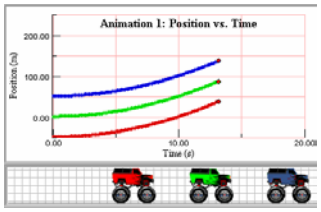
Worksheet for Exploration 2.1: Compare Position vs. Time and Velocity vs. Time Graphs



Shown are three different animations, each with three toy monster trucks moving to the right. Two ways to describe the motion of the trucks are position vs. time graphs and velocity vs. time graphs **(position is given in centimeters and time is given in seconds)**. Restart.

Answer the following questions that focus on the velocity and acceleration of the monster trucks.

i. Fill out the following tables describing information for each animation.

Animation 1	Initial Position	Initial Velocity	Acceleration
Red			
Green			
Blue			

Animation 2	Initial Position	Initial Velocity	Acceleration
Red			
Green			
Blue			

Animation 3	Initial Position	Initial Velocity	Acceleration
Red			
Green			
Blue			

a. How does the initial position affect the various graphs?

b. Describe the motion of the trucks by analyzing the position vs. time graphs.

i. For each animation write out an equation describing position vs. time for each car.

Animation 1

$x(t)_{red}$=_____

$x(t)_{green}$=_____

$x(t)_{blue}$=_____

Animation 2

$x(t)_{red}$=_____

$x(t)_{green}$=_____

$x(t)_{blue}$=_____

Animation 3

$x(t)_{red}$=_____

$x(t)_{green}$=_____

$x(t)_{blue}$=_____

c. Once you have completed (a) and (b), check your answers by analyzing the velocity vs. time graphs.

i. For each animation write out an equation describing position vs. time for each car.

Animation 1

$v(t)_{red}$=_____

$v(t)_{green}$=_____

$v(t)_{blue}$=_____

Animation 2

$v(t)_{red}$=_____

$v(t)_{green}$=_____

$v(t)_{blue}$=_____

Animation 3

$v(t)_{red}$=_____

$v(t)_{green}$=_____

$v(t)_{blue}$=_____