

UNIT 1: STAGGERED RACES 1: VARYING THE “B” IN $Y=MX+B$

Activity 2: Staggered Race 1 Part 2 (SCLFU1A2.8xv)

Goal:

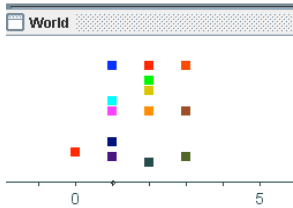
Actor B starts at your count-off number and travels for the same duration and at the same velocity as Actor A.

Remind students to include units!

World

The World will have the number of students collected (or received) +1 Actors (the +1 includes Actor A). Each Actor will start at C ft (C = count-off number) and travel 2 ft/sec for 6 seconds.

In the example below, there are 13 students in the class, five have Count-off 1 (starting at 1 foot), five have Count-off 2, and three have Count-off 3.

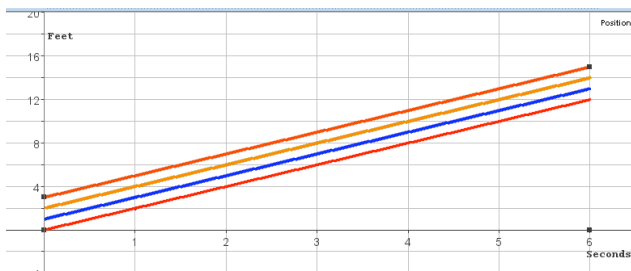


Count-off (C)	Initial Position	Velocity [0,6]	Ending Position
Actor A	0 ft	2 ft/sec	12 ft
1	1 ft	2 ft/sec	13 ft
2	2 ft	2 ft/sec	14 ft
3	3 ft	2 ft/sec	15 ft
C	C ft	2 ft/sec	$12 + 2C$

Graph

The class' set of functions will again create a system of parallel lines. Each count-off number will be represented by a separate, parallel line because each count-off number will have equivalent functions.

The example below contains data from the same class as above. There were five groups containing at most three students. It appears as though there are only four functions, Actor A and Count-off 1's segments coincide, Count-off 2's segments coincide, and Count-off 3's segments coincide.



Count-off (C)	Function	Domain
Actor A	$y = 2x + 0$	$[0, 6]$
1	$y = 2x + 1$	$[0, 6]$
2	$y = 2x + 2$	$[0, 6]$
3	$y = 2x + 3$	$[0, 6]$
C	$y = 2x + C$	$[0, 6]$

EXTENSIONS:

Ask students to continue the race so that their Actor ends at 20 feet. This will require the students to determine how much longer they need to travel in order to reach 20 feet. They will only be changing the domain and can verify their Actor reaches 20 feet by the motion. Ask students to explain how this affects the motion of all the Actors in the class and the graphs. Who would win the race if the finish line were at 20 feet, how do you know? Remind students to be specific in terms of group number and count-off number.