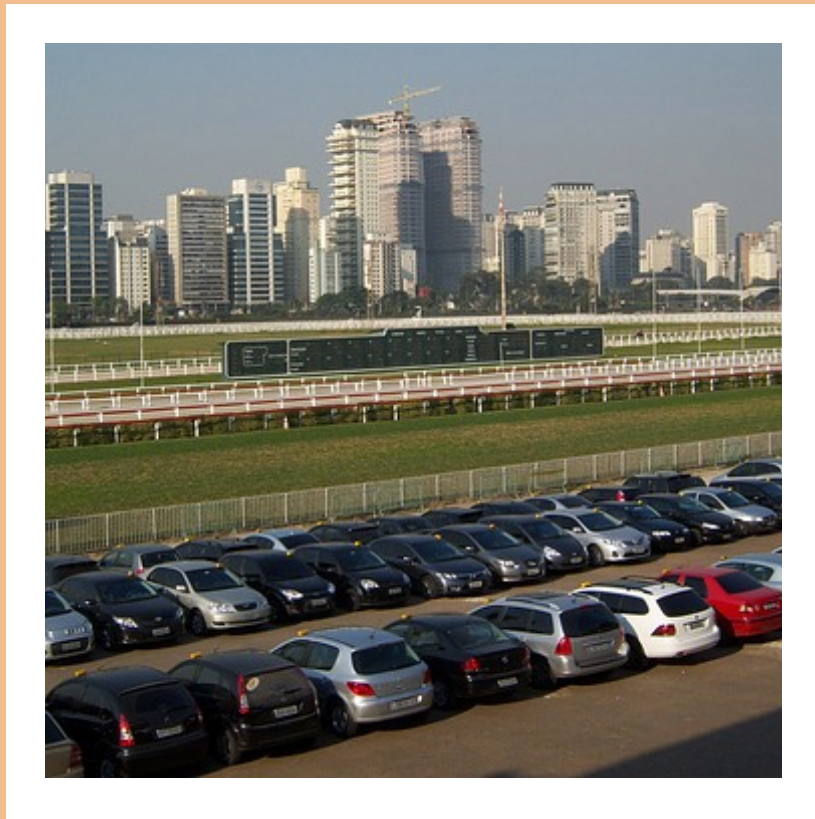


STEM *Sims*™

Fleet Manager



Fleet Manager

**Do you need an idea for a scientific study?
Try out one of our ideas or make one of your own.**

Start learning right now about the many factors that affect the management of a vehicle fleet. Take the following brief quiz to see how much you already know about fleets and their operation. See the bottom of page 4 to check your answers.



1. As of 2014, about how many delivery vans were in the FedEx™ fleet?
 - a. 430
 - b. 4,300
 - c. 43,000
 - d. 430,000
2. The FedEx fleet of airplanes in 2014 consisted of about how many planes?
 - a. 36
 - b. 159
 - c. 477
 - d. 654
3. How many hybrid-electric vehicles were in the Fed Ex fleet in the year 2014?
 - a. 35
 - b. 136
 - c. 365
 - d. 4,223
4. About how many gallons of gasoline were saved by the FedEx fleet using hybrid-electric vehicles in 2014?
 - a. 30,000
 - b. 300,000
 - c. 3,000,000
 - d. 30,000,000
5. As of 2014, about how many packages were shipped using the FedEx vehicle fleet annually?
 - a. 1.2 million
 - b. 12 million
 - c. 120 million
 - d. 1.2 billion

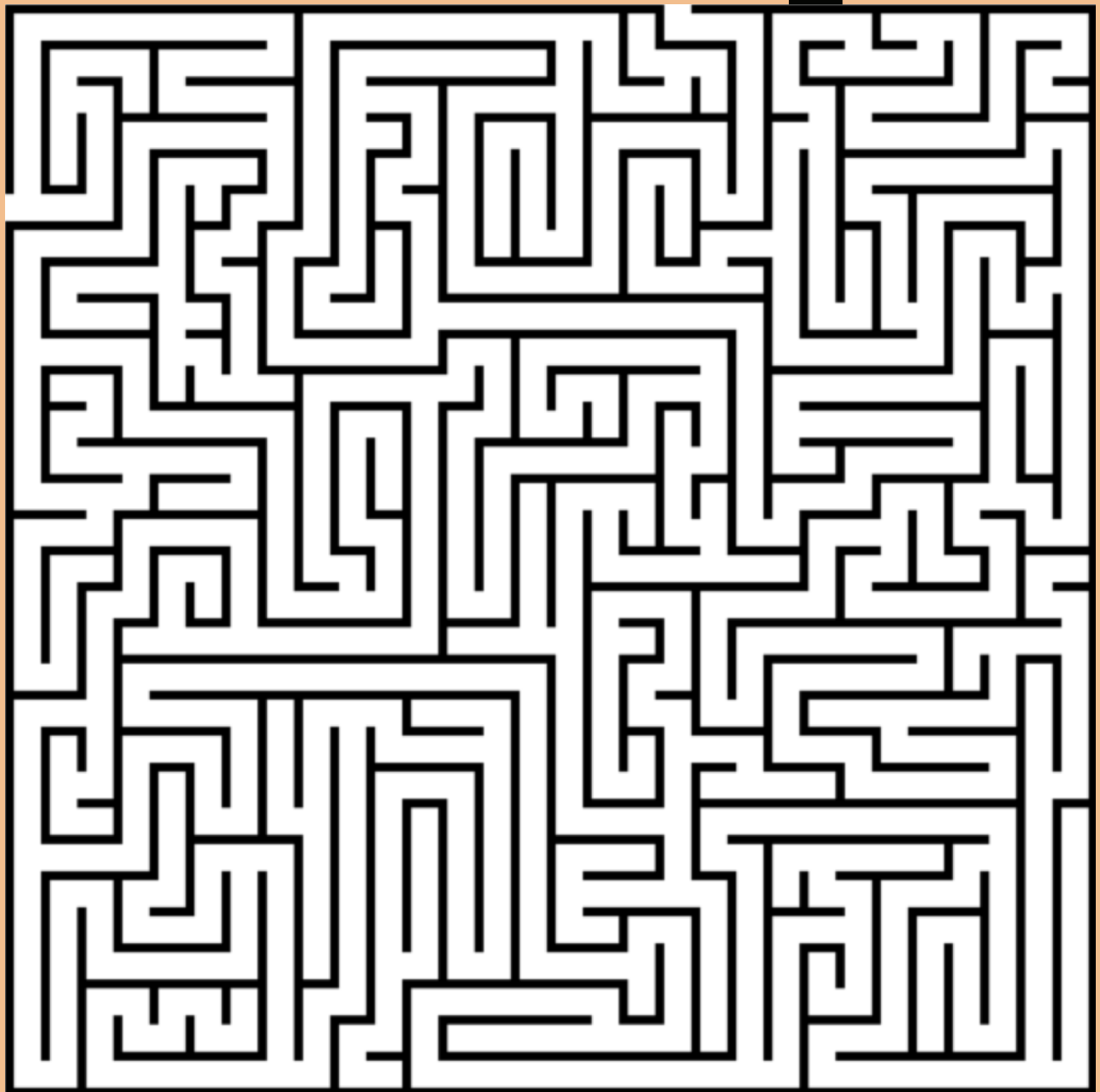
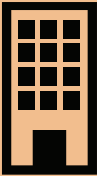
Find Your Way

Fleet managers of package delivery services must account for a number of factors when planning the best route and sequence of deliveries for their drivers. The managers must consider a wide range of information when route planning, including, but not limited to, package delivery times, traffic patterns, times when road gridlock is likely to occur, and even the times when and locations where their drivers can use the restroom. Do you think you have the skills to successfully navigate a route? Try your hand at the maze below and see if you can make your delivery within five minutes.

Finish



Start



Fleet Manager

Getting Greasy

Converting a diesel engine into one that runs on vegetable oil is a relatively easy process for someone who is mechanically inclined. Conversion kits cost around \$1,500, while most mechanics charge around \$1,000 to complete the conversion. Once converted, the engine will operate on vegetable oil or diesel fuel. However, some additional costs do arise when operating your new greasy vehicle. For instance, since most grease from restaurants contains small pieces of food, you'll have to invest in a grease filtering system to purify your vegetable oil. Some owner of grease cars also suggest to check and clean your engine more frequently since the engine was not designed to run on vegetable oil. And lastly, you might have to stock up on air fresheners for your car. Either that, or be happy to smell like a rolling french fry as you cruise down the highway.



Some automobile owners are deciding to convert their diesel engines into a type that runs on grease. Yes, the same grease that most fast food restaurants use to deep fry foods. Instead of going to a gas station to fill up their car, these innovators find a local restaurant that wants to remove its old grease, they dump the vegetable oil straight into their car's fuel tank, and then drive away with "free" energy that's less harmful to the environment and certainly more friendly to their pocketbooks.

Cars running on vegetable oil have been around since the 1970s when the first engine conversion was completed. Grease engines are said to be "carbon neutral." This means that the amount carbon dioxide the engine emits as a waste products while running is balanced by the amount of carbon dioxide consumed by the growing plant from which the vegetable oil was produced. Most drivers of these convert engines report mileage ratings similar to conventional diesel

Please visit our site for more helpful information:
STEMsims.com

Answers: Page 2 Answers: 1) c. 2) d. 3) c. 4) b. 5) d.

The Green Engineering Magnet (GEM) project was funded in part under the National Science Foundation grant contract #IIP-1127544. Its contents are solely the responsibilities of the authors and do not necessarily represent the official views of the National Science Foundation.

© 2015 STEM Sims. All rights reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable, and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent or other industrial or intellectual property rights.