 29	13	7%
30 - 34	11	6%
35 - 44	34	18%
45 - 54	32	17%
55 - 64	17	9%
65 - 74	7	4%
75 - 84	3	2%
No response	16	9%

**TABLE 4. Education level of study participants. (N=188)**

	Count	%
Some high school	8	4%
High school degree	4	2%
Some college	25	13%
College degree	30	16%
College degree in science	17	9%
Some graduate work	9	5%
Graduate degree	34	18%
Graduate degree in science	24	13%
Other	3	2%
No response	34	18%

## 5. LIMITATIONS

It should be noted that the participants of this evaluation were self-selected. People were not chosen randomly to view the presentation. Instead, people interested in the presentation who chose to view it were the ones that were asked to fill out the survey. In addition, evaluators did not prompt people to use the computer kiosk. Instead, those who were attracted to the kiosk and stayed at it the indicated amount of time were the ones chosen to answer the survey.

The survey solicitation method for the website was also self-selected. Although a random sample of E-News list members were asked to participate in the evaluation, people self-selected whether they wanted to take the time to view the website and fill out the survey. This method resulted in a low response rate, so evaluators decided to also solicit feedback on the website from individuals who found the website on their own. These sampling methods used for the website may have especially skewed those results because the website responses included in this evaluation were likely not representative of the Museum of Science visitor population.

## **6. DATA ANALYSIS**

Data collected through the surveys were both qualitative and quantitative in nature. Quantitative data were analyzed through descriptive statistics such as percentages, counts, and means. In addition, comparative tests of significance were conducted when applicable. The level of significance was set at 0.05. Qualitative data were analyzed using inductive coding methods. Inductive coding analysis involves “immersion in the details and specifics of data to discover important patterns, themes, and interrelationships” (Patton, 2002, p.41). However, coding was started using preconceived coding lists based on themes that relate to the main messages of the three deliver methods.

### III. FINDINGS AND DISCUSSION

The Findings and Discussion section is split into three parts:

1. Visitor learning related to the main messages of the experiences.
2. Visitors generally had a positive response to the *Exploring Life's Origins* experiences.
3. Visitor responses to the content differed based on delivery method experienced and education.

Each of these three parts addresses findings from all three visitor experiences – live presentations, computer kiosk, and website.

#### *1. Visitor learning related to the main messages of the experiences.*

Participants who experienced any of the three delivery methods were asked to identify the most interesting things they learned at the experience. Although what visitors said they learned differed across the three different delivery methods, most visitors did report learning related to at least one of the main messages of the experiences. (For full responses, see Table 5.)

**TABLE 5. Most interesting things visitors learned from their experience.**

	Presentation (N=87)		Web (N=61)		Kiosk (N=40)		Total (N=188)	
About RNA	<b>20</b>	<b>23%</b>	6	10%	1	3%	27	14%
Seeing visuals and animations	2	2%	<b>16</b>	<b>25%</b>	2	5%	20	11%
About protocells	4	9%	8	13%	1	3%	13	7%
Other	8	9%	1	2%	4	10%	13	7%
General positive feedback	3	5%	5	8%	4	10%	12	6%
About early life on earth	5	4%	2	3%	3	8%	10	5%
The timeline of life on earth	1	1%	3	5%	<b>6</b>	<b>15%</b>	10	5%
About fatty acids/phospholipids	6	7%	1	2%	2	5%	9	5%
About the first cells	3	3%	3	3%	1	3%	7	4%
That RNA and membranes made the first cells	2	2%	3	5%	0	0%	5	3%
Current research in the area	5	6%	0	0%	0	0%	5	3%
Difference between RNA & DNA	4	5%	0	0%	1	3%	5	3%
History of scientific discovery in this field	1	1%	2	3%	2	5%	5	3%
Nothing	0	0%	2	3%	2	5%	4	2%
Role of geysers in formation of early life	2	2%	0	0%	1	3%	3	2%
"Lots"	1	1%	1	2%	0	0%	2	1%

No response = 61

Note: Most common response for each delivery method is bolded

Only a few (N=3) of the visitors explicitly stated the message that “RNA is thought to be important to early life,” such as the visitor who said, “RNA may have been the first stages of life.” However, many aspects of RNA were frequently mentioned (N=27), especially by participants who attended the live presentations. It is possible that more people talked about learning about RNA from the live presentation because this content was covered for a long period of time during the presentation. Some visitors (N=5), mostly to the presentations, also said they learned about the difference between DNA and RNA. Aspects of RNA that were mentioned by visitors included the following:

*“That RNA can turn into 3 dimensional shapes.”*

*“Characteristics & capacities of RNA”*

*“[The] ability of RNA to self-catalyze.”*

The visitors who relayed information related to the message, “Life started with a simple cell,” frequently used scientific language, often referring to protocells (N=13). Visitors also mentioned learning about the first cells (N=7). This message came through most strongly through the website. It is possible that more people mentioned learning about protocells on the website because it is prominently featured on the home page of the website, or because visitors to the website came to the site because they were already attracted to the protocell content. Aspects of these early simple cells that visitors discussed learning about included the following:

*“The ideas behind protocells are almost all new to me, and as such extremely interesting.”*

*“How simple the first cells were.”*

Even fewer visitors discussed learning about how the first cells were composed of RNA and a membrane (N=5), but some of these visitors did use nearly the exact language of the message when discussing what they learned. In addition, some visitors mentioned learning about fatty acids or phospholipids, which are related to this message. Examples of this message that visitors mentioned learning about included the following:

*“Fatty acids and how they are formed”*

*“How RNA and fatty protein can explain the origins of life”*

A few visitors also mentioned aspects related to how life may have spontaneously formed from simple compounds. Some of these visitors simply mentioned learning about early life (N=10), while others more specifically discussed how geysers may have played an important role in this process (N=3). Examples of this message that visitors mentioned learning about included the following:

*“I think it's amazing that an entire planet of life is thought to have been created essentially by a chance combination of certain conditions.”*

*“How life started. It helped me build up the links in my mind, put two and two together. It blew my world.”*

*“The geysers role in the beginning of life”*

Visitors also discussed learning about an additional range of other topics. For example, visitors surveyed about the website discussed learning from the visualizations and animations, such as the visitor who said, “I loved the images and especially the video clips. The use of added dimensions not only makes the content more interesting but also easier to grasp.” Other visitors gave general positive feedback, or said they learned about the timeline for when life on earth began. A few visitors said they learned about the current research taking place in this field, while some said that they did not learn anything.

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**2. Visitors generally had a positive response to the Exploring Life’s Origins experiences.**

Visitor responses to all three of the *Exploring Life’s Origins* experiences were generally positive. All aspects (including how much they liked the experience, their interest in the topic, change in their curiosity, and learning) were rated between a 4 and 5 on a 5-point scale. When comparing how the three types of experiences (presentations, website, and computer kiosk) were rated, no differences were found.

**TABLE 6. Visitor responses to *Exploring Life’s Origins* experiences.**

	Mean rating	SD	N
Disliked (1) / liked (5) the experience	4.31	.87	165
Uninteresting (1) / interesting (5) topic	4.42	.84	163
Decreased (1) / increased (5) my curiosity	4.23	.87	163
Learned nothing (1) / a lot (5)	4.02	1.02	163

To uncover whether these experiences successfully reached a broad audience, the ratings of different audience segments were compared. No statistically significant differences were found between how males and females or how participants with science degrees vs. participants with non-science degrees rated the experiences. This suggests that the project deliverables were received similarly regardless of gender or science background.

The project deliverables used different visual aids to help promote visitor understanding. The presentations, website, and computer kiosk all used graphics and animations to help communicate the content. The presentations also used 3-dimensional models. Visitors were asked to rate how valuable these aspects of the deliverables were in promoting their understanding of the content on a 4-point scale (1=Not at all valuable; 4=Very valuable). The 3-dimensional models used in the presentations had a mean rating of 3.12 (SD=0.83). Across all three delivery methods, there was no difference in how helpful participants found the graphics, which had a mean rating of 3.43 (SD=0.63). However, based on the experience that they engaged in, visitors rated the animations differently. Animations were found less useful on the computer kiosk (M=3.19), compared to both the website (M=3.66) and the presentations (M=3.52),  $F(2, 156) = 5.642, p=.004$ . It is possible that visitors to the computer kiosk found the animations less valuable than visitors to the presentations or website because Janet Iwasa spent time during the presentations explaining the animations as they were

played, and people who used the website may have been more educated about the topics of the animations and so better able to understand and interpret them.

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### **3. Visitor responses to the content differed based on delivery method experienced and education.**

Although the three different delivery methods used during the *Exploring Life's Origins* project presented similar content, how visitors responded to the level at which the content was presented differed.

Participants were asked to rate how simple or complex they found the content of the experience on a 5-point scale (1=content too simple, 5=content too complex). There was not a significant difference between how the presentations (M=3.40, SD=.84) and the computer kiosk (M=3.00, SD=.725) were rated, but the website (M=1.98, SD=1.07) was rated significantly more towards the “too simple” end of the scale,  $F(2, 157) = 38.103, p < .01$ . Improvements that visitors suggested reinforce the fact that web users found the content too simple, as the most frequently suggested change to the website was to provide additional or more in-depth content on the concepts discussed (N=15). (Full results for suggested improvements can be found in Table 7 below.) This may relate to the motivations visitors had for interacting with each of the delivery methods. Although visitors were not directly questioned about their motivations for interacting with the respective delivery methods, visitors to the presentation or computer kiosk may have happened upon it and chosen to interact with it in the course of their Museum visit, while visitors to the website may have been more likely to specifically seek out the content presented.

The same pattern emerged when examining the data on how participants rated the vocabulary used. Once again, a 5-point scale was used (1=vocabulary too easy, 5=vocabulary too difficult). As with the level of the content provided, there was no significant difference between how participants who experienced the presentation (M=3.30, SD=.70) or the computer kiosk (M=3.03, SD=.63) rated the vocabulary, but website users rated the vocabulary more significantly towards the “too easy” end of the scale (M=1.93, SD=.93),  $F(2, 158) = 30.462, p < .01$ .

When participants in all three experiences were asked to rate the amount of information on a 5-point scale (1=too little information, 5=too much information), differences between all three groups were found,  $F(2, 158)=58.22, p < .01$ . The presentation had the highest mean score (M=3.36, SD=.72), followed by the computer kiosk (M=2.92, SD=.70) and the website (M=1.75, SD=1.03). Visitors who experienced the live presentations also most frequently suggested improving the experience by simplifying the content that was presented, as shown in Table 8. This may be because visitors to the kiosk or website could navigate through the content at their own pace allowing them to feel that they had more control over the amount of content, while visitors to the live presentations received the content at a pace that they did not choose which made them feel overwhelmed by the amount of information presented.

**TABLE 7. Visitors' suggested improvements.**

	Presentation (N=87)		Web (N=61)		Kiosk (N=40)		Total (N=188)	
Simplify the content	<b>19</b>	<b>22%</b>	5	8%	1	3%	25	13%
Provide additional information on a topic already included	1	1%	<b>15</b>	<b>25%</b>	<b>6</b>	<b>15%</b>	22	12%
Don't change anything	9	10%	3	5%	<b>6</b>	<b>15%</b>	18	10%
Change the topic or add a new content area	6	7%	6	10%	0	0%	12	6%
Other	5	6%	2	3%	5	13%	12	6%
Make it more interactive	4	5%	1	1%	4	10%	9	5%
Make changes to the presenter's style	6	7%	n/a		n/a		6	3%
Add or expand audio options	n/a		1	1%	3	8%	4	2%
Include more animations/videos	3	3%	0	0%	1	3%	4	2%
Don't know	1	1%	2	3%	1	3%	4	2%

No response = 75

Note: Most common response for each delivery method is bolded

Of the visitors to the presentations, 21 were asked to record any questions they had following the presentation. Of those who did respond to this question, most said that they did not have any questions. A few visitors did say they would like a definition of a specific term that had been mentioned, to know how RNA became DNA, or said that they generally had “a lot” of questions. (See Table 8 for full responses.)

**TABLE 8. Visitor questions following presentation. (N=21)**

	N	%
None	4	33%
Definition of specific term	2	17%
How RNA became DNA	2	17%
General “many questions”	2	17%
Other question	2	17%

When examining these ratings based on the educational background of participants, further patterns emerge. Although there was no difference in ratings based purely on the level of education achieved, differences did appear when comparing non-science degree holders to science degree holders. When rating the complexity of the content presented, science degree holders gave a significantly lower rating ( $M=2.56$ ,  $SD=.99$ ) than holders of non-science degrees ( $M=3.20$ ,  $SD=1.08$ ),  $t(99)=2.11$ ,  $p=.04$ . Differences were also found in how the level of the vocabulary was rated, with holders of science degrees rating the level of the vocabulary used significantly lower ( $M=2.41$ ,  $SD=.94$ ) than holders of non-science degrees

( $M=2.83$ ,  $SD=1.07$ ),  $t(138) = 2.30$ ,  $p=.02$ . Despite the fact that differences were found, this is not necessarily a cause for concern. In both cases, holders of non-science degrees gave ratings very close to the middle of the scale (3) indicating that the complexity of the content and vocabulary were chosen appropriately for this audience. However, the differences do indicate that the science degree audience felt more comfort and familiarity with the content presented than those who did not have science degrees.



## IV. CONCLUSIONS

The data indicate that although visitors had similar, positive reactions to the *Exploring Life's Origins* experiences, visitor learning and reactions to the content differed based on which of the experiences they engaged in. This has implications for future projects that aim to deliver similar content across different platforms. One area where visitors differed somewhat in their thoughts about the deliverables was in regard to the animations and visualizations. Overall, the animations were well-received, but this was especially true of the presentations and website. On the website in particular, visitors called out being interested in learning from the animations and visualizations, and seemed to greatly value this aspect of the website.

Other ways users of the project's website tended to think differently from users of the computer kiosk and presentation had to do with the content about the origin of life research. Website users tended to feel that the content was too simple, the vocabulary was too easy, and there was too little content, when compared to visitors who experienced the live presentations or computer kiosk. These results are echoed by suggested visitor improvements – visitors asked for additional information on the website, but suggested simplifying the content for the live presentations. Although reasons for visiting a particular experience were not examined in the current evaluation study, it may be the case that visitors had different reasons for visiting the live presentations, computer kiosk, and website, and thus had different expectations for what they would get out of these deliverables.

One explanation for this difference in expectations may be that it was anticipated that the website would have a different audience than the computer kiosk or live presentations in that the website might be used by scientists in the field of life's origins research or science teachers in addition to the families and adults that generally visit the Museum of Science exhibit halls. For future projects, when similar content is being presented across different platforms, the probable audiences should be considered when creating content, and the delivery method's content should be adjusted based on the audience. In the case of live presentations, this likely means that the families with younger children who are often in the audience may need less complex content while the audience attracted to a website may want more in-depth information and may be receptive to being exposed to more complex language and content.

In the future, multiple deliverable projects might also benefit from an examination of visitor motivations for visiting an experience, and how that impacts visitor reaction and learning. These findings were limited in this study by the lack of true random sampling of visitors to the website. Therefore, it is unknown whether there were differences in people's motivations for visiting the different deliverables or if the differences are not as great as they appear when the presentations and computer kiosk are compared to the website.

## APPENDIX A: LIVE PRESENTATION FORMATIVE EVALUATION

**From:** "ekollmann" <ekollmann@mos.org>  
**To:** "Janet Iwasa" <jiwasa@gmail.com>  
**Cc:** creich@mos.org  
**Date:** 06/13/2008 05:14 PM  
**Subject:** Data so far

Janet-- I just had a chance to look at the data we've collected so far, and I wanted to give you an update so that you can think about whether you want to use any of this information to modify your presentation and/or the Museum of Science kiosk.

So far, we've collected 19 surveys from 12 males and 7 females. They range in age from 9 to 77, and the average age of the visitors is 33. In order to have a larger sample size, I have included even the youngest participants in the analysis you will find below. However, when I write up the final report, I will probably only analyze the data from people 13 and older as we discussed earlier. However, based on the data, I do not think you need to be as concerned about youth understanding your presentation as you thought.

It appears that visitors are enjoying your presentation quite a bit. The average rank of how much the visitors liked your presentation was 4.53 out of 5. They ranked their interest in the topic 4.47 out of 5, and ranked their increase in curiosity about the topic 4.42 out of 5. The visitors ranked their learning an average of 4.47 out of 5. These numbers are in line with if not slightly better than another presentation that I recently evaluated, so your presentation is doing well on these scales.

Visitors are also doing pretty well with their understanding of the content though there is some room for improvement. Visitors ranked the complexity of the content an average of 3.68 out of 5 which indicates that visitors found the content of your presentation a little complex. They also ranked the difficulty of the vocabulary an average of 3.53 out of 5. This indicates that visitors found the vocabulary a little difficult. However, visitors ranked the amount of information you provided an average of 3.42 out of 5 which shows that the presentation provides a good amount of information.

Similar findings were discovered when I looked at the answers to the open-ended questions. Most visitors did not tell us what questions they still had about the content. The people that did answer the question asked the following:

- \* "Have they started thinking about the formation of other planets?"
- \* "I want to learn more about different ways life could have started."
- \* "How did DNA start from RNA?"
- \* "What does RNA stand for?"

Visitors also provided only a few suggestions for improvements to the presentation. The improvements that they did suggest included the following:

--Decreasing the presentation's complexity--

\* "Presenter presented very well but info a bit too tough to grasp and follow."

\* "Should be a bit simpler."

\* "Make it more understanding and fun."

--Modifying the presentation's content--

\* "Present the whole continuum from single cell to human."

--Other Suggestions--

- \* "Talk less; have a game."
- \* "Interaction"

These data echo the findings described above. They show that some visitors wanted more explanation of the terminology used. In order to help people with the vocabulary I suggest trying to remove jargon/scientific terminology whenever possible and describe things in layman's terms. When you do use scientific terminology, define the terms and repeat your definitions if necessary. These changes will also help people who find the presentation complex. Another way to decrease the complexity of the presentation may be to reinforce your messages at the beginning and end of the presentation. You may also want to add similes and metaphors to the presentation and kiosk. By this I mean compare the processes that you are discussing to processes that people are familiar with such as comparing the formation of a cell membrane to the formation of a bubble (or something like that). I would not suggest removing any content from your presentation because the amount of information you are presenting seems to be working well for visitors.

Many visitors answered the question about the most interesting thing they learned from the presentation. Visitors reported learning about the following:

--The formation of cells from simple compounds--

- \* "I learned more about single cellular life and before I saw this presentation I thought there were just animal cells and plant cells. This presentation taught me all about proto cells and fatty acids, etc, etc."

- \* "The cycle of the prototype cell"

- \* "How primitive cells might have formed"

- \* "Structures of RNA...Role of Clay in Geyser on RNA formation"

- \* "That life may have started by molecules forming together."

--The role of RNA in cells--

- \* "The role of RNA in cell activity"

- \* "RNA can catalyze"

- \* "Learning about RNA (it has grow & divide)"

--That RNA can fold into 3-dimensional shapes--

- \* "That the RNA can turn into 3 dimensional shapes"

- \* "How RNA is able to form into 3d shapes."

--The work scientists have done on early life--

- \* "...Urey-Miller Expt..."

- \* "Lots different scientists working on this"

--The potential components of early cells--

- \* "The fatty acids"

- \* "That there's an RNA"

--Other--

- \* "Even though a cell is small it does a lot and has a lot to do with our lives."

These learning categories cover most of the main messages that you said you had for the presentation. The data show that many visitors are learning through the presentations that life may have formed spontaneously from simple compounds, and that people are learning that those compounds are RNA and fatty acids. They also show that people are learning about the importance and properties of RNA. The only main message that people did not discuss was the idea that life started as a simple cell. If you feel that it is important for people to come away with this concept you may want to emphasize it more in your presentation and the kiosk.

I am attaching for you the data collection instrument that I used so that you can better understand the responses given by the visitors. I am also attaching a new version of the instrument which includes the question about education level. In order to keep the survey to one page I had to remove the question asking people what questions they still had about the content, but this should be okay since many people were not answering that question anyway. Please let me know if you have any questions about anything I've written in this email. I am also happy to help you think more about how you might apply these findings to your work.

I'll see you next week.

-- Liz

\*\*\*\*\*  
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<http://www.mos.org>  
\*\*\*\*\*

## APPENDIX B: COMPUTER KIOSK FORMATIVE EVALUATION

*Origins of Life* Computer Kiosk  
Prototyping Report  
August 7, 2008  
Elizabeth Kunz Kollmann  
([ekollmann@mos.org](mailto:ekollmann@mos.org))

The *Origins of Life* computer kiosk was tested on the morning of Friday, August 1 and the morning and afternoon of Monday, August 4. Ten visitor groups were observed using the activity including four with adults only, two with kids only, and four with adults and kids. Even though nine of the groups were composed of multiple people, typically one member of the group used the computer while other members of the group looked over his/her shoulder or used exhibits located nearby. After their interaction, the primary kiosk user was asked to fill out the exit survey. Then, the evaluator asked this person three additional questions. The two “kids only” groups were observed, but they were not surveyed or interviewed since no parents or guardians were seen with these children.

The interviewed primary kiosk users included five males and three females. These users ranged in age from 19 to 51 years old. One of the kiosk users reported that her highest level of education was a high school degree, two said their highest level of education was some college, two said their highest level of education was a college degree, and the other three primary kiosk users said their highest level of education was a graduate degree. The primary kiosk users, who were not interviewed, included one male who was approximately 15 years old and one male who was approximately 12 years old.

### Iteration of the Activity:

Evaluators allowed visitors to use the activity and aided them as little as possible. After visitors completed their interaction, they were asked to complete a survey and answer a few questions.

The component consisted of a touch screen monitor, three buttons, and speakers for the audio. The buttons were a right arrow, a left arrow, and an enter button. On the screen saver, visitors were told that they could activate the computer by either using a button or touching the screen. On the menu screen, the visitors had the ability to choose one of four sections: “Timeline of the Earth’s History,” “Chemistry on Early Earth,” “Clues in Modern Cells,” and “Building a Protocell.” These sections were represented by graphics and names in the middle of the menu screen and “title buttons” on the bottom of the screen. Once they chose a section, visitors could navigate it using either the buttons (they used the arrow keys to highlight their selection and the enter key to choose their selection) or the touch screen. All the sections except the “Timeline of the Earth’s History” contained at least one animation.

### Summary of Results:

- *The first screen that visitors saw seemed to at least partially determine what interface they chose to use.*

- Of the four visitors who started their interaction on the screen saver page, two decided to use the touch screen and two decided to use the buttons. All four of these visitors used both the touch screen and buttons during their interaction.
- Of the five visitors who started their interaction on the menu screen, all started their interaction using the buttons. Four of these visitors used buttons during their entire interaction, and the other visitor used both the buttons and touch screen.
- The final visitor group used both the buttons and the touch screen. The evaluator did not record whether this group started their interaction on the screen saver or the menu page.
- *Half the visitors, who used the button interface, had problems using the interface.* All 10 visitors used the buttons to navigate through the kiosk for at least some of the time. Five of these visitors encountered problems when using the buttons.
  - Four visitors had a hard time figuring out that they had to press enter after highlighting their selection.
  - Two visitors, who used buttons to navigate past the screen saver, had to press the buttons twice to get past the screen saver. Because they had pressed the enter button twice, they were sent straight to the “Timeline of the Earth’s History” instead of the main menu.
- *Half the visitors, who used the touch screen, had problems using the interface.* Six visitors used the touch screen to navigate through the kiosk for at least some of the time. Three of these visitors encountered problems using the touch screen.
  - Two visitors had a hard time getting the screen to work and had to press the screen multiple times.
  - Two visitors tried to touch and activate areas of the screen that were not “live.”
  - Two visitors had a difficult time figuring out how to navigate back to the main menu using the touch screen.
- *Just over half of the visitors viewed at least one of the animations, but many of them did not view the entire animation.* Six of the 10 visitors viewed at least one of the animations. However, four of these visitors navigated past the animations before they were completed.
- *Only half of the visitors interacted with more than one of the kiosk sections.*
  - Five of the 10 visitors looked through one of the kiosk sections.
  - Three of the 10 visitors looked through two of the kiosk sections.
  - One visitor looked at three of the kiosk sections.
  - One visitor looked at all four kiosk sections.
- *Visitors were most likely to view the first two kiosk sections.*
  - Seven of the 10 visitors viewed the “Timeline of Earth’s History.”
  - Five of the 10 visitors viewed “Chemistry on Early Earth.”
  - Three of the 10 visitors viewed “Clues in Modern Cells.”
  - Three of 10 visitors viewed “Building a Protocell.”
- *Visitors were split between whether they felt the most interesting things they learned from the kiosk came from the timeline or another kiosk section.*
  - Four of the eight interviewed visitors said that the most interesting thing they learned was from the “Timeline of Earth’s History.” Three visitors said the most interesting thing they learned was how long ago life formed, and one visitor said that the timeline was interesting in general.
  - Four of the eight interviewed visitors said that the most interesting thing they learned was from another section of the kiosk. All these visitors said that the most interesting thing they learned was one of the steps that led to the creation of early life. Specific content

that these visitors mentioned included RNA forming on clay, the appearance of fatty acids, and the ability of RNA to fold into shapes.

- *Visitors were split about whether they thought the content and vocabulary was confusing.*
  - The average rank of the content was 3 out of 5 indicating that visitors felt the content was neither too simple nor too complex.
  - The average rank of the vocabulary was 3 out of 5 indicating that visitors felt the vocabulary was neither too easy nor too difficult.
  - When asked about specific content or vocabulary that might be confusing, four of eight interviewed visitors mentioned adding explanations of terms such as “Homo sapiens,” “Homo erectus,” “riboenzyme,” “ribosomes,” “RNA,” “DNA,” and “catalytic and structural roles.”
- *Visitors had a variety of suggestions for how to make the activity better.*
  - Three visitors wanted better instructions about how to navigate the kiosk.
  - Three visitors wanted more in-depth content including more options on the timeline or more information about the difference between RNA and DNA and how cells use RNA.
  - Two visitors wanted the kiosk to be more interactive. One visitor suggested adding more “live” spots on the screens. The other visitor wanted audio and videos to be added.

#### Suggested Changes:

- Add interface instructions wherever possible since visitors may start interacting with the kiosk on any page.
  - On the menu page, think about removing the “title buttons” at the bottom of the page and adding the instructions there.
  - On the other pages, add the instructions on the bottom of the pages if possible.
  - The instructions should say “Touch the screen, or use the triangle buttons to scroll through the choices and press the round enter button to make your selections.”
- Make sure that visitors are sent to the main menu first if they use the buttons to navigate past the screen saver.
  - Check the programming to make sure that visitors do not have to press the buttons twice to get past the screen saver.
  - If the problem is a time lag, make sure the time lag is short enough that visitors do not press the buttons twice.
- Make sure that the touch screen is calibrated correctly so that visitors do not have to touch the screen multiple time to get it to activate.
- Add narration to the “Timeline of Earth’s History” so that all the text and not just the year is narrated.
- Consider shortening the animations to make it more likely that visitors will watch the entire animation.
- If the kiosk sections are not in a logical order on the menu, consider changing their order.
  - Place the content that is most important to learn first.
  - Place less important content later.
- Remove scientific terms when possible or give definitions of these terms to help visitors better understand the content.

**Visitor Behaviors**

- Interface used:  
 Touch screen only: 0  
 Buttons only: 4  
 Both: 6
- Number of sections viewed:  
 One: 5 visitors  
 Two: 3 visitors  
 Three: 1 visitor  
 Four: 1 visitor
- Number of visitors navigating past the screen saver using:  
 Touch screen: 2  
 Buttons: 2  
 Already past screen saver: 5  
 Unknown: 1

Timeline of Earth's History

When did the visitors view the story:

- First: 7  
 Second: 0  
 Third: 0  
 Fourth: 0

Interface used:

- Touch screen only: 0  
 Buttons only: 3  
 Both: 4  
 Buttons always used to get back to menu.

Number of visitors viewing:

- 4.5 billion years ago: 7  
 4.0 billion years ago: 5  
 3.5 billion years ago: 7  
 3.0 billion years ago: 6  
 2.0 billion years ago: 6  
 1.2 billion years ago: 7  
 600 million years ago: 7  
 230 million years ago: 7  
 200 thousand years ago: 7  
 Navigate back to the MENU page: 7

Clues in Modern Cells

When did the visitors view the story:

- First: 0  
 Second: 1  
 Third: 2  
 Fourth: 0

Interface used:

- Touch screen only: 1  
 Buttons only: 2  
 Both: 0

Chemistry on Early Earth

When did the visitors view the story:

- First: 2  
 Second: 3  
 Third: 0  
 Fourth: 0

Interface used:

- Touch screen only: 1  
 Buttons only: 2  
 Both: 2

Number of visitors viewing:

- Molecules on early earth: 5  
 Stanley Miller: 5  
 Miller-Urey apparatus: 4  
 Sediment in apparatus: 4  
 Miller nucleobases: 4  
 Clay particles – RNA: 4  
 Deep sea vents: 4  
 Geysers: 4  
 Sugar / formaldehyde: 4  
 Navigate back to the MENU page: 5

Building a Protocell

When did the visitors view the story:

- First: 1  
 Second: 1  
 Third: 0  
 Fourth: 1

Interface used:

- Touch screen only: 1  
 Buttons only: 2  
 Both: 0



Number of visitors viewing:

- Life collage: 3
- DNA / RNA / protein: 3
- Mammalian / bacteria cell: 3
- Protocell: 1
- RNA / DNA: 1
- RNA folding: 1
- Ribosome: 1
- Navigate back to the MENU page: 1

Number of visitors viewing:

- Protocell: 3
- RNA in protocell: 3
- Cell membrane: 3
- Cell division: 3
- Navigate back to the MENU page: 3

### Survey and Interview Questions

1. How do you feel about the exhibit?
  - Disliked the exhibit-Liked the exhibit: 3, 3, 4, 4, 4, 4, 5, 5 (M=4, median=4)
  - Uninteresting topic-Interesting topic: 2, 4, 4, 4, 5, 5, 5, 5 (M=4.25, median=4.5)
  - Decreased my curiosity-Increased my curiosity: 2, 3, 3, 3, 4, 4, 4, 5 (M=3.5, median=3.5)
  - Learned nothing-Learned a lot: 2, 3, 3, 3, 4, 4, 5 (M=3.4, median=3)
2. How do you feel about the content?
  - Content too simple-Content too complex: 3, 3, 3, 3, 3, 3, 3, 3 (M=3, median=3)
  - Vocabulary too easy-Vocabulary too difficult: 3, 3, 3, 3, 3, 3, 3, 3 (M=3, median=3)
  - Too little information-Too much information: 2, 3, 3, 3, 3, 3, 3, 4 (M=3, median=3)
3. How valuable were the following in helping you to better understand the exhibit?
  - The graphics
    - Not at all valuable: 0
    - Somewhat valuable: 0
    - Valuable: 5
    - Very valuable: 3
  - The animations
    - Not at all valuable: 0
    - Somewhat valuable: 0
    - Valuable: 3
    - Very valuable: 2
    - Didn't see any of the animations: 3
4. What are the most interesting things that you learned from this exhibit?
  - *Code: How life first formed*
    - I liked the thing about the RNA attaching to mud and formaldehyde and sugars. (Group #4)
    - The “Chemistry on Early Earth” section I would have liked more about the fatty acids and how they appeared. How did they appear? (Group #5)
    - About the protocell (Group #1)
    - The RNA—the thing about it being single stranded and that it can make a shape. (Group #10)

- *Code: How long ago life began*
    - The age of the earth and how long we've been around. The depth of how long ago. (Group #2)
    - [Male] Humans are 200 thousand years old. [Female] How far back evolution began. (Group #3)
    - When everything was discovered. (Group #7)
  - *Code: Other things about the timeline*
    - It was a little dry. It would be nice if the "Timeline" was narrated. A little confusing with the controls. Add some video [she didn't see any of the animations]. Interesting timeline, but I felt like I was reading a textbook. (Group #6)
5. How could we improve the exhibit to make it better? [Probe: Was there any confusing content? Was there any confusing language/vocabulary?]
- *Code: Some vocabulary and content was difficult.*
    - ...[Vocabulary] Vocabulary might be confusing for kids. It's geared to adults. [What words might be confusing?] Words like Homo sapiens and Homo erectus. (Group #2)
    - ...The chemistry content was confusing for me, but it might not be for a chemist... (Group #3)
    - Probably too advanced for kids... [Vocabulary] Have the option to see the definitions of some of the words like "riboenzyme." [Content] Definitions of RNA and DNA, "catalytic and structural roles." (Group #5)
    - Content hard for young people. [Vocabulary] The stuff about ribosomes. (Group #10)
  - *Code: The content and vocabulary are fine.*
    - ...[The content] is fine... (Group #1)
    - ...[Vocabulary] No, vocabulary was not confusing. (Group #3)
    - ...[Content] No [nothing confusing, but I'm] probably not a good judge. [Vocabulary] No one of my age group. (Group #4)
    - [Vocabulary] No gauge—my kids are 9. [Content] No. (Group #6)
    - Pretty simple and easy. [Content] No. [Vocabulary] No. (Group #7)
  - *Code: Navigating the program was confusing.*
    - ...Navigating was a little hard... (Group #1)
    - The touchscreen was easier than the buttons...(Group #3)
    - ... A little confusing with the controls...(Group #6)
  - *Code: Add more content.*
    - ...[Content] I would have liked to see more of what happens in the in between stages of the timeline...(Group #2)
    - It needs to be more in-depth... (Group #4)
    - ...I would have liked it to be more in-depth in the "Chemistry" section. More explanation of the difference between RNA and DNA. Flesh it out more. How do cells use RNA?... (Group #5)
  - *Code: Add more interaction.*
    - If you were able to get more information from touching the graphics like the bacterial cell... It's not clear what you can and can't touch. (Group #1)

- It was a little dry. It would be nice if the “Timeline” was narrated... Add some video [she didn’t see any of the animations]... (Group #6)
  - *Code: Other*
    - Chose the first [timeline] which I liked. It seems to go in sequence... (Group #2)
6. Is there anything else you’d like to add?
- Contradicting faith. It goes against the status quo. Go home and say we didn’t come from Adam and Eve. The timeline contradicts that. (Group #2)
  - It was interesting. (Group #3)
  - It was enjoyable. (Group #4)
  - For anyone who hasn’t had biology, it could be interesting. (Group #5)

## APPENDIX C: COMPUTER KIOSK SURVEY

Date: \_\_\_\_\_

### “Origins of Life” Computer Kiosk Survey

Help the Museum of Science improve future exhibits by providing us with feedback.

**Circle one number on the scale of 1 to 5 for each pair of descriptions below. Read the opposite descriptions carefully.**

**How do you feel about the computer interactive?**

Disliked the computer interactive	1	2	3	4	5	Liked the computer interactive
Uninteresting topic	1	2	3	4	5	Interesting topic
Decreased my curiosity	1	2	3	4	5	Increased my curiosity
Learned nothing	1	2	3	4	5	Learned a lot

**How do you feel about the content?**

Content too simple	1	2	3	4	5	Content too complex
Vocabulary too easy	1	2	3	4	5	Vocabulary too difficult
Too little information	1	2	3	4	5	Too much information

**What are the most interesting things that you learned from this computer interactive?**

**How could we improve the computer interactive to make it better?**

**How valuable were the following in helping you to better understand the computer interactive?**

	Not at all Valuable	Somewhat Valuable	Valuable	Very Valuable
The graphics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The animations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**About you...**

**What is your gender?**    Male    Female      **What is your age?** \_\_\_\_\_ years

**Which of the following represents your highest level of education?**

- |   |   |
|---|---|
| <input type="checkbox"/> Grade school<br><input type="checkbox"/> Some high school<br><input type="checkbox"/> High school degree<br><input type="checkbox"/> Some college<br><input type="checkbox"/> College degree | <input type="checkbox"/> College degree in science<br><input type="checkbox"/> Some graduate work<br><input type="checkbox"/> Graduate degree<br><input type="checkbox"/> Graduate degree in science<br><input type="checkbox"/> Other: _____ |
|---|---|

**On the back of this survey, please share any additional comments. Thank you!**

## APPENDIX D: LIVE PRESENTATION SURVEY

Date: \_\_\_\_\_

### “Origins of Life” Presentation Survey

Help the Museum of Science improve future presentations by providing us with feedback.

**Circle one number on the scale of 1 to 5 for each pair of descriptions below. Read the opposite descriptions carefully.**

**How do you feel about the presentation?**

Disliked the presentation	1	2	3	4	5	Liked the presentation
Uninteresting topic	1	2	3	4	5	Interesting topic
Decreased my curiosity	1	2	3	4	5	Increased my curiosity
Learned nothing	1	2	3	4	5	Learned a lot

**How do you feel about the content?**

Content too simple	1	2	3	4	5	Content too complex
Vocabulary too easy	1	2	3	4	5	Vocabulary too difficult
Too little information	1	2	3	4	5	Too much information

**What are the most interesting things that you learned from this presentation?**

**How could we improve the presentation to make it better?**

**How valuable were the following in helping you to better understand the presentation?**

	Not at all Valuable	Somewhat Valuable	Valuable	Very Valuable
The graphics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The animations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The models	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**About you...**

**What is your gender?**     Male     Female

**What is your age?** \_\_\_\_\_ years

**Which of the following represents your highest level of education?**

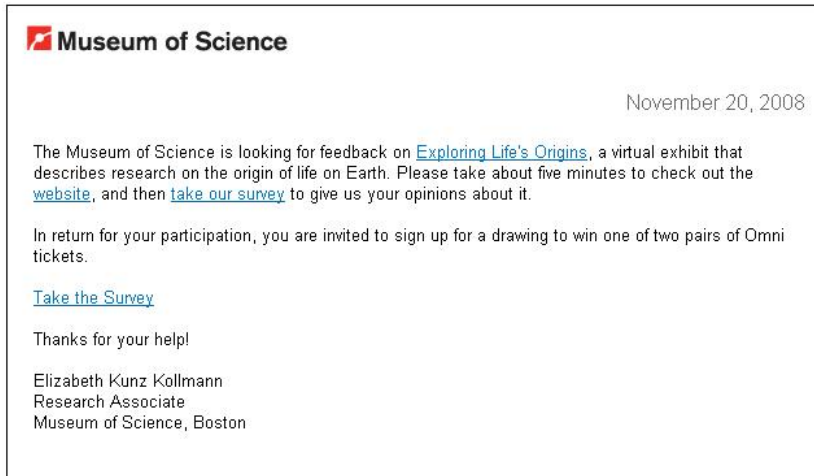
- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Grade school       | <input type="checkbox"/> College degree            | <input type="checkbox"/> Graduate degree in science |
| <input type="checkbox"/> Some high school   | <input type="checkbox"/> College degree in science | <input type="checkbox"/> Other: _____               |
| <input type="checkbox"/> High school degree | <input type="checkbox"/> Some graduate work        |   |
| <input type="checkbox"/> Some college       | <input type="checkbox"/> Graduate degree           |   |

**On the back of this survey, please share any additional comments. Thank you!**

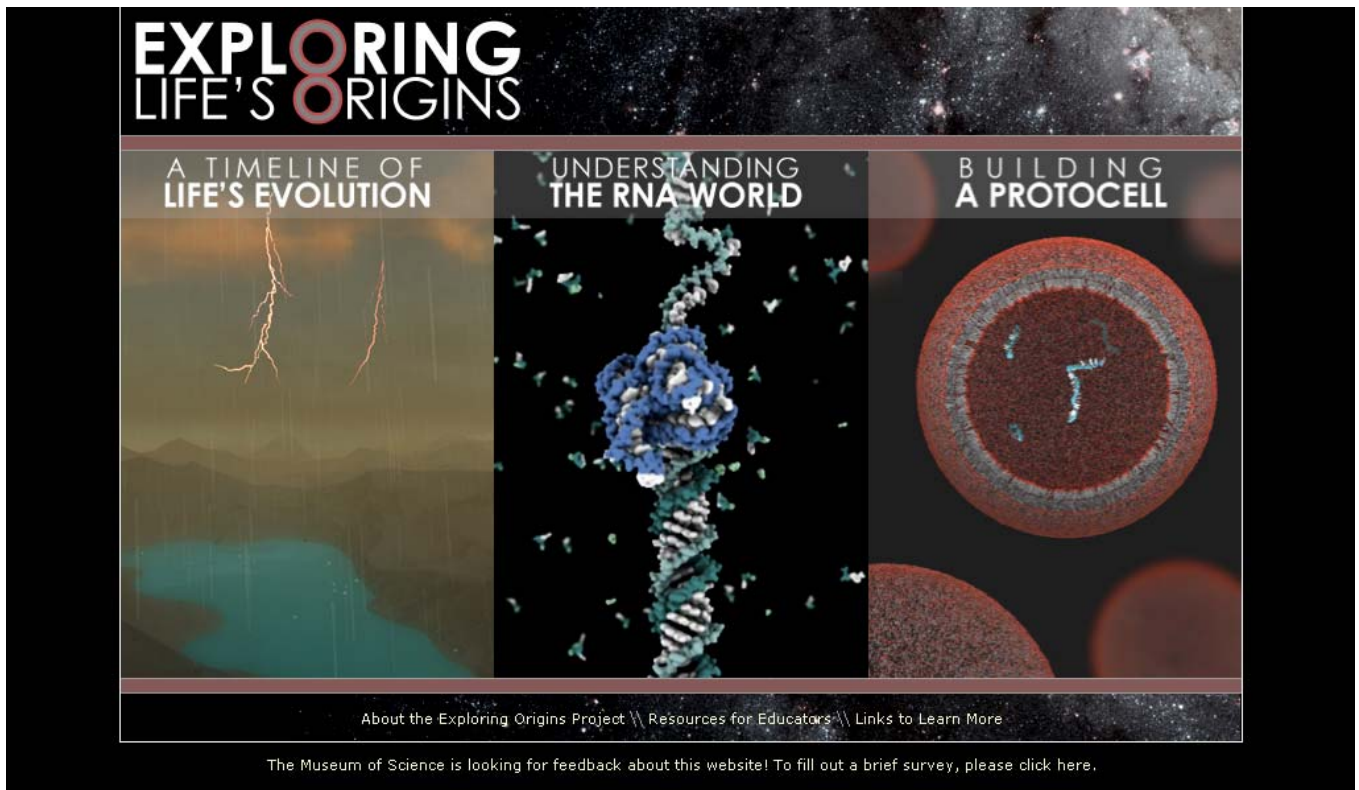
## APPENDIX E: WEBSITE SURVEY RECRUITMENT METHODS

### 1. Recruitment email sent to E-News subscribers

**From:** "Museum of Science" <reply@email.mos.org>  
**To:** [REDACTED]  
**Date:** 11/19/2008 09:45 AM  
**Subject:** We Want Your Feedback



### 2. Link placed on the Exploring Life's Origins website (see bottom of webpage)



## APPENDIX F: WEBSITE SURVEY

### 1. Survey accessed through the email solicitation from MOS

#### Page 1



Page 1 of 3

The Museum of Science is looking for feedback on the website [Exploring Life's Origins: A Virtual Exhibit](#). Please take a few minutes to use the [website](#). Then take the survey and give us your feedback about it. In return for participation in the survey, you are invited to sign up for a drawing for one of two pairs of Omni tickets.

To take the survey, click next.

Next >>

#### Page 2



Page 2 of 3

Choose one number on the scale of 1 to 5 for each of the statements below. Read the statements carefully.

1. How do you feel about the website?

Strongly Disagree	1	2	3	4	5	Strongly Agree
-------------------	---	---	---	---	---	----------------

I liked the website.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The website topic was interesting.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The website increased my curiosity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I learned a lot from the website.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. How do you feel about the content?

Strongly Disagree	1	2	3	4	5	Strongly Agree
-------------------	---	---	---	---	---	----------------

The content was too complex.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The vocabulary was too difficult.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The website included too much information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. What are the most interesting things that you learned from this website?

Page 2 (continued)

4. How could we improve the website to make it better?

5. How valuable were the following in helping you to better understand the website?

	1	2	3	4
The graphics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The animations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<< Back   Next >>

Page 3



Page 3 of 3

**About You...**

6. What is your gender?

Male  
 Female

7. What is your age?

8. Which of the following represents your highest level of education?

Grade school     College degree in science  
 Some high school     Some graduate work  
 High school     Graduate degree  
 Some college     Graduate degree in science  
 College degree     Other:

<< Back   Finish



Page 4

Thank you for completing the survey. Your responses will be used to help us improve future Museum of Science experiences.

Would you like to enter our prize drawing for two free Omni passes? If so, please click [here](#).

Page 5

Your survey responses have been submitted and will remain anonymous. Prize drawings will be conducted in October and winners will be notified by the Museum

To enter the Museum of Science prize drawing, please provide the following information.

\*Name:

\*Mailing Address:

Email Address:

**Finish**

## 2. Survey accessed through the website

Page 1


Page 1 of 3

The Museum of Science is looking for feedback about the [Exploring Life's Origins: A Virtual Exhibit](#) website, and we'd love to hear from you. After you have used the website, please take 5-10 minutes to answer a few questions and tell us what you think.

If the Museum of Science sent you an email asking for your feedback about this website, please access the survey through the link in the email. If you do not answer survey through this method, you will not be able to sign up for the Omni pass drawing.

Thank you for your help!

To take the survey, click next.

**Next >>**

Choose one number on the scale of 1 to 5 for each of the statements below. Read the statements carefully.

1. How do you feel about the website?

	Strongly Disagree				Strongly Agree	
	1	2	3	4	5	
I liked the website.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
The website topic was interesting.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
The website increased my curiosity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
I learned a lot from the website.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

2. How do you feel about the content?

	Strongly Disagree				Strongly Agree	
	1	2	3	4	5	
The content was too complex.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
The vocabulary was too difficult.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
The website included too much information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

3. What are the most interesting things that you learned from this website?

4. How could we improve the website to make it better?

5. How valuable were the following in helping you to better understand the website?

	Not at all Valuable				Very Valuable	
	1	2	3	4		
The graphics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
The animations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		

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## About You...

6. What is your gender?

- Male  
 Female

7. What is your age?

8. Which of the following represents your highest level of education?

- Grade school     College degree in science  
 Some high school     Some graduate work  
 High school     Graduate degree  
 Some college     Graduate degree in science  
 College degree     Other:

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Thank you for completing the survey. Your responses will be used to help us improve future Museum of Science experiences.

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