Name_____ Period _____ Date _____

Zero Sum Security

STEM Sims

Lesson 1: Centralized Area

For a security team, having a large number of security officers can be essential, but equally important is the placement of the security officers. What happens when there is an uneven distribution of security officers? Test this out to see if it creates a more or less secure port.

Doing the Science

1. Start the Zero Sum Security Simulation.
2. Read the threat provided on the screen.
3. Select "Run" to view the default setup's security and annoyance levels. Select "Personal Craft", "Cargo Ships", "Cruise Ships", and "Overall" to view the security and annoyance level for each category. Record these levels into Table 1 below.

Table 1. Security Status

Security Guard Setup	Type of Ship	Security Level	Annoyance Level	Number of Guards				
				Entry	Luggage or Cargo	Board-walk	White Walkway	Ocean
Default Setup	Personal Craft							
	Cargo Ships							
	Cruise Ships							
	Overall							
Unevenly Distributed	Personal Craft							
	Cargo Ships							
	Cruise Ships							
	Overall							

4. Record in Table 1 the number of guards stationed at each area.
5. Find the ship category with the highest security level and move all the guards into the area by selecting and dragging the security guard icon into the area. Unclick to release the security guard.
6. Repeat steps 3-4 for the centralized security team.

What Do You Understand?

1. What happened when there were many security officers in only one area?

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2. Is a security team better when it is spread out or centralized? Provide a reason to support your response.

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3. Describe your strategy for effectively placing the security guards.

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