

TEMPLATE FOR CMap PROJECT

Project Title: Cross-Country Courses

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Class: UEN 2009

Project Description	Through the use of GPS (Global Positioning System) units, ArcMap, and GIS (Geographic Information Systems) technology, athletes will accurately map the official Cross-Country course for Riverton High School and other work-out courses. Athletes will be used to run the different courses and record Track information using the GPS units. U.S. History students will learn how to work using the ArcMap and GIS technologies to construct Jpeg images, Track lines, and waypoint markers to construct accurate aerial maps for the different courses.
Community Issue or Problem Selected -How project evolved?	Runners from visiting Cross-Country teams are often confused as to the exact course for the 5K race at Riverton High School. In addition, new runners on the Riverton High School Cross-Country team struggle in learning the different work-out courses, such as hill work-outs, interval work-outs, and mile repeat work-outs.
Community Partner(s)	<p>Jake Garlick (Head Cross-Country Coach for Riverton High School)</p> <p>12476 S Silverwolf Way (2700 W) Riverton UT 84065 Phone: 256-5800 Fax: 256-5880</p>
Project Objectives	Students will learn the basics of creating aerial maps for real world application while using GPS units, ArcMap, and GIS technology. Students will create accurate aerial maps of the Riverton High School Cross-Country course and other workouts to be included on the team website and made available in a bound portfolio for athlete use. Maps will include GPS tracks for the course, GPS waypoints for mile markers, markers for important landmarks, bathroom facilities, and water sources.
Utah Core Standards/Objectives	<p>Social Studies - U.S. History I</p> <p>Standard 1 Students will interpret the role of geography in shaping</p>

	<p>United States history.</p> <p>Objective 1 Determine how geography affected the development of the United States.</p> <ul style="list-style-type: none"> a. Identify the five themes of geography; i.e., location, place, human-environmental interaction, movement, and region. b. Apply the five themes of geography as they relate to the development of the United States. <p>Objective 2 Utilize geographic skills as they relate to the study of the United States.</p> <ul style="list-style-type: none"> a. Locate the major physical features, including the plains, major rivers, bodies of water, mountain ranges, and continents. b. Locate the major political features, including countries, regions, and states. c. Apply map and globe skills to the study of United States history; e.g., direction, legend, scale, grid coordinates.
<p>Essential Question(s) -Spatial Issue</p>	<p>Which themes of geography need to be included in creating an accurate aerial map of Riverton High School’s Cross-Country course and workout routes? How are these themes used in creating the ArcGIS software aerial maps?</p>
<p>Assessments (rubrics, scoring guides)</p>	<p>Students will be graded based on rubric for completed group map, requiring use of ArcGIS software, and completed map to be included on team webpage and product portfolio.</p>
<p>Project Products</p>	<p>Detailed aerial maps of Cross-Country course and workout routes that can be downloaded to team webpage and also provided in a printed master portfolio of all the routes.</p>
<p>Project Timeline (include a step by step Procedures)</p>	<p>-Arrange with Coach Garlick to have athletes from the Riverton Cross-Country team to use hand-held GPS units to run the official Cross-Country course and each of the major workout routes over a period of several weeks, creating waypoints for the start and finish, and mapping the GPS track for each route.</p>

	<p>-Athletes will be asked to write a description of each route to be included later.</p> <p>-With the aid of the teacher, athletes will name the GPS waypoints and GPS tracks.</p> <p>-Students will receive basic training in ArcGIS software training in computer lab on two different days.</p> <p>-Students will download the GPS waypoints and GPS tracks into the ArcGIS program, find an aerial map to include in the project, and create and label the different maps in groups in a computer lab over two different days.</p> <p>-Students will edit the written description of each route and save their finished maps to be given to Coach Garlick to include on the team web page on the second day in the computer lab.</p> <p>-Students will also print off a final copy of their group's map and description to be included in the master portfolio for Cross-Country team use on second day in the computer lab.</p>
Resources Needed	<p>GPS units</p> <p>ArcGIS Software</p> <p>Computer Lab</p> <p>Cross-Country athletes to run and map each course</p>
Skills Required	<p>Know how to use a GPS</p> <p>Know how to put GPS data into a map</p> <p>Know how to construct a simple map in a GIS</p> <p>Ability to work in a group</p> <p>Know basic Microsoft Word elements to create written descriptions to accompany each map.</p> <p>Know how to save data for later download onto team webpage</p> <p>Know how to create portfolio with maps and written descriptions combined</p>
Project Team Member Roles	<p>Teacher(s): Joshua Briggs</p> <p>Students: Athletes on Riverton Cross-Country Team and students in Mr. Briggs' U.S. History Class</p> <p>Partner(s): Jake Garlick, Riverton H.S. Cross-Country Head Coach</p>
Celebration/Presentation	<p>Finished portfolio including each of the labeled aerial maps of Cross-Country courses will be presented to Coach Garlick. The electronic files will also be shared with Coach Garlick to be uploaded onto the Riverton High School Cross-Country website.</p>
Project Evaluation	<p>Project rubric and feedback from Coach Garlick</p>
Project Bibliography	<p>Community Mapping Binder, ArcGIS Program, and Garmin</p>

	GPS units.
Plans for Future CMAP Activities	Students will map running workout paths for other athletic teams, to include Soccer and Wrestling.

Optional:

-Lesson Plans

-Student Artifacts

-Publicity