

A DAY AT THE RACES: LINEAR FUNCTIONS, LINEARITY AND SLOPE AS RATE

INTRODUCTION: A FOCUS ON VARYING M AND B IN $Y = MX + B$

We begin with a WarmUp activity to introduce students to those aspects of MathWorlds for the TI-83 Plus or TI-84 Plus hand-helds that involve linear functions. Next, we move on to a sequence of standard aggregation activities that depend on the class being divided into groups of 3 to 5 students, usually based on the location of Navigator hubs. These aggregation activities assume a basic familiarity with MathWorlds based on the WarmUp or other experience. Nonetheless, we will provide lots of direction at the beginning and then back off as you and the students gain more experience. Each of these teacher-led activities has a student handout to accompany it. This package is comprised of four units. Each unit has two activities and in some cases the activities have extensions in case you would like to extend the activity further.

Each unit has an introduction for the activities which includes a unit description, focus, some helpful hints, and dialogue suggestions. These units build on one another, and each successive unit takes concepts previously covered and extends them.

Remember, you want to guide the spirit of inquiry and discovery. Note that you can leave Marks, use Numeric Display, or the Function List when you desire, see details below.

Using the TI-73 ExplorTM

When using the TI-73 ExplorTM version of SimCalc MathWorldsTM, please note that the **Y=** key corresponds to F1: File; the **WINDOW** key corresponds to F2: View; the **ZOOM** key corresponds to F3: Edit, the **TRACE** key corresponds to F4: Tools; and the **GRAPH** key corresponds to F5: Connect.

UNITS

Unit 1: Staggered Races 1: Varying “b” in $y=mx+b$

Activity 1: Staggered Race 1 Part 1 - SAMPLE

Activity 2: Staggered Race 1 Part 2 - SAMPLE

Unit 2: Spreading Apart: Varying “m” in $y=mx+b$

Activity 1: Spreading Apart Part 1

Activity 2: Spreading Apart Part 2

Unit 3: Staggered Races 2: Varying “m” and “b” in $y=mx+b$

Activity 1: Staggered Race 2 Part 1

Activity 2: Staggered Race 2 Part 2

Unit 4: Coming Together: Varying domain & “m” and “b” in $y=mx+b$

Activity 1: Coming Together Part 1

Activity 2: Coming Together Part 2

A Note About Terminology: Functions, Rules & Equations

Functions are the basic mathematical objects in algebra. They can be represented by tables, graphs, and words or, in some cases, formulas or rules. Therefore, we often use the word “function,” especially when more than one representation may be involved. While some texts use “equation” where we would use “formula” or “rule,” we prefer to reserve the word “equation” for a comparison between two function formulas, or when a function’s formula is set equal to some quantity. However, the world will not come to an end if you and your text use “equation” more broadly, to refer to function rules or formulas.