

Crumple zones in cars are designed to reduce the forces during a collision. Explain how they do this.

Newton's second law of motion:

$$F = ma$$

( $F$  – force,  $m$  – mass,  $a$  – acceleration) means that as the time it takes for an automobile to come to rest is increased, the force experienced by the automobile (and its occupants) is decreased. Crumple zones increase time of the crash allow the front of the vehicle to crush like an accordion (or string):

