

WASHINGTON STATE

GEOGRAPHIC INFORMATION SYSTEMS (GIS) FOR K-12 STUDENTS

WHAT IS GIS?

Geographic Information Systems (GIS) help people store, analyze, and visualize data using digital maps. GIS allows us to understand more about a particular place: Who lives there? How much water is available for farming? Which intersections have the most vehicle collisions? How have these things changed over time?

GIS is an intuitive, powerful tool for understanding anything that involves *where*.

WHAT CAN GIS DO FOR K-12 STUDENTS?

GIS incorporates data and design, and touches on every subject area. It can meet students at their natural starting points — stories, math, art, science — and build a bridge to new skills and subjects. Even young children and beginners can quickly learn to explore and create maps that interest them.

GIS can:

- Connect different kinds of learners to essential artistic, computational, and scientific skills
- Allow young people to engage in real-world problem-solving and discovery
- Help students explore their communities and heritage
- Show students what data looks like and how it shapes their lives
- Engage students through making things and exploring

GIS SUPPORTS LEARNING STANDARDS

GIS advances most elements of prevailing learning standards.



GIS WORKS WITH EVERYTHING AND EVERYONE

GIS touches on all of Washington's Basic Education Act subject areas, and works for all sorts of people and places.



Mathematics



History and
Heritage



Civics



Sciences



Geography



Art



Technology

GET STARTED

U.S. K-12 schools can get a free bundle of mapping software from Esri, a leading provider of GIS software. Washington's Office of the Superintendent of Public Instruction (OSPI) provides links to GIS tutorials and Esri lesson plans, activities and other support.

- <https://www.k12.wa.us/policy-funding/school-technology/free-software-grants>
- <https://www.esri.com/en-us/industries/education/schools/schools-mapping-software-bundle>

Open-source tools for using GIS include Open Street Map (click *Help* for OSM tutorials and support), as well as QGIS, which includes support on its website.

- <https://www.openstreetmap.org/>
- <https://qgis.org/en/site/>

Enter the ArcGIS 2019-2020 Online Competition for grades 4-12! Students across the U.S. work in teams of one or two on a project submitted in the spring. A team of GIS experts is available to support you!

- <https://arcg.is/1jKyvV> (Washington State)
- <https://arcg.is/15rX4v> (National)

EXPLORE

Browse past entries in the ArcGIS online map competition (<https://arcg.is/15rX4v>), which include projects on water quality, animal habitats, religious communities, transportation options by race, measles outbreaks, and football.

Look through Washington's geospatial open data portal (<https://geo.wa.gov>), which houses state agency and other data on topics such as rare and imperiled plants and animals, accessibility in parks, locations of certified accountants, and availability of mental health services.

Search for GIS data closer to home by searching "GIS" and the name of your region or a particular topic.

NEED HELP? CONTACT US!

Joanne Markert, State GIS Coordinator
Office of the Chief Information Officer
joanne.markert@ocio.wa.gov

Kathleen Sullivan, Open Data Literacy Consultant
Washington State Library, Office of the Secretary of State
kathleen.sullivan@sos.wa.gov

Siri Hiltz, Youth Services Consultant
Washington State Library, Office of the Secretary of State
siri.hiltz@sos.wa.gov

Barbara Soots, Open Educational Resources Program
Office of the Superintendent of Public Instruction
barbara.soots@k12.wa.us

Dennis Small, Educational Technology
Office of the Superintendent of Public Instruction
dennis.small@k12.wa.us

Bruce Schneider, GIS Analyst and Developer
Office of the Superintendent of Public Instruction
bruce.schneider@k12.wa.us



Office of Superintendent
of Public Instruction
Chris Reykdal, Superintendent



SOS
Office of the Secretary of State
Washington State Library

WaTech
Washington Technology Solutions