GIS in Education Resource Sheet

(Digital version can be found at http://ugic.info/k-12-education/teacher-resources)

Google Earth Resources:

Google Earth is a geobrowser that offers satellite and aerial imagery, ocean bathymetry, and other geographic data over the internet to represent the Earth as a three-dimensional globe. Google Earth provides search capabilities and the ability to pan, zoom, rotate, and tilt the view of the Earth. It also offers tools for creating new data and a growing set of layers of data that can be displayed in the 3D Viewer. Google Earth is available on the web for free www.google.com/earth/.

- How to Teach with Google Earth
  http://serc.carleton.edu/NAGTWorkshops/teaching_methods/google_earth/how.html
  A guide on what Google Earth can be used for in an education context. This page includes numerous examples, articles on Google Earth in education, and links to labs and exercises.

- User Guide
  http://serc.carleton.edu/NAGTWorkshops/teaching_methods/google_earth/UserGuide.html
  A user guide for educators incorporating Google Earth into their classroom. This website covers basic functionality, interfaces, navigation, data query, data creation, and layer usage.

- Tour Builder
  https://tourbuilder.withgoogle.com/
  Google Earth Tours can connect student to material geographically, and add an interactive component to any subject with a geographical aspect. Tour builder lets you pick the locations right on the map, add in photos, text, and video, and then share your creation.

- GMap Google Earth Page
  http://gmapk12.wikispaces.com/Google+Earth
  Rio Mesa's GMap website's page has Google Earth tutorial, video tutorials, lesson plans, and ideas for using Google Earth in the classroom. They also have examples that show the functionality of Google Maps in action.

ESRI Resources:

ESRI is the largest international supplier of Geographic Information System (GIS) software. They offer resources for all platforms of GIS (desktop, online, mobile, server, and developer), as well as free resources for educational institutions and reduced rates for nonprofit organizations.

- ConnectED
  http://connected.Esri.com/
  ESRI initiative to provide free ArcGIS Online subscriptions for all K-12 U.S. schools. This site introduces teachers and administrators to ArcGIS Online, and provides resources for GIS teaching tutorials, mentorship, online forums, and new account setup.

- Teaching with GIS: Introduction to Using GIS in the Classroom (no charge)
  http://training.Esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2198
  This course presents strategies for integrating GIS to support instruction, discussion, and extended learning on any topic. You will learn how to create and use GIS maps as a framework for understanding the geographic context of current and historical events and phenomena and exploring issues of interest to your local community. Many practical ideas for GIS activities that enhance student learning and critical thinking skills are shared. Who Should Attend: Elementary through community college educators, curriculum coordinators, and educational technologists. Youth leaders and GIS professionals who work with or mentor educators and students.

- Esri Statewide K-12 licenses, Lessons, GIS resources
  http://Esriurl.com/K12GIS
  This website includes teaser activities for exploring ArcGIS Online with no background or login required. It provides Guidance on how to learn to use ArcGIS Online; item#12 is expressly geared toward educators. Guidance for educators in planning ArcGIS usage, at a 50,000 foot level.

- Esri Education Community Portal
  http://edcommunity.Esri.com
  An online portal offering free lesson plans, connections with others in educations using GIS, software and data, community blog, Webinars, and career development resources.

- Esri SpatiaLABS – Free for download
  http://edcommunity.esri.com/Resources/Collections/SpatialLabs
  SpatiaLABS are stand-alone computer lab activities that introduce, develop, and reinforce spatial reasoning and analysis skills. SpatiaLABS use current mapping technology and visualization tools to help students see real-world applications of the concepts and skills they are studying. There are more than 60 topics that motivate, interest, and challenge students. Find sample lessons under Levels of Labs link.

- Esri Virtual Campus Courses
  www.esri.com/training
  Free virtual campus classes and access to statewide or campus wide license annual subscription for use by students, faculty and staff.

- GIS Technology across industries
  www.esri.com/industries
  Robust problem solving, data analysis and modeling of the world in business, government, and environment.

- GIS for Education
  www.esri.com/education
  Teachers, Administrators, Policy Makers & Researchers, Students, Parents. Case studies, white papers, & books.

- GIS for Community Analysis: Demographics, trends
  www.esri.com/communityanalyst

- GIS across STrEaM: Problem solving, critical thinking, data analysis, communication, storytelling, and more.
  http://edcommunity.esri.com/STEM

Teacher Professional Development and Partnering Opportunities:

- ACTE: www.acteonline.org
- National Science Teachers Association: www.nsta.org
- National Council for Geographic Education webinars: www.ncge.org
- International Society for Technology in Education: www.iste.org
- Esri GIS in Instruction – YouTube Video Series: search Esri GIS in School on YouTube
- 4-H National Youth Science Day Geospatial Experience & webinars: www.4-H.org/NYSD
- Teacher training, GPS books and more: www.gisetc.com
- Loaner GPS units: Check with your state Geographic Alliance or www.gisetc.com
- GIS Day: www.gisday.com
- Penn State Geospatial Revolution video series: http://geospatialrevolution.psu.edu/
- ASPRS: www.asprs.org
- URISA: www.urisa.org
- Geographic Alliance: http://education.nationalgeographic.com/education/programs/geography-alliances/?ar_a=1

Utah Geographic Information Council (UGIC) Resources:

- Mentoring Program
  http:/ugic.info/k-12-education/mentoring-program
  The Utah K-12 Educator Mentoring program is designed to help K-12 educators link up with GIS professionals in a mentoring relationship. With the awareness that educators are currently being stretched, UGIC has put together an interactive online map comprised of GIS professionals who are willing to mentor both educators and the GIS activities within a school district.

- GIS Day
  http://www.ugic.info/gis-day-events
  GIS Day provides a forum for users of geographic information systems (GIS) technology to demonstrate real-world applications that are making a difference in our society. UGIC hosts and helps sponsor activities around the state to promote GIS awareness in K-12 education.

- Educator Workshop
  http://www.ugic.info/2015-conference
  During their annual conference, UGIC holds a one day professional development workshop for educators.

Utah Education Network (UEN) Resources:

- Ideas for teaching with technology
  http://www.uen.org/9ideas/
  UEN provides a list of ideas for engaging students through technology, many of which interface well with Google Earth and ArcGIS Online.

- Teaching with Google Earth
  http://www.uen.org/9ideas/downloads/google_earth.pdf
  UEN's "teaching with Google Earth" page offers 9 ideas for using Google Earth in the classroom as a learning tool across subjects and disciplines.

- CMaP Workshop
  http://www.uen.org/cmap/
  The Community Mapping summer workshop is designed to introduce educators to two exciting technologies, Geographic Information Systems (GIS) and Global Positioning Systems (GPS). Educators will not only be introduced to these technologies but also be given tools and resources for using them to enhance their curriculum.

Geospatial Mapping K-12 (GMap) at the Rio Mesa Center:

- http://gmapk12.wikispaces.com/GMap+at+Rio+Mesa+Center
  GMap is an authentic "real-world" three-day workshop where educators collaborate with scientists from the University of Utah to collect, analyze, and map data at the Rio Mesa Center in southeastern Utah. Participants learn how to use technologies such as Global Positioning Systems (GPS) and Geographic Information Systems (GIS), which is basically a computer database of information where each item is referenced to the real world. Participants will provide the Rio Mesa Center with community maps, critically important baseline data for long-term studies involving community ecology, restoration, and global change, brainstorm and review possible geospatial lessons for their students that aligns with their state core standard, and build relationships with local scientists, community leaders, and GIS professionals.

Utah Geographic Alliance:

- http://www.utahgeo.org/
  The UGA in partnership with National Geographic Education Foundation works to bring about geo- literacy throughout the state of Utah. The Utah Geographic Alliance (UGA) believes that geographic literacy informs citizens at both local and global scales and therefore is a critical component leading to informed and higher quality citizenship.

  The mission of the Utah Geographic Alliance (UGA) is to improve geographic literacy in Utah. By promoting quality geography content and relevant inquiry skills in the Utah classroom, the UGA will help prepare students to participate in and contribute to today's diverse and rapidly changing world. UGA accomplishes this by providing high quality professional development opportunities for teachers, creating unique learning opportunities for students, building ties with the professional geography community, and creating public awareness.

Teach GIS:

- http://www.teachgis.org/
  A web community created by instructors for instructors, designed to support the educational community across all GIS platforms.

GIS / Geography Education and Lesson Plans:

- Utah core curriculum reading using ArcGIS Online
  http://sledtech.weebly.com/gis--4th-5th--6th-grade-informational-text.html

- GIS Lesson by Topic and Technology
  http://edcommunity.esri.com/Resources/ArcLessons

- Lesson ideas from National Geographic
  http://education.nationalgeographic.com/lesson/

- National Geographic "Mapping the Americas" lesson plans
  http://www.nationalgeographic.com/geography-action/americas.html

- GPS and mapping lesson ideas
  http://sciencespot.net/Pages/classgpslsn.html

- List of resources for lessons in GIS
  http://www.dlese.org/library/query.do?q=GIS%20lesson%20plans&s=0

- Collection of references and tutorials on how to teach GIS to K-12 level students
  http://www.gislounge.com/k-12-education-in-gis/

- Guide to GIS and links for additional resources
  http://www.educationworld.com/a_tech/tech/tech186.shtml

- EPA lessons that use maps and other geographic ideas
  http://www.epa.gov/students/index.html

- USGS science resources for primary grades (K-6)
  http://education.usgs.gov/primary.html

- Geology and mapping with activities and examples of what to look for to turn your schoolyard into a rich geologic experience.
  http://education.usgs.gov/lessons/schoolyard/index.html

- Creative ideas for using GIS in education
  http://www.barbareeduke.com/category/gis-lesson-plans/

Articles and Blogs about GIS:

- http://blogs.esri.com/esri/esri-insider/2012/08/24/gis-4-kids/
- http://www.esri.com/Industries/k-12/education/~/media/Files/Pdfs/industries/k-12/pdfs/geoginquiry.pdf – Esri Schools and Libraries Program
- http://blogs.esri.com/esri/esri-insider/2013/08/14/from-story-maps-to-information-maps/
- http://www.esri.com/software/landsat-imagery/tours
- http://edcommunity.esri.com/educational-roles/Instructors/STEM
- http://blogs.esri.com/esri/esri-insider/2013/01/02/gis-is-stem/
- http://www.educationworld.com/a_tech/geographic-information-systems-stem-instruction.shtml
- http://www.esri.com/library/ebooks/advancing-stem-education-with-gis.pdf

GIS / Geography Interactive Games:

- http://education.nationalgeographic.com/multimedia/interactive/maps-tools-gis-action/
- http://mapzone.ordnancesurvey.co.uk/mapzone/
- http://mapmaker.education.nationalgeographic.com/
- http://www.ei.lehigh.edu/envirosci/watershed/gis/gislinks.html
- http://www.nasa.gov/audience/forkids/kidsclub/flash/index.html
- http://lizardpoint.com/geography/usa-quiz.php
- http://www.nasa.gov/audience/forstudents/k-4/index.html
- http://climatekids.nasa.gov/
- https://svs.gsfc.nasa.gov/cgi-bin/search.cgi?contentType=all
- http://www.yourchildlearns.com/geography.htm

General Geography Websites:

- Home page linking to multiple different resources
  http://education.nationalgeographic.com/

- Webpage exploring and the history and purpose behind Geography Awareness Week
  http://education.nationalgeographic.com/programs/geographyawarenessweek/

- Encyclopedic entry concerning GIS, data, and maps
  http://education.nationalgeographic.com/encyclopedia/geographic-information-system-gis/

- Tips on how to use GIS mapping and analysis software employed by the U.S. government, NASA, and other agencies in the classroom
  http://www.educationworld.com/a_issues/issues/issues403.shtml

- A water-cycle diagram for schools created by the USGS and Food & Agriculture Organization of the United Nations
  http://water.usgs.gov/edu/watercycle-kids.html

- Multidisciplinary lessons teaching what to do before, during, and after an emergency
  http://www.ready.gov/kids/educators

- List of geography related sites
  http://www.kathimitchell.com/geog.htm

- Land Remote Sensing Image Collections from USGS
  http://remotesensing.usgs.gov/gallery/gallery.php