Trilateration

Life Skills
• Problem Solving

Materials
• Rulers
• Compass (the kind with a pencil that draws circles ☺)
• Map (located in this activity)

Doing the Activity
The purpose of this activity is to help participants understand the concept of trilateration, which is one of the main concepts behind the Global Positioning System.

1. Give each participant, or team, a compass, a ruler and a map (found at the end of this activity).
2. This is the problem that each participant or team is to solve! There is a boy lost in the area of this map and all he knows are the following three pieces of information – which he has gathered from road signs:
   • He is 60 kilometers from Smithville
   • He is 200 kilometers from Fullersville
   • He is 220 kilometers from Blueville
3. From this information and information found on the map, the students should be able to figure out where this boy is.
   (ANSWER: 20 kilometers west of Woodville)
4. Tell the students how this concept of Trilateration applies to GPS using four satellites. (See picture at the end of this activity and visit http://www.howstuffworks.com/gps1.htm.)
Note to Leaders

For a similar activity and more explanation on how to complete this activity go to http://www.howstuffworks.com/gps1.htm. Also, this activity could be adapted to your area by using a local map.

Reflect

• How did using the three points of information help the lost boy? (Instead of having to walk 60 kilometers to Smithville, he figured out that he only needed to walk 20 kilometers to Woodville.)
• If given only two pieces of information could the problem be solved?
• How important is the accuracy of the information?

Apply

• How is the concept of Trilateration related to the Global Positioning System?
• Give an example of a similar but related problem that a GPS unit could be used to solve?
• How could GPS be used in your daily life?
• What is an application of GPS that you would like to see developed?

For information on the web on these topics use the GPS Resource page provided with these activities!
MAP OF RIVER COUNTRY

- Fullersville
- Smithville
- Woodville
- Hicksville
- Pearville
- Blueville
- Orangeville
- Cardinalville

1 cm = 20 km