

4-H GPS and GIS Project



SNAPSHOT 4H1653



CURRICULA & RESOURCES

Curricula — Other States

- » Cornell University Cooperative Extension: <http://nys4h.cce.cornell.edu/about%20us/Pages/4-HGeospatialScience.aspx>
- » Kansas State Research and Extension: <http://www.kansas4-h.org/p.aspx?tabid=303>
- » Oklahoma State University Extension: <http://oklahoma4h.okstate.edu/scitech/geospatial.htm>

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WHAT'S IT ALL ABOUT?

GPS (Global Positioning System) can tell us where we are on Earth by connecting to satellites. GIS (Geographic Information Systems) uses computers to layer maps to help us learn more about our world. These layers can include transportation, natural resources, businesses and people.

- » Learn the basics of GPS and GIS.
- » Gain practice using GPS devices.
- » Learn to read and create maps.

THE BIG PICTURE

Starting Out:

- » Go on a treasure hunt using GPS devices; this is called geocaching.
- » Find the latitude and longitude of your home.
- » Mark a location using a GPS, and find it later.
- » Create a map of your fairgrounds.
- » Locate the parks in your community and put them on one map.
- » Play “Capture the Flag” giving each team the coordinates of the other teams’ flags.
- » Do the Esri “ArcGIS Online Five by Five” activities at <https://esri.app.box.com/ago5x5>

Learning More:

- » Hide a treasure box in your community for other geocachers to find.
- » Host a geocaching event.
- » Create a map for a local park or trail.
- » Create a map of local orchards, roadside stands and farmers markets.
- » Look at soils and weather information to determine what crops would work well in a home or community garden.
- » Map species of plants or animals, such as birds or trees.
- » Do the Esri “Mapping With ArcGIS Online” activities at <https://esri.app.box.com/mappingwithago>

Expanding Horizons:

- » Use GIS to determine the needs of your community such as people living in poverty, an aging population or many young children.
- » Conduct a tree inventory in a park, schoolyard or city street, and track the size and health of the trees to create a forestry plan.
- » Create a series of themed geocaches in your community to teach about history, culture, natural features or community resources.
- » Use GIS to determine locations for trails in your community to connect parks, museums or other areas of community interest.
- » Set up an emergency preparedness plan in your community for dealing with animals during a disaster. Use GIS to map out areas for temporary housing for pets and livestock.
- » Update marketing efforts for a fundraising event by mapping out the locations of who have participated in the past.

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FOCUS ON GPS and GIS

Science

- » Understand how satellites and GPS units work together to find locations.
- » Use computer mapping (GIS) to answer questions about what is going on in the world around you.

Life Skills

- » Use critical-thinking, problem-solving and decision-making skills to determine how to use maps to make better decisions.
- » Partner with local organizations to look at the potential costs and revenues for a community project.
- » Grow and learn from your previous map-making mistakes and learn to develop better maps.

Citizenship & Leadership

- » Use GIS to determine community needs by combining information about the natural environment, social conditions (such as economic conditions, educational level and obesity rates) and the built environment (such as roads, schools and shopping areas) to determine where to focus community service efforts.

Communication

- » Use maps created through GIS to teach others lessons on a wide range of subjects.
- » Ask permission to post maps you created through GIS in community buildings such as schools, government offices, nature centers or museums to teach others about the community.

Curricula & Resources, continued

- » Penn State Cooperative Extension: http://lal.cas.psu.edu/Research/edTraining/4h_GISprojectBooks.asp
- » University of Illinois Extension: <http://web.extension.illinois.edu/4hmapmakers/resources.cfm>
- » University of Missouri Extension: <http://4h.missouri.edu/programs/mapping/>
- » Utah State University Extension: <http://utah4h.org/html/featured-programs/gps>
- » Virginia Cooperative Extension: <http://www.4-h.ext.vt.edu/programs/nree/gpsgis/>

National 4-H Curricula

- » 2014 National Science Experiment – 4-H Maps & Apps: <http://www.4-h.org/4-h-national-youth-science-day/science-experiments-projects/rockets-to-the-rescue/>
- » Geospatial Exploring Spaces, Going Places: <http://www.4-hmall.org/Product/4-hcurriculum-geospatial/08358.aspx>

Other Resources

- » Esri 4-H GIS Grant Program: <http://www.esri.com/industries/k-12/4-h>
- » Esri K12 GIS Organization: <http://k12statelicense.maps.arcgis.com/home/>
- » Groundspeak: www.geocaching.com
- » Michigan Department of Technology, Management and Budget, Center for Shared Solutions and Technology Partnerships, Geographic Data Library Catalog: <http://www.mcgi.state.mi.us/mgdl/>

HOW CAN YOU GET INVOLVED?

- » Contact your local Michigan State University (MSU) Extension office for workshops, activities and events.
- » If you are interested in a college education or other training in GIS or GPS, visit MSU Remote Sensing and GIS at <http://www.rsgis.msu.edu>, or the Department of Geography at <http://geo.msu.edu>, to explore those majors.
- » Contact your county planning department or commission, or GIS department to learn about careers and ways to get involved.



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