APPENDIX

Smithsonian Center for Education and Museum Studies
Digital Learning Resources Project

Volume III
Report of Findings
Teacher Research and Prototype Testing
October 2012
v. 1.0

Smithsonian Center for
Education and Museum Studies

CROSS & JOFTUS

TABLE OF CONTENTS

Appendix A **List of Sites Reviewed for Environmental Scan**

Museum Sites:
smithsonianeducation.org
http://docsteach.org/home/constitution
http://artnc.org/
http://www.tate.org.uk/learnonline/
http://www.nypl.org/events/teaching-learning/tools
http://www.philamuseum.org/education/lesson_plans.html
http://www.tenement.org/education_lessonplans.html
http://www.loc.gov/teachers/
http://artsedge.kennedy-center.org/educators/lessons
http://www.artsconnected.org/
http://prv.mfah.org/twa/main.asp?target=howto
http://www.britishmuseum.org
http://www.amnh.org/ology/
http://www.educators.mfa.org
http://www.beyondthechalkboard.com/ ("Best of the Web" winner for 2012, Museums and the Web Conference)

General Education Resource Sites
http://ed.ted.com/
http://www.discoveryeducation.com/free-puzzlemaker/
http://ca.pbslearningmedia.org/
http://betterlesson.com/
http://www.Goorulearning.org
http://www.khanacademy.org/
http://education.nationalgeographic.com/education/?ar_a=1
http://kidsblogs.nationalgeographic.com/littlekids/
http://learning.blogs.nytimes.com/
http://www.oercommons.org/
http://www.thinkfinity.org/
http://www.curriki.org
http://www.jason.org

Digital Collection Sites
http://www.europeana.eu
http://collections.si.edu
http://images.nga.gov
http://archive.org

Appendix B **Environmental Scan Features Check-List**

Features Check List and Questions

I. Technology and Design

a. To/For whom is the site designed primarily?
b. How is access granted and to whom? Can you get temporary access as a visitor in order to view the site?
c. Can groups set up focused portals/ areas on the site?
d. Is high-speed Internet service required?
e. Is a specific browser required to view content?
f. Is a specific program application required to view certain content (i.e. Adobe, Flash, QuickTime, etc.).
g. Are there language translations available?
h. Are there accommodations for handicapped or learning disabled users?
i. Does the site offer content in languages other than English?

II. Searchability/Findability-What are the primary ways a user can search for resources on this site?

a. Are you able to find what you are looking for with general search terms?
b. Is there a taxonomy of terms already provided for browsing?
c. Can you filter by grade or subject area?
d. Can you filter by Common Core standard?
e. Can you filter by resource type?

III. Content Assets - What types of assets are available on the site?

a. primary source materials,
b. lesson plans,
c. interactive modules,
d. games,
e. music,
f. sounds clips,
g. videos
h. Is the site focused around specific topic areas? If so, how were these chosen?
i. Can users contribute materials?
j. How often is the material updated?
k. Is there "real-time" content available? (i.e. Live video feed)
l. Is the content meant to be interpreted or used by specific audiences, such as students or teachers?
m. Can content be tailored to the interests of the registered user? (e.g. "if you liked this, you will also like this…")
n. Can the user tailor content to fit their needs?
o. Hyperlinked to state standards?
p. If so how? (URL link? Standards referenced in site material?)
q. Partner sites (other museums, organizations?)
r. Are commercially licensed materials used/disseminated via the site? If so, who is the licensor of the material?

s. Virtual museum spaces or tours are provided
t. Can users create profiles and customize pages for the storage of interesting content?

IV. Annotation Capabilities (making connections, interpreting, analyzing): What are the primary tools users can use to share, rate, comment on resources?

a. Can you comment on a resource?
b. Can you rate a resource?
c. Is there a community space for discussion?
d. Can you share a resource?
e. What tools are available to share a resource?
f. Can you print a resource for classroom use?
g. Can you project on video screen?
h. Can you save resources to a file on the site?
i. Can you build a lesson within the site?

V. Presentation:

a. Are the images (photos, videos, etc.) accompanied by appropriate text to make them immediately usable? (e.g. descriptions surrounding objects are written in age appropriate ways)?
b. Are images clear and easy to view and read?
c. Can you "preview" images or resources before accessing them?

VI. Tools and Functions (extracting, integrating, implementing)

a. Are there tools accompanying the resources that were helpful for creating your lesson? For example:
b. graphic organizers,
c. vocabulary lists,
d. discussion questions,
e. timelines
f. Are users able to utilize existing social media profiles to create a profile or page (i.e. Facebook, Twitter)
g. Are there tools or functions available to help one assess the learning outcomes of the lesson?
h. Are there tests or quizzes available?
i. Are there available tools that allowed a user to connect or group resources according to their own logic?
j. Are there available tools that provided users a means to display or render the resources with the intent of demonstrating them to a classroom,
k. Are there available tools that provided users a means to push them onto a student access view page internally or export to an external site or page?
l. Are there any tools that allowed teachers to share the results of what they found and/or their information with other users on the site, other colleagues off the site, other user communities that a teacher might belong to, etc.
m. Are there available lessons and resources that interact with a classroom whiteboard (SMART board/Promethean/etc.)?

VII. Intellectual Property (IP) and Usage Policy

a. What is the origin of the material?

b. How is new material chosen for the site?
c. How is the material catalogued? (i.e., free vs. purchasable, or other)
d. What is the usage policy for materials on the site?
e. Do individual items have specific use rights or licensing? (i.e. Creative Commons or others)
f. Can materials be altered or adapted?
g. Are any resources, materials or events commercialized for sale?
h. Who is the licensor of the material?

VIII. How is the site promoted?

a. Through links to other organizations or museums?
b. Through commercial advertising?
c. Through live events at the museum?
d. Through sponsored online events (podcasts, webinars, etc.)?
e. Through email or news feeds to users?

Appendix E **Teacher Research Group (Phase 2) Pre-Survey Protocol**

Smithsonian Pre-Survey

(Put our description of the project here.)
* Required

Name *
first and last please

Participant Background

At what type of school do you teach? *
Select all that apply.

- [ ] Public School
- [ ] Charter school
- [ ] Magnet School
- [ ] Private School
- [ ] Language Immersion School
- [ ] Title I school
- [ ] Other:

How many years have you been teaching? *

- ◯ 0-4
- ◯ 5-9
- ◯ 10-14
- ◯ 15-19
- ◯ 20 or more years

Which of the following subject(s) do you teach? *
Select all that apply.

- [ ] Science
- [ ] Math
- [ ] Language Arts
- [ ] Social Science / History
- [ ] Performing and/or Fine Arts

oogle.com/a/edstrategies.net/spreadsheet/viewform?formkey=dE14ZlRCaGZpUVZ0Q25KWGJaRFpxTkE6MQ#gid=0

- [ ] CTE Courses
- [ ] English Language Development
- [ ] Foreign Language
- [ ] Physical Education
- [ ] Other:

Which of the following grade(s) do you primarily teach? *
Select all that apply.

- [ ] K-2
- [ ] 3-5
- [ ] 6-8
- [ ] 9-12

Identify the types of students you have in your classroom. *
Select all that apply.

- [ ] Mostly below grade level standards
- [ ] Mostly at grade level standards
- [ ] Mostly above grade level standards (GATE)
- [ ] English Language Learners
- [ ] Special Education Students
- [ ] Other:

Technology in the Classroom

Which of the following technology resources do you have available in your classroom? *
Select all that apply.

- [ ] Interactive white boards
- [ ] Projection systems
- [ ] Digital cameras
- [ ] PDAs
- [ ] Scanners
- [ ] Kindles or other e-reader devices
- [ ] Internet-connected computer for teacher use
- [ ] Internet-connected computer(s) for student use

- [ ] Other:

How many classroom computers do you have available for student use? *
Select one answer.

- ( ) There are no classroom computers available for student use.
- ( ) There are classroom computers available for student use, but they are not Internet-connectec
- ( ) I have one or more Internet-connected classroom computers.
- ( ) My instruction takes place in an Internet-connected computer lab.

How often do you search online for supplemental materials? *
Select one answer.

- ( ) Daily
- ( ) Several times a week
- ( ) A few times a month
- ( ) A few times throughout the semester
- ( ) Rarely to never

What types of digital resources do you typically search for? *
Select all that apply.

- [ ] Complete lesson plans
- [ ] Lesson planning ideas
- [ ] Worksheets / handouts
- [ ] Primary documents (resources like paintings, diary pages, works written at a certain time in history)
- [ ] Videos
- [ ] Complete texts (books, articles)

Identify the ways in which you use technology in the classroom. *
Select all that apply.

- [ ] Student use during class
- [ ] Looking up teaching ideas
- [ ] Lesson planning
- [ ] Presentation viewing (like PowerPoints)
- [ ] Sharing videos or images
- [ ] Other:

Which of the following best describes your pattern of technology use in the classroom? *
Select one answer.

- ◯ I occasionally use technology to supplement instruction, streamline management functions, and present teacher-centered lectures.
- ◯ I use technology to direct instruction, improve productivity, model technology skills, and direct students in the use of applications for technology integration.
- ◯ I use technology in teacher-lead as well as some student-centered learning experiences to develop higher order thinking skills and provide opportunities for collaboration with content experts, peers, and the community.
- ◯ My classroom is a student-centered learning environment where technology is seamlessly integrated to solve real-world problems.

Which of the following best describes your use of online activities with students? *
Select one answer.

- ◯ I have used a few web-based learning activities with my students.
- ◯ I have customized web-based lessons which include online-based content, resources, and learning activities.
- ◯ I have created web-based lessons which include online-based content, resources, and learning activities.
- ◯ I have created and integrated web-based lessons which include online-based content, resources, and learning activities that support learning objectives throughout the curriculum.

Which of the following best describes how your students use technology in the classroom? *
Select one answer.

- ◯ My students use software for skill enhancement.
- ◯ My students use technology to communicate and present information.
- ◯ My students evaluate information and analyze data and content to solve problems.
- ◯ Learning is transformed as my students propose, assess, and implement solutions to problems.

Communication and Collaboration

How do you currently interact with digital educational resources? *
Select all that apply.

- ☐ I tag, annotate, favorite, or bookmark digital resources as I search.
- ☐ I share and/or promote digital resources that I find with colleagues at my school site.
- ☐ I share and/or promote digital resources that I find with colleagues in larger professional communitites.
- ☐ I upload and share my own digital resources.

What is your preferred way to share resources with colleagues? *
Choose the 2-3 that you utilize most frequently.

- [ ] Face-to-face
- [ ] E-mail
- [ ] School or district network website
- [ ] Social network like Facebook
- [ ] Online professional learning community
- [ ] Post to my own classroom website
- [ ] Other:

How do you communicate and/or collaborate with colleagues, administration, and other teachers? *
Please select the answer that best describes you.

- ◯ My campus has limited use of technology for written communication with teachers and parents.
- ◯ Technology is used at my campus for communication and collaboration among colleagues, staff and parents.
- ◯ Current information tools and systems are used at my campus for communication, management of schedules, performance assessment, and professional development
- ◯ At my campus, a vareity of media and formats, including telecommunications and the school website are used to communicate, interact, and collaborate.

Final Steps

Please list websites that you frequent for educational digital resources. *
You may include search engines in your list.

When you are at school, do you visit any sites that require you to "log in" or set up an account? If so, list them here. (If not, why not?) *

Digital Resource Annotation Key

* Required

Name *

Topic Area(s) *

What general area of study or topic/assignment are you looking to support with supplemental, online resources for your classroom in the next month? *

Site Used *

- ○ Smithsonian Education
- ○ Brokers of Expertise
- ○ OER Commons
- ○ Thinkfinity

Discoverability of Resources

How did you prefer to search for an appropriate resource?

Placed a term in the search box and searched the whole collection

- ☐ Yes
- ☐ No
- ☐ Couldn't Find
- ☐ Couldn't Use
- ☐ Other:

Placed a term in the search box and applied filters (like grade-level, or file type, or instructional material type, etc) to refine search

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Used a topic/subject directory to drill down to something that seemed most relevant

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Used a content standards index of some kind as a means to search

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Searched by specific collection partner or by a specific repository included within a resourc portal

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Other way to search for resource not listed here:

Saving a Resource

Was there a method of some kind to save the resource to make it easier to find later without havi
to recreate the entire search?

Saved resource as a bookmark of some kind

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Saved resource as a favorite of some kind

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Saved a copy of the resource off-line or to my own computer off the Internet

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Other way to save a resource you found not listed here:

(Describe)

Annotating or Adding a Resource

Were there ways for you to add information to the resources that could then be accessed or vie by others on the site or shared to the site administrators?

Write and submit comments about a resource for others to view

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Match standards to a resource

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Add tags to a resource that you think help to better describe it (topic tags, instructional tages, file type tages, resource type tags, etc)

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Make a suggestion about the resource of some kind to the site administrators

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Evaluate a resource / Rate a resource

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Connect or Affiliate a resource with another resource

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Add or upload an additional material and connect it to the resource

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Other way to annotate a resource which publishes more information about that resource to other users:
(Describe)

Sharing or Promoting a Resource to Others

Were there ways to take valuable resources you found and make them available to others both within and outside the site in any way?

Recommend / Share the resource to another group or user within the system

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Recommend / Share the resource to another group or user outside the system

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Publish/Push information and/or a link to the resource out to another user community such as Facebook, LinkedIn, e-mail, your own class website, other

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Request or suggest that the resource you found should be featured in some way on the site in which you found it

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Other way to promote or share a resource to others:
(Describe)

Preparing Resource for Use with Students

Were there ways to take the resources and prepare them for use in the classroom or in other ways to make them more accessible and useable to students?

Any tools provided to help you prepare the resource for electronic/digital display in the classroom?

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Any tools provided to help you prepare the resource for printing?

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Any tools provided that allow you to re-organize and sequence this resource with other resources for instructional delivery?

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Any tools provided that allow you to modify the resource in any way?

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Any tools provided that allow you to integrate or recreate the resource as a common instructional material such as a handout, a quiz, a puzzle, a worksheet, etc?

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Any tools provided that allow you to integrate or recreate the resource into a different digital or online learning environment that you might use with students?

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Any tools provided that allow you to organize the resource into an activity guide or lesson plan of some kind?

- [ ] Yes

- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Any tools provided that allow you to create supplementary materials or instructional aids correlated to the resource like a vocabulary list, embedded definitions, differentiated reading levels, etc?

- [ ] Yes
- [ ] No
- [ ] Couldn't Find
- [ ] Couldn't Use
- [ ] Other:

Other ways to prepare a resource for use with students:
(Describe)

Resources Found

Title; Publisher/Collection; URL

When browsing multiple choices of resources, what made you ultimately decide to select the above resource?

Title; Publisher/Collection; URL

When browsing multiple choices of resources, what made you ultimately decide to select the above resource?

Title; Publisher/Collection; URL

When browsing multiple choices of resources, what made you ultimately decide to select the above resource?

Follow-Up Questions

When using the above site and its tools, what elements worked best for you?

When using the above site and its tools, what elements worked least for you?

What would you like to see added to this site to make it easier in finding, saving, sharing, and preparing resources for use with students?

Submit

Smithsonian Phase 2 Post-Survey

* Required

Your name: *

Locating the Resource

Please identify the resource that you used for your lesson in the classroom. *
Include the URL if applicable.

What kind of resource was it? *

- [ ] Complete lesson plan
- [ ] Idea for an activity
- [ ] Video
- [ ] Image
- [ ] Primary document (newspaper article, diary pages, etc)
- [ ] Other:

Which website did you use to find the resource? *

- [ ] Brokers of Expertise
- [ ] OER Commons
- [ ] Gooru
- [ ] Smithsonian
- [ ] Other:

How did you initally search for this resource? *
Select all that apply.

- [ ] I searched by general subject.
- [ ] I searched by grade level.
- [ ] I searched by standard.
- [ ] I stumbled upon the resource while looking for something else.

- [ ] I typed in a search term, like "Abraham Lincoln" or "gravity."
- [ ] Other:

After you located the resource, what did you do to save it to look at later? *
Select all that apply.

- [ ] I wrote down the URL on paper.
- [ ] I e-mailed the link to myself.
- [ ] I favorited or bookmarked it using the website I was using (Brokers, OER Commons, etc.)
- [ ] I favorited or bookmared it using a website other than the one I used to search for it.
- [ ] I used an application (Evernote, etc.)
- [ ] I typed in the URL to my PDA or phone.
- [ ] Other:

How did you decide? *
When you found a resource you wanted to use, what made you choose that particular resource?

- ( ) It was favorited or rated highly by other teachers
- ( ) It was aligned to the standard I am teaching
- ( ) I thought my students would be engaged by it
- ( ) Other:

Using the Resource in Your Classroom

Building a Lesson *
After you accessed the resource, describe what you did to build a lesson around it. Eg. Did you use the resource as originally intended? Did you add other resources or materials to it? Describe.

How did you ensure coherence and building connections for your students in developing your learning experience? *

Reflect on how the lesson went. Did it go the way you planned? *

Was your learning experience integrated into the real world (made relevant to students' lives)? If so, how? *

Was your learning experience integrated with multiple disciplines? Please explain. Why or why not? *

How would you modify the lesson if you were to teach it again? *

Which of the following would you consider doing with the resource, now that you've used it? *

- [ ] Add a note or memo to the resource for other educators about how you used it.
- [ ] Provide feedback to the website housing the resource about how you used it.
- [ ] Share it with colleagues.
- [ ] Attach activity or lesson plan modifications to the resources for other educators to use.
- [ ] Favorite or bookmark it within the website housing the resource.
- [ ] I would not be likely to go back to the resource because it was not useful.
- [ ] I would not be likely to go back to the resource because I am done using it.
- [ ] Other:

What do you wish had been provided with the resource, now that you have used it in a lesson? *

Select all that apply.

- [ ] I wish that it came with a quiz to check for understanding.
- [ ] I wish that it came with other worksheets or handouts for students.
- [ ] I would have like if the resource came with lesson plan ideas for me to use.
- [ ] Other:

Are there any final thoughts that you have on finding, storing, using and sharing resources that you would like us to know? *

Submit

Appendix H **Focus Group Protocols** (Phase 2)

Smithsonian Digital Learning Project
Focus Group Protocol (in-person)
Amendment dated 5.29.12

Round 1: Teachers will have spent the morning together and been introduced to the project. They were asked to search through some of the Smithsonian resources on several different sites. As a reflection step they will have a one hour group discussion about what they expect to experience and what they would want to find while searching through a digital museum repository and then utilizing what they have found in their classrooms. Teacher participation is voluntary and can cease at any time a teacher feels uncomfortable.

Round 2: An additional focus group will be added for a selected group of teachers. The teachers selected are those who have been chosen to participate in the Pearson summer workshop in Washington, DC. The goal of this focus group will be to probe more deeply into some of the questions they submitted for the post-survey and to prepare them for the prototype testing in DC. Session will be videotaped and teachers will sign a release form.

Round 1 Questions will include:

1. What is the value of museums making their collections available through digital media for teachers and students? Why is it important?

2. What type of online experience would you expect an institution like the Smithsonian to provide for educators?

a. What type of content?

b. What type of tools and functions?

c. What could you imagine yourself doing with these kinds of tools and resources if you had them?

d. Have you ever had this provided for you by any site?

3. What do you think you will experience when you go to teach with the two resources you will be choosing?

Round 2 Questions will include:

1. Tell us about the lesson you developed with a Smithsonian resource:

    - What kind of resource was it?
    - What made you choose that particular resource?
    - After you located the resource, what did you do to save it to look at later?
    - After you accessed the resource, describe what you did to build a lesson around it.
        a. Did you use the resource as originally intended? If no, why not? How did you modify it?
        b. Did you add other resources to build your learning experience? If so which ones and why?
    - How did you ensure coherence and building connections for your students in developing your learning experience?
    - Did it go the way you planned?
    - How would you modify the lesson if you were to teach it again?
    - What do you wish had been provided with the resource, now that you have used it in a lesson?
    - Was your learning experience integrated into the real world (made relevant to students' lives)? If so, how?
    - Was your learning experience integrated with multiple disciplines? Please explain. Why or why not?

Appendix I **Teacher Research Group Lesson Descriptions**

Smithsonian Digital Learning Project
Building a Lesson with Smithsonian Resources
Summary of Teachers' Experiences and Reflections
(*You must be logged in to myBOE to view lessons/activities)

High School English Teacher

Resources used:
http://www.smithsonianeducation.org/educators/lesson_plans/podcast/index.html
http://www.myboe.org/portal/default/Resources/Viewer/ResourceViewer?action=2&resid=306242

The project: Students discussed digital literacy and created a podcast.

- I loved this assignment because the objectives called for engagement in a broader, scholarly conversation about literacy. It gave my students an opportunity to enter that conversation in a meaningful way. Students presented interviews to the class, so it gave us a chance to see the topic from a variety of perspectives. Very interesting!
- Again, the current test-driven climate in education can make learning seem like a closed cycle of tasks. I want my students to see learning as a process of inquiry. This project allowed them to participate in scholarship in a more authentic way.
- I knew that I wanted to develop an end-of-the year project that would serve as a culminating experience for...reading, analysis, and discussions.

Issues/Challenges:

- The resource I found suggested a free, downloadable program called Audacity for recording student podcasts, however, I found that the students found a whole array of superior formats for recording and sharing audio files.
- Audacity, while easy to use, was a bit glitchy, so students used Voicethread.com (cool because you can record audio on your cell phone), YouTube videos (easy and nice because it adds the visual element), and other programs.

Other:

- I would have liked it if the resource came with lesson plan ideas for me to use.
- I would love to see the Smithsonian develop a site that allowed both students and educators to:
    a. Find resources easily
    b. Share with others
    c. Comment on and add to resources
    d. Bookmark and add resources to favorites

Sixth Grade Teacher

Resources used:
http://americanhistory.si.edu/collections/numismatics/corinth
http://americanhistory.si.edu/vote/patchwork.html

The project:

- Students identified different examples of Athenian and representative democracy, and identified similarities between American and Athenian democracy.
- I used an activity with American coins to introduce the concept, and developed background information and vocabulary lessons into the PowerPoint to create context for the image.
- I used the Vote! The Machinery of Democracy Smithsonian site, as well as a video/discussion from TED. The visuals off the Smithsonian site definitely helped students make concrete connections to the ideas of direct and representative democracies, and I liked making it current by bringing in the TED video.

Issues/Challenges:

- I needed to really walk the kids through the Smithsonian site as the vocabulary is above their heads, and the set-up of the site is a little confusing. Even though the lesson is more teacher-directed than I would like, I will use it again as I really like the connections we were able to make between ancient history and current American politics!
- When asked if they would have used the original source if asked to do research etc. they said they wouldn't because it was "boring" and they couldn't understand it.

Fifth Grade Teacher

Resources used:
http://www.mnh.si.edu/vikings/start.html
http://www.mnh.si.edu/vikings/learning/boardgame.html

The project:

- Students described the entrepreneurial characteristics of the early explorer, Leif Eriksson. I introduced the old Norse Game Hneftafl. Groups created a game board of their own, following the Old Norse directions and played the game when finished!
- Students took notes, drew pictures about the lecture on Leif Eriksson and the Vikings, used this website www.mnh.si.edu/vikings/start.html to have students take turns reading, listening, flipping through the online tour of the Smithsonian Exhibit: The Viking Saga. Students drew and copied the route of Early Vikings using the map on the website.
- Go to http://www.mnh.si.edu/vikings/start.html Students take an interactive voyage on their laptops, across the North Atlantic Ocean and learn about the Viking Voyages.
- The students really had a good time working together to build their game and figure out how to play. I think the students would have been more motivated and entertained if they each had a computer for the Viking tour of artifacts from the Smithsonian. I would do a scavenger hunt for that internet resource next time.

Issues/Challenges:

- Lack of computers and time at the end of the year hindered my ability for them to interact with the tour as I would have intended
- I wouldn't try using the same site with younger students, however, because the grade level of text seemed to be about 5-6th grade.

Other:

- Having questions created for the resources always is a plus for teachers, it's a way to keep kids accountable for learning.

Second Grade Teacher

Resources used:
http://forces.si.edu/soils/04_00_00.html
http://forces.si.edu/soils/swf/soilingredients.html
http://forces.si.edu/soils/swf/minerals.html
http://www.mnh.si.edu/earth/main_frames.html

Project:

- Students worked with soil to explore the composition and components that make up the soil samples. Music and Technology are also included through songs and online interactives from the Smithsonian Institution.
- The technology piece and digital resource was very high interest—every student was engaged and actively participating. Lots of outbursts like "Wow! That's awesome!" were welcomed feedback for me.
- They loved the Smithsonian site interactives I was using and used some of their knowledge from the lesson as their 'exit ticket' to go to recess.
- With the hands-on experience being first, they were able to connect to the digital resource I was using, very easily. So we went straight into conversation and critical thinking mode. It really hit home for them with the website addressing soil composition like ingredients in a recipe. That made a lot of sense to them.
- While students were exploring the dirt, we carried on a class discussion about the similarities and differences between the two soil types. As they brought up different points, I recorded their discoveries on a Venn diagram on the whiteboard. (2nd graders' ideas—Differences: how light and crumbly the potting soil was vs. the solid, heavy red clay; Similarities: both had roots, leaves, and rocks in them.) We discussed how the dark soil has more air mixed in, so it's lighter and easier to crumble.
- As their exit ticket to go to recess, each student had to tell me one component of soil (water, air, organic matter, or minerals). Those that answered organic matter or minerals had to describe what those words meant since it was still new vocabulary for them.

Issues/Challenges:

- Using the resource I chose was very easy; I can build on it in the future, such as adding a more formal assessment.
- Yet again, I found the resource I used through OER Commons and not through Smithsonian, so I think that's a big issue for the Smithsonian site. It seems that the

Smithsonian websites are all separate, so maybe even having ONE MAIN search engine for all the Smithsonian sites might be helpful. Then I could have all the student, adult/parent, and educator options in one place to sift through based on my topic.

- While searching individual Smithsonian sites, I often found links that were dead, irrelevant, or lead me to a store to purchase items related to my search which was not helpful to me.
- I've said this in other posts, but having interactives with various reading levels or an app (for say... an iPad) would make the Smithsonian sites much more accessible to kids.
- It has to be attractive, easy to use, and worth instructional time.
- There are many things for me to add on for next year, such as a formal assessment, I could add additional soil samples, etc.

Second Grade Teacher

Resource used:
http://www.mnh.si.edu/earth/main_frames.html

Project:

- Students looked at a multimedia presentation from the Smithsonian Institute and compared different gems and minerals with a middle school buddy. They completed a "scavenger hunt" worksheet while they viewed the various parts of the presentation.
- Being able to look at the vast collection of rocks, minerals and gems to which the National Museum of Natural History has access gave the kids a broader base than what we were able to see in class.

Issues/Challenges:

- I had a very difficult time finding resources on the Smithsonian site. I actually found a site that I was potentially interested in using for another subject but when I went back to find it using the same search terms I couldn't find it. It seemed like the site's search feature was very difficult to navigate.
- Knowing that, I think I would bookmark a site if I was at all interested in using it again, but that makes searching cumbersome because then I would have to go back and clean up my bookmarks each time I searched. I am not sure how it needs to be improved but it seems outdated
- I think if I had not been as specific the students may have gotten a bit lost in the labyrinth that is the site.

Other:

- Add the ability to create a worksheet

Third Grade Teacher

Resource used:
http://www.teachersdomain.org/

Project:

- In this lesson, students were introduced to the theory of plate tectonics and explored how the theory was developed and supported by evidence. Through class discussion, videos, and activities, students sought connections between tectonic activity and geologic features and investigated how the theory of plate tectonics evolved.
- Teacher wrote the term plate tectonics on the board and asked if anyone had heard of this theory. He then recorded class comments on the board and save for later. This could be better facilitated with the ability to have students record their comments directly on the lesson, as in a Voicethread.
- The video on Life Beyond the Solar System does an excellent job of explaining how galaxies are born and evolve.

Issues/Challenges:

- I found some helpful information on internet4classrooms.com and classzone.com. However, this information was not complete enough. After further searching, I discovered helpful content and video on teachersdomain.com that I eventually decided to integrate into my lessons. Their lessons focused on grade levels 7-9 so I had to adapt the lessons to fit the third grade.
- In reflecting upon this whole process, I am struck by the immense amount of information on the web available to teachers. A lot of it is good, however, there needs to be some search engine, website, or other means of organizing this data and making it more easily accessible to teachers.

Other:

- (The resource was chosen because) ...It was favorited or rated highly by other teachers

Second Grade Teacher

Resources used:
http://nationalzoo.si.edu/SCBI/MAB/research/arabela/cameratrapping.cfm
http://nationalzoo.si.edu/Animals/Amazonia/

The project:

- To hook the students and get them excited about writing a research paper, we took a "field trip" to the Amazon Rainforest, via the Internet. We were able to look at some fantastic images of wild animals captured on "animal cams" which were placed on the forest floor. We also looked at short "video cams" of animals caught by motion and heat sensitive cameras. Explaining the technology of how the images were captured was just as interesting to the students as the images themselves.
- My students really enjoyed the online resources from the National Zoo and the Smithsonian Amazonia site. The images and live camera feeds were exciting for the kids. The students were very interested in how the cameras were heat and motion sensitive. We had a great discussion about why reptiles and amphibians were not captured by the

cameras...cold blooded. This reminded them of some prior units of study which provided a great connection to prior learning.

- I liked the visual appeal of the site and the ease of clicking on an animal and being taken to information about that animal. I also liked how the animals were divided and classified scientifically and geographically.
- Students used this information to write a five paragraph essay.

Issues / Challenges:

- The only problems I encountered were really the typical technology things. Luckily, I work with awesome people who were willing to share equipment and classrooms with me! If I had more access to better viewing for the students, I would have incorporated more into my everyday lessons. The resource itself worked fine.
- As far as efficiency goes, the search bar did not always return what I was looking for and I did find that I had to search several places on the site and with many variations of keywords. It was a little "clunky" but I was able to find what I wanted.
- The only snafoo was when I went to find the images I had bookmarked, I had to search for them again. The URL that was bookmarked didn't take me right back to the images. Overall, this was a great little adventure which led me to some great new resources that I will definitely incorporate into my lessons in the future!

Sixth Grade Teacher

Resource used:
http://www.britishmuseum.org/

The Project:

- "You are a person living in Egypt about 1400 BCE. Are you a pharaoh, nobleman, wife of a nobleman, scribe, priest, craftsman, or ….? What would your life be like? You will spend some time looking through books and websites to get an overview of Egyptian civilization. When you have decided on a job, start researching. Ask questions about what you might do in a typical day. Describe your family and where you live. What tools do you need to do your job? Find out as many details as you can. Create a presentation to explain what your life is like. This may be in the form of a PowerPoint, a poster, or a simple book. Be sure to include visuals and plenty of details."
- As I demonstrated the steps of organizing details, students made the connection between the content of their slides or pages to the paragraphs we had just completed in their research papers.
- My learning experience was integrated with Language Arts. Students were being asked to perform numerous tasks that are LA standards using the content of social studies. The basic standards include: Evaluating resources for relevant information; Reading text for information and taking notes as they understand; Organizing details into categories; Adding visuals to help support topics and deepen reader's understanding; and Writing sentences that make sense.

Issues/Challenges:

- I tried every possible search to find resources within the Smithsonian site. The only one that came up was a broken link.
- There was an interesting one featuring Egyptian music through the Folkways Project, but it required ordering a CD to teach the lesson.

- I searched numerous other resources on our page, but the Thinkfinity yielded many I could use.

Other:

- I am pleased to have a new reservoir of resources in the Brokers of Expertise. The resources I found were quality and saved me time doing general searches using Google. I also liked being able to save my favorites so I could easily access them whenever necessary.
- I would like to be able to save topics in different folders for future use.

High School Teacher

Resources used:
www.smithsonianeducation.org
www.docsteach.org

The project:

- Students received a graphic organizer that was split into three rows highlighting the cultural, social, and economic implications of the documentary. Students needed a similar structure/organizer for their topic. I always question whether I should "limit" their web search to refine it more for them...but I also feel that this may keep them from finding resources that would truly be helpful.
- Students were very interested in using the DocsTeach website. They were able to look at specific historical eras and identify a time period and/or topic that they would possibly choose for their opinion editorial assignment. Even though the assignment swayed them towards choosing a more contemporary topic, I encouraged them to delve deeper into their topic and find some historical connections.

Issues/Challenges:

- Students and I also used the Smithsonian education website to conduct our research. My students were not fans. They preferred to use the Educators section to help them browse websites for their topics. They found that the student section was not so "new & cool." The topics were limited and they expressed how the website seemed to be tailored for elementary and middle-school aged students.
- The Smithsonian has so much to offer. It'd be great if they could add to the student section of their website a browser section for high school aged students preparing for college-level research

Special Education Teacher

Resources used:
http://collections.si.edu/search/results.htm?q=rock+collection&dsort=&view=&date.slider=&tag.cstype=all&start=200
http://siarchives.si.edu/collections/search?query=%22Minerals%22

The project:

- Students looked at different resources from the Smithsonian that showed rocks displayed in arrays of 2x2, 2x3, etc. Teacher modeled on the white board repeated addition and

counting by multiples that correlate with each set of arrays that we view. Students will build their own array using rocks from the classroom. Students will describe the array they built using repeated addition and counting by multiples. Students will create a mystery array for another student to solve.

Issues/Challenges:

- It would make it easier for me if I could enter in a concept/skill that I am teaching and the theme so that it could be easy to integrate the two. I would also like to be able to search through the common core standards and have the Smithsonian think outside the box for resources that could be used with it. I had originally wanted to find an art piece that I could teach math through. It seems like the possibilities are endless with shape, measurement, word problems, etc.

Social Science and ELD High School Teacher

Resource used:
http://www.postalmuseum.si.edu/educators/we.pdf

The project:

- The resources I used were two videos showing different perspectives of the Vietnam War. One interviewed veterans and soldiers from and in Vietnam and then a video on the summer of love in the Haight Ashbury district.
- I made sure to front load some video and historical context before introducing the source so students had a frame of reference for what they were being shown and asked to do.
- Teacher created a PowerPoint to accompany lesson.

Issues/Challenges:

- I was looking for resources to expand on the experience of soldiers in Vietnam and the student protesters and those at home. I found a few but to be honest it took me a lot of searching. I didn't find nearly as much stuff as I thought I would. Just typing in Vietnam War or searching the state standards that have to do with this time period returned very little usable resources. The ones I found were great but I am not sure I would spend the time to find them again. I know I could of found equally good resources in less time other places.
- The students did like the resources, especially the letters from soldiers, but I have a book full of letters I could have used much more easily. There were some visual elements to go along with the Smithsonian letters that were easier and better for the students and they came with questions about the letters to provide some work for the students to do regarding the letters. I will use the site again but I liked the Verizon site and other sites that we learned about much better as they seem to return much more information and sources when I searched the same topic.
- This was helpful but I really had to look for stuff to use. I spent more time searching than creating the lesson. That was a bit frustrating. When searching for resources I have to say I need it to be quick.

Science and ELD High School Teacher

Resource used:
http://www.smithsonianeducation.org/educators/lesson_plans/universe/index.html

The project:

- One thing I liked about doing these two lessons as a class was that I was able to engage all of my students. They had to be holding up their answers and arranging them in the correct order and then writing them down. I loved that they were able to get instant feedback and correct their papers themselves, and ask questions for clarification.
- 1st LESSON PLAN: I paired each student up. Students were then given photos of 6 or 7 images and were asked to place them correct order three times - by Size, Distance, and then Age. They then recorded their hypothesis on the record sheet actually provided in the lesson plan. Once they created their own hypothesis, I then revealed the correct order in each category.

Issues/Challenges:

- If I were to change anything about this lesson plan, I would: modify the second lesson to make it easier to understand the model of the universe; have them use the metric system for their measurements; in the interactive, have the sun be the center of the circle, not the address the students enter (Many of my students made the comment "Why is our address The Earth at the center with the moon revolving around it as the sun revolves around us. That was a little confusing.)
- I wish this particular lesson came with a metric conversion.
- ...I also was a little shocked about how limited some of the resources are for certain topics - such as health: illegal drugs, tobacco, alcohol, sex, etc. I tried to look up many items and had a hard time trying to find anything.

Junior High Social Science Teacher

Resource:
www.voicethread.com
http://invention.smithsonian.org/centerpieces/iap/inventors_bel.html
http://collections.si.edu/search/results.jsp?q=Alexander+Graham+Bell&tag.cstype=all
http://invention.smithsonian.org/centerpieces/edison/000_story_02.asp
http://collections.si.edu/search/results.jsp?q=Thomas+Edison&tag.cstype=all
http://www.sil.si.edu/ondisplay/flight/intro.htm
http://siarchives.si.edu/collections/siris_sic_9650?back=%2Fcollections%2Fsearch%3Fquery%3DWright%2520Brothers%26page%3D1%26perpage%3D10%26sort%3Drelevancy%26view%3Dlist

The project:

- Students learned about American Inventors and their inventions by listening to and reading comments on a VoiceThread.
- I started the activity by asking students to comment on the most important advancement in technology to their daily lives. I combined primary source images from the Smithsonian with biographical information from the Smithsonian to create an online discussion on American Inventors and Inventions. I uploaded the images, copied the biographical info, and provided an audio version of the autobiographical info to a voicethread--via voicethread.com.

- The students enjoyed working with the resource, but I think it had more to do with the how rather than the resource itself. They enjoyed listening and reading responses by other people. The also enjoyed the variety of ways that information was presented and the variety of ways in which they could respond.
- Students love technology and social networking. Blending the source material with voicethread.com allowed students to learn, evaluate, and share their ideas regarding key inventions.

Issues/Challenges:

- Searching for the sources was challenging. Many sources required searching through different collections. The Smithsonian website is not really user friendly. There were times when I found a source then could not re-locate it after many duplicate searches. Many of the search tools required archaic search protocol such as the use of quotation marks around items. This needs to be updated. Also all collections under the Smithsonian umbrella should be accessible via a single Smithsonian search tool.
- (The biggest challenge) ...was really the time it took to locate the sources. An up-to-date multi-collection/multi-museum search tool would have made things much easier.

Sixth Grade Teacher

Resource:
http://sunnyfortuna.com/explore/redwoods.htm
http://ed.ted.com/videos?q=redwood+trees

The project:

- (Students watched videos of a scientist climbing and measuring Redwood trees that they would soon be seeing up close on a school camping study trip.) My students jumped right in. They shared laptops and I had them work as a table group. They had to watch video and read and respond. It was great because it was the day before our big trip to the redwoods, so to see and read all these cool things, I think, really made some connections.
- The kids had learned a bit about redwoods and Steve Sillett in previous learning, so it was easy for them to jump in this website and gather more information. The base layer of learning had been built by a movie and my discussion, so this was time for them to research on their own. Working as a team helped because they discussed their findings.

Issues/Challenges:

- Well, my first resource was a link from Ted, and that was blocked by our firewall. I ended up showing this video on our smart board and let them do the other work on the link that worked.

Other:

- Well, it would be nice to have all of a certain type of resource in one area. For example, I couldn't find anything, nothing at all, on redwoods through the Smithsonian. The site I used, sunnyfortuna.com, is basically a coastal town and advocacy group that has a good amount of information. I couldn't even find anything on Gooru. Wouldn't it be cool to have a ton of resources set up by zip code?

High School Science Teacher

Resource:
www.acs.org/chemmatters
http://sciencespot.net/Pages/classforsci.html#blood

The project:

- We were in the middle of a forensic unit in chemistry so when I found the Blood Spatter Lab it fit in perfectly. I gave them an article to read over the weekend that covered the particular characteristics of blood and the basic information that investigators can get from blood. I put bloody footprints and drops of blood on the floor in my classroom and asked the students when they walked in the door, what they thought the blood could tell us. I used the PowerPoint to introduce the topic and it led them into the four lab activities. They had to produce a set of blood drops for each experiment and then answer review questions after each lab. We spread it out over two days so they had to retain knowledge over the weekend. After we finished they had to take a brief assessment asking them to identify the source of several blood drop patterns based on their experiments.
- My activities are both labs, and the students always love to do labs. The Dr. Dye activity in Biology had them very much surprised. They found that black and brown water soluble markers contain many different colors, in solution. So I guess that they had an "ah ha" moment in that aspect. In the meantime, they learned that based on some of the properties of water that we had studied like capillarity and polarity, the colors could be separated out of the black ink.
- I would also have a more comprehensive quiz at the end.

Issues/Challenges:

- I really like the Science Spot web site for the forensic lab activities and Power Points but as I went through looking for resources many of the sites no longer existed. That is so frustrating.

Grades 4-6 Teacher

Resource:
http://siarchives.si.edu/history/exhibits/postcard/chronology.htm

The project:

- A basic lesson plan www.postalmuseum.si.edu/educators/POSTCARDS–THE_WRITE_STUFF provided a skeletal format, a lesson that needed to be extended. We extended student learning by finding more examples of writing on-line, viewing historical examples of letter writing, and through my personal collection.
- The ReadWriteThink Postcard lesson allows teachers to highlight and identify all pertinent parts of a postcard (i.e. greeting). This demonstration is ideal using a projector but students can manipulate their mouse simultaneously at the teacher's direction.
- With such enthusiasm, I was surprised. Students enjoyed finding postcards examples from early stages of USPS to present. They saw WWI and WWII propaganda postcards, postcards with the Smithsonian, and from far away places.
- The photos of the USPS alone were worth the time spent to find them. Students, especially primary, are always curious about local history, and walking to the mailbox, talking to the carrier, and getting their own mail was quite an adventure.

Issues/Challenges:

- The only problem I ran into was that our classroom does not have a projector. Subsequently, we gathered around the computer screen to view the PowerPoint I created and commented from there. There were definitely resources that charged for use and I avoided those. That took a little extra effort but again with practice, I'll gain familiarity with the SI and related resources and it will become easier.

Kindergarten Teacher

Resource:
http://www.fossweb.com/modulesK-2/Insects/activities/insecthunt.html
http://espresso.definedlearning.com/espresso/modules/index.cfm
http://biogeodb.stri.si.edu/bioinformatics/insect_gallery/index.php

The project:

- The resource I found was only (a collection of) images that were to enhance the existing lesson about classification and identification of insects and body parts. I added an interactive game from Espresso and other hands-on activities like creating their own insects with paper that reinforced the targeted skills.
- The students loved the images and the little videos that I found for the lesson. Many students were dumbfounded with the details found in the insects. This led to a wonderful vocabulary building experience.
- Assessment will be designing an insect by drawing it and labeling appropriately the legs, head, thorax, abdomen, antenna and wings.

Issues/Challenges:

- I am glad I found multiple resources because the filter on my school computer blocked one of the resources I wanted to use and it was time consuming to override the block; I would have lost the focus of the students. I learned that in building the lessons, it needs to be done on site computers with the browser there, not from a home computer because the results can be different. So, I was able to substitute a blocked site with another known site from my history.
- To modify the lesson: I would add more resources to the list of images and hope to find more short video clips like the ones I found at National Geo Kids.

Grades 4-5 Teacher

Resource:
http://www.myboe.org/portal/default/Resources/Viewer/ResourceViewer?action=2&resid=306473

The project:

- My students got a quick lesson on some forms of writing poetry. They then were asked to create their own.

Issues/Challenges:

- I did struggle finding content on the Smithsonian website that matched what I was doing for the end of the year, but I finally found a very useful resource under the "Lesson Plans" link on their homepage. It gave me resources built in but I did a lot of "doctoring" to it to fit my room and kids.
- I had to alter some of the content. My students being at the end of the year would have spaced out on a true lesson about Iamb [Iambic pentameter?]. So I made the lesson about identifying the parts of a poem (as a review since we did it a month earlier) and then made the rest of the lesson about finding the rhythm of a poem through the use of music. Picking a song and a poem that my kids identified with went a long ways in keeping them engaged.

Grades 4-5 Teacher

Resource:
http://mathplayground.com/locate_aliens.html

The project:

- Students seem to struggle in math when it comes to graphing on a coordinate plane. This lesson is a great ice breaker or even a review topic at the beginning of the year to see where the students are mathematically. This will also help students see how to read a graph correctly, from the x-axis first and then the y-axis.

Issues/Challenges:

- Can you remember when you were in Junior High, how some things [were] too cool for some but were great for others...This is what I ran into. Having a range of students in the after-school program from Geometry to Basic math including SDC students...was a little much. The ones that enjoyed the lesson had a good time with it and made the most of the time [while] the others I had to challenge a little by changing their games to the Cockroach game and I even moved them into the factoring game that is posted in the last screen shot in my lesson. Overall, after the whining of having to do this activity for me, they did a great job.
- ...I wish the Alien game was not timed; that would be great, or even a section in which teachers can put in a set amount of data for the kids to be able to answer and take that back to look over the information, kind of like Khan Acadamy has. The Smithsonian site only give a Math teacher one option and that is not acceptable, so I need a vast array of ideas to be able to tweak and change for the variety of classes that we encounter everyday.

Special Education Teacher

Resource:
http://humanorigins.si.edu/

The project:

- Students in a 7th grade academic support class researched the anatomical changes that appeared in early humans as they transitioned to bipedal walking over millions of years.

With prewriting support, students will write a 3-5 paragraph summary of the information they gather.

- I used several pieces of a larger Smithsonian site about human evolution as a content source for special education middle school students. They were directed to different parts of the site to gather information, which we then organized into a summary.
- We had class discussions and I front-loaded vocabulary and concepts so that students were more familiar with ideas involving the transition to upright walking.

Issues/Challenges:

- The students responded well to the site and navigated it easily. They were able to find the information fairly quickly, but the language was too difficult for the most part. They resorted to parroting information without achieving full understanding. Still, some of the stronger readers in the group produced quite good summaries, and they were also able to orally explain several complicated concepts.
- I think older special education kids can be tricky, because they respond very negatively to anything that seems "baby-ish", but they don't have the reading and language skills to tackle the more advanced (and more interesting) material Smithsonian has to offer.

Other:

- If the Smithsonian is serious about making their online resources useful to educators, I hope they will consider having the materials written at several different reading levels. All of the most interesting materials and resources I found were written at an adult level (high school level?). It makes it difficult to use the really engaging resources with students in elementary and middle school and with special education students.

Appendix J **Phase 3 Annotation Key, Week 3 Example**

Phase III Annotation Key - Week 3

In this week's activities, participants will be given short periods of time to accomplish specific tasks with the prototype tool

Tuesday's Primary Tasks:
Search for and identify and save at least 3 resources that could compliment their Mission Possible curriculum project.
Create a custom collection of those 4+ resources that they could present to their students or provide their students access to for self-exploration.

Thursday's Primary Tasks:
Identify and upload/add at least 1 external web resource that teachers believe will enrich the collection(s) they've developed.
Add appropriate Common Core standards as related to the collection and the type of instructional activities that the teachers anticipate developing to help students guide or demonstrate the learning they are hoping to achieve with this collection.

Friday's Primary Tasks:
Given a collection that teachers have created this week, have them apply instructional interactives to their collections that will help students interact with the materials in a way that guides the intended learning as related to the common core standards identified.
How would teacher's prefer to share their instructional collections to students, to peers?

Please use the following form to keep track of their interaction with the tools, their feedback, and your general observations on the tasks assigned.

Observer's Name:

Please stay at one table and identify how many teachers/participants are at your table.
Number of participants you are observing:

Searching for Resources

Primary Task: Search for and identify and save at least 4 resources that could compliment their Mission Possible curriculum project.

Preferred search methods:
(While the search term box is the primary means to search, please note if users try to create account first, if they use the search box first, or elect to look at featured collections, etc.)

Observations on Searching and Discovering Resources
Write in further observations of the participants' search and discovery methods and where possible, cite numbers like 3/5 did X or 2/5 did Y.

Prefered return queries
Select the number of participants that preferred this view.

	1	2	3	4	5
list view	○	○	○	○	○
gallery view	○	○	○	○	○

Observations
Write in further observations of the participants' selections. Include direct quotes if possible.

Filter options

	1	2	3	4	5
How many teachers elected to further filter their returning results?	○	○	○	○	○

Observations
Write in further observations of the participants' selections. Cite numbers on filtering choices if possible.

Saving Resources & Organizing by Creating Collections

Primary Task: Create a custom collection of 3+ resources that they could use an instructional sequence by presenting to their students or providing their students access to independently for self-exploration.

Preferred saving process and means for collecting viable resources for later use in the classroom.

These actions imply that, given options to, teachers save resources they find valuable so that they can easily retrieve at a later point either on or off the site in which they found the resource. In this prototype, we have given them a "collection" building option in addition to other ways they might save resources.

	1	2	3	4	5
saved resources to general default "my collections"	○	○	○	○	○
saved to specific custom collections created in advance (or created as part of process)	○	○	○	○	○
saved in an “off-line” format on their own computer or device	○	○	○	○	○
saved to other social/professional community environment	○	○	○	○	○
moved many items for consideration to their "my collections" and then re-analyzed and re-organized again into specific collections or deleted some all-together	○	○	○	○	○
Other: (please cite other options below)	○	○	○	○	○

Observations

Write in further observations of the participants' selections. Include direct quotes if possible.

Refining and Annotating Collections

Primary Tasks:
Identify and upload/add at least 1 external web resource that teachers believe will enrich the collection(s) they've developed.
Add appropriate Common Core standards as related to the collection and the type of instructional activities that the teachers anticipate developing to help students guide or demonstrate the learning they are hoping to achieve with this collection.

Annotating Resource(s) Within Their Collections

Implies any action in which a teacher creates supplementary data about a resource they have found and has options to add it to the resource for their own use, that of their students, their direct colleagues, or as publicly shared information back to the site itself.

Select the number of participants that annotated the resource in one or more of the following ways:

	1	2	3	4	5
favorited a resource	○	○	○	○	○
rated a resource	○	○	○	○	○
commented on or created a review of a resource	○	○	○	○	○
matched resource to other internal resources or assets	○	○	○	○	○
matched resource to external resource, object or asset	○	○	○	○	○
edited the title or description of a resource within own collections/galleries	○	○	○	○	○

added instructional interactive	○	○	○	○	○
matched resource to common core standards (cite below)	○	○	○	○	○
other: (add to observation box below)	○	○	○	○	○

Which Common Core Standards Were Selected?
If possible, solicit and record the common core standards selected for their collections below by title and number.

Observations
Write in further observations of the participants' selections. Include direct quotes if possible.

Creating and Adding Instructional Interactives

As a final potential layer of customizing a collection, educators have access to a series of instructional interactives that they can elect to add to given resources within their collection(s) that they believe would help guide students learning with the resources, or perhaps provide students an opportunity to demonstrate their learning. Please note which, if any, interactives that teachers developed and saved to their collections.

Which Instructional Interactives did educators add to collection?
Check all that apply and cite numbers if possible in observations box.

- ☐ Discussion Board
- ☐ Quiz
- ☐ Crossword

- [ ] Notes
- [ ] Add other Resources
- [ ] Glossary
- [ ] Map
- [ ] Concept Cloud
- [ ] Common Core Standards
- [ ] Other: (cite in observation box below)

Observations
Write in further observations of the participants' selections. Include direct quotes if possible.

Sharing

If provided means to share a resource, or a collection of resources organized by the teacher...what means would teachers prefer to share and present their collections to their students?
How would they elect to share their collections to other colleagues?

Preferred saving process/location:
Select the number of participants that utilized one or more of the following methods: (because many of these features are non-functional, you will need to pose the question for both sharing to students and colleagues and ask them to identify how they would share/promote their collection(s))

	1	2	3	4	5
Share/recommend resource(s) to colleagues via email	○	○	○	○	○
Share resource(s) to colleagues via link/post to other social/professional online environment that the teacher belongs to	○	○	○	○	○
Share resource(s) to SCEMS community (this site in which they found the resources)	○	○	○	○	○

using some type of "publish my collection" feature					
Share annotative data back to community where resource was found (teacher leaves a comment or a rating or in some way adds data to the resource that is shared back to the site where the resource was found)	○	○	○	○	○
Shares collection(s) to students via email	○	○	○	○	○
Shares collection(s) to students via link/post to another website they use with their students	○	○	○	○	○
Shares collection(s) to students via setting them up as a "class" within this system for auto-notification as an internal mechanism/feature	○	○	○	○	○
Shares as teacher-directed exercise on board or on computer devices with students	○	○	○	○	○
Would want to be able to download a version of the resources and related activities for distribution to students in class via printouts or local version of the media	○	○	○	○	○

Observations

Write in further observations of the participants' selections. Include direct quotes if possible.

Submit

Appendix K **Phase 3 Post-Survey/Annotation, Week 2 Example**

Phase III Annotation Key Creating Interactives - Week 2

After watching search methods, selection of various items from resource collections organizing into personal collections for exposure to students...We are finally interested in looking at the things that teachers do or make to create learning experiences in relation to the resources you bring into your classroom. Tell us a little bit about those items and other things that come to mind from this weeks testing series.

Subject Area(s) You Teach

Grade(s) you teach:

What would make searching within the prototype more effective?

Using the Instructional Interactives Built Into Prototype

These following questions are focused on creating "ready-built" instructional tools that you would otherwise develop on your own to help students better learn and better access a good online resource.

Which interactives do you see yourself utilizing with Smithsonian resources in future lessons? Check all that apply.

- ☐ Discussion
- ☐ Quiz
- ☐ Crossword
- ☐ Notes
- ☐ Additional Resources
- ☐ Glossary
- ☐ Map

- [ ] Concept Cloud
- [ ] Other:

What do you like about the use of the Interactives tool?

What did you find frustrating or confusing about the use of the Interactives tool?

Creating New Interactive Tools

Describe the interactive(s) you created using a Smithsonian resource.

What ADDITIONAL interactives would you like to create or add?

Many other ideas surfaced throughout the week...what are other items you'd like to share with us about any part of the tools we are developing?

Thank you!

We appreciate your valuable expertise as a classroom teacher in using and evaluating our prototypes.

Submit

Appendix L **Phase 3 Summary of Findings, Week 1**

Week 1 - Summary Report and Findings

Workshop 1: Nature and Animals (grades K-5)

In this week of workshops, our team worked with 18-20 participants for one hour over the course of four days. Participants were primarily K-5 teachers with a multi-disciplinary background. Each day had a different focus and observations were recorded by the team through the use of an Annotation Key. Below is the guiding research questions for each day and a summary of the activities participating educators engaged in.

Tuesday, July 10-
Research Questions: What search features, filter features, and return views do teachers prefer to use when identifying and analyzing Smithsonian related resources?
And, for the final search using the prototype: How do various related searches that range from global to granular render results within the prototype structure and how are those results best consumed by the educators for classroom use?

- Tuesday: Participants were asked to identify three terms to search for in each of three websites: www.smithsonianeducation.org, www.collections.si.edu, and http://scems.navnorth.com. Participants were then observed as they utilized varying searching, saving, and sharing strategies.

Wednesday, July 11-
Research Question: Once teachers find viable resources for use in the classroom, how do they prefer to display those resources to their students and engage with them?

- Wednesday: Participants each arranged 4-5 paper screenshots of various Smithsonian sites onto a poster board to create a "viewing gallery" for presenting the sites to students, as a class or individually.

Thursday, July 12-
Research Question: Do participants value repository agencies assimilating their resource collections with central instructional tools in order to capture the instructional development and modification process internally within the site, where that development previously occurred outside the site?

- Thursday: Participants were given time to explore the National Archives site "DocsTeach" as preparation for work with the prototype the next day.

Friday, July 13-
Research Question: How readily can participants assemble their own unique collections and integrate instructional interactive modules?

- Friday: Participants began exploration of the prototype and attempt to identify and connect instructional interactive items to resources assembled in their own collections.

Part 1: Searching Strategies

www.smithsonianeducation.org

Preferred search methods summary

The majority of participants began their search by going to the site's Educator tab and then typing in a word or phrase into the search box. Some participants found that they did not get enough results or the kinds of results they were looking for. For example, a search for specific Black Poets returned zero results; the participant then had to widen their search to Black History.

Some participants filtered their search by putting in the topic and filtering by grade levels or by adding terms making their search more specific. In the latter case, the search sometimes returned the same results: searching the term "War" brought back the same results as "Revolutionary War."

When a general search did not provide appropriate results, a few participants chose to use an existing taxonomy. One participant went to "Smithsonian Sources for Teaching American History," looked under "'historical topics," and selected "Westward Expansion." There, she was able to locate resources on why Europeans came to America.

Prefered return queries summary

This site did not provide an option to view the results in a gallery view.

Some participants were frustrated with the results of their searches. At one table, two of the four teachers were confused as to why they had search results that seemed to have no correlation to topic/term they entered. For example, using the search term "genetics," the top results included "Ancient Egypt Bibliography," "Maps on Stamps," "AnimalCams," and "GPS: A New Constellation."

Filter options summary
Many participants did not use filtering options so that they wouldn't "miss" any resources that might be appropriate.

Other:

a. Some results led to "Page Not Found."
b. Once you receive your results, you are unable to see the terms you originally searched for.
c. Participants had difficulty using multiple search terms until they realized that phrases need to be inserted within quotes.

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www.collections.si.edu

Preferred search methods summary

Again, the majority of participants went right to the search box using a term or phrase. In this site, they were able to easily search multiple terms without the need for quotation marks.

One participant searched using the term “War” and her results included an anthropology site. By narrowing her search to “Battle of Bunker Hill” she found more appropriate resources. Using many terms all together often resulted in more relevant results for participants.

Preferred return queries summary

Once participants found the grid view (versus list view) they almost all preferred it. Late into the allocated time for use of this site, a quick scan of the room showed that only 2 of the 19 educators were using the list view. The drawback identified by 4 teachers was that it obscured some of the information about the resource upon initial review.

Participants also appreciated that the thumbnail views were enlarged to the degree that they could discern content and images on each of the returned sites, which allowed them to scan items quickly. They used the expand/collapse option to view additional information when they thought the time might be something they wanted.

For many participants, a majority of the search returns were dominated by single images or “postage stamp renderings.” It seems that the museums providing these digital artifacts, such as the Postal Museum and the Portrait Gallery, have a high number of items in the search directory and have most likely tied the respective metadata of their items intimately to the search engine of the collections.si site.

Overall, there was a greater volume of returns yielded for teachers when running searches on this site in comparison to the smithsonianeducation.org site; however, the results were less connected to the fact that the user was an educator and were not engendered in any significant way for the classroom. An “immigration” search yielded lots of pictures and “easy access to lots of stuff to choose from.”

Filter options summary

Participants appreciated the ability to narrow their searches further after performing their initial search by removing or adding specific collection item types, location, date, etc.

Other

2. Participants liked being able to save their resources to a list, but did not recognize how to save those lists for future access. (Note - Darren did share later in the week that these lists do not persist beyond as a user account item of any kind, however, a user can email themselves the list and a dynamic URL will be generated that provides direct access to the list at a later point.)

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http://scems.navnorth.com
the Prototype

Preferred search methods summary

Searching using broad and/or obscure searches, such as “birds,” “endangered species of alabama,” and “Galileo,” resulted in zero results, although it was not initially clear that no results came back (the window simply remained blank). On the iPad, the use of multiple search terms also resulted in zero results.

The addition of a title on resources would have been helpful so that participants do not have to scroll over images to find out if they would be useful. In addition, some images did not yield any information when participants scrolled over them. Overall, there seemed to be less metadata available on resources when viewed on this site compared the other sites. In a search on the “Harlem Renaissance,” one participant “liked how the pictures show up, but it didn’t always give all the information about the result.”

Participants anticipated a relative value in being able to enter information into the system using the microphone feature and extending that utility to students in different instances beyond just searches.

Preferred return queries summary

Again, users almost exclusively elected to render return results in grid or gallery view as opposed to list view. A scan of the room showed that 17 of 20 teachers were utilizing the grid view. Later in the week, it was apparent to all that more data about a resource was accessible when rolling the cursor over the item, or clicking on it.

Filter options summary

The ability to use advanced filters in the form of the drop-down boxes (by “subject,” “object type,” etc.) was not apparent to all participants. When they did use the filters, some found too few results returned. Using the term “American Revolutionary War” did not provide many useful resources, as did the term “War.” One participant would like the ability to use an “advanced search” that would allow you to use multiple filters at one time. Another would like that ability to filter by reading level.

The filtering tabs moved based on the filter you used last, which made adding a different filter confusing for 4 of approximately 10 users who were involved in such manipulations.

Other

a. The initial (mostly-blank) screen of the prototype threw-off many participants. They weren’t sure the site was working when encountering a single, top-oriented search box.
b. Some participants were frustrated with having to use the site’s back button, as opposed to using the browser’s back button.
c. A number of participants wanted to know what “curate” and “collection” meant, but did not click on either.
d. Approximately 5 of the 20 tested teachers did click on “curate” and “collection” with the intent of using those features and when prompted to create an account to explore further, 4 of those 5 did attempt to create an account. 1 of the 5 attempted to sign in with her Facebook account, as provided on the account creation process.

Part 1: Searching & Saving Strategies

Preferred search methods summary

In each of the search environments provided, 16 or more of the participants elected to search by entering a search term to query initial results. Where gallery view was provided and found, most of the participants switched to that view option for results. While the focus of the exchange was to note the methods by which users searched and elected to review and analyze their results, many teachers naturally saw the process as less of a testing regimen and more of an actual search in which they desired to find viable instructional resources. Because the data being accessed from the Smithsonian's Collection Search Center is not necessarily structured to produce resulting assets tailored for the classroom or for teachers, many found the varied results a limiting factor to their experience.

In the prototype specifically, there is a need for richer metadata describing the "vibrancy" of each item as opposed to a litany of curation notes, holdings data, etc. This was not the intent of the metadata in place, however in some instances, there were quality contextual descriptions about the item in question that were presented in a way that helped narrate the items relevance as an artifact to teachers. In other instances, the descriptions were not provided in that same context, however the teachers had seen the actual item on display and were curious to know why the actual placard data that accompanied the actual items on display in the museum itself (which they found useful) were not part of this digital collection data.

Preferred saving process/location

Participants actively looked for ways to save their resources within the site they were using. In particular, when the ability to save to a collection was available, participants used it. A specific concern that was raised by users from each of the tables involved the ability to access their saved resources later (Smithsonian Collections allows you to save but only for that computer on that visit); only the prototype site allowed participants to sign in to an account for future access. Regardless, some were confused with how to find the collections that they had made once they left their collection.

If the site did not afford opportunities for saving, participants were observed downloading the resource or copying and pasting the link to their computer desktop at a single table of five teachers (3 of 5). (One participant noted that she liked PDF resources because they could be archived on her laptop and be used again without having to revisit the website.)

One request that many participants made was the ability to quickly save resources as they search (make a quick "pass-through"). Later they would like to refine their results and even organize them into categories such as grade, subject, or unit (for example, "5th Grade, Social Studies, American Revolution").

Part 2: Sharing Strategies

Sharing resources summary

Participants also utilized any tool provided by the site to share the resources they found with colleagues, regardless of past practice. For example, many used the "Facebook Share" option even though they do not typically use Facebook to share educational

resources per their feedback. Other sharing methods participants were observed to use included e-mailing the link to themselves or a colleague (the most popular method); uploading the link to a personal or school wiki; "tweeting" it to their Twitter account (1 of 5); adding it to the Reading List on their iPad (1 of 5); or bookmarking it using a Website like Diigo or Pinterest (3 of 5). (Counts taken from a single group were moderator kept numerical track of sharing methods, other observers confirmed similar trends at their stations.

Part 3: Organizing Strategies

For week 1 of testing, a limited number of participants moved through to a point of assembling a collection within the prototype. For the 6 that did manage to create collections, they felt it critical that teachers were afforded to aggregate their own items according to how they saw the items assembled for classroom use independent of collection grouping on the Smithsonian sites proper.

While direct testing and observations were not conducted in the first week to a large degree around organizing of resources from the Collections Search Center database, teachers were provided a demonstration of the general methods that would be deployed in following weeks. Teachers were favorable of being able to further edit title and description to create more student-accessible contexts for the items that would be generated as part of a personal collection.

Part 4: Presenting and Teaching Strategies

Assembling for Teacher-Directed Presentation to Students in Class as part of "Viewing Gallery"

(See "Teacher Posters of Viewing Gallery Week 1" for details)

2. Sites "stacked" (only one or mostly one site viewable with others hidden or partially hidden) and ordered (order determined by teacher) = 8 of 17
3. Sites "stacked" (only one or mostly one site viewable with others hidden or partially hidden) but not ordered = 1 of 17
4. All sites viewable (arranged on a grid or moveable) and ordered (order determined by teacher) = 1 of 17
5. All sites viewable (arranged on a grid or moveable) but not ordered = 4 of 17
6. Poster created did not depict a true "viewing gallery" (sites were "downloaded" onto computers or the participants used the poster to "critique" the actual sites) = 3 of 17

The majority of teachers (8 of 17) created a viewing gallery that "stacked" the sites (one site viewable with others hidden or partially hidden) and relied on the teacher to pre-select the sites to be viewed by students. This style was preferred by participants that envisioned projecting the screen up in front of students and interacting with the sites as a class. Many of the posters also revealed a bias toward using tools that they currently use for saving resources, including folders and binders.

Four of the teachers created a gallery that allowed students to choose the order and showed all the sites without giving preference to one site over another. These were often creative in implementation, using such devices as a rotational "geometric shape"

and a "virtual museum gallery." This style was associated with activities in which individual students used the sites to complete a project.

Given the breakdown, there may be a need to allow teachers to utilize two viewing methods for the viewing gallery: one for whole-class interaction (where site order is emphasized and only one site is viewed at a time), and one for individual interaction (where student selection is emphasized and all sites are easily accessed).

Assembling for Instructional Interactive Delivery as part of "Learning Gallery"

Participants were excited about the use of "interactives" with the resources found in the Smithsonian collection. After exploring the possibilities available in Docs Teach as well as the Prototype, participants expressed an interest in the following:

2. A teacher- or student-created Concept Map
3. The ability to open up resources and activities to parental interaction
4. "Webs" or circular configurations allow items to be arranged in non-linear ways
5. High quality printables
6. Games or quizzes that provide hints to younger readers
7. Intelligence that directs you to resources based on what you teach would be great
8. A discussion board
9. Tools that allow students to see the big picture, make connections, and interpret resources
10. A "scavenger hunt"
11. The ability to create a "WebQuest"
12. A connection to Bloom's Taxonomy
13. The ability to allow individual students to make own collection
14. A timeline creation tool
15. Templates for rubrics

Some of the issues or questions that arose when using the Prototype were:

2. Can the interactives be saved apart from the resource?
3. The Prototype didn't work with Firefox
4. It was not clear what the student sees versus what the teacher sees
5. And finally, the + tab that opens up the interactives palette is not obvious enough to users (only 2 participants found it without prompting from staff or other teachers).

EXAMINING SITES UTILIZED BY TEACHERS FOR RESOURCE GATHERING AND COMMUNITY COLLABORATION

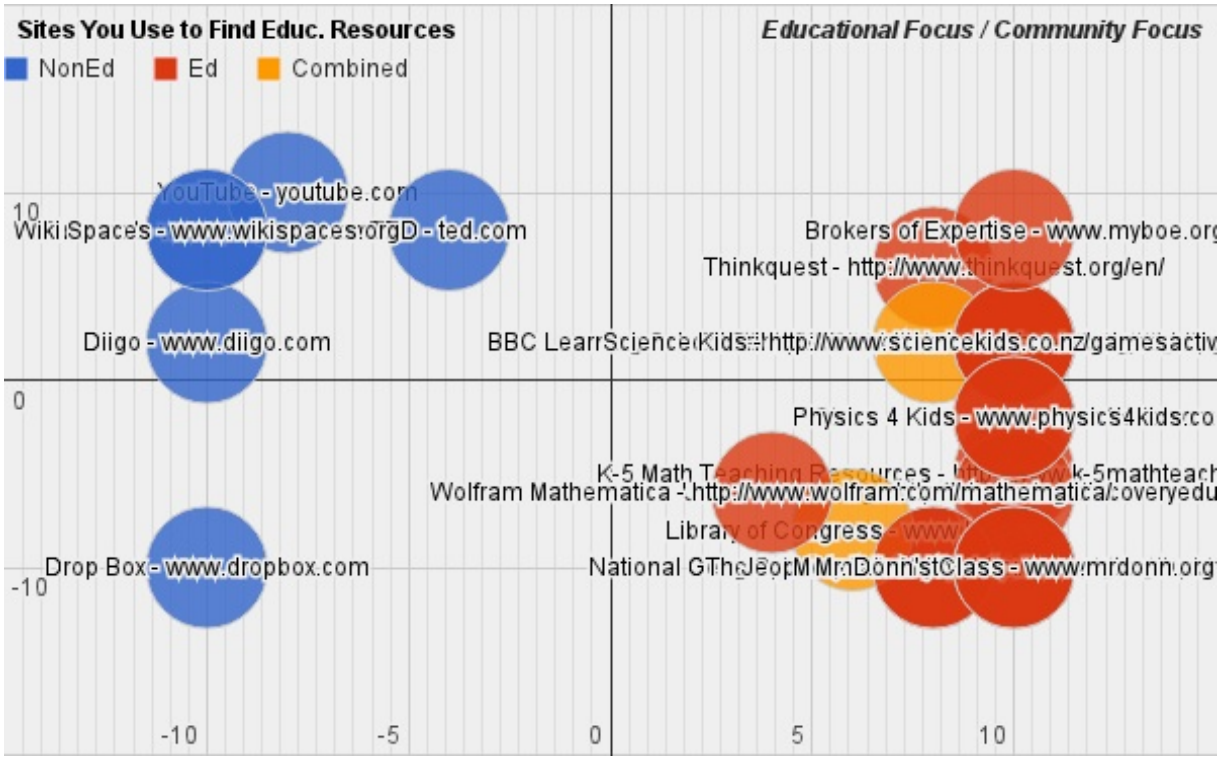
1. Education Resource Sites used by Teachers to gather instructional resources online for use in classroom:

Resource Sites You Use for Finding Classroom Materials (# of references)

2. Pinterest - www.pinterest.com (2)
3. National Geographic - http://education.nationalgeographic.com (3)
4. K-5 Math Teaching Resources - http://www.k-5mathteachingresources.com/ (1)

5. Thinkquest - http://www.thinkquest.org/en/ (2)
6. The Science Spot - http://sciencespot.net/ (1)
7. United Streaming - http://streaming.discoveryeducation.com/ (1)
8. Diigo - www.diigo.com (1)
9. Drop Box - www.dropbox.com (1)
10. Edutopia - www.edutopia.org (1)
11. Library of Congress - www.loc.gov (1)
12. Wolfram Mathematica - http://www.wolfram.com/mathematica/ (1)
13. Internet4classrooms.com - http://www.internet4classrooms.com/ (1)
14. Smithsonian Education - www.smithsonianeducation.org (2)
15. Read, Write, Think - www.readwritethink.org (3)
16. Jeopardy Labs - http://jeopardylabs.com/ (1)
17. Mountain Math - http://www.mtmath.com/ (1)
18. British Museum - http://www.britishmuseum.org/ (1)
19. Mr. Donn's Class - www.mrdonn.org (1)
20. YouTube - http://www.youtube.com/ (1)
21. TED - http://www.ted.com/ (1)
22. NASA Education - www.jpl.nasa.gov/education (1)
23. Wiki Spaces - www.wikispaces.org (1)
24. BBC Learning Schools - http://www.bbc.co.uk/schools/scienceclips/ages/9_10/life_cycles.shtml (1)
25. Science Kids - http://www.sciencekids.co.nz/gamesactivities/lifecycles.html (2)
26. Chem 4 Kids - www.chem4kids.com (1)
27. Physics 4 Kids - www.physics4kids.com (1)
28. Brokers of Expertise - www.myboe.org (1)

Graph of sites according to the degree to which they are set up to support resource acquisition vs. community collaboration (y axis = community/collaboration features - x axis = educational resource location features)
https://docs.google.com/spreadsheet/ccc?key=0At4NZREIgQ_HdHZqNmdLNmpvZ19MMktCYW1PcFlfYnc#gid=2

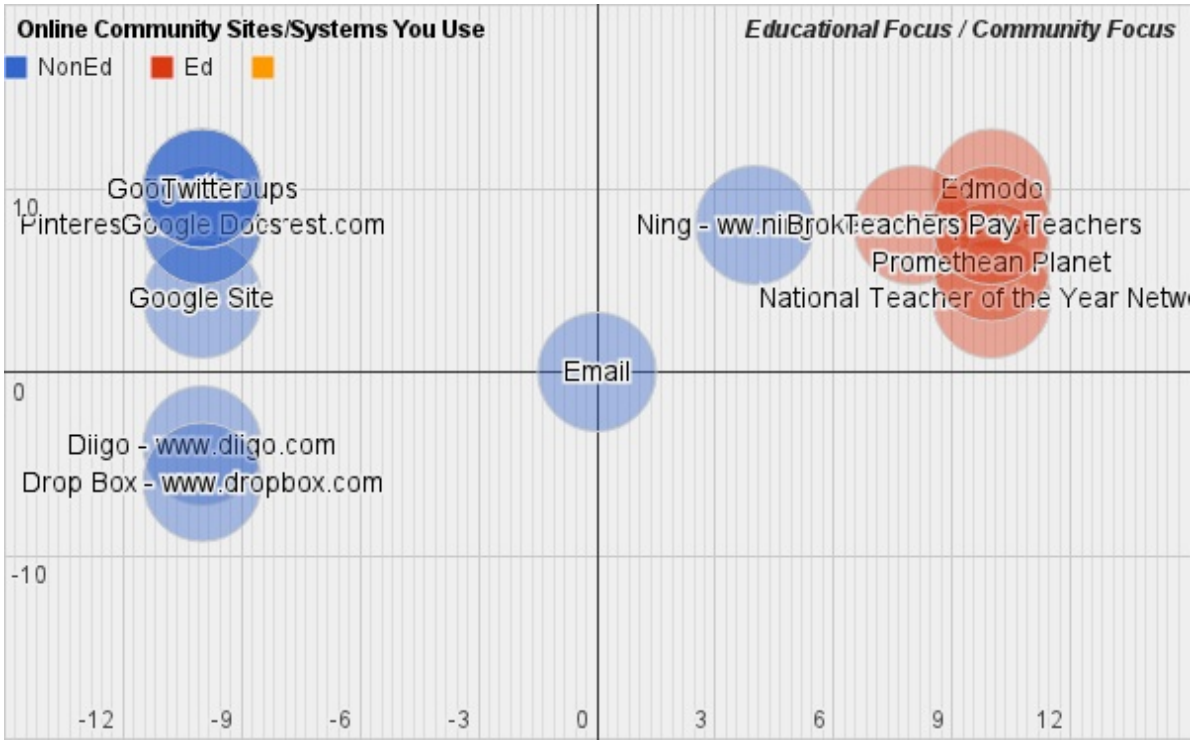


2. Education Community Sites used by teachers to connect/collaborate with other educators:

Resource Sites You Use for Finding Classroom Materials (# of references)

- Pinterest - www.pinterest.com (5)
- Facebook - https://www.facebook.com/ (5)
- Email - (5)
- National Teacher of the Year Network - http://www.ccsso.org/ntoy.html (3)
- Google Docs - https://docs.google.com (2)
- Brokers of Expertise - http://www.myboe.org/ (2)
- Edmodo - http://www.edmodo.com/ (1)
- Google Site - https://www.google.com/ (1)
- Ning - www.ning.com (1)
- Diigo - www.diigo.com (1)
- Drop Box - www.dropbox.com (1)
- Google Groups - https://groups.google.com/forum/?fromgroups#!overview (1)
- Promethean Planet - http://www.prometheanplanet.com/en-us/ (1)
- Teachers Pay Teachers - http://www.teacherspayteachers.com/ (1)
- Twitter - https://twitter.com/ (1)

Graph of sites according to the degree to which they are set up to support resource acquisition vs. community collaboration (y axis = community/collaboration features - x axis = educational resource location features)
https://docs.google.com/spreadsheet/ccc?key=0At4NZREIgQ_HdHhYVHBaak5SUGR1T2g4NVl6LXZuM1E#gid=2



Overall Summary & Guiding Points for Iteration

- Move participants into the collection development feature
- Identify which metadata elements participants would want to edit
- Create a leadpoint to instructional interactives that allows them to assign items to given assets
- Create means for participants to create and save collections for later editing

Below is a listing of items that were generated per participants final surveys. They are structured according to both the 3 key processes we want teachers to engage and the short, mid, and long term objectives of the project proper.

Focus Points for Consideration from Week 1 to address core elements identified per the following 3 processes and cross-correlated to the short-term , medium-term, and long-term project objectives :

Short-Term Goals

- **Identifying** specific Smithsonian digital learning content
- **Analyzing** specific Smithsonian digital learning content
- **Extracting** specific content from Smithsonian digital learning resources

Medium-Term Goals

- Increased skills to make strategic use of digital media and visual displays of data to express information and enhance understanding
- Increase Creativity

Long-Term Goals

- Online users will become active creators of digital resources personalized for learning in their own classrooms.

I/A/E Elements↓	**Modification Suggestions for Next Round of Testing**	Increase Skills	Increase Creativity	Active Creators
Identifying	Mimic or mock-up a more comprehensive front end for users to regard when initiating search to remediate confusion about the use of a partially developed prototype	X		
	Create prompts for yet-to-be developed items that indicate upcoming features and/or prompt users for feedback	X		
	Provide more comprehensive metadata associated with digital items/assets where that metadata exists	X		
	Consolidate actionable terms like curate (could cause concern per a purists definition of curate & could be an unknown term as tied to a specific action that we want to accurately convey), add to collection, create collection and “flatten” transition process for selecting items and moving into collection without expanded view modal screen possibly or collapsing collection item view with expanded modal view.	X		
Analyzing	Provide clear entry-point and corresponding terminology for the instructional modification options for a given resource item within a collection.	X		
	Create 1-2 semi-functional instructional modification options for user to try			X
	Create visual rendering of the other 4-5 instructional modification options			X
	Consider proximity of instructional tools to resource item, potentially provide resizing options for teacher control of dominance of item to tools and vice versa.		X	
Extracting	Collections can be saved and retrieved at later point with user authentication	X		

	Collections can be modified beyond point of original creation	X		
	Collections can be shared via traditional means such as email and download	X		
	Collections can be shared via digital communities in which teacher already participates	X		
	Collection can be displayed for classroom implementation (eventually rearranged per teacher demonstration preferences)			X

Appendix M **Phase 3 Summary Report of Findings, Week 2**

Week 2 - Summary Report and Findings

Workshop 2: Community / Civic Engagement - American History (grades 9-12)

In this week of workshops, our team worked with 18-20 participants for one hour over the course of four days. Participants were mainly high school teachers in the humanities. Each day had a different focus and observations were recorded by the team through the use of an Annotation Key. Below is the guiding research questions for each day and a summary of the activities participating educators engaged.

Tuesday, July 17-
Research Question: Once teachers find viable resources for use in the classroom, how do they prefer to display those resources to their students and engage with them?

- Tuesday: Participants each arranged 4-5 paper screenshots of various Smithsonian sites onto a poster board to create a "viewing gallery" for presenting the sites to students, as a class or individually.

Wednesday, July 18
Research Question: How do various related searches that range from global to granular render results within the prototype structure and how are those results best consumed by the educators for classroom use?

- Wednesday: Participants were asked to identify three terms to search for within the prototype http://scems.navnorth.com. Participants were then observed as they utilized varying searching, saving, and sharing strategies, including creating collections of resources.

Thursday, July 19
Research Question: How readily can participants assemble their own unique collections and integrate instructional interactives?

- Thursday: Participants continued to search and save resources to collections. They then explored the “interactives tool” within the prototype.

Friday, July 20-

- Friday: Participants completed the “Teacher Wrap-Up Survey Week 2.”

Part 1: Searching Strategies

http://scems.navnorth.com

Preferred search methods summary

Participants expressed an interest in having more “intelligence” in the searching process. For example, for searches that elicit zero results, a suggestion of related terms would be helpful. If a term is misspelled (particularly by a student), the search bar could prompt the user with correct spellings. Participants would also like resources that are tagged

with similar metadata to surface as other suggested resources. Finally, as new searches are created, participants would like prior search terms to be "remembered" either as a list or to help further narrow results.

Preferred return queries summary

As with the searching strategies, participants are looking for more intelligence in their returns. They often desired more information to assess the value of a resource. Suggestions included teacher reviews or ratings; the most popular resources surfacing at the top of a search; and more background information included with the resources (such as that which is found next to an object in the museum). Cross-pollination with other federal agencies like Library of Congress and National Archives was requested as well.

Finally, many wanted a simple title to be included with images to help quickly identify which resources might be useful (rather than having to scroll to see this information).

Like the last week, over half of the participants preferred the gallery view.

Filter options summary

Once they *found* the filtering tabs, 13 of 15 participants were observed to use filters to narrow their search results. However, many expressed a desire to be able to select more than one filter per category at a time. They also added that the terminology was not teacher-friendly. Some suggested filtering terms included by date, era, style of art, and geographic location.

Participants would also like to be able to search by student end product and then apply tags to which Smithsonian resource was used in the development of the lesson and product.

Part 2: Sharing Strategies

Sharing resources summary

Participants want the ability to easily share resources or even collections with other teachers and even their students. However, many were concerned about their schools or districts blocking tools such as Facebook and would like alternate means to share, such as by easily providing a URL of the a resource or collection, or the ability to share to the Smithsonian online community.

Part 3: Organizing Strategies

Collections

All teachers placed chosen resources into a collection, and most of them went on to create and name 2-3 additional collections. The issues that came had mostly to do with the environment of the prototype:

a. Many participants had difficulty navigating from the expanded view of a resource back to their original collections page.
b. When selecting and viewing a single resource, there was confusion in the use of the "back" button--several stated that they would prefer a "close" or "x" button to return to the collections page.

c. Once resources were in a collection, participants wanted a simple title to included with the thumbnail image to help them remember the resource.

Part 4: Presenting & Teaching Strategies

Assembling for Teacher-Directed Presentation to Students in Class as part of "Viewing Gallery"

(See "Teacher Posters of Viewing Gallery Week 2" for details)

3. A "viewing gallery" that used some type of mosaic-type or grid display structure = 14 of 17
4. Sites "stacked" (only one or mostly one site viewable with others hidden or partially hidden) = 2 of 17
5. All sites ordered for presentation sequence (order determined by teacher) = 8 of 17
6. All sites ordered for presentation sequence (order determined by student)= 7 of 17
7. All sites viewable (arranged on a grid or moveable) but not ordered = 4 of 17
8. Sites in which a sequence or order was not present or difficult to understand who ultimately created order = 2 of 17

Most participants created posters showing a "gallery-type" view (rather than a "stacked" view) where a site is clicked to expand and clicked again to return to the gallery view. Participants were split on whether to have the site order directed by teacher or student; there might be some consideration in having two ways to view (teacher view, student or class view).

Assembling for Instructional Interactive Delivery as part of "Learning Gallery"

Participants were very excited to utilize the interactives tool once they found the tab, but requested that it be easier to find (only 8 out of 22 found the interactives tools AND clicked on it). Several suggested that the user have the ability to use the tool as soon as the resource is saved, rather than having to save it to a collection first and then open the resource within the collection to use it.

Many of the teachers were not comfortable "playing around" with the buttons and opted to ask an observer what an object did rather than click on the object themselves. One participant was observed to scroll over an editable text field but didn't stop to add any text until an observer prompted them. A few teachers needed explanation on the interactives (what a "concept cloud" is, for example).

Participants in this group (mostly high school teachers) expressed the need to have students using the site as much or even more than the teacher. They would like the ability to share tools with the class and have students be able to easily transmit their work with the interactives back to the teacher.

Some additional interactives requested by teachers included:

e. A slideshow of resources

f. Compare and Contrast tool that allows teachers to poise two separate digital items side by side (whether art pieces, pictures, or articles on a common topic with different perspectives)
g. A virtual tour where kids can find/select/study exhibits

Overall Summary & Guiding Points for Iteration

7. Participants appreciated the search functionality of the site but want better visibility of the tools, including prompts and explanations for their use.
8. Participants want more intelligence in their searches and results to guide them toward the most valuable resources. Intelligence included, "auto-complete typing, auto-correct spelling, and correlate similar items as suggestions in returns that bear few results."
9. Participants in this group desire the ability to have students use the site and its tools as much as the teacher.

Below is a listing of items that were generated per participants final surveys regarding additional instructional interactives as well as other suggestions in general. As was last week, they are structured according to both the 3 key processes we want teachers to engage and the short, mid, and long term objectives of the project proper. Items from last week that were identified again were left in as reinforcing points and are *ITALICIZED*. New items were added as identified in survey.

Focus Points for Consideration from Week 2 to address core elements identified per the following 3 processes and cross-correlated to the short-term , medium-term, and long-term project objectives :

Short-Term Goals

16. **Identifying** specific Smithsonian digital learning content
17. **Analyzing** specific Smithsonian digital learning content
18. **Extracting** specific content from Smithsonian digital learning resources

Medium-Term Goals

6. Increased skills to make strategic use of digital media and visual displays of data to express information and enhance understanding

29. Increase Creativity

Long-Term Goals

- Online users will become active creators of digital resources personalized for learning in their own classrooms.

I/A/E Elements↓	**Modification Suggestions for Next Round of Testing**	Increase Skills	Increase Creativity	Active Creators
Identifying↓	*Mimic or mock-up a more comprehensive front end for users to regard when*	X		

	initiating search to remediate confusion about the use of a partially developed prototype			
	Create prompts for yet-to-be developed items that indicate upcoming features and/or prompt users for feedback	X		
	Provide more comprehensive metadata associated with digital items/assets where that metadata exists	X		
	Consolidate actionable terms like curate (could cause concern per a purists definition of curate & could be an unknown term as tied to a specific action that we want to accurately convey), add to collection, create collection and "flatten" transition process for selecting items and moving into collection without expanded view modal screen possibly or collapsing collection item view with expanded modal view.	X		
	Use more common teacher terminology & student centered language in description of items and tools	X		
	Create a list of existing search terms correlated to teacher centered subject lists for accessing resources	X		
	Consolidate all Smithsonian assets from various units/collections behind a single point of entry and set of search tools for educators on the education site	X		
	Clear filters upon new search	X		
Analyzing↓	*Provide clear entry-point and corresponding terminology for the instructional modification options for a given resource item within a collection.*	X		
	Create 1-2 semi-functional instructional modification options for user to try			X

	Create visual rendering of the other 4-5 instructional modification options			X
	Consider proximity of instructional tools to resource item, potentially provide resizing options for teacher control of dominance of item to tools and vice versa.		X	
	Allow teachers to correlate collections/activities to sample question items from end-of-year state assessments that are focused on higher-order thinking skills			X
	Allow teachers to develop out resource considerations in the context of a full lesson plan to better frame resource selections and sequence			X
	Show visual of interactive instructional tool to aid teachers in determining appropriate activity for resource item in addition to teacher-centered description.	X		
Extracting↓	*Collections can be saved and retrieved at later point with user authentication*	X		
	Collections can be modified beyond point of original creation	X		
	Collections can be shared via traditional means such as email and download	X		
	Collections can be shared via digital communities in which teacher already participates	X		
	Collection can be displayed for classroom implementation (eventually rearranged per teacher demonstration preferences)			X
	Push resulting student work/entries on quiz interactives to spreadsheet or publish to 3rd party learner community site like Edmodo			X
	Add Chat Feature for teacher and students			

	Allow teachers to highlight sections of web resource and embed information or question bubbles that students will then encounter upon review of resource and can click on to engage or respond			X
	Provide teachers a final “publish” button or check-box that allows them to determine when something is ultimately shared or unshared to students.	X		
	Library of open license audio files in the way of songs or sound effects that teachers can load as related to content of collection. Students can select which should accompany their own collections as well.		X	X
	Provide a drawing space for students or teacher to draw responses to resources			X
	Timeline tool that allows a teacher or student to layout resources and corresponding information on a chronological timeline			X
	Consider multiple options for student work to transmit to teacher other than just email	X		

Appendix N **Phase 3 Summary Report of Findings, Week 3**

Week 3 - Summary Report and Findings

Workshop 3: Science and Innovation (grades 5-9)

In this week of workshops, our team worked with up to 23 participants for at least an hour on three separate days. Although it was identified as a grade 5-9 targeted week, participants were largely middle through high school teachers across a diversity of subject areas (indeed, 3 were not specifically teachers, but were PD coordinators or state level education office specialists). Each day a different area of the prototype tool sets were tested and observations were recorded by the team through the use of an Annotation Key. Below are the guiding research questions for each day and a summary of the activities participating educators engaged.

Tuesday, July 31-
Research Question: How do various related searches that range from global to granular render results within the prototype structure and how are those results best consumed by the educators for classroom use?

- Search for and identify and save at least 3 resources that could complement their Mission Possible curriculum project.
- Create a custom collection of those 4+ resources that they could present to their students or provide their students access to for self-exploration.

Thursday, Aug. 2-
Research Question: If given tools to include common core standards and external web resources, will teachers feel confident in analyzing and identifying appropriate additional resources and standards as correlated to Smithsonian resources?

a. Identify and upload/add at least 1 external web resource that teachers believe will enrich the collection(s) they've developed.
b. Add appropriate Common Core standards as related to the collection and the type of instructional activities that the teachers anticipate developing to help students guide or demonstrate the learning they are hoping to achieve with this collection.

Friday, Aug. 3-
Research Question: How readily can participants assemble their own unique collections and integrate instructional interactives?

1. Given a collection that teachers have created this week, have them apply instructional interactives to their collections that will help students interact with the materials in a way that guides the intended learning as related to the common core standards identified.
2. How would teachers prefer to share their instructional collections to students, to peers?
3. Complete Teacher Wrap-up Survey-Week 3.

Part 1: Searching Strategies

http://scems.navnorth.com

Preferred search methods summary

Primary search behaviors focused on use of search box without signing in or attempting to create account. A significant number of participants found that search results rendered in a gallery-type view as default was preferable for viewing large returns. 3 observers did take occasion to mention the alternative list view option to their respective teacher groups. Based on the annotation data, it looks as if approximately 6 of 23 educators opted to switch to list view.

Preferred return queries summary

A majority of participants within each observation group were able to generate considerable returns on their queries within the prototype. Some common comments focused on the occasional odd result string such as “civil war uniform” returning an inordinate amount of statues generally about war, or the search term “women aviators” returning ivory soap ads. They often desired more information to assess the value of a resource and were not satisfied with the amount of metadata rendered across the image upon cursor float-over.
Approximately 8 of the teachers inquired about methods that could better help students analyze results upon performing searches with the prototype tools.

Filter options summary

Based on observer notes, it appears somewhere between 8-10 teachers actually utilized any of the filters to narrow down resulting returns. When others were shown the filters, the numbers of those using them primarily tried to filter their results to just include images or pictures and were less clear on the other designators such as electronic resource or collection description.

When most teachers wanted to improve or narrow their results, they amended their search terms to render more specific results.

Part 2: Sharing Strategies

Sharing resources summary
Teachers were not run through a precise sharing exercise this week, but were directed to look for ways in which to share their collections if desired. 3 observers noticed educators trying to utilize the community dissemination tools layered throughout the prototype like those found in the upper right hand corner above collections.
Approximately 7 teachers attempted, but were unable to, share to facebook or tweet or add their collections to pinterest when clicking on those place-holder buttons. In ensuing conversation, many teachers indicated that they would like a simple means to post links to specific collections they’ve developed to other sites such as edmodo, schoology, or their own teacher sites.

Part 3: Organizing Strategies

Collections
Despite some initial bugs that obscured various organization tools in Windows 7 and older versions of firefox on some laptops, teachers were readily able to create collections when presented a fully functioning prototype. Teachers quickly asked for access to advanced functions such as creating subordinate lists to a given collection or generating collections on the fly during a search phase without losing their search screen. Approximately 19 of the 23 teachers produced multiple collections, but many struggled to know how to easily navigate across those collections and back to search options fluidly.

Given that teachers were exposed to sample collections in advance and to a method by which they could integrate additional, external web resources, there were more requests for items like tagging of resources, more coherent integration with external web assets, and the inclusion of topical directories to organize relevant collections.

Part 4: Presenting & Teaching Strategies

Assembling for Teacher-Directed Presentation to Students in Class as part of "Viewing Gallery"
There was no activity related to the creation of teacher posters for this week.

Assembling for Instructional Interactive Delivery as part of "Learning Gallery"

11 of the 23 participating educators had found and utilized the interactives as part of their collections prior to being directed to do so during an activity. Once we identify the interactives and a context for their existence, all educators utilized one or more of the tools. The numbers of teachers using the interactives in at least one instance within their primary collection are as follows (teachers could select more than one that they utilized):
Discussion Tool = 20 users
Concept Cloud Tool = 16 users
Mapping Tool = 15 users
Notes Tool = 13 users
Additional Resource Tool = 12 users
Quiz Tool = 11
Crossword Tool = 10
Glossary Tool = 10

Some additional interactives requested by teachers included:

a. Audio Files
b. Compare and Contrast tool that allows teachers to poise two separate digital items side by side (whether art pieces, pictures, or articles on a common topic with different perspectives)
c. Wiki Space
d. Digital Graphic Organizer with excerpts or images from resources
e. Image Editing Tool
f. Simulations from actual museum floor associated with items

Overall Summary & Guiding Points for Iteration

1. Participants made full use of existing tools but suggested a number of advanced interactives.
2. Participants want better search results and ways to modify descriptions for student search and analysis options.
3. Participants are looking for more intuitive design and flow between tools and facets of the prototype.

Below is a listing of items that were generated per participants final surveys regarding additional instructional interactives as well as other suggestions in general. As was the case for the first two weeks of testing, they are structured according to both the 3 key processes we want teachers to engage and the short, mid, and long term objectives of the project proper. Items from past weeks that were identified again were left in as reinforcing points and are *ITALICIZED*. New items were added as identified in survey in **bold**.

Focus Points for Consideration from Week 2 to address core elements identified per the following 3 processes and cross-correlated to the short-term , medium-term, and long-term project objectives :

Short-Term Goals

- **Identifying** specific Smithsonian digital learning content
- **Analyzing** specific Smithsonian digital learning content
- **Extracting** specific content from Smithsonian digital learning resources

Medium-Term Goals

- Increased skills to make strategic use of digital media and visual displays of data to express information and enhance understanding
- Increase Creativity

Long-Term Goals

- Online users will become active creators of digital resources personalized for learning in their own classrooms.

I/A/E Elements↓	**Modification Suggestions for Next Round of Testing**	Increase Skills	Increase Creativity	Active Creators
Identifying↓	*Provide more comprehensive metadata associated with digital items/assets where that metadata exists*	X		
	Consolidate functions like Save and Go Back, add to collection, create collection and "flatten" transition process for selecting items and moving into collection without expanded view modal screen possibly or collapsing collection item view	X		

	with expanded modal view.			
	Use more common teacher terminology & student centered language in description of items and tools	X		
	Create a list of existing search terms correlated to teacher centered subject lists for accessing resources	X		
	Consolidate all Smithsonian assets from various units/collections behind a single point of entry and set of search tools for educators on the education site	X		
	Clear filters upon new search	X		
	Create directories of resources as tied to Common Core Standards	**X**		
	Create directories of resources developed by other educators	**X**		
	Create subdirectories or subordinate descriptors based on rigor and relevance levels	**X**		
Analyzing↓	*Provide clear entry-point and corresponding terminology for the instructional modification options for a given resource item within a collection.*	X		
	*Create **more** semi-functional instructional modification options for user to try*			X
	Show visual of interactive instructional tool to aid teachers in determining appropriate activity for resource item in addition to teacher-centered description.	X		
	More compare and contrast tools and better conceptual diagramming features for students to organize information and inferences			**X**
	Interactives provide teachers new considerations and perspectives to stimulate instructional thinking and approaches when new tools/aids are suggested by system or other			**X**

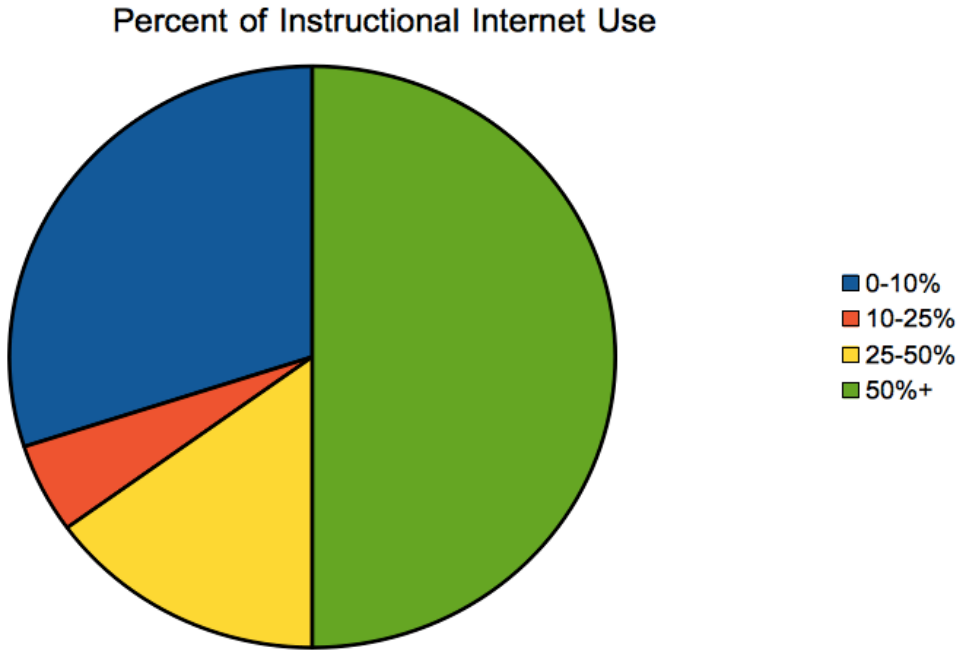
	teachers			
Extracting↓	*Collections can be saved and retrieved at later point with user authentication*	X		
	Collections can be modified beyond point of original creation	X		
	Collections can be shared via traditional means such as email and download	X		
	Collections can be shared via digital communities in which teacher already participates	X		
	Collection can be displayed for classroom implementation (eventually rearranged per teacher demonstration preferences)			X
	Push resulting student work/entries on quiz interactives to spreadsheet or publish to 3rd party learner community site like Edmodo			X
	Allow teachers to highlight sections of web resource and embed information or question bubbles that students will then encounter upon review of resource and can click on to engage or respond			X
	Library of open license audio files in the way of songs or sound effects that teachers can load as related to content of collection. Students can select which should accompany their own collections as well.		X	X
	Provide a drawing space for students or teacher to draw responses to resources			X
	Timeline tool that allows a teacher or student to layout resources and corresponding information on a chronological timeline			X
	Consider multiple options for student work to transmit to teacher other than just email	X		

	Method to let teachers "download" ready to use collections with embedded activities, but then "upload" variations and modifications made to those materials			**X**
	Blending the activity/interactive tools into the resources by suggesting certain tools for certain types of resources would expedite the research and application process during lesson planning and design.		**X**	

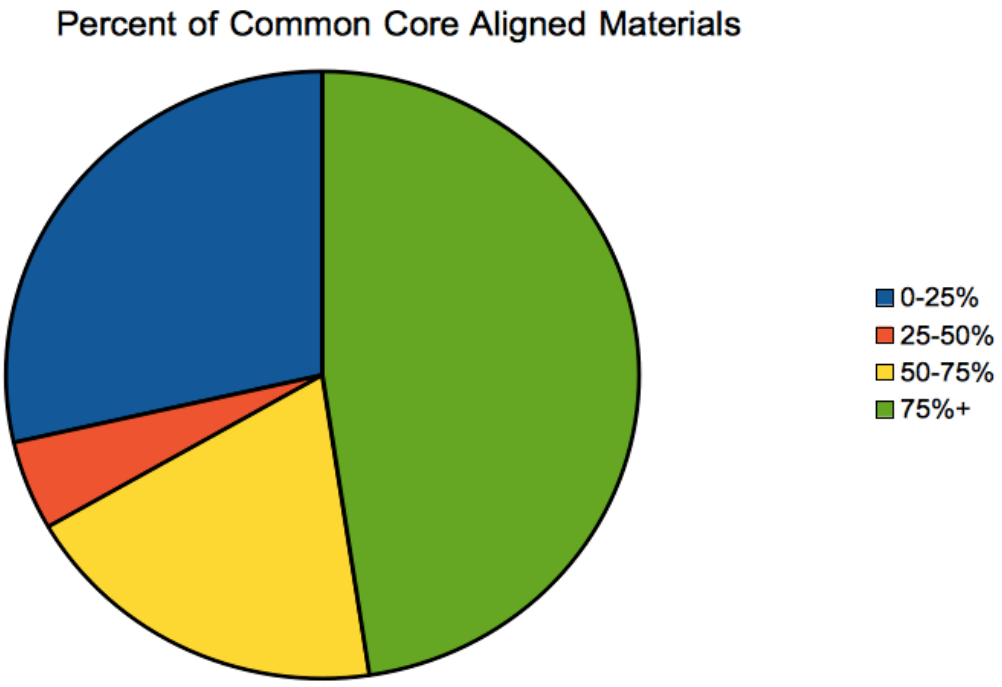
Report data was generated from both observers notations using the annotation key, and from the teacher wrap-up survey which can be viewed at:
https://docs.google.com/spreadsheet/ccc?key=0At4NZREIgQ_HdDlHUzI5T3ZEakhXelJncHQ5YVRHd0E
https://docs.google.com/document/d/1Au0-phPa76msJcLnXWeMEuF32snVFM_hRS7U6-APbYw/edit

While all survey questions and responses can be viewed at the above link, this weeks participants were posed two specific questions of particular interest about their use of Internet-Based resources in the classroom and upcoming preparation for Common Core Standards related materials. These two questions are reiterated below along with a their respective results.

Question 1- Considering all of the various instructional assignments and projects you conduct with your students throughout the school year, what percent would you guess involves use of the Internet? (respondents were allowed to self-select one of four ranges in answering)

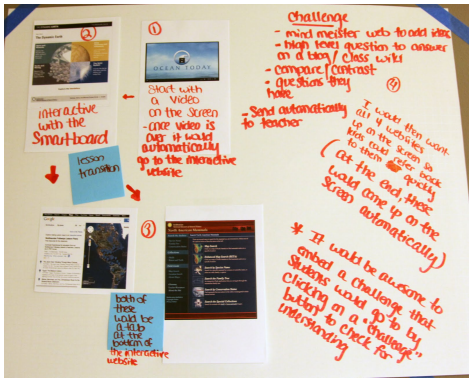


Question 2- How much of next year's curriculum is already aligned to Common Core Standards for your classroom?

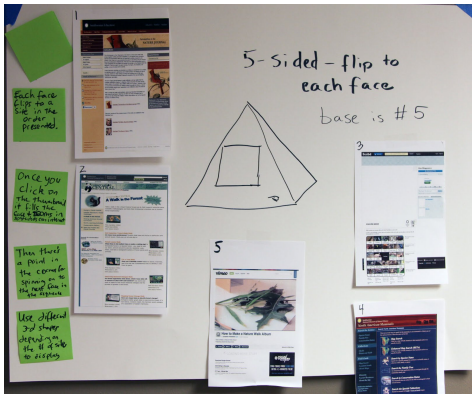


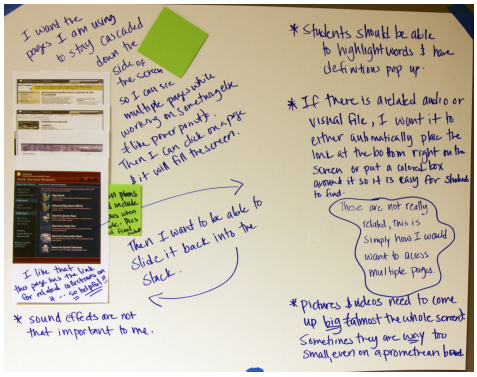
Appendix O **Teacher Posters- Viewing Gallery Activity- Week 1**

Viewing Gallery Prototypes - Teacher Posters
Week 1 (7/12/12)

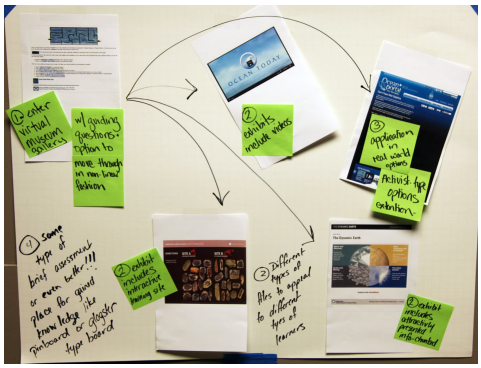
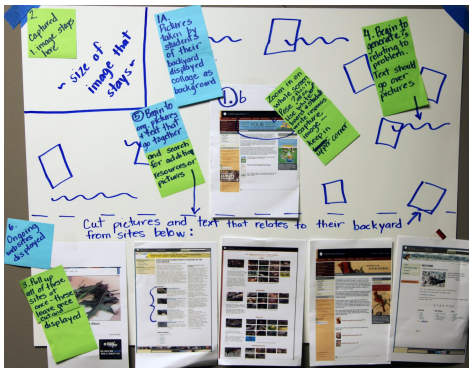
Poster Image	Overview	Sites Used	Info/Type of Solution/Features
	Sites are stacked with the video site visible first. Once the video plays, the next site automatically comes up with the remaining sites visible only as tabs at the bottom. When all sites have been viewed, all the sites come back up on the screen automatically so students can refer back to them quickly. "It would be awesome to embed a challenge that students would go to by clicking on a "challenge" button to check for understanding." Participant wanted the ability to add "challenges": mind meister web (?) to add ideas; high level question to answer on a blog/class wiki; compare/contrast; questions they have. These	The Dynamic Earth (G) Ocean Today (V) Smithsonian Folkways Lesson Plans google map (G) North American Mammals (T)	Tab System, Auto-progression between items, Embedded questions to monitor comprehension and asses, Responses sent to teacher (via email)

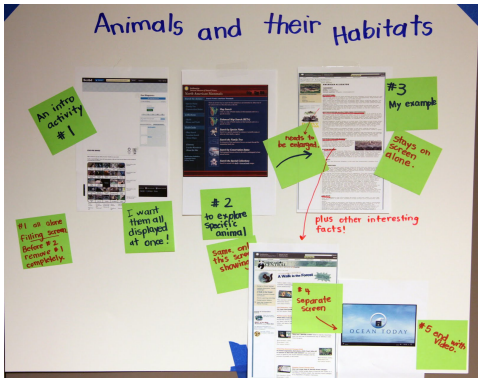
	would then be sent automatically to the teacher.		
	For two of the sites, the participant would "load" the site onto the students' computers. For the other two sites, teacher would model them on the SMART board. *This does not seem to be an example of a viewing gallery.	Elephant image (I) Zoo-per Bingo (G) Great Cats E-cards (G) The Hidden Lives of Ants (I)	Control those items independently accessible to students Control those items to be demonstrated to students through teacher-guidance
	Participant wants to view the Biodiversity in the Classroom site first, but she would like the actual site to be changed: only the pics come up, and when the lessons are selected, they come up one at a time. She also stated that there was too much info on this one page. (She seems to be evaluating the actual site.)	Smithsonian Biodiversity Science in the Classroom (L) The Hidden Lives of Ants (I) Great Cats E-cards (G) A Walk in the Forest (G)	Modification of site content to release only images separate from text and vice versa Sound effects for introduction of sites

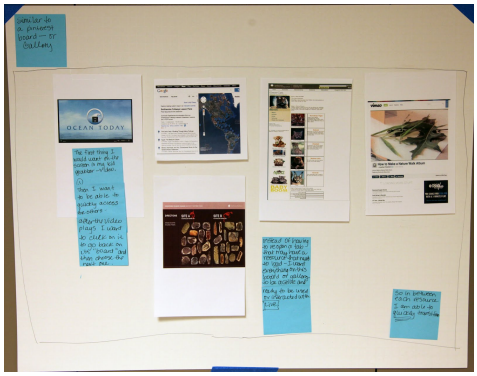
	When the next site comes up, it "roars." When the site about the ants comes up, she wants to hear "crickets chirping and ants crawling." When the last site comes up, she will have the class choose one activity and then take them outside.		
	The sites will appear as the faces of a geometric figure that can be "spun" or rotated by the viewer. Clicking on one of the faces brings that site up to fill the screen. The base of the figure is the fifth or final site. "Each face flips to a site to order presented. Once you click on the thumbnail it fills the face and zooms in so students can interact. Then there's a point in the corners for spinning on to the next face in the sequence. Use different 3-D shapes depending on the # of sites to display."	Intro to the Nature Journal (L) A Walk in the Forest (G) Zoo-per Bingo (G) How to Make a Nature Walk Album (V)	3D viewing planes to be selected by teacher of common geometric shapes progress through shape and thus sites can be set by teacher or orchestrated by individual students or a combination

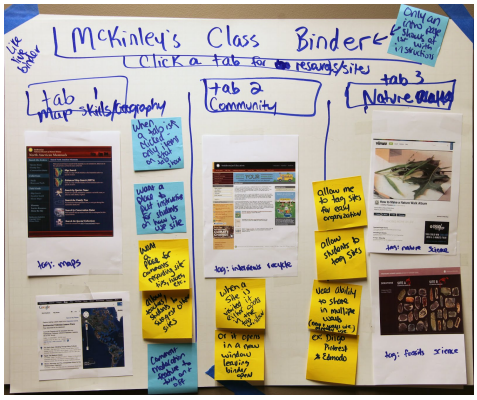
	The sites will appear cascaded vertically. When the viewer clicks on a site, it expands to fill the screen. That site can then be moved back into the "stack". "I want the pages I am using to stay cascaded down the side of the screen so I can see multiple pages while working on something else (like a PowerPoint). Then I can click on a page and it will fill the screen. (Sound effects are not important to me.)" "Students should be able to highlight words and have definitions pop up." "If there is a related audio or visual file, I want it to either automatically place the link at the bottom right on the screen or put a colored box around it so it is easy for students to find. (These are not really related, this is simply how I would want to access multiple pages.)" "Pictures and	Smithsonian Biodiversity Science in the Classroom (L) Reptiles and Amphibians Fact Sheet (T) Build-A-Bird lesson plan (L) North American Mammals (T)	Stack layout with certain percent of each site overlayed linear progress students interact with content through linked definitions / dictionary Media to pull up in prominent / large window

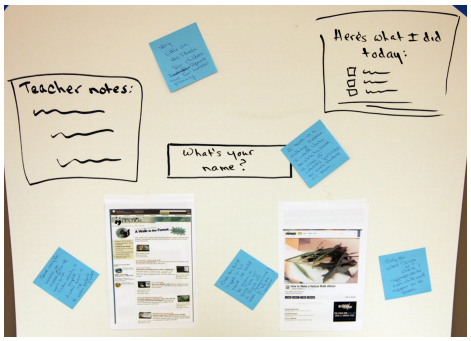
	videos need to come up BIG (almost the whole screen). Sometimes they are WAY too small, even on a Promethean board."		
	Sites will load one at a time in the order the teacher determines. On the first website, students will "explore categories of animals. Once student chooses animal," the student will "click on main picture to find more pictures of animals in various environments. Looking at animal in various situations help the student make a definitive choice." Student will go to the third site "if needed for more detailed, basic, organized information after a definitive choice has been made." The fourth and fifth sites she picked are for the teacher to "use for more in-depth exploration."	Great Cats E-cards (G) The Hidden Lives of Ants (I) Reptiles and Amphibians Fact Sheet (T) A Walk in the Forest (G) Smithsonian Biodiversity Science in the Classroom (L)	Teacher determined progress through materials. Teacher path determines site order Teacher can identify specific content to be linked in one resource to a separate resource

	The screen will resemble a "Virtual Museum Gallery." Students "enter virtual museum gallery with guiding questions option to move through in non-linear fashion." The exhibit includes videos, an interactive learning site, and "different types of files to appeal to different types of learners." "Exhibit includes attractively presented info-chunked (chunks?)." "Some type of brief assessment or even better (a) place for gained knowledge like pinboard or Glogster type board."	Ocean Today (V) The Dynamic Earth (G) Prehistoric Climate Change (G) Ocean Planet exhibition floorplan (G)	Students determine progress through materials based on guiding questions, activities or challenges Students needing more access to more materials or various types of materials to complete challenge determines their own consumption Students can assemble a demonstration of their own comprehension which includes linking materials, resources, submitting audio, or text, or whatever.
	The screen is divided into two horizontal areas. Sites to be viewed are tiled along the bottom so that you can see each site in full. Students can then "cut" pictures and text that relate to the assignment and move them up into the top horizontal area. "1. Image stays here. 1A. Pictures	How to Make a Nature Walk Album (V) Smithsonian Biodiversity Science in the Classroom (L) The Hidden Lives of Ants (I) Migratory Bird Center	Teacher assembles resources at bottom in linear sequence Students selects elements from within various resources to assemble their own learning artifact

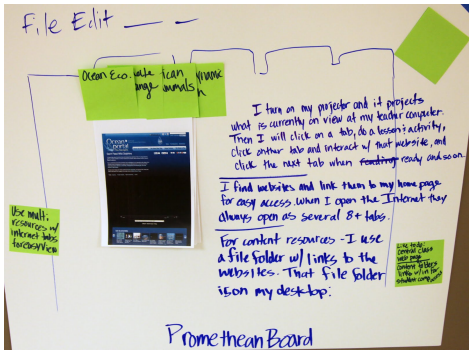
	taken by students of their backyard displayed collage as background. 2. Captured. 3. Pull up all of these sites at once-- these leave once cut and displayed. 4. Begin to generate questions relating to problem. Text should go over pictures. 5. Begin to organize pictures and text that go together and search for additional resources or pictures."	Nest Game (G) Intro to the Nature Journal (L)	
	Screen shows each site, one at a time. "#1 all alone, filling screen. Before #2 remove #1 completely. #2 to explore specific animal. #3 stays on screen alone. #4 separate screen. #5 end with video."	Zoo-per Bingo (G) North American Mammals (T) Reptiles and Amphibians Fact Sheet (T) A Walk in the Forest (G) Ocean Today (V)	Full screen progression through each item selected in linear manner

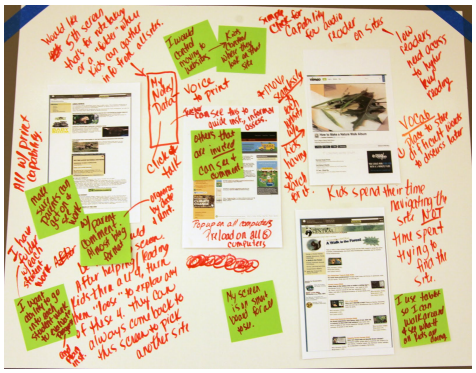
	* Need more teacher input on how the sites look (are they all viewed on the screen at once, or do they "flip" one at a time to reveal the sites below?)	Zoo-per Bingo (G) Smithsonian Biodiversity Science in the Classroom (L) Migratory Bird Center Nest Game (G) How to Make a Nature Walk Album (V)	
	The screen will resemble a Pinterest board or gallery. Clicking on a resource brings it full screen; clicking on it again takes you back to the board. "The first thing I would want on the screen is my kid grabber-video. Then I want to be able to quickly access the others. After the video plays I want to click on it to go back on the 'board' and then choose the next one. Instead of having to reopen a tab that may have a resource that takes a long time to load, I want everything on this board or gallery to be active and ready to be used or interacted with	Ocean Today (V) Smithsonian Folkways Lesson Plans google map (G) How to Make a Nature Walk Album (V) Great Cats E-cards (G) Prehistoric Climate Change (G)	Gallery type display which allows teacher to select and launch resources at will Pinterest-like display

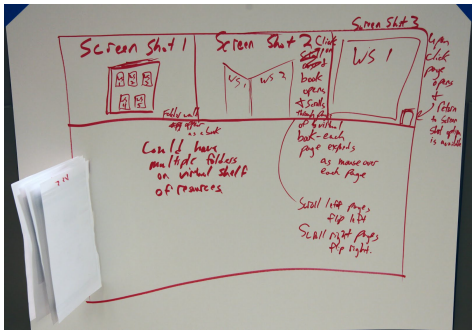
	live. So in between each resource I am able to quickly transition."		
	The screen will resemble a "LiveBinder" with tabs for resources/sites. However, the initial screen will be an "intro page" that includes instructions. In this participant's example, there are three tabs: Tab 1, Map Skills/Geography; Tab 2, Community; and Tab 3, Nature. The "When a tab is clicked, only items on that tab show. Want a place to put instructions for students on how to use site. Want a place for comments regarding site--tips, issues, etc. Allows teachers/students to suggest other sites. Comment moderation	North American Mammals (T) Prehistoric Climate Change (G) "What's Your Problem?" (L) How to Make a Nature Walk Album (V) Smithsonian Folkways Lesson Plans google map (G)	Tab system modeled after LiveBinder Teacher can annotate with notations for each item displayed Students can annotate as well. Teacher can tag sites included in collection Teacher can share collection out to other sites they use.

	feature turned on or off." "When a site is visited it either opens in the top window or it opens in a new window leaving binder open." "Allow me to tag sites for easy organization. Allow students to tag sites. Need ability to share in multiple ways (new and in ways we already use). Example: Diigo, Pinterest, and *Edmodo."		
	The screen would show the sites arranged at the bottom, with additional places to add in Teacher Notes, the student's name, and other items such as "Here's what I did today". "My ideal website would allow me to personalize technology based assignments." "I teach in a multiage classroom. I would like to be able to create a menu of websites particular to each student or team." "Some way for teacher to choose when next site: 1) when activity is	How to Make a Nature Walk Album (V) A Walk in the Forest (G)	Sites organized at bottom in linear progression. Teacher controls progression manually or through timer. Individual series of resources assigned to each student. System provides each student access to those sites selected for them by their teacher as part of their login/id service.

	complete; when timer is up; when student chooses." "Once the child typed in his name, he could be given a single site or a choice of sites (programmed by the teacher). Only the sites (single or choice) appropriate to each child would appear on the screen."		
	The participant would put links to the sites on her Edmodo page for students to access at home or at school. Alternatively, the sites could be arranged on a Glogster board that includes links and instructions for students. "5th Graders...I would want instructions on the page that guides them through the process. First: Gather background info by watching video and looking at photos." (Post-It points to three sites.) "Next, give students specific info to find by "playing"	Ocean Today (V) A Walk in the Forest (G) The Dynamic Earth (G) Migratory Bird Center Nest Game (G) Great Cats E-cards (G) The Hidden Lives of Ants (I)	Students explore resources selected by teacher as part of exploratory process to find specific information as requested by teacher on display board. (like glogster board) Students proceed through content as needed to pursue open-ended assignment

	w/interactive site and playing a game." "Last, give a specific task for students to complete (like this walk) and then give instructions for an open-ended assignment." This participant likes the idea of using screenshots rather than links for visual interest.		
	Screen will have all the sites stacked, one on top of the other, with tabs along the top labeled with titles the teacher has created. Clicking on a tab will bring that site up to the top of the stack. "I turn on my projector and it projects what is currently on view at my teacher computer. Then I will click on a tab, do a lesson & activity, click another tab and interact w/that website and click the next tab when read and so on." "I find websites and link them to my home page for easy access. When I open the Internet they always open as several 8+ tabs."	Ocean Today (V) Prehistoric Climate Change (G) North American Mammals (T) The Dynamic Earth (G)	Tab system. Selected resource or collection of resources under a given tab (named by teacher) dominates screen when selected. Teacher determines progress. Can re-surface links in tab format to class webpage Can download as folder of sites to my desktop

	"For content resources I use a file folder w/links to the websites. That file folder is on my desktop." "Like to do: Central class web page. Content folders links w/in for student computer access."		
	Students can interact with the sites and move seamlessly from one site to the next. "Kids spend their time nagivating the site NOT time spent trying to find the site. I use table so I can walk around and see what kids are doing." "Would like 5th screen that's for note-taking or a "folder" where kids can gather info from all sites." Would like: Click and talk; voice to print. "After helping / leading kids through, turn them "loose" to explore any of these four. They can always come back to the screen to pick another site." "Make sure parents can get	A Walk in the Forest (G) "What's Your Problem?" (L) Amazonia (T) How to Make a Nature Walk Album (V)	Teacher creates non-linear board of sites selected for students to browse. Students can move amongst sites at will Teacher can elect to have students follow her lead to site, and can then be released to explore the site on own but not progress to the next site. Students can click and record audio reflections of understanding regarding specific sites

	on and see work with parent comment...Others that are invited can see and comment...Almost like a blog format." "I would control moving to websites. Kids control where they are on the site." "Sample check for capability for audio reader on sites--low readers need access to higher reading level." "Vocab--place to store difficult words to discuss later."		
	The screen looks like a book with the first page containing all the sites in one visible group. You click to open the book and look at the sites more closely, two on the screen at a time, as in two pages of a book. The page (site) expands as you mouse over it. "Could have multiple folders on virtual shelf of resources."	*Need to identify the sites; they aren't visible in the poster screenshot.	linear sequence of resources in book format, page next, page back... each page contains a large thumbnail of site that expands upon mouseover or click for access.

L = lessons
G = games and interactives
V = video
T = text
I = image

Resources Available to Participants:

The Dynamic Earth (G)
Ocean Today video (V)
Google Map (G)
North American Mammals (DB)
Elephant image (I)
Zoo-per Bingo (G)
Great Cats E-cards (G)
The Hidden Lives of Ants (T)
Smithsonian Biodiversity Science in the Classroom (L)
A Walk in the Forest (G)
Intro to the Nature Journal (L)
How to Make a Nature Walk Album (V)
Smithsonian Biodiversity Science in the Classroom (L)
Reptiles and Amphibians Fact Sheet (T)
Build-A-Bird lesson plan (L)
Great Cats E-cards (G)
Zoo-per Bingo (G)
Migratory Bird Center Nest Game (G)

- Amazonia site (streaming videos, images): http://nationalzoo.si.edu/Animals/Amazonia/
- A walk in the Forest (interactives): http://nationalzoo.si.edu/Education/ConservationCentral/walk/default.cfm
- Introduction to the Nature Journal (link to lesson in a PDF): http://www.smithsonianeducation.org/educators/lesson_plans/journals/index.html
- North American Mammals (a searchable database of all living North American mammals, including maps, short descriptions, bones and images): http://www.mnh.si.edu/mna/
- Meet Our Animals (links to sites on the animals you will find at the National Zoo): http://nationalzoo.si.edu/Animals/default.cfm
- Ocean Planet exhibition website: http://seawifs.gsfc.nasa.gov/ocean_planet.html
- Smithsonian Biodiversity Science in the Classroom (links to lesson plans on biodiversity): http://nationalzoo.si.edu/education/classroomscience/
- "What's Your Problem?" lesson plan (PDF): http://smithsonianeducation.org/educators/lesson_plans/deer/index.html
- National Zoo--Take a Virtual World Tour (clickable world map with information about animals): http://nationalzoo.si.edu/Animals/WorldTour/
- Migratory Bird Center--Online Games and Activities (Migration Game, Name that Nest, Online Coloring Book): http://nationalzoo.si.edu/scbi/migratorybirds/education/
- Build-A-Bird (lesson plan): http://dx.cooperhewitt.org/resources/lessonplan/build-a-bird/
- Farmers, Warriors, Builders: The Hidden Life of Ants (clickable images and information): http://www.mnh.si.edu/ants/
- Great Cats E-cards: http://nationalzoo.si.edu/Animals/GreatCats/cards.cfm
- Cats for Kids (interactives for students on the Great Cats): http://nationalzoo.si.edu/Animals/GreatCats/catskids.cfm
- The Dynamic Earth (interactives on the planet): http://www.mnh.si.edu/earth/main_frames.html
- Prehistoric Climate Change (interactives on fossils): http://smithsonianeducation.org/students/ideaLabs/prehistoric_climate_change.html

From Pinterest list:

- Don't Feed Wild Dolphins (video): http://ocean.si.edu/ocean-videos/dont-feed-wild-dolphins
- How to Make a Nature Walk Album: http://vimeo.com/26340877
- Artful Animals (lesson plan guide): http://africa.si.edu/exhibits/animals/activity.html
- Zoo-per Bingo Sheet (image): http://www.scribd.com/doc/97814073/Zoo-Bingo2011
- Smithsonian Folkways Lesson Plans (interactive google map): https://maps.google.com/maps/ms?ie=UTF8&hl=en&msa=0&msid=101131414780539363609.0004849badaf60fb47253&ll=30.145127,11.953125&spn=149.376326,298.828125&z=1&source=embed
- Animal Magnetism (images): http://www.smithsonianmag.com/multimedia/photos/?c=y&articleID=10013431&page=1

Appendix P **Teacher Posters- Viewing Gallery Exercise, Week 2**

Viewing Gallery Prototypes - Teacher Posters

Week 2 (7/17/12)

Modifications from Week 1 to Week 2:

- Types of sites selected this week is of less import than last week due to the fact that they were selecting from unrelated topics and were not provided consistent stacks of sites to begin with. So sites selected was not a tracked component, however, you can see in the images which types of sites were selected if there is some related interest.
- Specification of teacher vs. student ordered or orchestrated assembly of resources was added since a high number of high school educators made a natural leap to assuming the prototype and implied features would be student-use utilities as much or more so than exclusive teacher use.

Summary Data-

- Most used a gallery-type view where a site is clicked to expand and clicked again to return to the gallery view

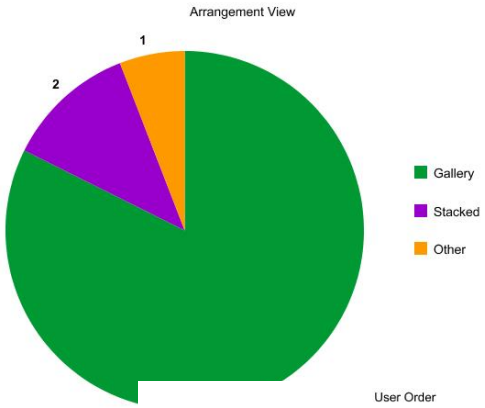
- Participant were split on whether to have the site order directed by teacher or student; consider having two ways to view (teacher view, student or class view)

<u>Arrangement View</u>

Gallery: 14 of 17 (82%)

Stacked: 2 of 17 (12%)

Other: 1 of 17 (6%)

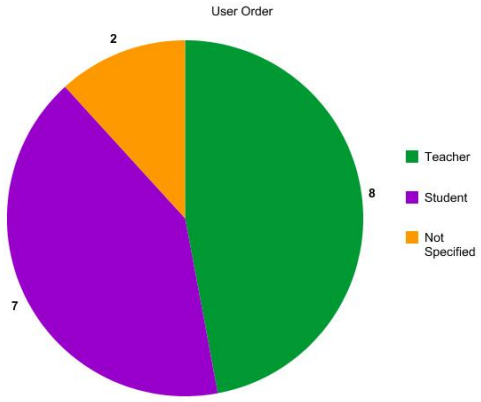


<u>User Order</u>

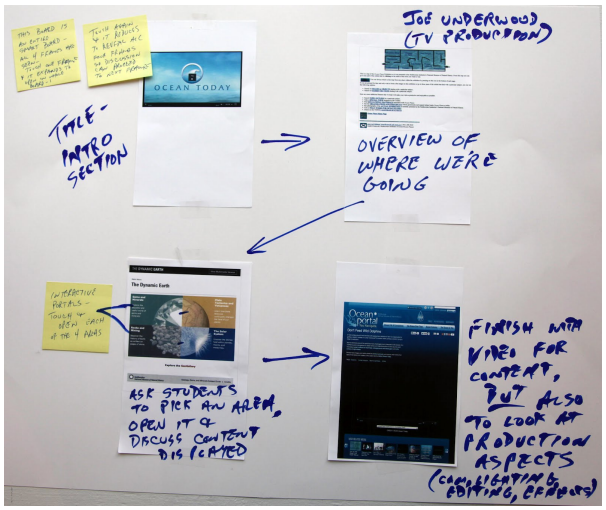
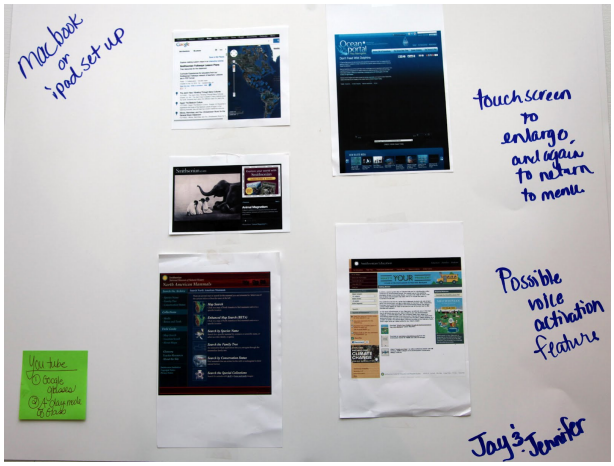
Teacher: 8 of 17 (47%)

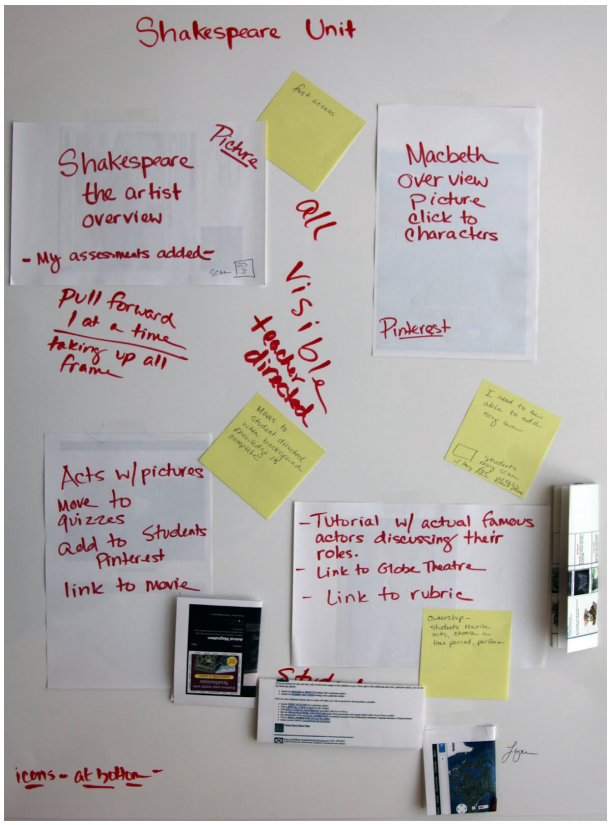
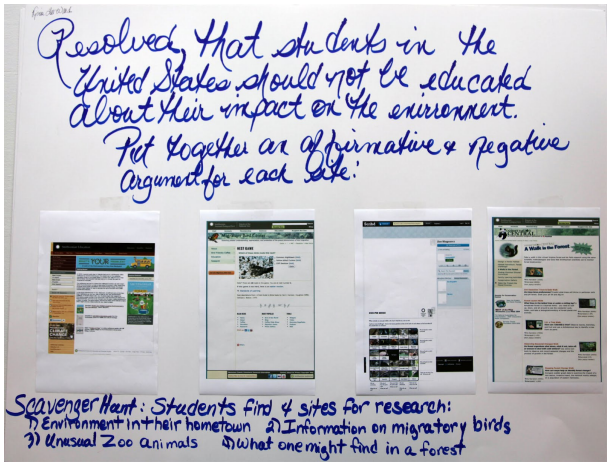
Student: 7 of 17 (41%)

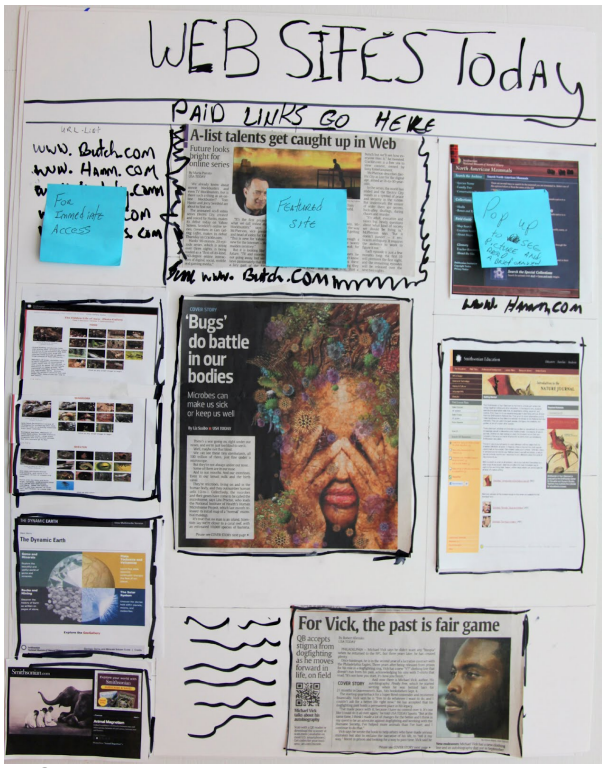
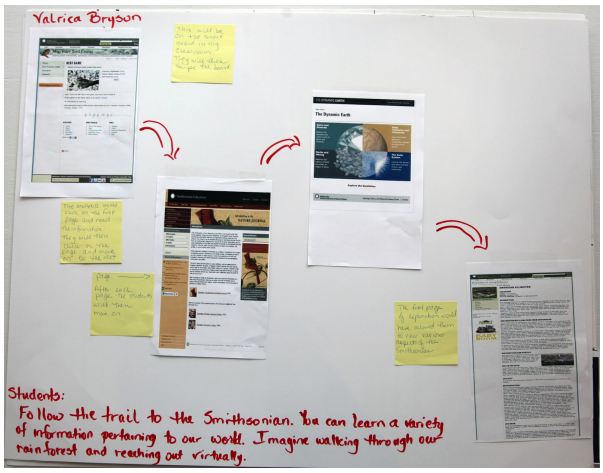
Not indicated: 2 of 17 (12%)

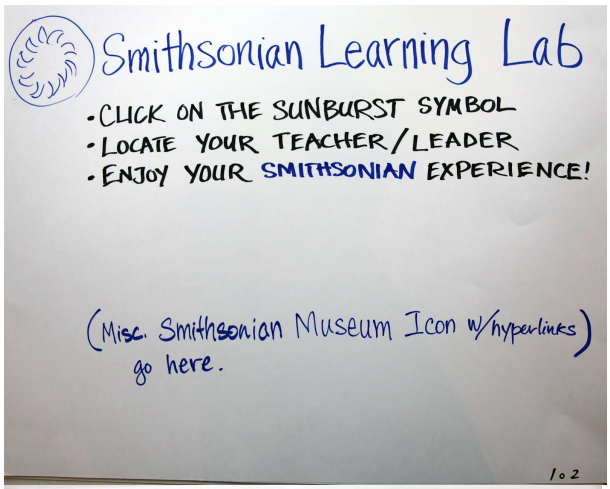
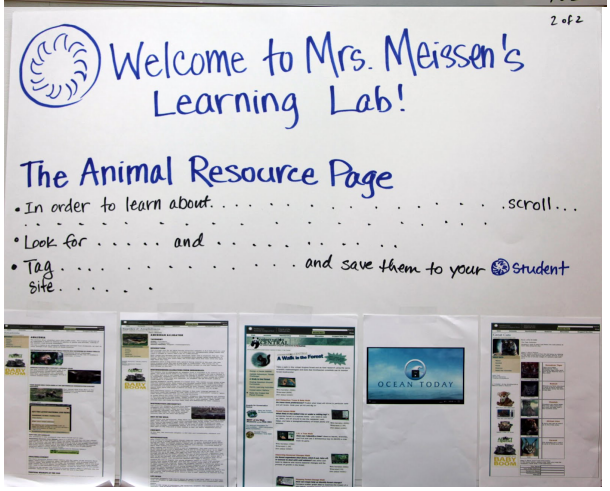
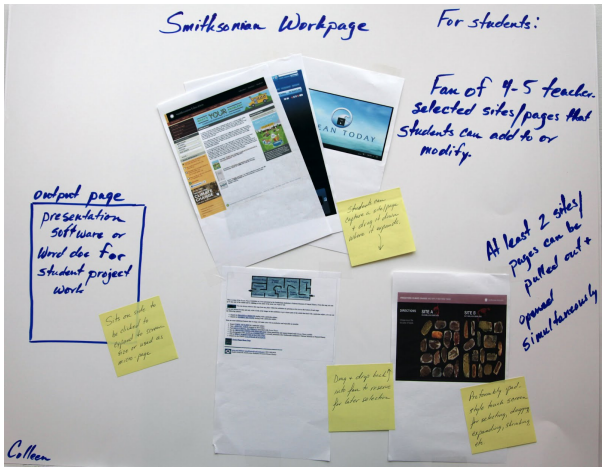


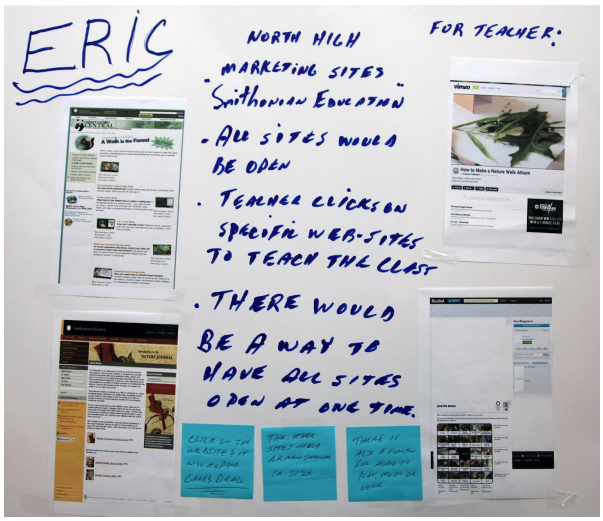
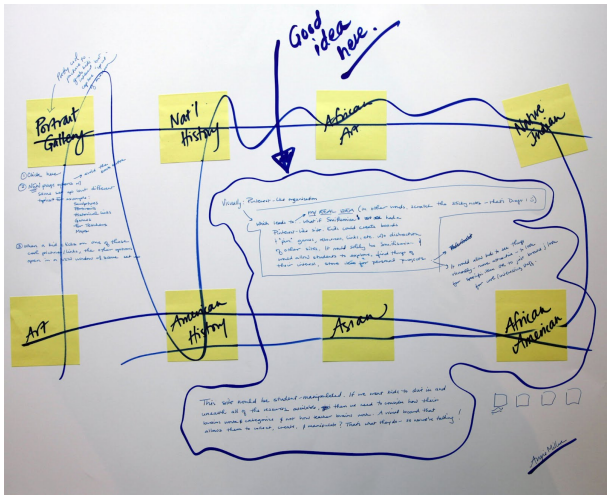
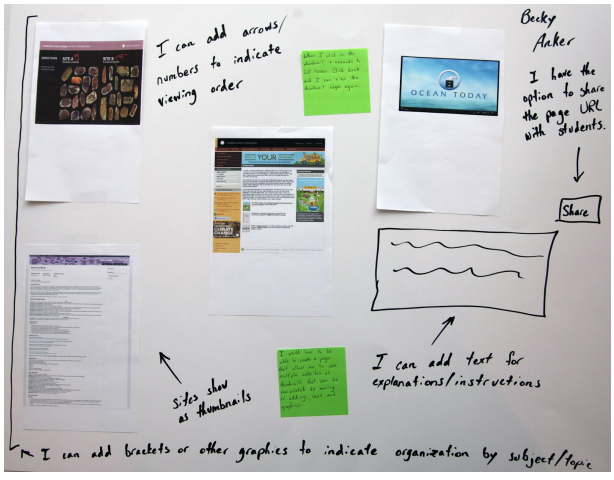
Poster Image	Arrangement (Gallery / Stacked)	Order Directed by:	Info/Type of Solution/Features

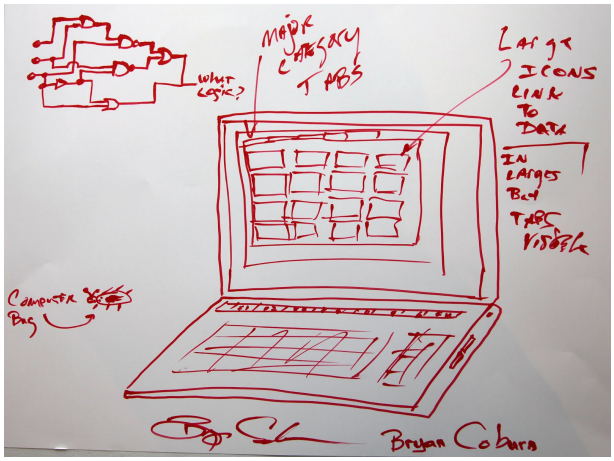
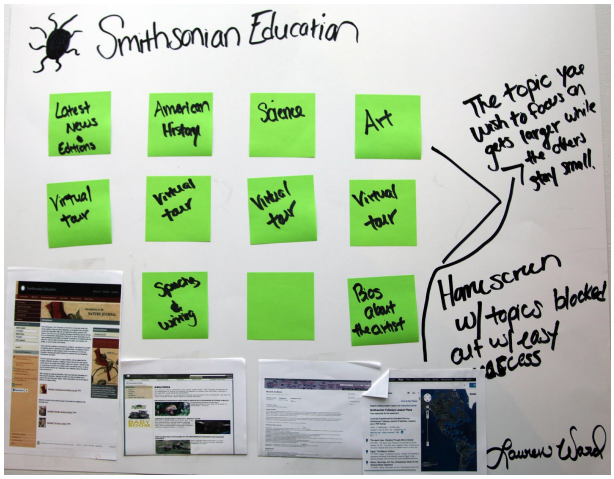
	Gallery	Teacher	Sites are arranged in order by Intro, Overview (Where are we going), Interactive tools, and Video)
	Gallery	Not indicated	Similar to an iPad setup

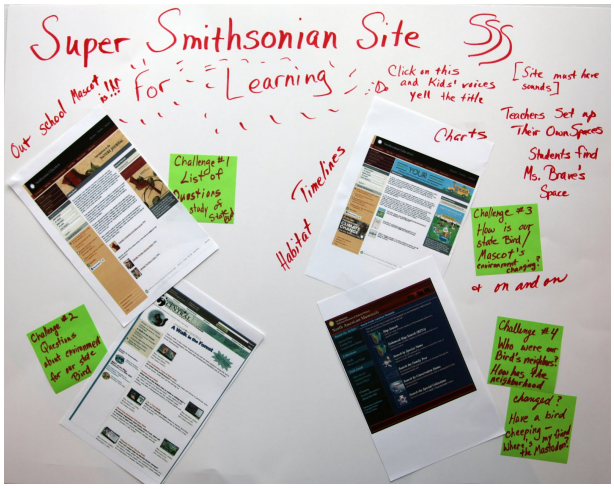
	Gallery	Teacher	Assignments, tutorials, and external links are available for students to access
	Gallery	Student	Students use the sites in a “Scavenger Hunt”

 IMG_3739	Gallery	Teacher	- Screen looks like the front page of a newspaper - Includes a list of links
	Stacked	Teacher	- "Follow the trail to the Smithsonian"

 	Gallery	Student	- Starts on a Home Page where students choose their teacher / class - Comes with activities that students use the resources to complete
	Stacked in the form of a fan	Student	- Work done by students can be outputted to a Word doc or Presentation software - Sites “fan out”

	Gallery	Teacher	- Options for audio, music, or voice
	Gallery	Student	- “Like Pinterest”
	Gallery	Teacher	- Screen has graphics/icons to indicate order of lessons etc. - Text box for instructions - Way to share URL

	Gallery	Teacher	- Sites are organized by topic
	Gallery	Not specified	- Use of icons to link to sites
	Gallery	Student	- Resources are arranged along the bottom - Resources are grouped into collections; icons for the collections are arranged in a gallery above

	Gallery	Teacher	- Students navigate to the Teacher's site on Smithsonian - Students complete "challenges" and move through the sites in order
	Gallery	Student	- There is a "Lobby" that contains the class resource collection - The Lobby can be "locked" or "unlocked" by the teacher (to allow or not allow students to add resources)
3-D Poster	Concept Map	Student	- Resources are arranged in a concept map style - Clicking on a resource will bring out other resources that are related