Circle Geometry Scenario

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Video Link

This is a video of a snowmobiler caught in an avalanche.

I've used this clip as a means to introduce a real life reason for understanding circle geometry.

Before playing the video ask students if anyone has ever snowmobiled ... pull as many kids into the conversation with personal experience being the key to the buy in.

Play the video for one full minute and hit pause, then ask students what they think happened, and record all possible outcomes on the board. Then ask students how would they be able to find the buried person. If you were at the scene how would you get help? IF you were on the rescue team how would you get there etc and more importantly how do you find the poor guy when you do get there (I showed a picture of a rescuers probe and told a story about how things used to be done ... jabbing until you hit something that isn't snow! This was my avalanche training when I lived in Rossland long ago).

Through conversation, someone will eventually come up with the idea of wearing a beacon when out in the back country doing any sort of outdoor activity in the winter. Propose the idea (if you have to) that the beacon will create a sphere of a signal (a specific distance in all directions from the origin). Then ask students to propose as many ways and most importantly the most efficient way to find the buried person. You can give them a number if it makes them feel better by saying that the beacon will let out a signal with a radius of 50 m.

Students will likely come up with 2, 3 or more possible ways to find the snowmobiler, and they may not actually come up with the perpendicular bisector theorem that we want them to learn in grade 9 circle theory BUT when you do eventually get to teach the theorem (don't give them the answer during this session, just evaluate what they propose and have everyone vote on the most efficient solution) you can refer back to this scenario and ask them to reapply their understanding.

In our last session we spent a lot of time defining what a good problem looks like ... I think that the best math problems are scenarios that require an analytical approach to solving. Whether these scenarios require geometry, pattern recognition or some other analytical process, the idea should be to draw as many students into the scenario and expect some off the wall solutions that you would have never dreamed of yourself. Analyzing and problem solving is what math really is ... the operations used are just a means to finding a solution.

Having said that, creating scenarios that require analysis that can be solved more efficiently using the math we are actually teaching would be the best of both worlds. These types of scenarios allow us to revisit the problem again with more classical math.