

## **GIS Lesson Plan**

Josh Guddat, R-5 High School

Geography Workshop

Grand Junction High November 7, 2009

### **Grade Level**

High School Grade 10-12

### **Summary**

R-5 High School is an alternative public high school. The teaching practices focuses on self-directed learning. A GPS and a field activity will be used to help students combine geography and technology to expand spatial knowledge and concepts.

### **Established Goals:**

1. Students will be able to create waypoints with a GPS unit.
2. Students will be able to take pictures using a digital camera.
3. Students will communicate with the Mesa County GIS department for instructions as well as delivering data.

### **Understandings:**

1. How geographical data collection happens in the field.
2. How field data is then turned in to a product that is useful to the public.

### **Essential Questions:**

1. Why is important to know about how GPS units can determine location?
2. What is the relation between GPS units, maps, and spatial understanding?
3. How can students develop better geographical awareness through the use of technology and maps?
4. Why should students know about GIS and how it can impact their lives?
5. What are potential downsides to using and relying on technology?

### **Students will know:**

1. The important concept of absolute location and its relevance in life.
2. What absolute location means in terms of points on a map.
3. The importance of geographic knowledge and technology can help remove the uncertainty of location, and how to employ technology to locate places of interest and necessity.

### **Students will be able to:**

1. Use absolute location to determine the exact location of physical object.
2. Use data from GPS unit to mark points of interest on a map.
3. Understand what waypoints are, and know how waypoints relate, and are relevant to mapping and spatial relations.

**Performance Tasks:**

1. Student will use GPS to create waypoints of distinct businesses that share the same address.
2. Student will photograph those businesses.
3. Student will download data and photos and give them to the county GIS team.
4. Students will create a map of the various addresses they mark.
5. Student will annotate the addresses.
6. Student will create a map that includes the six sites with photos with captions each place.
7. Student will write a brief summary about the connection between using technology and maps to have a better understanding of geography and GIS.

**Checking of student understanding by:**

1. Direct questioning of students.
2. Reviewing written summary of activity.
3. Reviewing map and photos.

**Colorado Model Content Standards**

1. 1.1(c) Interpret maps and other geographic tools, through the analysis of case studies and data.
2. 1.1(d) Using geographic tools to represent and interpret Earth's physical and human systems.
3. 1.2(b) Identify and locate physical and human features in their own and nearby communities, in the U.S. and in regions of the world.

**Lesson Overview and Instructions**

You are to complete the following for this lesson:

1. Contact the Mesa County GIS department and set up a meeting to receive instructions.
2. Use GPS to mark individual businesses sharing the same address.
3. Use the digital camera to take pictures of each business.
4. Download and share waypoints and images with the GIS department.
5. Create a map based on 2 and 3 above to submit for review and completion of assignment.
6. A short written reflection on new learning from this activity.

**Lesson Activity:**

1. Make contact with the Mesa County GIS department to set up a meeting for instructions.
2. Using the Garmin GPS unit mark waypoints for each individual business with the addresses you were provided.
3. Take a picture of each business for which you marked a waypoint.
4. Once you have all your information collected, mark addresses on a map of the Grand Valley including a photo with detailed caption as to the businesses located at each address. Submit for review and approval by teacher.

5. Lastly, write up a short reflection, a minimum of 2 paragraphs of 8-10 sentences, on what you learned from this project and how geography and technology impact our lives.

**Equipment Provided:**

1. Garmin GPS unit
2. Google Earth
3. Map of the Grand Valley