



Evaluation Matters

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Summer Waves of Learning: *E-Learning Wave (External), 2011-2012*

1. What is the purpose of this report?

This report examines the outcomes of the E - Learning Wave, the external on-line component of Summer Waves of Learning, a three-pronged initiative developed by the Superintendent to provide access to supplemental instruction for students in grade K-12 who are in need of remediation, compensation, or enrichment. The E-Learning Wave provides students access to a variety of Internet based software applications outside of the regular school setting through hypertext links available on the Student Portal. A dedicated Web page on the Student Portal provides access to applications in a variety of subject areas, based on student's grade level which are categorized in Table 1, in addition to the seven applications (i.e., Reading Plus, Destination Reading and Mathematics, Gizmos Mathematics and Science, Successmaker Reading and Mathematics) that comprise the Links to Learning suite and are made available to students on an ongoing basis during the school year. A complete list of the applications may be found in Table A1 at the end of this report.

Table 1. - Number and Level of E-Learning Wave Applications by Subject Area

Subject	Level	Number
Arts and Music	K-12	7
Computer Technology	6-12	13
Foreign Language	9-12	3
Language Arts	K-12	38
Mathematics	K-12	40
Science	K-12	42
Social Studies	K-12	35
Total	K-12	178

- Nearly two hundred applications were offered to students.
- Language Arts, Mathematics, and Science each accounted for nearly one-fourth of the total.
- Nearly one-fifth of the applications addressed Social Studies.

2. Which populations are targeted in this report?

The target population in this study included all students in the district in grades K through 12.

- Participation analyses and usage analyses included all students who used program software during the summer session.

- Dose response analyses included all students who used program software during the summer session. Students who did not have valid pre- and post- test scores at consecutive grades were excluded from the analysis.

3. How were the data for this report collected and analyzed?

Participation data was gathered from archival records and examined through descriptive statistics. Usage data was obtained from software vendors and examined through descriptive statistics.

- A dose response analysis was used to determine whether increased use of the software was associated with superior outcomes. The impact of each application was analyzed by statistical procedures, which adjusted the test scores of students to remove the influence of initial ability and demographic differences, and then compared the outcomes at different levels of usage.
- The outcome, for each grade and subject, was whether or not students exceeded their expected score on the current (2012) baseline benchmark assessment (i.e., the typical percent correct score obtained by students of similar ability as the participants (i.e., SAT quartile or FCAT achievement level) on the previous (2011) baseline benchmark assessment).

4. How was participation in the program distributed throughout the summer session?

The E - Learning Wave was designed to afford students access to supplemental instruction outside the regular school setting. As such, this opportunity was made available to all students whether or not they participated in any of the other Learning Waves components. Participation in the program was tracked by counting the number of visits to the Summer Waves page of the Student Portal once per sign on. Students who signed on and visited the page more than once were counted multiple times. Accesses of the Links to Learning applications are included in this total because they could not be differentiated from other visits to the site. Figure 1 displays the number of page views for each day of the summer session accompanied by a trend line that provides the best estimate of daily usage.

- The total number of daily page views varied widely throughout the summer from a low of 6,022 on July 15 to a high of 19,565 on August 1.
- Smoothed usage as indicated by the trend line varied from 7,500 to 10,000 page views during that time.

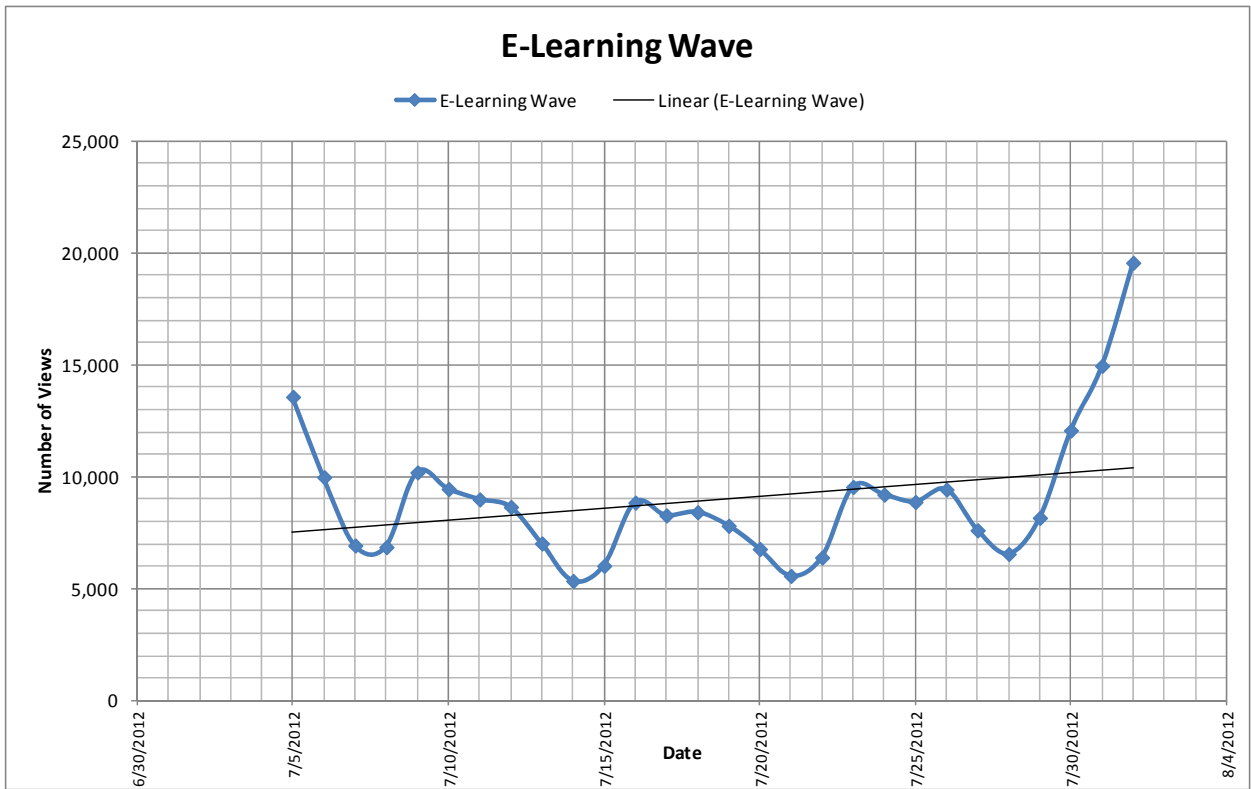


Figure 1. Number of daily page views.

5. To what extent were the Links to Learning applications available through Summer Wave used by students?

Detailed usage data were only made available by the developers of two of the seven applications: Reading Plus and Successmaker. The number of students that used each application during the summer was much smaller than was seen during the regular school year.¹ Table 2 lists the number of hours used by the “typical” student (50th percentile of usage) and by a “high-usage” student (95th percentile of usage).

¹ Urdegar, S.M. (2012) Links to Learning applications: Year 2, an analysis of usage and impact. *Evaluation Matters*, 2 (1), 1-5.

Table 2. Reading Plus and Successmaker - Total Hours of Usage

Grade	Reading								
	Reading Plus			Successmaker			Successmaker Mathematics		
	Percentiles			Percentiles			Percentiles		
	N	50	95	N	50	95	N	50	95
01	--	--	--	48	0.35	2.07	50	0.27	1.10
02	278	1.50	9.20	52	0.38	6.42	58	0.28	2.84
03	1,052	1.60	8.43	49	0.35	2.45	53	0.27	1.38
04	1,213	1.50	7.73	345	0.35	1.95	427	0.32	2.37
05	964	1.20	7.78	391	0.33	1.74	498	0.32	2.38
06	583	2.00	8.90	152	0.22	1.45	177	0.25	1.12
07	430	1.60	9.61	90	0.20	1.09	93	0.27	1.29
08	300	1.60	9.50	42	0.17	1.40	34	0.21	1.16
09	101	1.20	9.03	--	--	--	--	--	--
10	186	2.10	8.37	--	--	--	--	--	--
11	189	1.80	8.15	--	--	--	--	--	--
12	176	1.30	5.85	--	--	--	--	--	--
Total	5,472	1.50	8.40	1,169	0.33	1.74	1,390	0.27	2.02

- Of the students who used Reading Plus, 19% were in the third grade and 22% were in the fourth grade.
- Overall, 64% were in elementary grades, 2 through 5.
- Half the students used the software for less than 1.50 hours during the summer, while 95% of the students used the software for less than 8.40 or fewer hours during the summer.
- Of the students who used Successmaker in either reading or mathematics, over 60% were in the fourth and fifth grades.
- Half the students used the software for ½ hour in reading and ¼ hour in mathematics, while 95% of the students used the software for 1¾ to 2 hours during the summer.

6. What was the impact of the Links to Learning applications available though Summer Wave?

A dose response analysis was used to determine whether increased use of the software was associated with superior outcomes, once students' initial ability and demographic characteristics were taken into

account. The outcome, for each grade and subject, was whether or not students exceeded their expected score on the current (2012) baseline benchmark assessment (i.e., the typical percent correct score obtained by students of similar ability as the participants (i.e., SAT quartile or FCAT achievement level) on the previous (2011) baseline benchmark assessment).

- Students who were heavy users of any of the software applications did not systematically have better outcomes than students who were typical users, once their initial ability and demographic characteristics were taken into account.

7. What are the principal conclusions of this report?

The results for the inaugural year of the Summer Waves of Learning, E - Learning Wave indicate that the program had little effect on the achievement of students who used it. Low levels of usage likely contributed to the lack of impact. Further, the self directed nature of the participation likely contributed to a wide variation in the amount and type of instruction students received. Increased time spent using the application was not associated with increased levels of achievement.

Table A1. Summer Waves - E Learning Wave: Application Menu

Application	Level	Link
Arts and Music (n = 7)		
Arthur - Crank It Up!	K-3	http://pbskids.org/arthur/games/crankitup/index.html
Arts and Music Games	1-5	http://www.playkidsgames.com/
Create a Movie Step by Step: Screenwriting; Directing; Production;	6-8	http://www.learner.org/interactives/cinema/index.html
Curious George Games, Printables, Video Clips	2-5	http://pbskids.org/curiousgeorge/games/#1
Explore Rhythms, beats	K-3	http://tinyurl.com/cpfhdy3
Fun and Educational Website for Teens	6-12	http://www.ipl.org/div/teen/
The Art of M.C. Escher: Math to Create Beautiful—and Seemingly	9-12	http://www.mathacademy.com/pr/minitext/escher/
Computer Technology (n = 13)		
Computational Fairy Tales ~ Computer Science Concepts	9-12	http://computationaltales.blogspot.com/p/posts-by-topic.html
Computer Science Activities	9-12	http://www.csunplugged.org/activities
Computer Science for Fun	9-12	http://www.cs4fn.org/magic/
Free Microsoft Software for Students	9-12	https://www.dreamspark.com/#
Fun and Educational Website for Teens	6-12	http://www.ipl.org/div/teen/
Learning to Code	9-12	http://www.codecademy.com/#!/exercises/0
Library of Congress Collections on Technology & Science	9-12	http://www.loc.gov/topics/science.php
Microsoft Online Classes for Students	9-12	http://h30440.www3.hp.com/learningcenter/
Microsoft Windows Center ~ Fun for Kids	9-12	us/default.aspx#fbid=9Fa7WCsx2xO
Online Software Training Videos & Tutorials	9-12	http://www.lynda.com/
Robo Tech Ed	9-12	http://www.robotech.net/
TED Talks	9-12	http://www.ted.com/
Using Technology to Solve World’s Problems	9-12	http://www.imaginecup.us/Students/Index.aspx#fbid=_ryTM-6bSLN
Foreign Language (n = 3)		
Brain Training Games	9-12	http://www.travlang.com/languages/
Destinos - Travel the World and Learn Spanish	9-12	http://www.learner.org/series/destinos/
Languages for Travelers	9-12	http://www.travlang.com/languages/
Language Arts (n = 38)		
Academic English	9-12	http://www.voanews.com/learningenglish/theclassroom/activities/#
Animated Picture books	K-3	http://tinyurl.com/5cptok
Create a flip book	K-3	http://tinyurl.com/yd7y6r7
Create Your Own Puzzles	9-12	http://www.discoveryeducation.com/free-
Crossword Puzzles	K-12	http://tinyurl.com/ydlmome
Curious George Games, Printables, Video Clips	1-5	http://pbskids.org/curiousgeorge/games/#1
Elements of Literature Using Interactive Activities	9-12	http://www.learner.org/interactives/literature/index.html
Essay Writing - Interactive	9-12	http://www.readwritethink.org/files/resources/interactives/essaymap
For telling a good story, explore narratives, then, write a story of	2-5	http://www.learner.org/interactives/story/index.html
Fractured Fairy Tales	3-8	http://tinyurl.com/yldqhfo
Fun and Educational Website for Teens	6-12	http://www.ipl.org/div/teen/
Grammar Lessons for Students; Idioms; Phrasal Verbs;	7-12	http://www.eslcafe.com/
Graphic Organizer	K-12	http://tinyurl.com/ykqgbob
Interactive Dictionaries: Idioms; Health; Business English;	6-12	http://www.voanews.com/learningenglish/theclassroom/interactive/
Language Arts Games	1-5	http://www.playkidsgames.com/
Language Arts Interactive	K-12	http://www.learner.org/interactives/
Literature to Go ~ Online Stories & Poems	9-12	http://etc.usf.edu/lit2go/
Magazine, Website, & Book by Teens	9-12	http://www.teenink.com/
Myths, Folktales, & Fairy Tales	9-12	http://teacher.scholastic.com/writewit/mff/index.htm
Old Fashioned Spelling Bee	1-12	http://www.learner.org/interactives/spelling/index.html
Online Audience for Teen Poets	9-12	http://www.threethingspoetry.com/
Organize alphabet	K-12	http://tinyurl.com/y9d4gyl
PBS Barney and Friends: Story time	K-3	http://pbskids.org/barney/children/games/index.html
Research & Writing for Teens	9-12	http://www.ipl.org/div/aplus/
Scripts Frenzy	9-12	http://www.scriptfrenzy.org/
Share What You’re Reading: Write & Read Book Reviews	9-12	http://teacher.scholastic.com/activities/swyar/
Share Writing, Connect with Readers, Discover Authors	9-12	http://figment.com/
Stories read by actors	K-8	http://www.Storylineonline.net
Stories Read Out Loud	9-12	http://www.storylineonline.net/
Story Maker for Kids	9-12	http://www.carnegielibrary.org/kids/storymaker/embed.cfm

(table continues)

Table A1, continued

Application	Level	Link
Language Arts, cont'd.		
Student Writing Center	9-12	http://www.discover-writing.com/forstudents.html
Texting101	9-12	http://www.voanews.com/learningenglish/theclassroom/activities/ks=&txtKeyWord=What+are+you+looking+for%3F&txtKeyWord2=What
Thinkfinity 9-12 Interactive for Language Arts	9-12	ks=&txtKeyWord=What+are+you+looking+for%3F&txtKeyWord2=What
Thinkfinity 9-12 Interactive for Literature	9-12	ks=&txtKeyWord=What+are+you+looking+for%3F&txtKeyWord2=What
Topic-Based English Language Practice	9-12	http://www.eslpartyland.com/students/inter.htm
Write a Comic Strip	K-12	http://tinyurl.com/ycnzopv
write words	K-5	http://tinyurl.com/64497a7
Young Writers Program	9-12	http://ywp.nanowrimo.org/
Mathematics (n = 40)		
Math Activities	9-12	http://illuminations.nctm.org/Activities.aspx?grade=3&grade=4
A Treasury of Modern and Classic Puzzles	9-12	nd.htm
A+ Math Games	9-12	http://www.aplusmath.com/Games/index.html
Absurd Math: An Interactive Mathematical Problem-Solving	9-12	http://www.learningwave.com/abmath/
Algebra	9-12	http://www.learnbasket.com/
Algebraic Thinking	3-8	http://illuminations.nctm.org/ActivityDetail.aspx?id=28
American Mathematical Society's News, Publications, Careers	9-12	http://www.ams.org/profession/student
Area of a triangle	2-5	http://illuminations.nctm.org/ActivityDetail.aspx?id=48
Browsable Math Encyclopedia	9-12	http://www.mathacademy.com/pr/prime/index.asp
Curious George Games, Printables, Video Clips	2-5	http://pbskids.org/curiousgeorge/games/#1
Everyday Math	9-12	http://www.learner.org/interactives/dailymath/index.html
Explore Mathematicians' Efforts to Crack Fermat's Last Theorem:	9-12	http://www.pbs.org/wgbh/nova/proof/
Facts, Formulas, and Articles about Pi	9-12	http://personal.bgsu.edu/~carother/pi/Pi1.html
Fractions	3-12	http://illuminations.nctm.org/ActivityDetail.aspx?id=18
From the Los Alamos National Research Laboratory: Puzzles,	9-12	http://www.c3.lanl.gov/mega-math/
How Accurate is Polling? Case Study of a Fictional Election.	6-12	http://www.learner.org/interactives/statistics/
Identify Shapes	3-8	http://illuminations.nctm.org/LessonDetail.aspx?ID=L406
Interactive Geometry 3D Shapes: Surface area; volume;	6-8	http://www.learner.org/interactives/
Learn Metric Conversion	6-8	http://www.learner.org/interactives/
Math Games	9-12	http://www.math.com/students/puzzles/puzzleapps.html
Math Games	2-5	http://www.playkidsgames.com/
Math in Video Games - Take the Challenge	9-12	gaming/introduction/16/
Math Interactive	K-12	http://www.learner.org/interactives/
Math is Fun! ~ Games	9-12	http://www.mathsisfun.com/games/index.html
Math Jeopardy, Millionaire, Money and Math Games	K-12	http://www.math-play.com
Math K-12 Games	9-12	http://www.mangahigh.com/en_us/games
Math Khan Academy	6-12	http://www.khanacademy.org
Math Links, Puzzles, and Activities to Encourage Interest in Math	9-12	http://www2.wgbh.org/MBCWEIS/LTC/CLC/numintro.html
Math Puzzles	9-12	http://www.mathpuzzle.com/
Math Trick, Tales, Puzzles, & Fun	4-9	http://www.curiousmath.com/
Multiplication.com Games	9-12	http://www.multiplication.com/games
Probability	3-8	http://illuminations.nctm.org/ActivityDetail.aspx?id=79
Probability	3-8	http://illuminations.nctm.org/ActivityDetail.aspx?ID=143
Puzzles, Quizzes, Cool Tools, & Wonders of Math	6-12	http://www.math.com/
The Math Forum - Ask Dr. Math & Puzzles	K-12	http://mathforum.org/students/
Thinkfinity 9-12 Interactive for Mathematics	9-12	ks=&txtKeyWord=What+are+you+looking+for%3F&txtKeyWord2=What
Time Tables Game	9-12	http://www.teachingtables.co.uk/timetable/tgame1.html
Trivia Quizzes	9-12	http://eveander.com/trivia/
Use of Math behind Polls and in the News	9-12	http://www.learner.org/interactives/statistics/index.html
Volume	3-8	http://illuminations.nctm.org/ActivityDetail.aspx?id=6
Science (n = 42)		
Amusement Park physics: Design Your Own Roller Coaster	9-12	http://www.learner.org/interactives/parkphysics/index.html
Animals, Adaptations, & the Galapagos Islands	9-12	kyardscience.htm
Brain Games	9-12	120120.html
Build Your Own Ecosystem	9-12	http://www.learner.org/courses/envsci/interactives/ecology/
Classify Insects	9-12	http://teacher.scholastic.com/activities/explorations/bug/index.htm
Coloring Book of emergency procedures from FEMA	2-5	http://www.ready.gov/kids
Comic Strips on Safety from FEMA	2-5	http://www.ready.gov/fun-games/comic-strips
Curious George Games, Printables, Video Clips	2-4	http://pbskids.org/curiousgeorge/games/#1
Discover's Interactive Games, Virtual Labs, Videos	9-12	youth_students##

(table continues)

Table A1, continued

Application	Level	Link
Science, cont'd.		
Discovery News	9-12	http://news.discovery.com/
Earth structures: Plate tectonics, boundaries, slip, slide, and	7-9	http://www.learner.org/interactives/dynamicearth/index.html
Energy Lab - Lab from The Habitable Planet: Energy sources to	6-12	http://www.learner.org/courses/envsci/
Environmental Choices	3-8	http://sciencenetlinks.com/media/filer/2011/10/07/powerup.swf
Eyes on Earth – Travel in Time, Explore Satellite 3-D Images	9-12	http://climate.nasa.gov/Eyes/
Family Guide to Mars	9-12	http://www.marsquestonline.org/resources/familyguide/index.html
Fun and Educational Website for Teens	6-12	http://www.ipl.org/div/teen/
Games to promote emergency procedure awareness	2-9	http://www.fema.gov/kids/games1.htm
Global Climate Change Interactive	9-12	http://climate.nasa.gov/interactives/
Head Rush – Myth Busters Videos & Games	9-12	http://headrush.discovery.com/#
How to Improve Next Year's Environmental Record	9-12	http://www.learner.org/interactives/garbage/intro.html
Interactive Physics Simulations	9-12	http://lectureonline.cl.msu.edu/~mmp/applist/applets.htm
Invention at Play	9-12	http://www.inventionatplay.org/playhouse_main.html
Journey Into Space: Gravity, Orbits, & Collision	9-12	http://teacher.scholastic.com/activities/explorations/space/
Learn About DNA	9-12	http://www.learner.org/interactives/dna/index.html
Match it Emergency Procedures/vocabulary from FEMA	4-9	http://www.ready.gov/pack-it-game
Multimedia Physics	9-12	http://www.physicsclassroom.com/mmedia/
Physics for the 21st Century	9-12	http://www.learner.org/courses/physics/
Predicting Volcanoes and Earthquakes	9-12	http://www.learner.org/interactives/volcanoes/index.html
Rock Cycle with Visuals	9-12	http://www.learner.org/interactives/rockcycle/index.html
Science Crossword Puzzles from FEMA	3-8	http://www.ready.gov/your-brain-work
Science in Latin America	9-12	http://lanic.utexas.edu/subject/science/
Science Interactive	K-12	http://www.learner.org/interactives/
Science Writing	9-12	http://teacher.scholastic.com/activities/sciencewriting/
SciMorph & SciWorld	9-12	http://6007.stem.org.uk/index.html#/home
Smithsonian's Science Websites & Games	9-12	http://www.smithsonian.gov/education/interactive/index.html
Summer Science Fun – Collection of Interactive Games	9-12	http://sciencenetlinks.com/collections/summer-learning/
The Basics of the Periodic Table	9-12	http://www.learner.org/interactives/periodic/index.html
The Weather	9-12	http://www.learner.org/interactives/weather/index.html
Thinkfinity 9-12 Interactive for Science	9-12	http://www.learner.org/interactives/thinkfinity/science/index.html
Use Computers to help	3-8	http://www.kineticcity.com/controlcar/virus.php?virus=muddles
Virtual Lab on Chemical Bonds	9-12	http://www.learner.org/interactives/virtual-lab-on-chemical-bonds.html
Word Search game from FEMA	2-6	http://www.ready.gov/word-search-game
Social Studies (n = 35)		
60 Minutes Web App	9-12	http://www.cbsnews.com/htdocs/60minutesapp/
7 Wonders of the World	9-12	http://www.panoramas.dk/7-wonders/index.html
Ancient History Encyclopedia	9-12	http://www.ancient.eu.com/
Black History in America	9-12	http://teacher.scholastic.com/activities/bhistory/index.htm
Curious George Games, Printables, Video Clips	2-5	http://pbskids.org/curiousgeorge/games/#1
Discover Life during the Middle Ages	9-12	http://www.learner.org/interactives/middleages/index.html
Explore a Topic in Smithsonian's Museum of Natural History	9-12	http://www.mnh.si.edu/explore.html
Fantasy Stock Market	9-12	http://www.fantasystockexchange.biz/
Geography from Space Online Quizzes	9-12	http://airandspace.si.edu/ceps/gaw/
Geography Games	1-5	http://www.playkidsgames.com/
History Interactive	K-12	http://www.learner.org/interactives/
History of the Renaissance	9-12	http://www.learner.org/interactives/renaissance/index.html
History Timeline with Hands-On Activities	9-12	http://www.learner.org/interactives/historymap/index.html
Map Maker Interactive	9-12	http://www.learner.org/interactives/mapmaker/index.html
Native American Cultures	9-12	http://www.learner.org/interactives/native-american-cultures/index.asp
Newspapers from Around the World	9-12	http://www.newseum.org/todaysfrontpages/flash/
Over 100 Online Encyclopedias and Dictionaries	9-12	http://www.encyclopedia.com/
Price of Freedom – Americans at War	9-12	http://americanhistory.si.edu/militaryhistory/exhibition/flash.html
Sleuthing to Figure out Historical Events	8-12	http://www.learner.org/interactives/historical/index.html
Smithsonian's History & Culture Games	9-12	http://www.smithsonian.gov/education/interactive/index.html
Smithsonian's History Explorer	9-12	http://www.smithsonian.gov/education/interactive/index.html
The Collapse of 4 Ancient Civilizations	9-12	http://www.learner.org/interactives/collapse/index.html
Thinkfinity Games 9-12 for Economics	9-12	http://www.learner.org/interactives/thinkfinity/economics/index.html
Thinkfinity Games 9-12 for History	9-12	http://www.learner.org/interactives/thinkfinity/history/index.html
Thinkfinity Games for Geography	9-12	http://www.learner.org/interactives/thinkfinity/geography/index.html
Thinkfinity Interactive 9-12 for Social Studies	9-12	http://www.learner.org/interactives/thinkfinity/social-studies/index.html
Travel back in time	3-8	http://americanhistory.si.edu/timeline/index.cfm
Travel Through Space	2-5	http://www.timewarptrio.com/
Travel to past	3-8	http://americanhistory.si.edu/onthemove/games/game2/game2.html
USA 360 Degrees Virtual Tour	9-12	http://www.panoramas.dk/US/index.html
USA Map for Kids	9-12	http://www.learner.org/interactives/usa-map-for-kids/index.html
Use Maps to Solve Problems & Help Animals	9-12	http://www.learner.org/interactives/use-maps-to-solve-problems-and-help-animals/index.html
View Parts of the world	K-5	http://www.nationalgeographic.com/xpeditions/hall/index.html
White House Interactive Tour	9-12	http://www.whitehouse.gov/education/interactive/index.html