



Evacuation Planning

STEM Sims

Lesson 3: Time on My Side

Seconds can count in many emergency situations. The difference between life and death can be very small when natural and human-caused disasters strike. How does the evacuation time affect the amount of cars that can safely leave an area of danger?

Doing the Science

1. Start the Evacuation Planning Simulation by clicking on the “Sim” tab.
2. Select the following: Time to Evacuate = 1 hour, Stores Close = 1 hour, and City Gasoline Supply = 25%.
3. For the #1 route, select a single route to the far left of the screen. To define a route, click on the red “X”s.” Clicking again on a green arrow changes the direction of the arrow. Do not allow the route to branch at any point.
4. For the #2 route, select a single route to the far right of the screen. Do not allow the route to branch at any point.
5. Select the “Start” button and allow the simulation to run to the end.
6. Note and record the data for the run in Table 1 below.
7. Select the “Overview” button to change the existing Time to Evacuate to 5 hours.
8. Select “Start” and run the simulation. Note and record the data for the run in Table 1 below.
9. Repeat steps 7 and 8 for 12 hours and 24 hours, Time to Evacuate.

Table 1.

Trial	Time to Evacuate	# Evacuated Cars	# Not Evacuated Cars	# Out of Gas Cars	Congestion Index
1	1 hour				
2	5 hours				
3	12 hours				
4	24 hours				

Do You Understand?

1. What happened to the number of cars evacuated as the time to evacuate was increased from 1 hour to 24 hours? Does your answer make sense?
2. What happened to the number of cars that were *not* evacuated as the time to evacuate was increased from 1 hour to 24 hours? Does your answer make sense?