



## Teacher Information

### Overview

I developed this geocaching activity for use with the CSI summer camp at the Smithsonian in DC. For this activity, teams of 3-4 students use GPS receivers (preloaded with waypoints) to find 10 "evidence" caches. Each cache contains a cache card with 3-4 questions the students must answer or tasks they need complete. Each cache has a different theme and relate to the topics investigated during the camp. After a team completes a cache and has all the correct answers, they are provided with a clue card that will help them determine the next waypoint in the adventure.

### Preparation

1 - Use a GPS receiver to mark 10 waypoints (numbered 1 through 10) where you can hide a cache card and/or container. Be sure to pick locations that are safe (i.e. not too close to a road or away from poison ivy) and can be supervised from one location as you will need to be in one spot during the activity to check team answers.

2 - Load these 10 points onto all the GPS receivers you will be using.

3 - Print copies of the adventure materials. All the materials for this activity can be found on my Forensic Science Lesson Plans page at <http://sciencespot.net/Pages/classforsci.html>.

- Cache Cards - 2 sets (one for you and one to use for the adventure)
- Clue Cards- 2 sets - I laminated the cards, punched a hole in the corner of each one, and hooked them together with an o-ring. As the kids complete the caches, I can turn to their next clue card and allow time for them to determine the waypoint. With them hooked together, I don't have to worry about losing a card during the adventure and having teams waiting until its found.
- Answer Key - One copy for each teacher
- Group Answer Sheet - One per group

4 - Prepare the cache containers.

- Cache 1 - Fingerprint Patterns - Cache card + magnifying glass in a small container
- Cache 2 - Fingerprint Ridge Structures - Cache card + magnifying glass in a small container
- Cache 3 - Blood Type & Transfusions - Cache card only
- Cache 4 - Blood Spatter - Cache card only (Need spatter pattern taped to back of the card)
- Cache 5 - Hair Evidence - Cache card only
- Cache 6 - Chromatography - Cache card with black "mystery marker", small plastic cup, small bottle of water, & filter paper in a small container (Need to make 3 sample chromatograms using black markers and tape them to the back of the card)
- Cache 7 - Impression Evidence - Cache card with toy car & ink pad in a small container (Need to make 3 sample tire prints using toy cars and tape them to the back of the card)
- Cache 8 - Biological Evidence - Cache card only
- Cache 9 - Forensic Entomology - Cache card only (Need "Fly Development" chart taped to the back of the card)
- Cache 10 - Crime Scene/Eyewitness Basics - Cache card only (Need penny challenge taped to the back of the card)

5 - On the day of your event, use a GPS receiver to locate all 10 waypoints and place the cache cards and containers. If you are conducting this event in a public area, you will want to label the cards and containers to prevent them from being moved or taken.

## **Procedure**

1 - Use the CSI Adventure PowerPoint to review the basics of GPS technology, geocaching, and how it is used in investigations. The presentation also includes an overview of the activity, rules, procedures, and instructions on how to use the Garmin eTrex Legend units that I have. The PowerPoint is available at <http://sciencespot.net/Pages/classforsci.html>.

2 - Provide each group with a starting clue card and group answer sheet. Allow time for each group to determine their first waypoint and have them write the number in the correct location on the answer sheet. Collect the starting cards when all the groups are finished.

3 - Head to the area where you have set up the activity and allow time for the GPS units to link up to the satellites.

4 - Once all the units are ready to go, help the students load their first waypoint and send them on their way! Make a note of the starting time as you will need to fill in this information on their answer sheet.

5 - As teams finish the caches, they need to find you to check their answers. If all of them are correct, show them the clue card for that cache and allow time for them to determine the next waypoint. After you have verified that it is the correct one, send them on their way to the next cache.

6 - After a team has completed all 10 evidence caches, record their finishing time on their answer sheet.

## **Results**

The winning team is the one that finishes all 10 caches in the fastest time. In the case of a tie, you may want to provide a challenge question or two for those teams.