

Cool Careers for Girls in CyberSecurity GIS

Duration: Each student session last for 20 minutes. Students will need a five minutes to travel to their next session.

Session Overview: Each group of students will use GIS software to identify a location which will provide a clue to the criminal.

Objectives:

- Perform the job tasks of a GIS professional
- Identify the location where radar plans were stolen

Materials/Supplies :

- Laptops
- Clue sheet
- Website <http://www.arcgis.com/home/>

Introduction:

Graphic Information Systems (GIS) combines hardware, software and data about locations to help people solve problems. GIS is used by the government to plan, organize and keep track of properties (like parks, roads, construction sites). Emergency services, the police and fire departments, use GIS to track crime and find the shortest routes to emergencies. Health care professionals can use GIS to track the spread of disease. GIS is also involved in forecasting weather. GIS turn maps, and information about the people and locations, into pictures so that patterns can easily be identified.

Show video from Geospatial Revolution Project (<http://geospatialrevolution.psu.edu/>)

Lesson:

Guide students to the Website <http://www.arcgis.com/home/>. Help them to use the clue sheet to identify the location where the plans were stolen which is Anchorage Alaska.

Final Thoughts:

Cell phones report a lot of information about you that can be put into a GIS. Your location data helps keep traffic information accurate. Some cell phones (and of course GPS systems) can plan the fastest route for you that shows which roads have backups. This is a good use of GIS however, many people do not know that

many of the free applications that we have on our phone take our location information and other identifying information without our knowledge and permission. In December of 2010 the *Wall Street Journal* reported that popular apps such as Angry Birds transmits your contacts to other businesses. Pandora sends your age, gender, location and phone id. Ask students to think about how this information could be used for good purposes and then ask them how it could be used for "not so good reasons". <http://blogs.wsj.com/wtk-mobile/>

Case of the Stolen Radar Plans

The thief left few clues about the location of plans, but there are things known about the radar system that can help determine where they intend to install it. Using these clues, determine the city and state where the plans can be found.

1. The plans will be found in one of three states- Alaska, Florida, or New York.
2. A large workforce will be needed to construct the system. A city of at least 200,000 people would have enough technical workers to build the facility.
3. The plans will be arriving through a major U.S. port less than 10 miles from the city.
4. Receipts for a speed boat were found. Apparently the plans will travel up river from the port. Based on the boat's fuel supply, the river is within 25 miles of the city.
5. If they plan to build the system, it will have to be on a mountain peak at least 500 meters high. The system will need power so it is unlikely that this mountain will be more than 10 miles from the city.