

UNIT 3: NAVIGATION

PART2: AIR TRAFFIC CONTROL

(40 pts) Approx. 3 days

The second part of our unit is even more mathy as we look at how Air Traffic Control professionals are able to manage the incoming flights for multiple aircraft at multiple terminals. The job of an air traffic controller is to make sure that all the incoming and outgoing flights at an airport can take off, land, or pass by an airport without getting in each other's way. In tiny remote airports where maybe just one flight lands per day, that might not be too difficult; at larger airports like Fairbanks, Anchorage, Seattle, or New York that job gets increasingly difficult. Air traffic controllers need to consider a variety of factors – plane speed, flight paths, weather patterns, and schedules – while making decisions to help pilots travel through an area. In this unit, we'll use NASA's *Sector 33* Air Traffic Control simulation to look at how some of these problems develop!

1. Watch the presentation on the *Air Traffic Control Simulator* and *Air Traffic Control Hints*. Start a page of notes on these ideas that you can add to as you work through different air traffic control puzzles.
2. Next, follow the link on our website to go to *NASA's Sector 33 ATC Simulation*. This simulation does a good job of presenting a variety of puzzles that require us to consider different factors as we guide planes into and through their destination.
3. Start by solving the first 2-plane Air Traffic Control puzzle (the default one that opens when you open the simulator). Look at how you can change both the **path** and the **speed** of each plane individually.
4. Next, complete four (4) more 2-plane challenges. You can pick the challenges you want to complete from the list.
5. Next, complete a total of five (5) 3-plane challenges from the list of options.
6. Next, complete a total of five (5) 4-plane challenges from the list of options.
7. Finally, complete a total of five (5) 5-plane challenges from the list of options.
8. Confirm with Mr. Benshoof that all of your ATC Challenges are completed!
9. Take the Unit 3 Quiz on Navigation **by October 11**

Part 2: Tasks	10 points	9-5 points	4-0 points
<input type="checkbox"/> Notes on Air Traffic Control	+ Take a full page of notes on the <i>Air Traffic Control Simulator</i> , <i>ATC Hints</i> , and <i>ATC Calculations</i>	- Less than a full page of notes on air traffic control	- Very brief or no notes.
	5 points	4-3 points	2-1-0 points
<input checked="" type="checkbox"/> Complete 2-Plane ATC Simulations	+ You solved 5 of the 2-plane Air Traffic Control Scenarios	- You solved fewer than 5 2-plane challenges	- You solved fewer than 3 of the 2-plane challenges
<input checked="" type="checkbox"/> Complete 3-Plane ATC Simulations	+ You solved 5 of the 3-plane Air Traffic Control Scenarios	- You solved fewer than 5 3-plane challenges	- You solved fewer than 3 of the 3-plane challenges
<input checked="" type="checkbox"/> Complete 4-Plane ATC Simulations	+ You solved 5 of the 4-plane Air Traffic Control Scenarios	- You solved fewer than 5 4-plane challenges	- You solved fewer than 3 of the 4-plane challenges
<input checked="" type="checkbox"/> Complete 5-Plane ATC Simulations	+ You solved 5 of the 5-plane Air Traffic Control Scenarios	- You solved fewer than 5 5-plane challenges	- You solved fewer than 3 of the 5-plane challenges
	Up to 10 points		0 points
<input checked="" type="checkbox"/> Take Unit 3 Quiz	+ You took the Unit 3 Quiz on the website by the Quiz Due Date + Grade is based on number correct	N/A	(0 pts) You did not take the Unit 3 Quiz