

GIS and Agriculture

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Overview: The purpose of this lesson is to have students learn the basics of Arcview GIS software, gather and use the most current information from internet sources, and apply the information to show the production of agriculture goods in Oregon.

Teaching Level: Grades 9-12 (adjustments as required for lower grade levels)

Time Frame: Five 85-minute block periods in addition to time spent out of the classroom.

Connection to State Common Curriculum Goals:

Recognize and use appropriate geographic tools and technology (e.g. maps, globes, graphs, diagrams, aerial and other photographs, and satellite produced images) to answer geographic questions, analyze spatial distribution and patterns, and solve geographic problems.

Locate major physical and human (cultural) features of the earth.

Use maps to organize information about people, places, and environments in a spatial context.

Use and apply technology.

State Content Standards:

- Locate places and explain geographic information of the relationships by reading, interpreting, and preparing maps and other geographic representations.
- Understand the distribution of movement of people, ideas, and products.
- Explain how humans and the physical environment impact and influence each other.

National Geographic Standards:

Standard 1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.

Standard 3: How to analyze the spatial organization of people, places, and environments of Earth's surface.

Standard 4: Have the ability to recognize the physical and human characteristics of places.

Standard 11: Have the ability to recognize the patterns and networks of economic interdependence of Earth's surface.

Standard 18: How to apply geography to interpret the present and plan for the future.

Subject Lesson Plans

Lesson Name:

Introduction to Geographic Information Systems (GIS) Technology.

Lesson Homework:

Students will work through and introduction tutorial for the ArcView™ GIS software.

Lesson Objective:

To introduce students to the GIS technology and inform them as to what GIS is and how/ where it is used.

Equipment and Supplies:

PC lab with access to the internet, presentation systems, ArcView™ software, ArcView™ tutorial books, sample files and posters.

Web sites: www.esri.com, www.oda.or.us

Lesson Description:

Describe and demonstrate several applications for ArcView™ software in the field of GIS. Introduce the ArcView™ software and tutorial book and demonstrate how to properly open and use it. Students will open and explore samples files in ArcView™ in addition to exploring the designated web sites for data. They will also be required to assess and discuss tutorial projects and begin a group project with the following criteria:

- It must ask a question relative to geography
- Must acquire and collect data
- Must organize data, maps, graphs, and diagrams
- Must analyze data
- Must answer geographic question

Grade Level:

9

Unit: GIS and Oregon Agriculture

Situation: Students will have been introduced to the ArcView™ program by the geography instructor or the educator responsible for this lesson.™ It will be necessary for the students to be familiar with the state map, county maps, use of computers and software, and have internet experience.

Objective(s): Students will use the educational tools supplied in the appropriate manner to answer the following question: “Where are our agriculture crops grown?”

Supplies Needed: Access to a computer lab, one platform (computer) per student, internet access, and access to ArcView™ software.

Web addresses for the Oregon Department of Agriculture (www.oda.or.us) and USGS website (www.usgs.org).

If internet access is unavailable or computers are unavailable, supplies will include state of Oregon map by counties (available through the Oregon Blue Book) and the latest edition of the Oregon Department of Agriculture statistics. Copies are available by calling the ODA and asking for the Agricultural Statistics Annual Report. (Remember: due to government reporting, figures are for the past year.)

Lesson Guide:

1. Students will select a commodity from the list of Oregon crops on the ODA website (or annual report). *It is recommended that students do not duplicate commodities, for Oregon produces well over 200 crops.*
2. Record the commodity on the map sheet title block.
3. Using the commodity statistics from the ODA web site or annual report, identify the top five counties for the production of the commodity that you have selected.
4. Highlight each county by rank with a different color. Record the colors by rank in the legend.

Expansions:

- How does urban development and land use decisions effect the production of this commodity?
- Where in the world do these commodities end up? Study the international impact of agriculture. Additional data is available from the Port of Portland web page (www.portofportlandor.com).
- How does the variety of climates in Oregon impact the producers' ability to raise different commodities?