Car Crash

STEM Sims

Lesson 2: Does the type of vehicle affect driver safety?

When it comes time for you to buy a car, what will matter most to you? The price? The look? The color? Driver safety should be one of your top factors when making your purchase. So, the question must be asked: does the type of vehicle you drive affect your chance of being injured in a crash? Fasten your seat belt and get started in this study of vehicle safety.

Here are some definitions to help you in your investigation.

Vehicle -   a car, truck, or SUV

Variable -   something that can change

Footwell -   the inside of a car down by the driver's feet

Intrusion -   how much the car frame moved into the driver

Acceleration -   how quickly or slowly the driver changed speed inside the car

Risk -   how likely an injury would happen. 100% means that the injury would occur. 0% means no injury would happen.

Doing the Science

1.   Start the Car Crash Simulation.

2.   Select the *blue SUV* on the left side of the screen.

3.   Select the "Medium" crush zone stiffness.

4.   Select the "Medium" crush zone length.

5.   Select the "Crash Center" button at the bottom of the screen.

6.   Select the "40 MPH" speed, and then select the "Crash It" button.

7.   Select the "Analysis Center" button at the bottom of the screen.

8.   Select the "Medical Report" button. Record this information in Table 1.

9.   Select the "New Vehicle" button at the bottom of the screen.

10.   Repeat steps 3–8, except choose the *red car* on the right side of the screen.

Table 1. Possible Injuries

Vehicle Type	Frame Intrusion	Body Acceleration	Overall
Blue SUV			
Red Car			

Do You Understand?

1.   How did the vehicle type affect driver safety from frame intrusion during the crash?

2.   How did the vehicle type affect driver safety from body acceleration during the crash?

3.   Based on your overall results, which vehicle type tested gave the driver the greatest protection during the crash?

4.   A control variable is something that can change, but that is held constant or the

same during an experiment. What is the control variable for this investigation?

5.   What was the variable that you changed for this experiment?