

MAPS – GIS Lesson: Amazon Headwaters & Creek

Subject Area: Biology, Environmental Science, Physical Geography, Environmental Models

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Lesson Description: This lesson was designed differently than the other modules on the MAPS GIS website. There are no directions, only questions. This format was implemented to encourage experiential learning by the students.

When implemented in the classroom, the lesson has proven successful. However, it should be noted that the instructor should have confidence in the student's ability to gain from a more nebulous assignment.

This is a map of map the southern Willamette Valley in Eugene, Oregon. While this exercise is available for use, it may also serve as a guide to develop other experiential learning activities using a local map for place-based activities.

ITSE National Technology Standards

- 1) Research and Information Fluency** - Students apply digital tools to gather, evaluate, and use information.
- 2) Critical Thinking, Problem Solving, and Decision Making** - Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
- 3) Demonstrate Creative Thinking** - Students use technology to explore models and simulations of complex systems.

Geography Standards - Geography for Life 9-12th

- 1) The physical processes that shape the patterns of earth's surface.
- 2) The characteristics and spatial distribution of ecosystems on earth's surface.
- 3) The changes that occur in the meaning, use, distribution, and importance of resources.
- 4) How to apply geography to interpret the past.
- 5) How to apply geography to interpret the present and plan for the future.

Objectives: The students will be able to:

- 1) Derive information from a GIS
- 2) Gain a basic understanding of the idea of a watershed and landscape dynamics
- 3) Use information from maps to make basic predictions
- 5) Improve map skills and problem solving

Prerequisites:

- 1) Students should have completed the MAPS-GIS Tutorial activity and be familiar with geospatial skill such as viewing data layers, using the measure and identify tool.
- 2) Students should be familiar with concepts of cross section diagrams.
- 3) Students should be familiar with the concepts of recurrence intervals.

Materials: Computer access with high-speed internet, student activity sheet

Lesson Estimated Time: Approximately 60 minutes

Lesson Procedure: A basic introduction to the concepts of watersheds and ecology.