

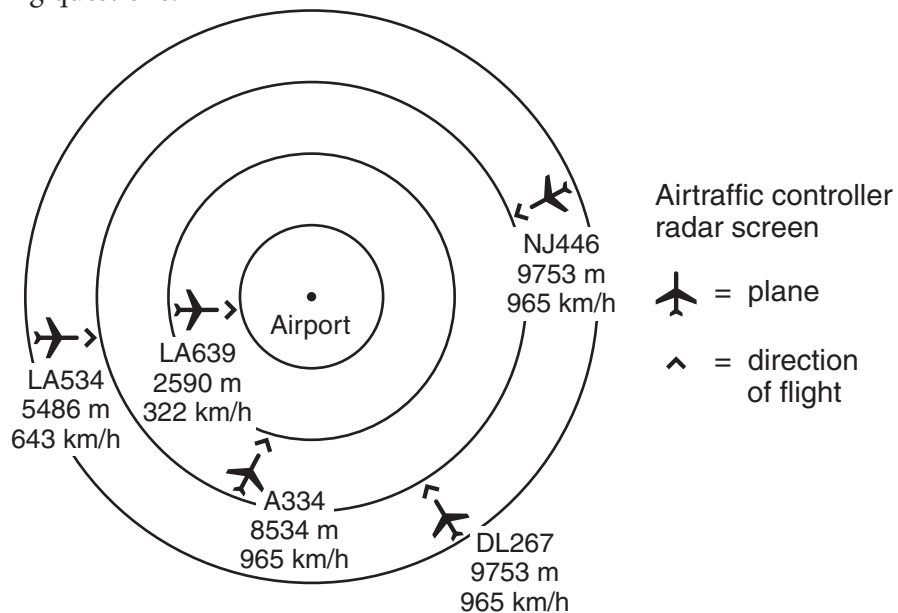
## SECTION 2

### Enrichment

# Air Traffic Controllers

Air Traffic Controllers (ATCs) have difficult, but extremely important jobs. To keep the skies around airports collision-free, they must watch a radar screen for long periods of time. The radar screen shows them where airplanes are in the sky and tells them the velocity of each plane. In addition to velocity, the screen displays the altitude of the planes. The altitude is the height of the plane from the ground.

An ATC must always know where the planes are, where they are headed, and at what velocity and altitude they are flying. The diagram below shows a typical radar screen an ATC might see. The space between lines represents a distance of 80 km. Two of the planes on the screen, LA639 and LA534, are approaching to land at an airport at the center of the radar screen. Examine the diagram. Try and get a three-dimensional idea of where the planes are in the sky before answering the following questions.



- The ATC notices that airplanes NJ446 and DL267 are flying at the same speed on intersecting courses. What is the problem and what would you tell the pilots in order to solve the problem? [Hint: It is very difficult for large passenger planes to change altitude quickly.]  
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- The planes LA534 and LA639 are coming in for a landing on the same runway which means they are each lowering their altitude. Note that LA534 is traveling at twice the speed of LA 639. What must they do to keep from crashing into each other on the runway?  
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- Flights A334, NJ446, and DL267 are all flying at about 965 km per hour. Which plane does the ATC not have to worry about if the planes on the screen continue at their present rates of speed and course?  
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