

Basic GPS

Summary

Global Positioning Systems, or GPS, is a valuable tool in our society. This relatively new technology has made life a little easier for many. The department of Defense maintains and operates the system and has recently allowed civilians to use this technology.

Time Frame

3 class periods of 45 minutes each

Group Size

Small Groups

Materials

A personal navigator, such as, the Garmin eTrex is necessary for this lesson. Other Brand names are fine as long as they have an instruction manual or a fast start guide. Sports fields are great for learning how to use the GPS unit. Parking lots are dangerous and signals are weak or disrupted indoors. The early fall and late spring are ideal times to take-on the GPS instruction. Markers are not required but if you prefer using orange engineer tape and survey pegs that is fine. I like to use objects that are in place like the goal posts, home base, and the pitchers mound. I do provide an opportunity to navigate for small prizes, such as, coupons from local vendors for an ice cream etc. The beauty of this lesson is that it costs very little, just make sure you have plenty of batteries for your GPS unit.

Background for Teachers

Teachers do not need to be an expert with the GPS. Just go out during a prep period and use the GPS instructions, find the location of home base, mark it as a way point. Write down all of the locations and way points for your own use later. Make-up a navigation course using your information, clear the GPS unit and put groups of two to three students to work per unit. If students have their own GPS have them sign a release and allow them to use it during your class. Do not be afraid to learn something from a student. I offer 5 extra credit points to any student who can teach me something that I didn't know about GPS units.

Student Prior Knowledge

Basic features of the GPS unit How to read/understand coordinates Basic map reading is a help How satellites communicate with the hand held unit

Intended Learning Outcomes

Students will be aware of a great technology that saves lives, time, and money. Students will understand how GPS works and several of its uses Students will be able to operate a simple personal navigation device and possibly gain a lifetime hobby.

Instructional Procedures

STEP ONE: Introduce a map and compass to the students and ask what they are. STEP TWO: Introduce a map and a GPS unit to the class and ask what they are. STEP THREE: Explain briefly what the compass is (if a student didn't already), then explain in depth what the GPS is and the who, what and how's. WHO - maintains and operates the GPS satellites - DOD WHAT - does GPS do - it aids in navigation and tracking HOW - does GPS do that - Using satellites that orbit the earth they triangulate a position using radio waves to communicate information. STEP FOUR: (next day)

Introduce the GPS unit and features, like, how to turn it on and off, how to scroll down a menu and what certain menu items are. You do not need to explain all the menu items they can come later if time allows. STEP FIVE: Show a fun and interesting GPS movie. I show one on how to mark your favorite fishing spot. STEP SIX: Tell the students how two of their classmates rented a boat and were out fishing, they started reeling in the fish. One of them leaned over the side of the boat and marked a big red x on the side. The other one asked, "what are you doing?" The one students said, "I'm marking our spot, I want to come back here tomorrow!" The inquisitive classmate said, "you're being ridiculous - pause - How do you know we will get the same boat again!" STEP SEVEN: (Day Three) Break students into groups and move outside to a ball field show them how to find their location and mark a way point(from the instruction manual that comes with the GPS unit). STEP EIGHT: Let the student get familiar with the unit in groups. STEP NINE: GPS Rodeo have a competition finding certain points

Strategies for Diverse Learners

Use several modalities to teach the concepts. Use professionally done videos. Students who get the concepts and may own a GPS unit may be good coaches. Sometimes hands on is the only way to go!

Assessment Plan

Give the students a vocabulary quiz. Do a hands on test of basic procedures and proper care. Use competition as an assessment tool in the actual navigation phase

Bibliography

Garmin etrex owners manual MS encarta encyclopedia

Authors

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