

# Hands-on, Hearts-in Learning:

Impacts & Outcomes of  
*Time Team America:  
The Science of Archaeology*



A Summative Evaluation Report  
by Rockman Et Al

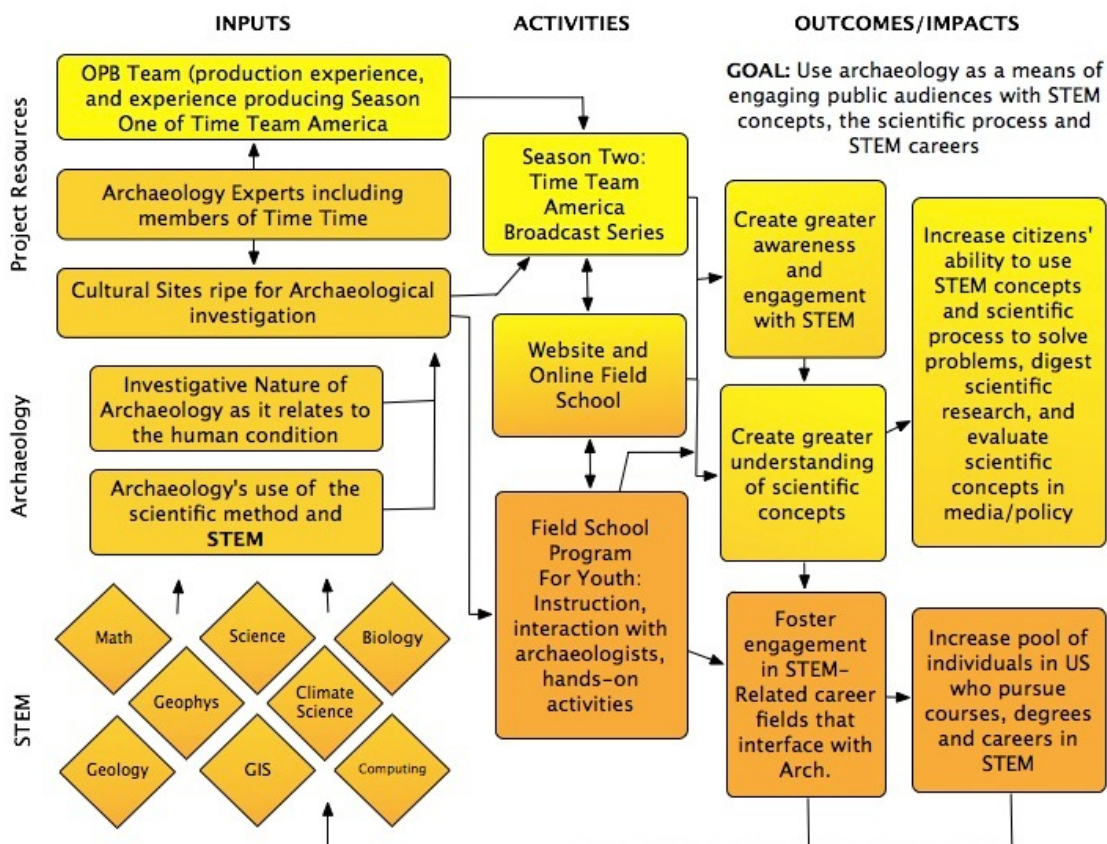
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## Section 1: Introduction

*The Time Team America: Science of Archaeology* project asserted that archaeology—the scientific study of the cultural and physical past of humans—can serve as an effective vehicle to deliver STEM content and foster widespread knowledge and engagement with science. At the core of this assertion is the fact that archaeology integrates the excitement of discovery with tangible sources of data and multi-sensory modes of inquiry, therefore creating an exceptional platform from which to introduce STEM concepts and careers, and to promote scientific literacy. In other words, archaeology creates learning opportunities that are both hands-on and what we’ve termed, “hearts-in,” learning—that is learning characterized by high levels of engagement and passion. Furthermore, the *Time Team America: Science of Archaeology* project sought to demonstrate that partnerships between media producers and hands-on public programs can intensify the impact of informal science efforts.

The *Time Team America: Science of Archaeology* project was developed and managed by Oregon Public Broadcasting with funding from the National Science Foundation. The main inputs, activities and outcomes of the project are summarized visually in the logic model presented below.

**Figure 1: Time Team America: Science of Archaeology Logic Model**



## Evaluation Overview

Rockman et al (REA), an educational evaluation firm specializing in evaluations of informal science education programs including film, video, web, and outreach program evaluations, served as the external evaluator for the *Time Team America: Science of Archaeology* project. The evaluation effort included formative components designed to provide timely feedback to help enhance the resulting season two episodes and related educational programming and outreach efforts, as well as summative components designed to indicate the extent to which programmatic objectives were achieved during the funding period.

### Evaluation Methods

A variety of data were collected and analyzed by REA over the three-year evaluation period. These methods are briefly summarized below.

#### ► Focus Groups for Episodes in Season One and Season Two

A series of focus groups sought to establish viewer's preferences for segments and content overall, and to identify stronger and weaker elements within each episode, including ways in which they later could potentially be improved—especially in instances where viewers were confused or less engaged. Additionally, the focus group sessions sought to find evidence of viewers' acquisition of new scientific knowledge, understanding and interests.

#### ► Field School Observations and Participant Feedback

The field schools were an integral component of the *Time Team America: Science of Archaeology* grant, and subsequently a major focus of the grant evaluation effort. Members of the evaluation team were present during each of the three field schools to observe and interview participants and gather survey feedback at the beginning and end of each field school. Focus group sessions were also held with field school participants at the end of each field school. Follow-up surveys were also administered to field school participants 2-3 months following their field school experience and a year and a half following their field school experience.

#### ► Episode Screening and Feedback Session in Washington D.C.

A special episode-viewing and discussion session was arranged for stakeholders and participants associated with the Josiah Henson episode taped in a Maryland suburb just outside of Washington D.C. The group of attendees for this session included a mix of stakeholders who had been involved with the local production of the episode including experts who have been integrally involved with archaeological and educational efforts at the site, field school participants and their parents, and the field school instructor.

#### ► Experimental Outreach Events

A wealth of hands-on-activities and instructional materials were developed by *Time Team America* to be disseminated on the revised website for the program. In order to test these resources prior to their public release, two experimental outreach events were held at a science museum and a history museum in Bloomington, IN. At each event, a set of activities developed and/or inspired by *Time Team America* were implemented with visitors of various ages. Local archaeologists and science educators were invited to help lead activities and provide constructive feedback for potential improvements or enhancements to the activities.

### ► Online Episode and Website Feedback Surveys

The final component in the three-year evaluation effort was a series of online surveys. These surveys were developed and administered to former field school participants, adults representative of the general viewing audience, and groups of K-12 and informal science educators and middle school and high school-aged youth. The latter of whom submitted feedback as part of in-school viewing and website testing sessions for which specific testing protocols were implemented to help create a more structured experience with *Time Team America* episodes and online resources. Specifically, the online surveys sought to gather information about the redesigned website (pre-launch), summative feedback about each of the season two episodes, and feedback from educators about the set of educational resources that had been developed.

### Evaluation Logistics

The evaluation team adhered to all regulations and guidelines regarding ethical treatment of human subjects for each of the evaluation activities conducted. All members of the evaluation team had successfully completed training courses on proper techniques for research involving human subjects and IRB approval was sought and obtained for research activities that involved human subjects. Signed parental consent and participant assent forms were obtained for the field school youth whose photos appear in this report.

### Report Overview

This report summarizes all major findings related to the evaluation effort for *Time Team America: Science of Archaeology* grant over the three-year period. Preceding reports, including interim reports that were shared with Oregon Public Broadcasting and annual reports that were designed to be shared more broadly with project funders and other stakeholders, provide additional details about minor and less-generalizable findings.

## Section 2: *Time Team America* Episode Feedback

The evaluation sought feedback about each episode as well as feedback intended to be more generalizable and therefore applicable to future episodes of *Time Team America* and other information science education media programs. This feedback was gathered through a mix of focus groups and viewer surveys. In this section of the report, all episode-related findings are summarized.

### Season One Focus Group Findings

A series of season one focus groups were designed to provide formative feedback prior to production of the season two episodes. Two focus groups, including a total of 17 participants, were held December 17, 2011 in Chicago, IL. Additionally, two focus groups were held on January 21, 2012 in Seattle, WA including a total of 16 participants. Participants in both sets of focus groups watched either the “Range Creek” or “Topper” episode from season one.



**Figure 2:** Screen cap from the “Range Creek” episode from season one of *Time Team America*. This episode, taped in Utah, examined the area where a Native American group, known as the Fremont, lived over a thousand years ago.



**Figure 3:** Screen cap from the “Topper” episode from season one of *Time Team America*. This episode focused on a Clovis era quarry in South Carolina where prehistoric peoples made stone tools 13,000 years ago.

A summary of findings from the season one focus groups are presented below.

#### ► **People found the episodes to be informative.**

Viewers typically appreciated the amount and types of information that were presented in each episode. They specifically appreciated the simplistic and straight-forward descriptions, as indicated in the following quote from a focus group participant.

*“I liked that the graphics and explanations and things were really simple. Nowadays, when everything’s technical...it can overwhelm the actual content, and this wasn’t flashy at all. It explained what needed to be explained and went back to the actual dig.”*

Focus group participants also expressed a desire for more on-screen and just-in-time descriptions of processes and terms used in the program.

► **Viewers wanted to see more artifacts found at the sites.**

There are obviously limitations to what can be found in three days of investigation at a site, none-the-less, viewers are interested in seeing and learning more about the artifacts that are discovered, even if they are found outside of the three-day investigative period. In instances where it wasn't possible to show a complete artifact however, viewers found the animations to be helpful in visualizing what the artifact might have looked like.

*"It would have been great if they would have found a whole spear or arrowhead or whole pot or something...but they did a good job of showing what it should be."*

► **Viewers want a clear understanding of a site's importance and Time Team's Role.**

Focus group participants expressed a desire for additional contextual information that could help them understand why archaeologists are interested in a particular site. Viewers are also interested in learning more about the particular role that Time Team is playing in furthering the archaeological investigation at that site as well as what ultimately came out of Time Team's involvement over a longer period of time. The three-day time period is viewed by participants as an artificial construct that does not necessarily enhance the program.

► **On-screen "talent" help viewers relate to what they are seeing.**

Participants shared a variety of comments about members of *Time Team America* and featured experts. In general they want on-screen talent to be able to communicate information in clear and engaging ways. They want to see people who are engaged in the work of doing archaeology - including youth who might just be learning about Archaeology.



**Figure 4:** Screen cap from the "Range Creek" episode from season one of *Time Team America*, showing one of the artifacts that was found as part of the archaeological investigation at this site.

## Season Two Focus Group Findings

The evaluation team conducted a series of focus group sessions to provide formative feedback for each episode in the second season of *Time Team America*. Two sessions were held at each of eight sites throughout the United States. With 6-11 participants in each group, this round of focus group sessions ultimately produced feedback from nearly 150 viewers.

- **Josiah Henson House Episode Focus Groups** were held in New York and Indianapolis from January 10<sup>th</sup>-12<sup>th</sup>, 2013.
- **Camp Lawton Episode Focus Groups** were held in Chicago and Los Angeles from January 22<sup>nd</sup>-24<sup>th</sup>, 2013.
- **Badger Hole Episode Focus Groups** were held in Washington, DC and Bloomington, IN on April 12<sup>th</sup>-14<sup>th</sup>, 2013.
- **Crow Canyon Episode Focus Groups** were held in Cincinnati and San Francisco on April 26<sup>th</sup>-27<sup>th</sup>, 2013.

The following are general focus group findings that were consistent across each of the four episodes.

▶ **Viewers are interested in people—past and present.**

Program viewers expressed great interest in the elements of each episode that relate to people. Their interest in specific artifacts, e.g., structures, or objects, was closely tied to an interest in learning more about the people who used them. Interest was also high for learning what daily life would have been like in different periods of history.

▶ **Viewers appreciate resources that help them visualize the past.**

Viewers appreciate the animations and other illustrations that help them better understand what an object would have looked like in the past or how it would have been used.

▶ **Viewers enjoy learning about the science involved in modern archaeology.**

Viewers appreciate seeing examples of different technologies and scientific methods used in the process of conducting modern archaeological investigations. Many indicate a willingness to seek out more information about specific technologies, and a desire to see even more examples and explanations of how STEM is being used to facilitate the archeological process.

▶ **The timeframe is less important than what can be learned.**

The three-day investigation premise seems artificial to viewers and proved to be a distraction for some viewers. The real excitement comes from what is discovered or learned, more so than the three-day time limit, which is not always fully explained or justified. People respect the fact that it might be unrealistic to make big discoveries in such a short period of time, but they'd like to know what is going to happen next.

▶ **The role of the Time Team members is sometimes unclear.**

There are a lot of people involved with each episode and the role that each Time Team member plays, especially vis a vis the experts at each site, isn't fully clear to viewers in each episode. Viewers are interested in stories about what team members are most interested in and how they came to be involved in archaeology.

## Summary of Online Episode Feedback Survey

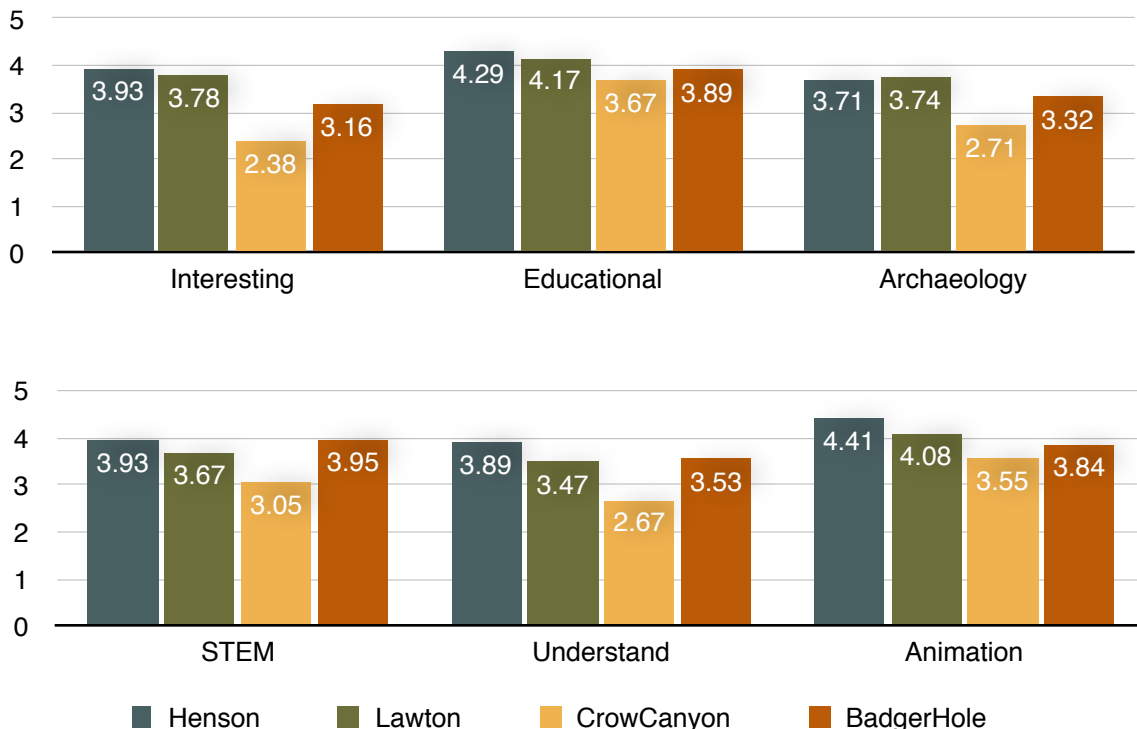
In December of 2013, final versions of each episode in season two were made available to groups of viewers online via a password protected video-hosting site. These groups included students, informal and formal educators, former field school participants and site volunteers, and members of the general adult viewing audience. After viewing an episode, online survey respondents were asked to answer a set of questions about the episode. During a two-week period the evaluation team received a total of 152 survey responses.

Specifically, viewers were asked to indicate their level of agreement with a series of statements about the episode that they viewed, using a five-point scale where 1=“Strongly Disagree,” 2=“Disagree,” 3=“Neither Agree nor Disagree,” 4=“Agree,” and 5=“Strongly Agree.” The statements included the following:

- 1) The episode was interesting. (Interesting)
- 2) The episode was educational. (Educational)
- 3) The episode increased my interest in archaeology. (Archaeology)
- 4) I learned new things in the episode about how science, technology, engineering and math are used in archaeology. (STEM)
- 5) The episode was easy to understand. (Understand)
- 6) The use of images and animation increased my understanding. (Animations)

Average findings for each episode are summarized in the following figure. Average responses were highest across all episodes for the questions that asked about the educational value of the episode and the ability of animations to increase understanding. For those questions, the majority of responses were “Agree” or “Strongly Agree.”

**Figure 5: Relative Agreement with Statements about Each Episode**





Generally speaking, the *The Search for Josiah Henson* (Henson) and *Lost Civil War Prison* (Lawton) episodes received the highest marks from viewers in all but the “use-of-archaeology in STEM” and “understandability” categories. Since both of these sites focus on historical events from the past 200 years—in contrast to the other two sites from season two that focus on historical events that took place more than a thousand years ago—this finding may suggest viewers’ greater affinity for more recent history, however, it is also possible that the ability to tell stories about real people and to use excerpts from historical documents and real photos may have helped to enhance the appeal of these episodes.

Additional findings from the Online Episode Feedback Surveys related to each of the four episodes in season two of *Time Team America* are summarized in the subsections that follow.

### Online Survey Feedback about: “The Search for Josiah Henson”

“The Search for Josiah Henson” episode features an archaeological investigation of part of the former Riley Plantation, located just outside Washington D.C. in what is now an affluent suburb. The site, now known as the Josiah Henson Special Park, is named in honor of Josiah Henson—the man who’s life and memoir’s inspired Harriet Beecher Stowe’s novel, *Uncle Tom’s Cabin*. Henson was enslaved on the Riley Plantation for 30 years.

This episode featured excavations of the kitchen floor, and efforts to find evidence of other buildings and artifacts associated with the plantation. Excursions to a near-by farm provided opportunities for members of



**Figure 6:** Screen cap from “The Search for Josiah Henson” episode in season two of *Time Team America* showing the team of archaeologists working to excavate the surface below a cabin on the former Riley plantation just outside Washington D.C.

Time Team to learn more about what life would have been like for Henson and other slaves of that era, a culinary archaeologist invited members of the team to take part in a meal that would have been similar to what enslaved people of that time period would have eaten and excerpts from Henson’s autobiography and photographs and illustrations from Henson’s era were included throughout the episode.

Twenty-nine people viewed the Josiah Henson episode including twenty students, one teacher, and eight members of the general public. This group also included four of the field school participants from D.C./Maryland (two of whom are still enrolled in high school and two of whom are now enrolled in college).

Respondents shared the following statement about the things they liked most about this episode:

*"I liked that the episode was more about the story of an individual than archaeology for the sake of archaeology."*

*"The story about Josiah Henson that explained the relevance of the dig and analyzing him as a person. I also enjoyed the cultural aspect of the traditions of the slaves (food and singing)."*

*"It gave you insight as to how brutal, harsh and demeaning life was like conditions were like if you were a slave. The integrity that Josiah Henson had as a man even living in those kind of conditions and what he did for his fellow slaves to help them to freedom"*

*"I liked that the episode was in real time and you were on the 'dig' as it happened. I liked learning the history of Josiah Henson and learning about the plantation."*

These statements seem to corroborate the hypothesis that there is an inherent appeal to stories about specific people with whom viewers can come to identify with and better understand over the course of the episode.

When asked how the episode changed viewers' understanding of the science of archaeology, including any new concepts, terms or procedures they learned about, the following comments were shared:

*"The people from different locations coming together through science and using magnetometry to measure contrast of objects changed how I understand the science."*

*"It made me realize that it is a difficult, often grueling, time-consuming process that requires the knowledge and skills of several different people."*

Based on her experiences viewing this episode, one adult respondent shared the following comment:

*"This was interesting and I will definitely tune in to PBS to see this series as it is very educational and I can learn more. I will also turn other folks onto this as well."*

In general, the Josiah Henson episode was well-received by viewers and praised for the insights it offered about the lives of those who were enslaved on American plantations and the life a man that few knew about, despite the fame of the well-known book based on his memoir.

### Online Survey Feedback About: “Lost Civil War Prison” (Camp Lawton)

This episode takes place in Jenkins County, Georgia at the site of a former Prisoner-of-War camp where more than 10,000 union soldiers were imprisoned during the Civil War. Building on previous archaeological investigations at the site and a series of illustrations drawn by R.K. Sneden—a man imprisoned at Camp Lawton in 1864—the members of Time Team seek to employ their technological tools, skills, and expertise to uncover the exact location of the prison walls. Animations are used to help contextualize a set of artifacts that are uncovered during the three-day dig, and a member of the team constructs a shebang and reflects on his experiences sleeping overnight in this basic structure that was typical of a shelter a POW at Camp Lawton would have been fortunate to have.

Thirty-seven people viewed the Camp Lawton episode, including thirty students, one teacher, and six members of the general public. Since there was no field school held at this site the evaluation team reached out to local archaeologists and students who participated in the dig at this site, but did not receive responses from anyone in this group.

**Figure 7:** Screen cap from the Camp Lawton episode showing an animation that depicts the prison as it would have looked in 1864, overlaid onto an image from what it looks like today.



Respondents shared the following statement about the things they liked most about this episode:

*“I really enjoyed the experimental archeology and the CGI image of the soldier that changed as more items were uncovered at the dig sight.”*

*“I liked whenever they found an artifact the satisfaction and how they taught us what it was for back then.”*

*“I liked the use of photos and other graphics to highlight what was happening in the episode.”*

Even though this episode did not focus on the experience of a single individual specifically, there seemed to be general interest in the common experiences and hardships faced by the thousands of men who were held captive in prisoner of war camps during the Civil War. Viewers were particularly interested in the images, animations, and experimental archaeology segments (like the night one of the team members spent in a shebang) that helped them to gain a deeper understanding of what life would have been like for the prisoners. When asked how the episode changed viewers’ understanding of the science of archaeology, including any new concepts, terms or procedures they learned about, the following comments were shared:

*“I learned how they combine all these subjects into one thing, archaeology, to help them find things from the past.”*

*“The idea that under a parking lot there could be a world long forgotten.”*

Generally speaking, the adults and youth who viewed the final cut of this episode felt they gained a deeper understanding of what life was like for soldiers during the Civil War and were able to make new connections to that part of American history based on the archaeological investigation conducted at Camp Lawton and depicted in the episode.

## Online Survey Feedback About: “The Lost Pueblo Village” (Crow Canyon)

The “Lost Pueblo Village” episode takes place in Cortez, Colorado. Previous archaeological investigations at the Dillard site, named after the owner of the land parcel where the dig takes place, had unearthed evidence of a Great Kiva from the Basketmaker III era. In cooperation with archaeologists from the Crow Canyon Archaeology Center, members of Time Team sought to uncover more evidence to help researchers understand how this village could have fit in with, or contributed to the great cultural transformations taking place about 1500 years ago in this region.

Twenty-nine people viewed the Crow Canyon episode, including twenty students, eight teachers, and one additional adult. This group also included one field school participant and two field school instructors from the Crow Canyon field school.

Respondents shared the following statement about the things they liked most about this episode:

*“I liked how they showed technology from the past and compared it to today's technology.”*

*“The cast members gave me the assumption that they enjoyed their job witch I find inspirational.”*

A teacher shared the following comment:

*“I used to teach my students about the Pueblo culture in my social studies class so this was a fascinating video for me as it taught the same materials I teach but in a more interesting manner. I have looked for videos like this online before and never found any good ones. I would have used this in my classroom in a heartbeat.”*

We found that technology figured prominently into respondents’ comments about this episode, both in terms of the technology being used to conduct the archaeological investigations, but also in terms of the ancient technologies that were being studied. When asked how the episode changed viewers’ understanding of the science of archaeology, including any new concepts, terms or procedures they learned about, the following comments were shared:

*“I thought archaeology was just digging. Now, I know that they learn things by finding out what it's made of.”*

*“I didn't realize they had some many different ways of finding structures from LiDAR to geophys data and soil samples. I learned that soft soil is good. It means whatever is below is filled with something. Likewise, dark soil is good as it signifies culture material, which is human made material. I also learned that pottery will stick to your tongue if you lick it and that finding corn in the soil is an indicator that humans existed there as corn is dependent on humans to grow and be eaten.”*

In general, it seemed to be more difficult for viewers to make personal connections with this episode, but they seemed to appreciate an opportunity to learn more about these ancient peoples and they appreciated the animations and illustrations that depicted what the ancient structures that once existed at the Dillard site might have looked like.



**Figure 8:** Screen cap from the Crow Canyon episode of *Time Team America* showing team members examining one of the artifacts found at the dig site.

## Online Survey Feedback About: “The Bones of Badger Hole”

This episode focused on a site in Oklahoma where ancient peoples from the Folsom-era successfully hunted and butchered large numbers of bison with very primitive hunting tools more than 10,000 years ago. In addition to helping with the ongoing excavation of the site, Time Team members discuss theories about why the arroyo made such a good site for killing bison, and got a hands-on opportunity to butcher a modern-day bison using stone tools that Folsom-era hunters would have used thousands of years ago.

As part the summative evaluation, nineteen people viewed the Badger Hole episode online in December of 2013. This group included fifteen students, three teachers, and three members of the general public.

When asked what they liked most about this episode, respondents’ answers ranged from being very general (about archaeology and archaeological techniques), to being very specific (i.e., about the specific site and ongoing investigations into how ancient peoples had hunted here), as illustrated by the following examples:



**Figure 9:** Screen cap from “The Bones of Badger Hole” episode.

*“The way that they explained in detail about every step they took. It helped me better understand the concept.”*

*“I found it interesting the site is 10,300 year old.”*

*“I learned a lot how they hunted in ancient times.”*

*“I liked learning how the Paleo Indians drove the Prehistoric Bison to the Arroyos and finally to the Nick point for killing.”*

Respondents were asked how the episode changed viewers’ understanding of the science of archaeology, including any new concepts, terms or procedures they learned about. The following are examples of the comments that were shared:

*“I did not realize they used magnetometry and lidar in archaeology.”*

*“This show help promote the fact that archaeology, science, math etc can be very cool! I never realized that so much went into an archaeological dig! Archaeology employs science and math. A lot is time is spent inside a lab after the field work is completed.”*

As shown earlier (see page 8), this episode was rated highly among survey respondents for its ability to convey information about the processes of archaeology and ways in which archaeology incorporates science, technology, engineering and math. This finding was clearly supported through viewers’ open-ended comments as well. For most viewers this was also a time period they knew little about and some seemed to find it engaging to learn about people who lived so long ago.

## Summary of Episode Feedback

In this section, we summarize a set of over-arching findings and themes in viewers' responses that were present throughout focus groups and viewers' online survey responses.

### ▶ Viewers were most engaged by stories about people.

At the heart of archaeology is the study of people who lived before us. It is this inherent focus on people, i.e., stories about specific people or groups of peoples, that the evaluation team found to be most successful in leading audience members to become engaged with program content.

### ▶ Viewers gain a deeper understanding and appreciation of archaeology.

Viewers generally felt that *Time Team America* episodes were easy to follow and a good way to learn about archaeology, as indicated by the following comments shared by viewers in response to the online survey:

*"I was able to learn about many new archaeological processes and terms without being overwhelmed or disinterested, which is very hard with the attention span today's web viewer."*

*"This is a really big science in that it isn't just about digging thing up but that there are many puzzle pieces to be explored, land, occupants, etc."*

As they come to understand more about the archaeological process, viewers are also less engaged by the three-day time limit employed during the first two seasons of *Time Team America* than they are by the possibility of seeing outcomes and findings over a longer period of time. Instead, viewers recommend telling engaging stories in whatever timeframe makes the most sense for each specific site and archaeological investigation.

*"You need more than three days to dig up any real answers from an archaeological site. Wish we could have solved more of the mysteries/gotten some more definitive answers."*

### ▶ Viewers find the STEM content in episodes to be understandable and interesting.

Explanations of underlying scientific concepts and techniques used by archaeologists hold audience members' interest and help to bolster audience members' basic understanding of STEM. Additionally, viewers come away with a deeper understanding of the processes and techniques involved in archaeological investigations—especially the processes and techniques which involve science. Viewers are also exposed to new vocabulary and STEM concepts including Lidar, Ground Penetrating Radar, and Magnetometry and gain a deeper understanding of the way they are used to further archaeological investigations as well as the basic underlying scientific concepts that make them function—i.e, generating STEM content knowledge that is both archaeologically-specific as well as independent.

### ▶ TTA episodes give viewers greater awareness of archaeological treasures in the U.S.

It was engaging for viewers to learn about archaeological sites of great historical importance located near them, or at least nearer to them than famous sites that often come to mind when one thinks of archaeology. As one survey respondent stated:

*"It made me realize that you don't have to go to places like Egypt or Rome to "dig up" relics of the past. We have many right in our own back yards; literally."*

In other words, viewers come away with a deeper knowledge of the archaeological treasures that exist in the United States and come to realize the importance of preserving them for future generations.

## Section 3: Time Team America Website Feedback

A preview version of the redesigned *Time Team America* website was made available online in December of 2013. Targeted groups of respondents were asked to provide feedback about the new website via an online survey. Survey respondents included middle school students (n=67), high school students (n=44), informal and formal educators (n=12), former field school participants and site volunteers (n=8), and members of the general adult viewing audience (n=23).

### Navigability

Generally speaking, most visitors found the site relatively easy to navigate and a source for engaging and informative content. Specifically, website visitors were asked how easy it was for them to find their way around the website. On a five-point scale where 1=“Not easy at all,” 2=“Not very easy,” 3=“Neither easy nor hard,” 4=“Somewhat easy,” and 5=“Very easy,” there was an average rating of 4.13 (indicating that most found it “somewhat easy” or “very easy” to navigate). Overall, eighty-three percent of visitors found the site “somewhat easy” or “very easy” to find their way around.

### Quality

Website visitors were asked to respond to a series of questions about the quality of the *Time Team America* website and its subsequent quality. On a five-point scale where 1=“Very Low,” 2=“Low,” 3=“Average,” 4=“High,” and 5=“Very High,” there was an average rating of 3.52 in response to the statement: “The quality of the site is....” On average, visitors found the interest-level of the site to be “average” (with an average response of 3.04), and on average, visitors indicated that the likelihood of returning to the site was also close to “average” (2.70).

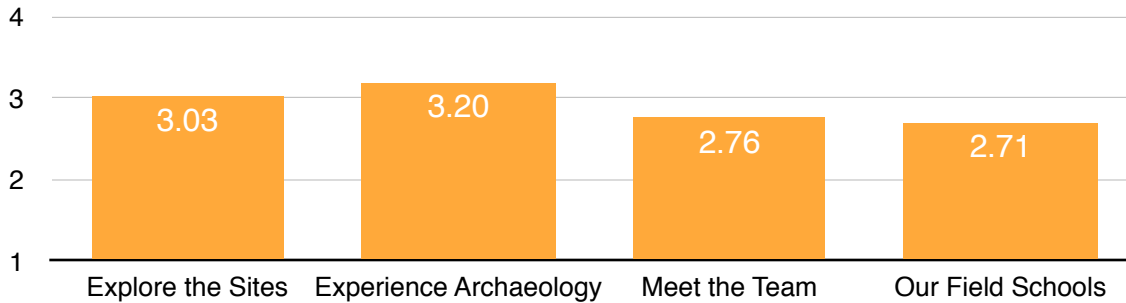
Visitors were also asked to indicate their level of agreement with a series of statements about the *Time Team America* website using a five-point scale where 1=“Strongly Disagree,” 2=“Disagree,” 3=“Neither Agree nor Disagree,” 4=“Agree,” and 5=“Strongly Agree.” Average responses are summarized in the table below.

**Table 1: Summary of Survey Response about the Time Team America Website**

The website...	Average Response	% Agree or Strongly Agree
increased my interest in archaeology.	3.40	55%
increased my motivation to learn more about science.	3.24	49%
gave me deeper insights into the scientific process.	3.45	56%
gave me a better understanding of what scientists do.	3.80	72%
gave me a greater understanding of concepts in STEM.	3.49	52%
gave me greater awareness of careers in STEM.	3.52	56%
gave me a better understanding of how STEM concepts are involved in archaeology.	3.65	65%

Visitors were asked to rate their level of *interest* in different sections of the website using a four-point scale where 1=“Not interesting at all,” 2=“Not very interesting,” 3=“A little interesting” and 4=“Very interesting.” The following table summarizes average responses and indicates that the “Experience Archaeology” and “Explore the Sites” sections of the website interest visitors most.

**Figure 10: Relative Interest in Major Sections of the Website**



## Educational Value

Website visitors found the site to be robust in terms of its educational content and value. Seventy-one percent of survey respondents felt that the content on the *Time Team America* website was “just right.” Likewise, Seventy-two percent felt that the difficulty level of the content on the *Time Team America* website was “just right.” The following are examples of survey respondents’ comments about the educational value of the website:

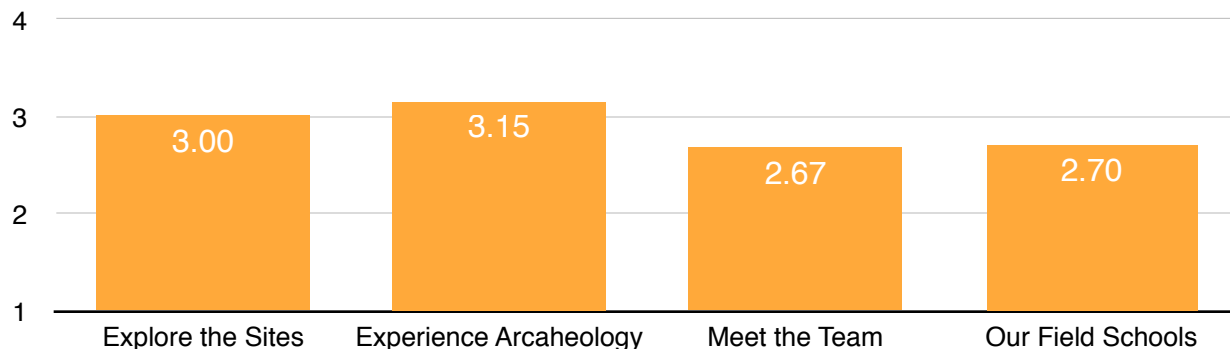
*“I found it educational. It was not full of fluff like you might see for some programs and gets right to the point for those that are interested in this science. It gives an opportunity to learn, even for those of us who are not enrolled in such programs.”*

*“I like that [the website] introduces difficult concepts in bite size, easy to digest chunks for the lay person to understand.”*

*“Site has everything you need to know about archaeology from the basic to the advanced.”*

Survey respondents were asked to rate how much they learned from different sections of the website using a four-point scale where 1=“Not at all,” 2=“Not much,” 3=“A little” and 4=“A lot.” The following figure summarizes average responses and indicate that website visitors felt they learned the most from the “Experience Archaeology” and “Explore the Sites” sections of the site.

**Figure 11: How Much Visitors Learned from Major Sections of the Website**







## Behaviors and Interests

Website visitors were asked to indicate their level of agreement with a series of statements about the *Time Team America* Website and likely future behaviors or ways in which the site changed their level of interest in archaeology or STEM. Responses, based on a five-point scale where 1=“Strongly Disagree,” 2=“Disagree,” 3=“Neither Agree nor Disagree,” 4=“Agree,” and 5=“Strongly Agree” are summarized in Table 2 below. Responses were fairly consistent across all survey respondents but tended to be highest for former field school participants.

**Table 2: Website Visitors Self-Reported Intentions and Interests**

	Average Response	% Agree or Strongly Agree
<b>I am eager to explore the Time Team America website further.</b>	3.05	38%
<b>Seeing the website increased my level of interest in archaeology.</b>	3.45	57%
<b>I plan to tell other people about the Time Team America website.</b>	3.15	44%
<b>The Time Team America website increased my interest in careers in archaeology or STEM.</b>	3.14	41%

## Educator Feedback

Our survey respondents included a mix of twelve informal and formal educators. Educators were generally positive about the website and the resources that it contained. The following are comments from educators, including indicators of their intention to implement resources from the *Time Team America* website:

*“Interesting topics, good way to introduce science fieldwork.”*

*“I would like to revisit this with our STEM unit where we explore various careers.”*

*“During our topography unit, I could show clips from Field Work to show students how the topography of the earth changes and how scientists use tools to discover what the topography of the Earth's surface looked like millions of years ago.”*

*“I will be using The Science of Soil - I would develop this into a full activity with links to equipment to use for soil testing, etc.”*

Teachers’ suggested that resources for educators be made easier to find. The following comments were offered as recommendations for improvements to the website:

*“I felt like the teacher resources and lesson were not easy to find. I had to really look for these and if it hadn't been for the directions I had received I don't think I would have noticed they were there. I suggest making section that is more obviously titled, something like ‘Teacher Resources’ or ‘Incorporate STEM into your class’.”*

*“I think more in depth resources could be provided included questions aligned to Core Curriculum.”*

## Most Appealing Elements of the Website

The following is a summary of things viewers most appreciated about the redesigned version of the *Time Team America* website.

### ▶ Visitors liked visual elements of the website.

Visual components of the website were popular among visitors. Pictures and especially videos were the most frequently cited aspects of the site that visitors liked most about the revised *Time Team America* Website. Related comments from survey respondents included the following:

*“The resources and the videos helped to connect the exploration of STEM Learning through the experience was a fun component of the website.”*

*“Videos are concise and to the point. The website really compliments the video well and provides a closer look at some of the resources/findings in detail which is nice.”*

*“The videos in each section were great. They are a nice length, easy to understand and a great way to relay the important information for the page.”*

### ▶ Visitors felt the site contained an adequate amount of information.

Generally speaking, the breadth and depth of the website’s content appealed to visitors and, overall, they were pleased by the amount of information that were presented on the TTA website. Comments from survey respondents included the following:

*“It provided much information about many aspects of archaeology and other forms of science.”*

*“I liked how the information was not too much, and it was easy to understand.”*

### ▶ Website visitors appreciated being able to learn more about the archaeologists.

Visitors to the *Time Team America* website appreciated being able to learn more about the members of Time Team America and how they came to be archaeologists. Related comments that illustrate this point include the following:

*“I actually like learning about the team members and their background. They have such a cool job and I like seeing what they’ve done with their lives to get to that point.”*

*“I enjoyed learning about the archaeologists on the show, the tools they use, and the meaning of the discoveries they found.”*

*“Seeing what scientists and archaeologists did to contribute to history made me want to learn more about those careers in life.”*

## Section 4: Findings Related to Field Schools

Oregon Public Broadcasting received funding from the National Science Foundation to design and implement four archaeological field schools in conjunction with the production of the second season of the *Time Team America* television series. The field schools sought to teach underrepresented youth the science behind archaeological practices and to provide them with real world experiences such as visiting dig sites and meeting archaeologists and other researchers who use STEM.

### Field School Evaluation Methods

As part of its evaluation of the *Time Team America: Science of Archaeology* project, the evaluation team used a mix of qualitative and quantitative methods to evaluate field Schools in Colorado, Oklahoma, Maryland and New Mexico during the summer of 2012. The following methods were used as part the evaluation effort.

#### ▶ Pre and Post-Program Surveys

Pre and post-program surveys were administered to each field school participant. Qualitative and Quantitative data from these surveys were analyzed. Pre-post changes in participants' interest, knowledge, skills and career awareness were determined.

#### ▶ Observations

Members of the evaluation team were present during each field school. Observation notes include examples of content presented, examples of dialogue between and among participants and facilitators, and potential evidence of engagement and learning.

#### ▶ Participant Peer-to-Peer Interviews and Facilitator-led Focus Groups

Cameras were provided for each field school participant. Interview prompts were given at the end of each day and participants were asked to interview each other. At the end of the field school, focus group sessions were led by members of the REA evaluation team. Quotes from the REA-led focus groups and peer-to-peer interviews were captured and used to facilitate trend analysis for each site.

#### ▶ Facilitator Interviews

Evaluators spoke with staff and facilitators at each field school site. Topics included successful field school activities, strategies for addressing challenges that arose during the field school, and suggestions for future field school implementations.

## Field School Sites and Information

### Crow Canyon

**Location:** Cortez, Colorado

**Dates:** June 4 - June 8, 2012

**Participants:** 17 boys, 16 girls (from Colorado and New Mexico) – predominately from grades 8-12 with one from 6<sup>th</sup> grade. 61% Native American.

**Description:** At the Crow Canyon field school, youth participated in both a dig simulation as well as two days of excavation at the Dillard site. They also participated in several lectures and activities around Basketmaker and Pueblo lifestyles (e.g., they made cords and fire, ate corn, played traditional games, threw atlatls, etc.), they listened to a flutist explain the science behind his music, visited Mesa Verde, cleaned and catalogued artifacts in the lab, and had an astronomy lesson.

### Badger Hole

**Location:** Woodward, Oklahoma

**Dates:** June 10 - June 14, 2012

**Participants:** 12 girls. 25% Native American. Mostly 6<sup>th</sup> and 7<sup>th</sup> graders (one in 4<sup>th</sup>).

**Description:** At the Badger Hole field school, participants visited the Sam Noble Museum and a DNA lab, engaged in two different dig simulations, visited the bison kill site (where they learned how to flintknape and throw an atlatl), learned scientific illustration and soil analysis, went on a STEM walk to locate STEM in their town, and had a lesson on how math is used in archaeology.

### Josiah Henson Special Park

**Location:** Rockville/Bethesda, Maryland and D.C.

**Dates:** August 13 - August 17, 2012

**Participants:** 8 girls, 6 boys. 14% Native American, 14% Latino and 29% African American. All were high school students, ranging from grades 9-12.

**Description:** At the Henson/D.C. field school participants learned excavation methods, visited the *Time Team America* crew and their excavation site at the former plantation where Josiah Henson was enslaved, visited a forensic exhibition and lab at the Smithsonian, participated in an excavation at the Needlemore Mansion, learned about zooarchaeology, and visited the MAC lab (where they learned about artifact cleaning, Native American tools and crafts, making fire, and throwing atlatls).

### Zuni New Mexico

**Location:** Zuni, New Mexico

**Dates:** August 26 - August 29, 2012

**Participants:** 7 girls and 5 boys; all but 2 in 6<sup>th</sup> grade. 100% Native American.

**Description:** At this field school participants learned about the history of the Zuni people and their first contact with people of European descent. They did a walking survey and metal detection activity, traveled to Santa Fe to learn about different sciences and types of archaeology, learned about dating and painting ceramics, flintknapping and metal conservation techniques, and heard from a variety of Native American archaeologists, scientists and conservation experts throughout the program.

## Crow Canyon Field School

At the Crow Canyon field school—June 4th-June 8th, 2012 in Cortez, Colorado—thirty-three youth in grades 6-12 got an overview of techniques used in archaeology and got a first-hand opportunity to participate in real archaeological excavation. Sixty-one percent of the participants were Native American. Activities during the week-long field school experience included a simulated dig as well as two days of real excavation at the Dillard site along with opportunities to clean and catalog actual artifacts. Instructional sessions employed lectures and activities centered around the Basketmaker and Pueblo lifestyles, e.g., making cords and fire, eating corn, playing traditional games, and throwing atlatls. The week-long experience also included an opportunity to visit Mesa Verda, to learn about astronomy and to listen to a flute player and learn about the science behind his music.

The following images and quotations were shared by youth who participated in the Crow Canyon Field school.

*“I think that the way they teach you is different. It’s not like you’re sitting in a boring classroom reading a book. You’re out doing things.”*

*“It was more like hands-on here. Rather than learning in the classroom trying to convert stuff... here you have more hands-on stuff and I was able to understand more what was going on.”*

*“Its not just like an ordinary classroom because you go to a classroom setting and they teach you something, but you don’t have anything to do with it. Here, you’re taught something and then you get to go out and actually do it.”*



**Figures 16-19:** Youth at the Crow Canyon field school participating in a simulated dig, learning about the pueblo lifestyle, participating in an actual excavation and in the lab, identifying artifacts.

*“I liked the excavating that was real cool...You don’t get to excavate every day and you actually found things that haven’t been touched in a long time.”*

*“I really enjoyed the lab actually. It was pretty fun when we cataloged the stuff. It really gave you a new light on the other side of archaeology that really doesn’t get seen that much which is everything after you dig up the artifact.”*

*“I have a new respect for the people that get out there at sunrise and are there til sunset breaking their backs just to help us find out about our past.”*

## Badger Hole Field School

The Badger Hole field school took place from June 10th-14th, 2012 in Woodward, Oklahoma. Twelve girls participated in the majority of the activities during the week-long field school—all but one of whom were in grades 6 and 7—and a quarter of whom were Native American. This field school featured a visit to the Sam Noble Museum, a DNA lab at Oklahoma University where they got to try on contagion suits, and the bison kill site featured in the Badger Hole Episode of *Time Team America*. Other activities included two simulated digs as well as lessons on flintknapping, scientific illustration, and soil analysis, and an opportunity to throw spears and use atlatls. STEM and the connection between STEM and archaeology were emphasized in this field school; participants went on a STEM walk to locate STEM in their town, and had a lesson on how math is used in archaeology. The girls in this field school also had an opportunity to have lunch with Meg Watters, the remote sensing and visualization specialist on *Time Team America*, and rated this among their favorite experiences of the field school, along with flintknapping and the trips to other sites.

For a majority of participants, the field school presented a first opportunity to visit an archaeological site, meet an archaeologist, visit a research lab and meet a scientist. There were also significant gains in participants' knowledge about archaeology (based on paired samples t-tests, the gain in self-reported knowledge scores were found to be significant at the .000 level).

The following are examples of the things that Badger Hole field school participants said they liked most about their field school experience.

*“One thing that was interesting was that we got to flintknap...I’ve seen flintknapping before but I’ve never done it myself.”*

*“When we got to throw the spears with the atlatl and stuff it was really interesting and when we got to flintknap...just being able to do that and have the experience.”*

*“I volunteered [to put on the contagion suit]. It covered up my face. I had a hair net, I had little booties on, gloves, the whole nine yards...because we’re at a DNA lab where they’re creating viruses. It’s not protecting us from getting sick, its protecting the DNA from getting germs.”*



**Figures 20-23:** Youth at the Badger Hole field school flintknapping, throwing an atlatl, putting on a contagion suit and doing soil analysis.

## Josiah Henson Special Park Field School

The third field school took place from August 13th-17th, 2012 at the Josiah Henson Special Park in Montgomery County Maryland, a suburban area just outside of Washington. Fourteen high-school aged youth participated in this field school—more than half of whom were minorities. During their week-long field school experience, participants at the Henson field school learned excavation methods, visited the *Time Team America* crew and their excavation site at the former plantation where Josiah Henson was enslaved, visited a forensic exhibition and lab at the Smithsonian, participated in an excavation at the Needlemore Mansion, learned about zooarchaeology, and visited the MAC lab (where they learned about artifact cleaning, Native American tools and crafts, making fire, and throwing atlatls).

There were many activities that participants found engaging during this week-long field school, but the two that seemed to have the most significant impact on participants, based on end-of day interviews and end-of-program surveys, were the visit to the forensic science lab at the Smithsonian and the opportunity to participate in a real excavation. At the Smithsonian, the participants had an opportunity to re-articulate skeletons. The participants were highly engaged by this activity, but they were even more amazed when they got an opportunity to see a mummified body and hear the story behind how it was found. On the third day of the field school, participants got to do an excavation. They measured the units for their dig site, and sifted through soil to look for objects that could be cataloged and analyzed; ultimately, one participant found a nail.

Participants shared the following comments about the things they liked most about their field school experience.

*“The most interesting and exciting part of today was definitely going to the museum and seeing all of the, getting a hands on experience from the bones as you can see, and it was just exciting because I didn’t think I would be able to have this opportunity any time soon, until like medical school. And I mean I got another anatomy lesson when I got to put together the skeleton, which was really cool.”*

*“The digging up the units and excavating those was really cool, because you never know what is down another layer. It was kind of spiked my curiosity because every time I would go over something that wasn’t dirt I would be like what is it? Is it a pot or just a rock.”*



**Figures 24-27:** Youth at the Josiah Henson Special Park field school, laying out a grid using measurement and mathematical skills, re-articulating a skeleton, a proud field school participant holding up the nail that she found during the dig on day three, and field school participants looking for artifacts.



## Zuni, New Mexico Field School

At this, the final field school offered as part of the *Time Team America: Science of Archaeology* program, participants learned about the history of the Zuni people and their first contact with people of European descent. They did a walking survey and metal detection activity, traveled to Santa Fe to learn about different sciences and types of archaeology, learned about dating and painting ceramics, dendrochronology, flintknapping and metal conservation techniques. The participants had opportunities to hear from a variety of Native American archaeologists, as well as other scientists and STEM experts throughout the program. Eleven youth participated in this field school; all but one were going into 7th grade in the fall of 2012, and 100% were Native American. Along with the youth, two local teachers from Zuni participated as well. This field school was slightly shorter than the three field schools that preceded it—running for four days from August 26th - August 29th, 2012.

The participants in Zuni were engaged by exposure to STEM content situated within the context of their own cultural heritage. Likewise, and perhaps more so than in other sites, the participants in the Zuni field school, came to feel empowered based on the unique perspective they could bring to archaeology as Native Americans. Prior to the field school, most participants assumed that their cultural and religious beliefs prohibited them from doing archaeology, so the opportunity to hear from and interact with several Native American archaeologists over the four-day field school program had a profound impact on the youth in this field school site.

A teacher from Zuni who participated in the field school stated that he felt the participants came away with “hope,” and “a little more direction, motivation and courage to move upward in their lives.” He went on to explain how pleased that the field school experience had sparked participants’ interest in STEM.



**Figures 28-32:** Youth at the Zuni field school (clockwise from top, left), getting ready to throw a spear with an atlatl, looking at seeds under a microscope, sorting pottery, cleaning artifacts, and using metal detectors to find artifacts hidden within a grid.

## Key Findings About Field Schools

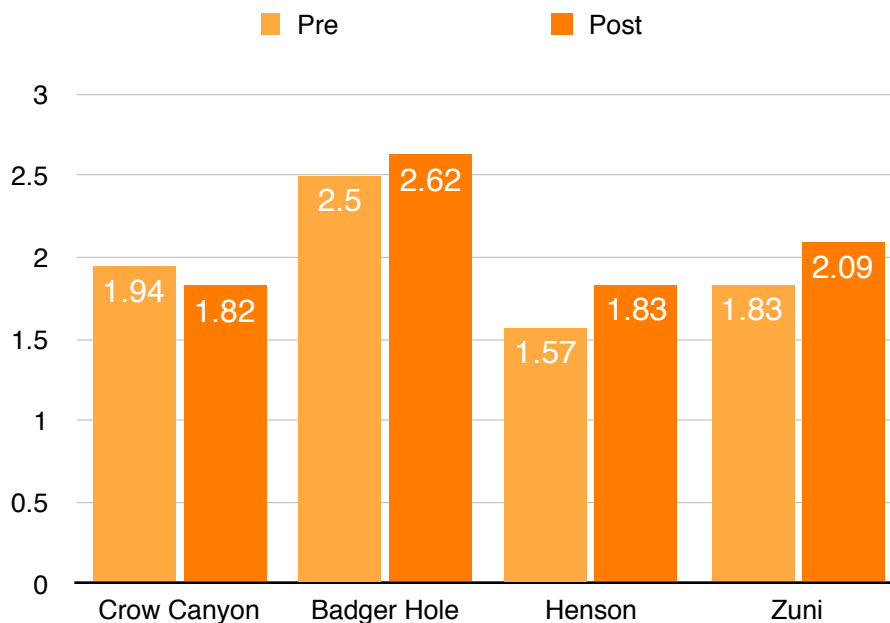
### ► Field Schools Exposed Participants to New Experiences

The field schools exposed youth to new experiences including opportunities to meet and hear from real scientists and archaeologists, visit scientific labs, and visit the sites of archaeological excavations. These new experiences formed a foundation on which additional interest and knowledge-related outcomes could be built.

### ► Field schools increased participants' interest in archaeology/STEM

Not surprisingly, field school participants' interest in archaeology increased as a result of their participation in the Time Team America: Science of Archaeology field schools. On the pre- and post-field school survey, interest was self-rated by participants using a four-point scale where 0="not at all interested," 1="somewhat interested," 2="interested," and 3="very interested." A summary of the results from the survey data is presented below, however, it should be noted that comments overheard during the field schools, observed instances of engagement, and other qualitative forms of data suggest even higher levels of resulting interest than suggested by the survey data. On average, participants' responses ranged from "somewhat interested" to "very interested."

**Figure 33: Field School Participants' Interest in Archaeology**



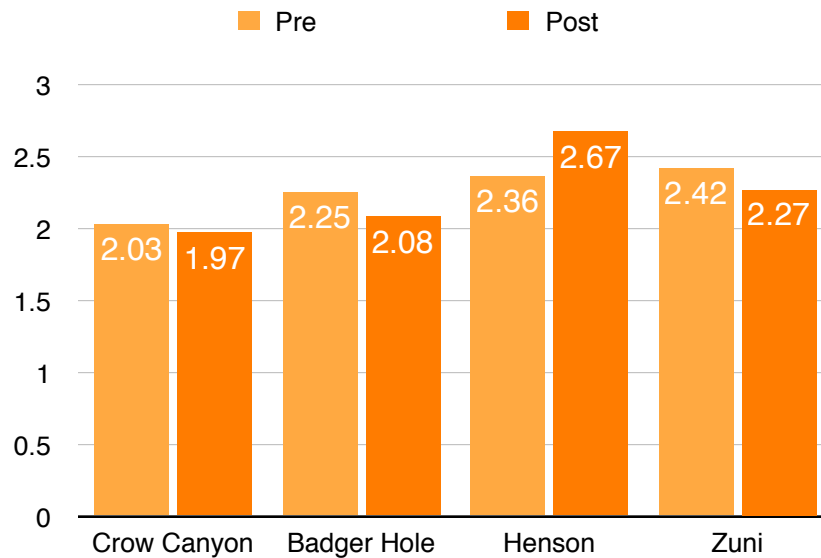
### ► Field school participants gained awareness of what archaeologists do.

Participants in the field schools gained more awareness of what archaeologists do, and ways in which STEM is involved in archaeology. As further evidence of this fact, participants' ability to describe archaeology and the process of doing archaeology went from being very vague (e.g., "They study old stuff") or stereotypical (e.g., "like *Indiana Jones*") at the start of the field school program, to being specific and more accurate by the conclusion of the field school program, (e.g., "Archaeologists use science to date artifacts and use the scientific method to create and test theories," and "archaeologists study past culture through artifacts").

► **The field school experience increased some participants' interest in science.**

Interestingly only field school participants from the program in Washington, D.C. indicated a heightened interest in science, as shown in figure 17 below. Average interest-scores are based on a four-point scale where 0="not at all interested," 1="somewhat interested," 2="interested," and 3="very interested." We hypothesize that this finding may be due in fact to a heightened interest in science that was a likely precursor to youths' willingness to participate in the extracurricular field school programs during their summer break from school.

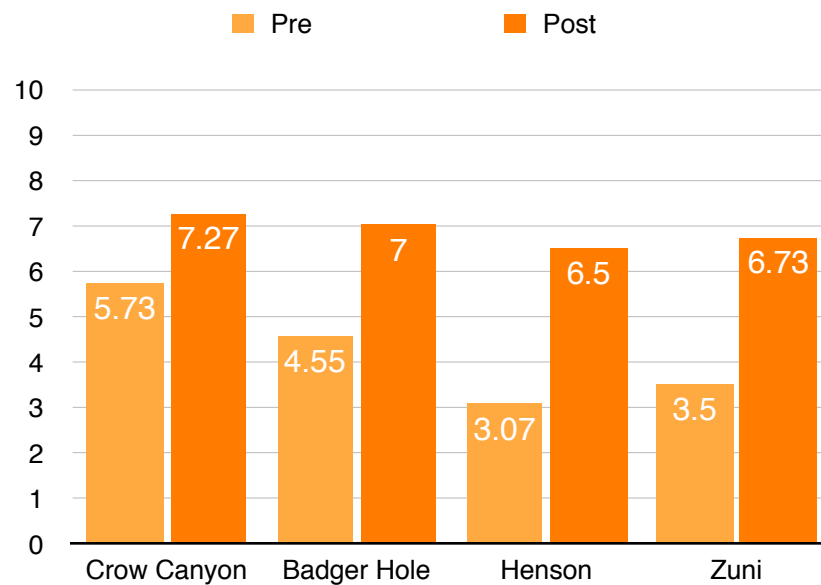
**Figure 34: Field School Participants' Interest in Science**



► **Field School experiences increased participants' knowledge of archaeology**

On the pre- and post-field school survey, participants were asked to rate how knowledgeable they were about archaeology using a 10 point scale where 1="I don't know anything about it," and 10="I'm an expert." In all sites, there were increases in the amounts of self-reported archaeological knowledge participants felt they had at the end of the field school program.

**Figure 35: Field School Participants' Knowledge of Archaeology**



Qualitative data from field school participants’ open-ended survey responses, interviews, and focus groups also provide evidence of their acquisition of new archaeological knowledge. Not surprisingly, the knowledge and skills gained by participants depended on the specific experiences they had in their field school program. For example:

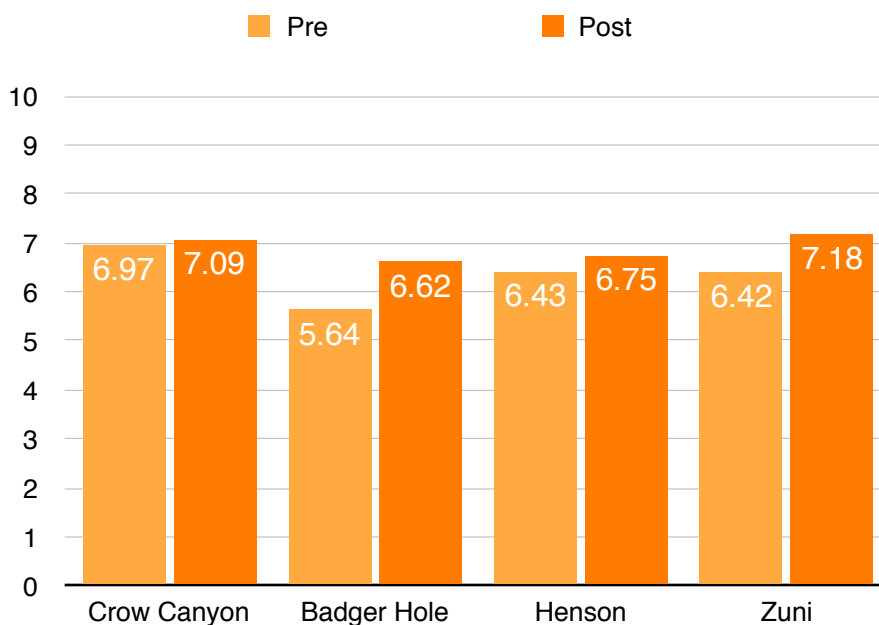
- Participants in the Badger Hole field school talked about digging animal bones and could identify which spear points were used to hunt mammoth vs. modern bison and deer.
- Crow Canyon participants talked about finding objects including flakes, sherds, gizzard stones, pieces of adobe, etc. and were also more skilled in their abilities to identify and classify objects.
- Washington D.C. field school participants gained knowledge and skills in forensic science, zooarchaeology, soil analysis and showed a great deal of understanding about the overall process of archaeology.
- Zuni field school participants learned a great deal about the inter-relationship between culture and archaeology and gained a greater appreciation for their connection with the past, including the process of making and using ancient tools (e.g., throwing atlatls and flintknapping) and crafts (e.g., making pottery and jewelry).

All field school participants learned new terms, like “lithic” and “dendrochronology.” Terms that tended to be repeated most frequently in each field school were the ones participants were best able to recall.

► **Field school participants reported gains in STEM knowledge and skills**

On the pre- and post-field school survey, participants were asked to rate how knowledgeable they were about science using a 10 point scale where 1=“I don’t know anything about it,” and 10=“I’m an expert.” The following figure shows a summary of survey data, indicating pre-post gains on participants’ levels of self-rated science knowledge for all field school sites. Although the gains in self-reported science knowledge were smaller than self-reported gains in archaeology knowledge, it is important to note that they are present, none-the-less in all sites.

**Figure 36: Field School Participants’ Knowledge of Science**



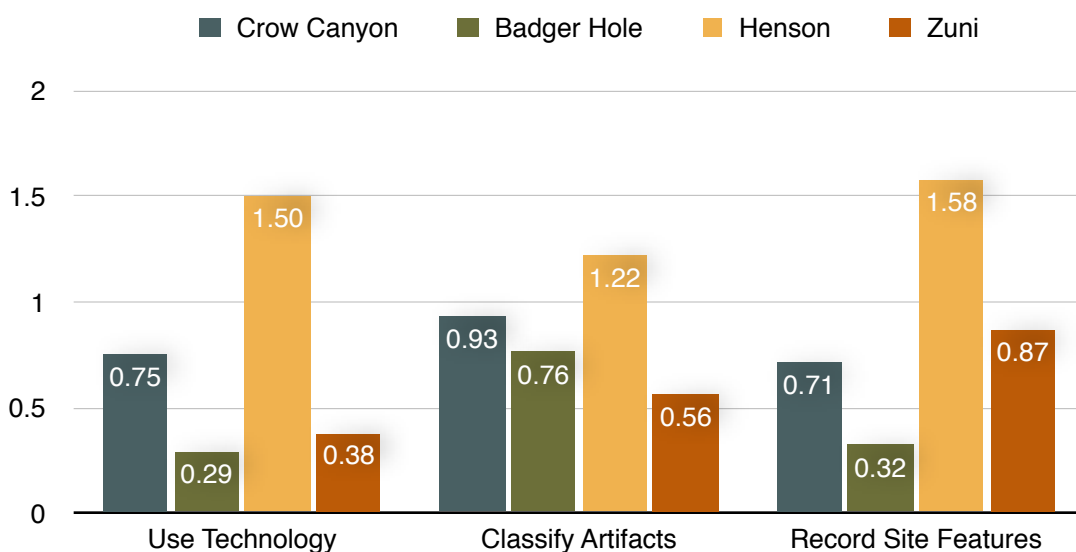
Participants certainly came to have greater awareness of the fields that comprise what is more commonly abbreviated as STEM, i.e., Science, Technology, Engineering and Math. However, there seemed to be somewhat less certainty among field school participants about how certain types of archaeology or field school experiences related to STEM unless specific connections were made by facilitators. In instances where there were efforts to make specific connections—e.g., the mathematical skills used in laying out a plot to excavate or counting tree rings, or the chemistry involved in the process of X-Ray Fluorescence—participants did seem to be aware of the underlying STEM involved in the archaeological process.

► **Having hands-on experiences with real excavations has a great impact.**

Having opportunities to participate in real excavations at actual archaeological sites appears to have had a greater impact and made a more significant impression on participants than simulated dig experiences. Even though all participants got to see (and in some cases do), real science—e.g. visiting a forensic science lab, visiting a DNA lab, and conducting metal conservation on actual artifacts—these experiences did not seem to have as significant of an impact on participants as the opportunity to participate in an actual excavation.

On the pre and post-field school surveys, participants were asked to indicate their level of confidence in performing a set of skills related to archaeology using a four point scale ranging from 0=“not at all confident,” 1=“somewhat confident,” 2=“confident,” and 3=“very confident.” The skills we asked about included: explaining how archaeologists use technology to analyze data (use technology), classifying archaeological artifacts (classify artifacts), and recording archaeological site features (record site features). The participants in Crow Canyon and the Henson field school (i.e., the sites where participants were involved in a real excavation), showed the greatest growth in confidence in archaeological skills developed during their field school experience as illustrated in Figure 37 below and the tables on the following page.

**Figure 37: Growth in Participants’ Averaged Confidence in Skills Across Sites**



The following tables provide a further breakdown of participants' self-reported confidence in their ability to do certain things before and after the field school program. All responses are based on the following scale: 0="not at all confident," 1="somewhat confident," 2="confident," and 3="very confident. Overall, participants' responses on the pre-program survey indicate a lower level of confidence—right at, or just under "somewhat confident." Post-program averages show a range between "confident" and "very confident," with the highest levels of pre-post gains ultimately found among participants in the Crow Canyon and Henson field schools as indicated by Figure 20 on the preceding page.

**Table 3: Participants' Pre/Post Confidence in Ability to Explain How Archaeologists Use Technology to Analyze Data**

Site	Average Pre-Program Survey	Average Post-Program Survey	Change
Crow Canyon	1.12	1.87	0.75
Badger Hole	1.09	1.38	0.29
Henson	0.50	2.00	1.50
Zuni	1.17	1.55	0.38

**Table 4: Participants' Pre/Post Confidence in Ability Classify Archaeological Artifacts**

Site	Average Pre-Program Survey	Average Post-Program Survey	Change
Crow Canyon	1.24	2.17	0.93
Badger Hole	1.09	1.85	0.76
Henson	0.36	1.58	1.22
Zuni	1.17	1.73	0.56

**Table 5: Participants' Pre/Post Confidence in Ability Record Archaeological Site Features**

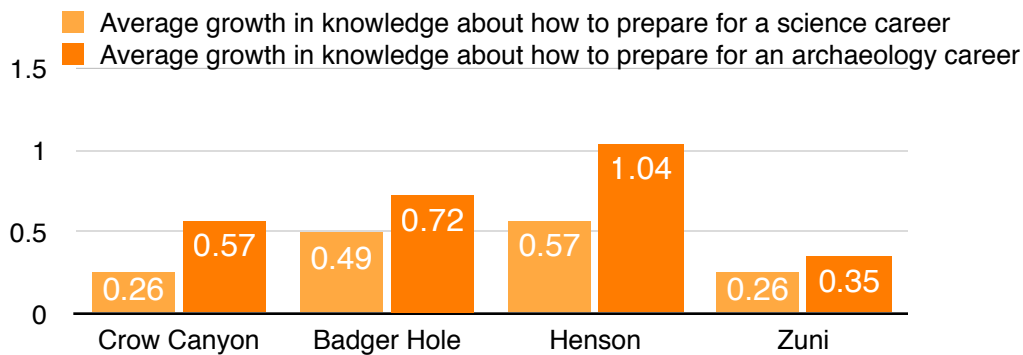
Site	Average Pre-Program Survey	Average Post-Program Survey	Change
Crow Canyon	1.36	2.07	0.71
Badger Hole	1.45	1.77	0.32
Henson	0.50	2.08	1.58
Zuni	1.58	2.45	0.87

► **The field schools introduced participants to new STEM career opportunities.**

Field school participants were exposed to several new STEM and archaeology careers and had opportunities to meet professionals who are passionate about what they do. Participants were especially appreciative of instances where professionals shared similar cultural backgrounds and/or were able to tell interesting stories about their experiences as archaeologists.

On the pre and post-field school surveys, participants were asked to indicate their level of agreement with statements about their level of knowledge in how to prepare for a career in science or archaeology using a four point scale where 0 = "Strongly disagree," 1 = "Disagree," 2 = "Agree" and 3 = "Strongly Agree." On both questions and in all sites, there were gains in how strongly the participants' agreed with these statements. Understandably, self-reported knowledge of how to prepare for careers in archaeology was slightly higher than knowledge of how to prepare for careers in science.

**Figure 38: Pre-Post Growth in Participants' Career-Prep Knowledge**



**Table 6: Participants' Science Career-Prep Knowledge**

Site	Average Pre-Program Survey	Average Post-Program Survey	Change
Crow Canyon	1.91	2.17	0.26
Badger Hole	1.82	2.31	0.49
Henson	1.93	2.50	0.57
Zuni	1.92	2.18	0.26

**Table 75: Participants' Archaeology Career-Prep Knowledge**

Site	Average Pre-Program Survey	Average Post-Program Survey	Change
Crow Canyon	1.63	2.20	0.57
Badger Hole	1.82	2.54	0.72
Henson	1.21	2.25	1.04
Zuni	1.92	2.27	0.35

► **Field schools fostered a greater sense of cultural awareness.**

The field schools in Crow Canyon and Zuni were particularly successful in fostering greater interest and awareness of Native American culture and traditions. The connection between archaeology and culture was particularly meaningful for participants of Native American descent.

During the post field-school focus group session in Zuni, New Mexico, one of the participants explained that before she'd participated in the field school, she didn't think that Native Americans could even be archaeologists. Having an opportunity to interact with real archaeologists, many of whom were Native American, provided this underserved youth population with a valuable set of role models and a new set of possible career trajectories.



**Figures 39-41:** Native American youth doing experimental archaeology pottery (left), and making rope (bottom). Below: A Native American archaeologist with the National Park Service speaks with the field school participants in Zuni,





## Longitudinal Impact on Field School Participants

A variety of methods were used to discover the long-term impact of the field school experience on youth participants. Findings from each of these methods are summarized below.

### Episode preview for participants in the Washington D.C. field school

On Friday October 18th, 2013, a member of the evaluation team hosted a special screening of “The Search for Josiah Henson” episode at the Montgomery Parks Headquarter building in Silver Spring, Maryland. Two field school participants and three field school participants’ parents attended this screening, along with other stakeholders who participated at the Henson dig site.

#### ► **Field school boosted student’s confidence and interest in science.**

One of the students who was featured prominently in web-based videos about the Maryland/D.C. field school indicated that the field school experience had fundamentally changed her perceptions of her ability to do science. She confided that following the *Time Team America Science of Archaeology* field school she enrolled in an advanced science course in her high school—something she says she never would have done prior to participating in the field school. She also indicated that she’d approached one of the teachers at her school to suggest that he teach a science course based on archaeology. These comments clearly indicate the impact that the field school experience had on this young woman.

### Online episode and website feedback surveys for field school participants

As part of the summative evaluation effort, the evaluation team also reached out to field school participants at each of the four sites to provide an opportunity to preview final versions of the episodes and video clips from the field schools that were featured on the redesigned *Time Team America* website. Tracking down these young people more than a year after they participated in one of the four field schools proved challenging and ultimately only six field school participants responded to this follow-up survey.

#### ► **Survey comments suggest that the field school experience had a lingering impact.**

Even more than a year after their field school experiences, it was clear from the comments made by field school participants who completed the online survey that they appreciated and learned a great deal from those experiences. The following comments were shared by field school participants who responded to the survey:

*“The episode did not change my current understanding since I participated in the field school and my understanding was changed there.”*

*“The episode went over more terms that I had not known previously as well as made me remember some of the terms and technologies I learned about over the Summer of 2012.”*

#### ► **Field school participants were excited to share the episodes with friends/family.**

In addition to expressing delight and appreciation for being able to see the episodes that related to their field school experiences, the field school participants also expressed appreciation for being able to share these episode videos with friends and members of their families.

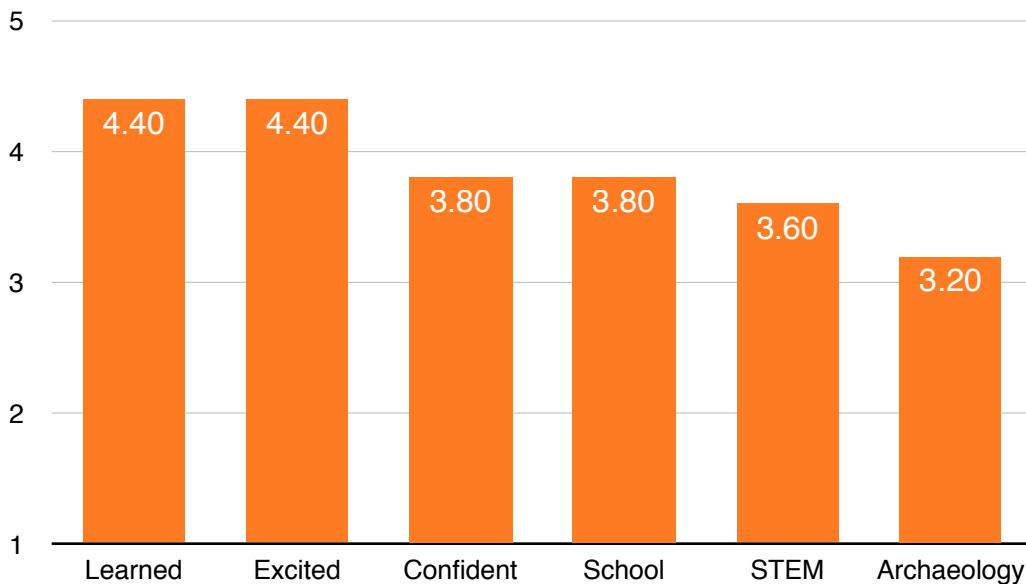
► **Field school experiences had in-school benefits.**

Field school participants who completed the online survey were also asked to rate their level of agreement (using a five-point scale where 1=“Strongly Disagree” and 5=“Strongly Agree”) with the following statements:

- The *Time Team America* website did a good job sharing information about the types of things that I learned about in the field school. (Learned)
- I am excited that other people can see what we did in the *Time Team America* field school on the website. (Excited)
- Being a part of the *Time Team America* field school has made me more confident in my ability to do science. (Confident)
- The things I learned about in the field school have helped me in school. (School)
- The field school experience increased my interest in pursuing a career in science, technology, engineering or math. (STEM)
- The field school experience increased my interest in pursuing a career in Archaeology. (Archaeology)

Average responses from field school participants for each of the questions listed above are summarized in Figure 42 below. In addition to expressing their belief that the website did a good job sharing the types of things that participants learned in the field schools, and excitement that others would now be able to learn more about the field school experience, respondents agreed that they had realized longer-term academic benefits from the field school experience.

**Figure 42: Field School Participants’ Follow-Up Survey Responses**



## Summary of Field School Findings and Recommendations

Informal learning experiences are effective mechanisms for engaging underserved youth with STEM content (NRC, 2009, 2010; Falk & Dierking, 2010). In fact, such experiences have been shown to increase youth interest in science and affect youth's future STEM career choices (Falk & Dierking, 2010), and can be more effective for developing content knowledge and skills than classroom-based learning (Eaton, 2000). Upon reflection of all data related to the field school program offered as part of the *Time Team America: Science of Archaeology* project, the following factors seem to have had the greatest impact on resulting outcomes and programmatic success:

### ► Hands-on, multi-disciplinary activities were beneficial for participants.

Hands-on, interdisciplinary activities that let participants do archaeology and other types of science for themselves were popular among field school participants. Informal learning experiences like *Time Team America: Science of Archaeology* have also been shown to be effective when they are based on multiple disciplines. (Priest, 1983) Archaeology, as a practice, incorporates many disciplines (math, geology, computer science, sociology, etc.). Furthermore, professional archaeologists often are trained via hands-on field school experiences. Thus, the *Time Team America: Science of Archaeology* field schools provide an authentic and multi-disciplinary context in which youth can learn about archaeological research.

### ► Field school experiences benefited participants at school.

The field schools made connections to local culture and history—some of which participants knew and could relate to, as well as other facets that were novel and subsequently intriguing. Informal science education experiences are particularly strong when they connect learning to place and culture (NRC, 2010; OMSI, 2010). The *Time Team America: Science of Archaeology* field schools were well-suited to leverage youth's everyday culture with the culture of science and facilitate learning through direct experience with authentic research sites (Emmons, 1997; NRC, 2009). Engaging facilitators who modeled an investigative spirit and were able to share anecdotes from their own experiences, especially those that are culturally specific, were also important contributors to programmatic success.

## Recommendations

Participants were generally favorable about their field school experiences. However, they offered one common recommendation for future improvement.

### ► Increase overlap between field school and episode production.

Knowing that a television program was being taped was an important draw for participants and often an important factor in their sustained interest in the field school program. For some participants, opportunities to interact with members of *Time Team America*, (most notably Meg), or to visit the location where an episode was being taped, were highlights of the week-long field school experience.

## Section 5: Experimental Outreach Event Findings

As part of the summative evaluation effort, the evaluation team sought to test the extent to which resources created as part of the *Time Team America: Science of Archaeology* project could be used to facilitate meaningful educational outreach programming. Specifically, we designed two outreach events that included a series of activities that were either offered on the *Time Team America* website or inspired by segments from season two programming or the *Time Team America: Science of Archaeology* field schools. The experimental outreach events were staffed by members of the evaluation team with experience in science education and informal education programming and we also recruited a set of three local archaeologists to help ensure scientific accuracy and provide more authentic archaeological experiences for participants.

The research questions we set forth for the experimental outreach events included the following:

- To what extent are the activities that were developed as part of the *Time Team America: Science of Archaeology* project easily implemented in an informal educational context?
- To what extent did the activities appeal to participants of different ages and ability levels?
- In what ways (and to what extent) can archaeology hook participants in to meaningful STEM learning experiences?

**Figure 43: Flyer Promoting the Experimental Outreach Events**



Members of the evaluation team were asked to keep track of comments shared by participants as well as specific anecdotes that related to each of the research questions listed above. Informal debriefing sessions along with analysis of video footage gathered during both of the experimental outreach events were used to generate answers to the research questions.

## Descriptions of the Experimental Outreach Sessions

### Measuring, Maps, and Math

Participants were invited to come to the Monroe County History Center in Bloomington, Indiana from 11-1 pm on Saturday, December 7th, 2013 for a series of family-friendly activities organized around the theme of "Measuring, Maps, and Math." Specifically, these activities—designed and inspired by *Time Team America*—explored the science of archaeology. Attendees were invited to view clips from the upcoming second season of *Time Team America* and the new *Time Team America* website. The activities at this event were geared toward students in middle school through high school, but could be modified so as to be inclusive of people of all ages.

The activities at this event included: "Bison Bones," "Finding STEM," and the grid creation activity featured on the *Time Team America* website as well as a mapping and measurement activity inspired by resources on the *Time Team America* website and episodes.

Unfortunately, due to a severe winter storm, there were only 4 attendees from the general public for this event. We did have an opportunity, none-the-less, to run through all of the activities from start to finish and get feedback from the two archaeologists who volunteered their time to help out at this event.



**Figure 44:** participants completing the grid creation activity at the Measuring, Maps, and Math Experimental Outreach Event.

### People, Plants, and Pottery

Ever wonder how scientists know how old a tree is or how archaeologists study people who lived a long, long time ago? We asked those questions of visitors to the Wonderlab, a hands-on science museum in Bloomington, Indiana on December 7th, 2013. Specifically, participants were asked to join us from 2-4 pm to learn more about the science of archeology and how archaeologists study "People, Plants, and Pottery" to learn about the past. Attendees got to preview clips from the second season of *Time Team America* and the new *Time Team America* website.



**Figure 45:** A plate design depicting "archaeology" created by one of the participants at the People, Plants, and Pottery Outreach Event.

The activities at this event were geared toward preschool and grade-school students, but appropriate for people of all ages. Specific activities at this event included: the "Seed Analysis" activity featured on the *Time Team America* website, a dendrochronology activity, artifact analysis, and pottery puzzle activities that were inspired by resources on the *Time Team America* website, season two episodes of *Time Team America*, and activities conducted as part of the *Time Team America: Science of Archaeology* field schools.

There were a total of 31 participants including 17 children and 14 adults who braved the snow to attend this outreach event.

## Findings from the the Experimental Outreach Sessions

Findings related to each of our research questions for the experimental outreach sessions and general trends from each of the two experimental outreach sessions are summarized below.

### ▶ **The activities provided a good context for participants to develop STEM skills.**

For our first research question we asked: “To what extent are the activities that were developed as part of the *Time Team America: Science of Archaeology* project easily implemented in an informal educational context?” In general we found that the activities provided good goal-oriented and contextualized opportunities to implement and develop math and science skills. We observed meaningful scientific discussion as well as ample evidence of scientific discovery and mathematical reasoning and problem solving. To facilitate greater use of activities offered on the *Time Team America* website, we suggest offering additional worksheets to facilitate easy implementation within different types of formal and informal educational settings. Educators are more likely to use an activity if they can easily see what needs to be done and if there's nothing extra they have to do or create. Listing learning objectives may also be helpful for formal educators who must ensure that in-class activities align with standards.

### ▶ **The activities appealed to participants of different ages.**

For our second research question we asked: “To what extent did the activities appeal to participants of different ages and ability levels?” Unfortunately we did not have an opportunity to test out the activities with many middle school or high-school aged students, however, we did feel that the activities offered at our second event did appeal to a wide range of ages. The nature of those activities was such that older children and adults were engaged as well. The activities designed for the first event would not have been as likely to appeal to younger children since a significant amount of mathematical content knowledge and skill were required for successful completion of that set of activities.

### ▶ **Hands-on activities were engaging for participants.**

For our third research question we asked: “In what ways (and to what extent) can archaeology hook participants in to meaningful STEM learning experiences?” We found that the hands-on components of the activities seemed to be the most engaging elements. There were participants at the second event who spent significant amounts of time, especially with the pottery puzzle activity. Unlike other science that can be hard to see or dangerous to do, archaeology makes science accessible and interesting—asking questions that people want, or even feel they need, to answer.

### ▶ **Video clips helped to provide context for activities.**

We found that the activities provided a good mix of exposition and exploration—especially those that incorporated video clips from *Time Team America* episodes and the *Time Team America* website. The clips helped to provide a context for deeper understanding and, based on our experiences during the experimental outreach events, we suggest the addition of recommended *Time Team America* videos to go along with each of the activities offered on the website. Greater use of video not only helps to contextualize the activities, but also helps to generate awareness and foster interest in the show.

▶ **With informal education, activities must have a strong “fun factor.”**

When people give freely of their time outside of formal educational environments they like to learn, but they definitely want to have fun. Fortunately, there are many things about the process of doing archaeology that people find fun. For example, people are innately curious about our collective past and seem to gain pleasure from diving into age-old mysteries. When participants are engaged in what they are learning and are having fun, they are willing to devote significant amounts of time and subsequently open themselves up to deeper and more meaningful learning experiences than are often possible in formal learning environments.

▶ **Tapping into local expertise was mutually beneficial.**

To help provide an authentic experience for participants, and to ensure accuracy in all archaeological activities included as part of the experimental outreach programs, we reached out to local archaeologists and graduate students at a local university. We found that these volunteers were excited to share their knowledge and give their time to help get members of the community more interested in science and aware of the underlying STEM concepts in Archaeology. We found that local experts were also able to help customize the experience for participants by calling attention to local archaeological sites and other points of interest including geographical features that participants knew.

▶ **Partnerships are a fundamental component of event promotion.**

While we experienced some set-backs from mother nature that ultimately hindered the success of our experimental outreach events (i.e., an early winter storm that deposited more than a foot of snow), we did learn a great deal about the value of partnerships with local organizations including educational institutions, scouting troops, parent networks and other groups that can help to generate excitement and awareness about out-of-school learning opportunities. Furthermore, we learned the value of strategic planning and timing of events in so far as our events occurred the week after a major Girl Scout science event that made it more difficult to stimulate interest in an event that was seen as being very similar to one that had just occurred.

## Section 6: Summary

This section contains a brief summary of all major findings from the three-year evaluation of the Time Team America: Science of Archaeology project.

### ▶ ***Time Team America* viewers learned a great deal about archaeology and STEM.**

We found that *Time Team America* viewers came to understand new STEM concepts and terms including Lidar, Ground Penetrating Radar, and Magnetometry. Furthermore, program viewers gained a deeper understanding of the way different STEM technologies and techniques are used to further archaeological investigations as well as the basic underlying scientific concepts that make them function. In other words, the episodes in season two of *Time Team America* seem to be successful in generating new STEM content knowledge specific to archaeology, as well as more general knowledge that is independent of archaeology. *Time Team America* viewers also came away with a deeper knowledge of the archaeological treasures that exist in the United States and came to realize the importance of preserving them for future generations.

### ▶ ***Time Team America* website covers topics in breadth and depth for users.**

The *Time Team America* website presents a wealth of information that is accessible to professionals, fanatics and lay people alike. Visitors from a variety of different backgrounds and ability-levels found the *Time Team America* website to be interesting and useful. Those who are more advanced are able to find new information and content that allows them to dive deeper while visitors who are more novice where archaeology is concerned are not overwhelmed.

### ▶ **The field school program introduced participants to new STEM career options.**

Through exposure to archaeologists and other STEM professionals, the *Time Team America: Science of Archaeology* project helped generate career awareness among youth participants. Both the website and field school experiences introduced youth to new career possibilities and a greater understanding of the breadth of STEM careers. Field school participants were particularly motivated by the opportunities to interact with on-air talent, i.e., the professional archaeologists who are a part of *Time Team America*. Seventy-two percent of people who previewed the new *Time Team America* website agreed or strongly agreed that it gave them a better understanding of what scientists do.

### ▶ **Field schools gave participants a more accurate understanding of archaeology.**

Field school participants gained a deeper understanding of archaeology and the STEM concepts and techniques that archaeologists use to conduct their research. The field school program helped youth move away from misconceptions about archaeologists being like Indiana Jones or being people who dig up dinosaurs. In turn, participants developed a more accurate understanding that archaeologists are researchers who study people and cultures from the past.

### ▶ **Field schools helped participants feel more STEM-capable.**

Participants in the *Time Team America: Science of Archaeology* field schools came to see themselves as STEM-capable and the experience helped to ignite a passion for science and archaeology. Among participants in each of the four field schools we saw evidence of self-reported knowledge about archaeology, archaeology and STEM vocabulary, and confidence in doing archaeology and STEM-related tasks.



► **Elements of the program that related to participants' culture stimulated youth.**

Youth's passion for archaeology seemed to be enhanced by underlying intersections with culture and history. The cultural aspects of the field school programs were found to be especially beneficial among underserved and traditionally underrepresented populations, such as the Native American youth who participated in the the field schools in Zuni, New Mexico and Cortez, Colorado. Specifically, the youth participants in these sites came to feel empowered to contribute to science given their unique cultural experiences.

► **Participants benefited from opportunities to participate in real excavations.**

The authentic investigation component (i.e., getting to participate in an actual archaeological dig as compared to a simulated dig) had significant impacts on resulting outcomes for participants in those sites. Specifically, participants in the two field school sites where they were able to participate in real archaeological digs had higher gains in self-reported confidence in their ability to do archaeology than participants in the other two sites.

► **Archaeology provides a good hook for teaching STEM content.**

The evaluation team found that activities and resources from, and inspired by, *Time Team America* provided a wealth of different implementation possibilities. Specifically, we found that use of archaeological activities as a vehicle for STEM-learning lent itself to high levels of participant engagement. The underlying mysteries that fuel archaeological investigation are intriguing to people of all ages and there seems to be inherent interest in learning more about our collective past. Furthermore, being able to combine activities, episodes, and video clips enables informal educators to develop rich and complex educational experiences that will work in a wide range of informal and formal learning settings.

► **The *Time Team America* experience had great benefits for participating sites.**

In addition to impacts on viewers, website visitors, field school participants, and outreach event participants, the *Time Team America: Science of Archaeology* project also had an impact on the dig sites involved in season two. Sites like Crow Canyon and Montgomery Parks assert that their *Time Team America* experience had a significant impact on ongoing archaeological investigations and subsequent discoveries as well as educational opportunities—impacts they expect to continue even long after the season two episodes are broadcast on PBS.

Throughout our evaluation of the *Time Team America: Science of Archaeology* program, we saw evidence of people becoming more aware of the presence of STEM in archeology, and participants who came to feel more empowered to do science as a result of their hands-on experiences doing archaeology. Especially, when participants had hands-on experiences, we found that the content and activities produced by Oregon Public Broadcasting as part of the *Time Team America: Science of Archaeology* project had the ability to pull people's heads and hearts into informal science education experiences.

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## Appendices and Instruments

1. Field School Pre-Survey
2. Field School Post-Survey
3. Field Focus Group Protocol
4. Daily Participant Interview Questions
5. Final Focus Group Protocol

# 1. Field-School Pre-Survey

As a way of getting to know you, please fill out this survey. There are no wrong answers. We want to know what you really think about each question. Thanks for your help!

Your Name: \_\_\_\_\_ Today's Date: \_\_\_\_\_

Your Gender:  Male  Female

What is your ethnicity? [check all that apply]

- Alaskan Native/Native American  Black/African American  
 White/Caucasian  Asian/Pacific Islander  
 Latino/Hispanic  Other (please specify below) \_\_\_\_\_

What grade are you currently in?

- 6<sup>th</sup>  7<sup>th</sup>  8<sup>th</sup>  9<sup>th</sup>  10<sup>th</sup>  11<sup>th</sup>  12<sup>th</sup>

Have you ever done the following?

	Yes	No	Not Sure
Visited an archaeological dig site?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Met an archaeologist?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visited a museum with archaeological artifacts?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visited a research lab?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Met a scientist/researcher?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Why did you want to come to the field school? How important were each of these factors in your decision to come to the field school?

	Not at all Important	Somewhat Important	Important	Very Important
Being outdoors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working with scientists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learning about other cultures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being with friends/making new friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learning more science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using science in the real world	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How confident are you in your ability to do the following?

	Not at all Confident	Somewhat Confident	Confident	Very Confident
I can explain how archaeologists use technology to analyze data.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can classify archaeological artifacts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can record archeological site features.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

State your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree
I want to learn more about using technology in archaeology.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want to learn more about using science in archaeology.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know of things I can do to prepare for a science career.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know of things I can do to prepare for a career in archaeology.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Can you see yourself working in a science career some day?

- YES  MAYBE NO  NOT SURE

Can you see yourself working in an archaeology career some day?

- YES  MAYBE NO  NOT SURE

How interested are you in the following topics? [check the box that describes you]

	Not at all interested	Somewhat interested	Interested	Very Interested
Archaeology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

On a scale from 1-10, with 1 = I don't know anything about it and 10 = I'm an expert, How knowledgeable are you about the following topics?

	1	2	3	4	5	6	7	8	9	10
Archaeology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What comes to mind when you hear the word, "archaeology"? What do archaeologists do/study?

How do archaeologists use science?

When archaeologists go digging, what do you think they find?

How do archaeologists figure out how old something is?

## 2. Field-School Post-Survey

To help us find out more about your experiences in the field school, please fill out this survey. There are no wrong answers. We want to know what you really think about each question. Thanks for your help!

Your Name: \_\_\_\_\_ Today's Date: \_\_\_\_\_

Have you ever done the following?

	Yes	No	Not Sure
Visited an archaeological dig site?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Met an archaeologist?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visited a museum with archaeological artifacts?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visited a research lab?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Met a scientist/researcher?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How interested are you in the following topics? [check the box that describes you]

	Not at all interested	Somewhat interested	Interested	Very Interested
Archaeology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

On a scale from 1-10, with 1 = I don't know anything about it and 10 = I'm an expert, How knowledgeable are you about the following topics?

	1	2	3	4	5	6	7	8	9	10
Archaeology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What comes to mind when you hear the word, "archaeology"? What do archaeologists do/study?

How do archaeologists use science?

Do you think your participation in this field school will help you succeed at school?

YES  SORT OF  NO  NOT SURE

Has this field school helped you explore your career interests?

YES  SORT OF  NO  NOT SURE

Has this field school helped you build skills you might use in a job later on?

YES  SORT OF  NO  NOT SURE

How confident are you in your ability to do the following?

	Not at all Confident	Somewhat Confident	Confident	Very Confident
I can explain how archaeologists use technology to analyze data.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can classify archaeological artifacts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can record archeological site features.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

State your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree
I want to learn more about using technology in archaeology.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want to learn more about using science in archaeology.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know of things I can do to prepare for a science career.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know of things I can do to prepare for a career in archaeology.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Can you see yourself working in a science career some day?

YES  MAYBE NO  NOT SURE

Can you see yourself working in an archaeology career some day?

YES  MAYBE NO  NOT SURE

When archaeologists go digging, what do you think they find?

How do archaeologists figure out how old something is?

How much did you like each of the following aspects of your field school experience?

	I did not like this at all	I kind of liked this.	I liked this.	I really liked this a lot.
Being outdoors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working with scientists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learning about other cultures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being with friends/making new friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learning more science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using science in the real world	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	No way.	Not really.	I think so.	Yes, Definitely.
Did the field school meet your expectations?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has the field school made you more curious about archaeology?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has the field school made you more curious about science?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Did the field school increase your science knowledge?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Did the field school increase your knowledge about archaeology?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Did you gain skills in using technology in science research?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 3. Field School Focus Group Protocol

1. If you had to describe this field school to someone who hadn't been a part of it, what would you tell them about it?
2. What did you like best about the field school? What were the most memorable parts? [Probe for specific people, activities, topics]
3. Was there anything you didn't like as much or found confusing? [Probe for examples]
4. Do you have any suggestions for ways to make the field school better for students like you?
5. Describe some of the research you got to do during the week. What was interesting about it? Did you have a particular research question? How did you investigate it? What did you find out about that topic?
6. Are there any topics you want to pursue further/learn more about now?
7. Did anyone have a cool conversation or interaction with one of the archaeologists or other researchers? Tell me about it.
8. Did anything surprise you about the archaeologists or other researchers you worked with? Please explain?
9. Would you recommend this field school to others? Why/why not?
10. How will you use what you experienced in the field school once you return home?
11. So, what are some specific things you learned from the field school? Was there any new information or ideas that you had never heard or seen before? Any new terms? Like what?
12. Before you started the program, what did you think archaeologists do? Now what do you think?
13. Let's talk a bit about what archaeologists do:
  - a. How do archeologists find sites?
  - b. How is an archeological site created?
  - c. What clues do archeologists look for at a site?
  - d. How do archaeologists take precise measurements?
  - e. How do archaeologists know how old something is?
14. What have you learned about how archaeologists use science in their jobs?
15. What have you learned about how archaeologists use technology in their jobs?
16. What did you learn about your culture or other cultures from this experience?
17. What did you learn about how science impacts your life?

Now, let's talk a bit about your future plans.

18. What are your plans after high school? Did this field school influence your plans in any way?
19. How has the field school affected your interest in a science, technology, or archaeology career?

## 4. Daily Participant Interview Questions

- 1.) What was something that you did today as part of the field school that was really interesting or exciting? What was interesting/exciting about it?
- 2.) What was something that you found out today about science or archaeology that you didn't know before? Where did you find out about it?

### Outcomes:

1. Youth increase awareness of:
  - Archaeology
  - Science (STEM)
  - STEM-related career paths (including Archaeology)
  - Local history/culture
2. Youth have new experiences:
  - Meeting archaeologists
  - Meeting other scientists/researchers
  - Visiting archaeological sites
  - Visiting museums
  - Visit research labs
3. Youth increased their interest in:
  - Archaeology
  - Science (STEM)
  - Local history/culture
4. Youth increase knowledge of:
  - Archaeology
    - Terminology/Vocabulary
    - Process/procedures for doing science or archaeology
    - Careers
  - Science (STEM)
    - Facts
    - Techniques
    - Careers
  - Local history/culture
5. Youth increase skills in doing:
  - Archaeology
  - Science (STEM)
6. Youth's confidence in their skills increases.

# Final Focus Group Protocol

- I. **Introduction:** Welcome participants, sign consent forms, provide background/ context for video
  - *My name is ...*
  - *Consent forms + visually confirm that you are being video taped*
  - *For the first hour we are going to watch an episode of Time Team America that is currently under production, then we'll spend the second hour discussing it.*
  
- II. **View Rough-Cut Video Screening** (post-it-notes for participants to jot notes: likes, dislikes, questions)

*Let's start with a little background about the show:*

TIME TEAM AMERICA is a PBS series that tracks the adventure of a team of archaeologists who are racing against time to excavate historic sites around the nation. In each episode the team has three days to uncover buried secrets using the latest technology, decades of expertise and their own sharp wits.

*The episode we'll be looking at today:*

takes place at the Josiah Henson Special Park in a Maryland suburb, just outside DC. - An acre of land and an old building are all that remain of the once 270-acre plantation where Josiah Henson was enslaved for thirty years. His famous 1849 slave narrative is said to have inspired Harriet Beecher Stowe's novel Uncle Tom's Cabin.

*As you view the following program, please keep in mind that you are seeing an early rough-cut of a work in progress. Here are a few specific things to keep in mind as you watch:*

- *The **music** is temporary, but I'd like to know what you think of it.*
- *The **narration** also temporary – right now you'll hear the voice of the producer, but the final narration will be voiced by the host, Justine Shapiro.*
- *Finally, you'll notice places where the **2-D and 3-D graphics** are missing. There are placeholders where they will go, but you will have to imagine what they look like. They'll be designed to illustrate what our artifacts or structures would have looked like, based on the bits and pieces we dug up.*

*The producers are especially interested in knowing if you find anything boring or slow, or the explanations confusing or incomplete. Your feedback will be extremely valuable as they continue editing.*

*There are post-it notes that you can use to jot things down as you watch. To make it easier for us to process the info that you write down, try to just put one thought or idea on each post-it (don't worry, there are more if you run-out). You'll also notice a running time code during the show, if you want to tag your note with the approximate time, we'll know exactly what you are referring to.*



### III. Discussion

*Now I'd like to ask you all some questions about the Time Team America episode you just saw. Please be as honest as possible in your responses. You don't have to answer every question, but I'd like to hear from everybody over the course of our conversation. Let's get started.*

#### A. General Impressions and Recollections

- 1.) How would you **describe** this program to someone who hadn't seen it? What would you tell them about it?
  - a. What was the overall **tone** of the program?
  - b. What **adjectives** would you use to describe it?
  - c. Would you **recommend** it to friends? Why/Why not? Which friends (ages? interests?)
- 2.) What was the overall **message** of the program? What were the producers trying to explain or communicate?
- 3.) What did you **like best** about the program?

Prompts:

  - a. What were the most **memorable** parts? Were there specific activities or topics that stood out to you?
  - b. Were there any segments of the program that you **liked more** than others?
- 4.) Was there anything you **didn't like** or thought could be improved about this program?

Prompts:

  - a. What would have made the program **more interesting**?
  - b. What would have made the program **more exciting**?
- 5.) How does this program **compare** to similar programs on PBS, NOVA or Discovery specials?
- 6.) Is this a program you would **watch**? Why or why not?

Prompts:

  - a. Are there any ways that the producers could change the program that would make you more likely to watch it?
  - b. Is this a program you would watch with middle and high-school aged children?
- 7.) Does this program make you interested in visiting the Time Team America **website**?

Prompts:

  - a. What would you expect to find or be able to do on the website?

## B. What Viewers Learned

1.) What are some specific things you **learned** from this program?

Prompts:

- a. Was there any new information or ideas that you weren't familiar with before?
- b. Did you learn anything new about archaeology?
- c. Did you learn anything new about science? (Prompt: Specific scientific concepts/methods)

2.) Did you feel that this program was a **credible source of information**? What about it made you feel that way?

3.) Were you able to **understand** the concepts and information presented in this program?

Prompts:

- a. Did you think that this program presented information in a **clear** and cohesive way?
- b. Were you able to follow the program and understand where it was going?
- b. Was there anything that **confused** you? Do you have any lingering questions regarding terms or concepts covered in the program?
- c. Was there information that you felt was missing or should be covered more thoroughly?

4.) Where did you see examples of **science** in the program?

Prompts:

- a. What types of science?
- b. Was it the right amount of science? Why/why not?

5.) Were **scientific terms** explained in a way that was easy to understand?

6.) What technology and **tools** did the archaeologists use?

Prompts:

- a. Were you aware of these tools or techniques before this program?

7.) Did this program change your level of **interest**:

- a. in **science**?
- b. in **archaeology**?

8.) Did the program make you feel like you were **on a dig** with the archaeologists?

Prompts:

- a. In what ways did it accomplish this?
- b. What were the steps they had to go through during the dig?

- 9.) Did the program change your understanding of **what archaeologists really do**?
- 10.) Did the program make you **want to be** an archaeologist?
- 11.) Do you think this program would **inspire** young people (for example, your children or grandchildren) to want to be archaeologists? Why/Why not?

### **C. Production Attributes and Elements**

- 1.) Was the information presented at a good **pace**?  
Prompts:
  - a. Were there any spots where it felt like things were moving too **fast**?
  - b. Were there any spots where it felt like things were moving too **slow**?
- 2.) (IF MUSIC IS PRESENT) What did you think of the **music** in the program? Did you notice it? What did you like/dislike about it?
- 3.) (IF 3D GRAPHICS ARE PRESENT) What did you think about the 3-D graphics?  
Prompts:
  - a. Did they help you understand concepts better?
  - b. Are there any other areas where graphics like these may have helped?
- 4.) What was the role of the host in this program?  
Prompts:
  - a. Did you feel like the host asked good questions?
  - b. Did the host explain concepts well?
- 5.) What roles did others on the team play?  
Prompts:
  - a. What were some of the jobs they did?
  - b. Were they good role models for young people?

### **D. Marketing and Promotion**

- 1.) The following are titles that are being considering for this episode:...
  - a. Which do you like best and why? (Prompts for different opinions/comments)
  - b. Do you see any problems with any of these titles?
  - c. Are there any other titles that you can think of or recommend?
- 2.) Is there anything that could be included in the program description that would encourage you (or others like you) to make a point of viewing this program when it is broadcast?