

Varying Velocity

Varying Velocity

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Summary	Children are asked to tell a story about a trip depicted through a graph that has varying slopes/velocities.
Goals	<ol style="list-style-type: none">1. Explore how speed and velocity are conventionally represented through graphs according to slope.2. Introduce velocity as speed with direction.3. Deal with the facts that (a) a totally horizontal segment conveys absence of movement; (b) a left-to-right downward segment on the graph indicates that the distance from the person to the house decreases, even though the person is still walking (i.e. the cumulative distance walked increases).
Materials	Overheads, Handouts
Keywords	Compare/Contrast Functions Coordinate Pairs Full Class Discussion Interpretation of Graphs Interpretation of Stories Non-Linear Functions Production of Stories Ratios Slope Small Group Work
Note	This lesson uses a similar story to that in "Varying Speed", except that lesson does not use any segments with negative slope; that is, the walker does not get closer to their house. Teachers may wish to use that lesson as an introduction, but it is not necessary.

Activity Plan:

1. Writing a story about a graph [Group Work]

Show the overhead on Page 1 and distribute the corresponding handout (also Page 1).

Ask the children to work in pairs and write a story about what is shown on the graph on the supplied handout (Page 2).

2. Discussing children's stories [Whole Class]

Select a few stories to discuss.

Explore comparisons between different segment slopes.

Some ideas that you may want to discuss with your students:

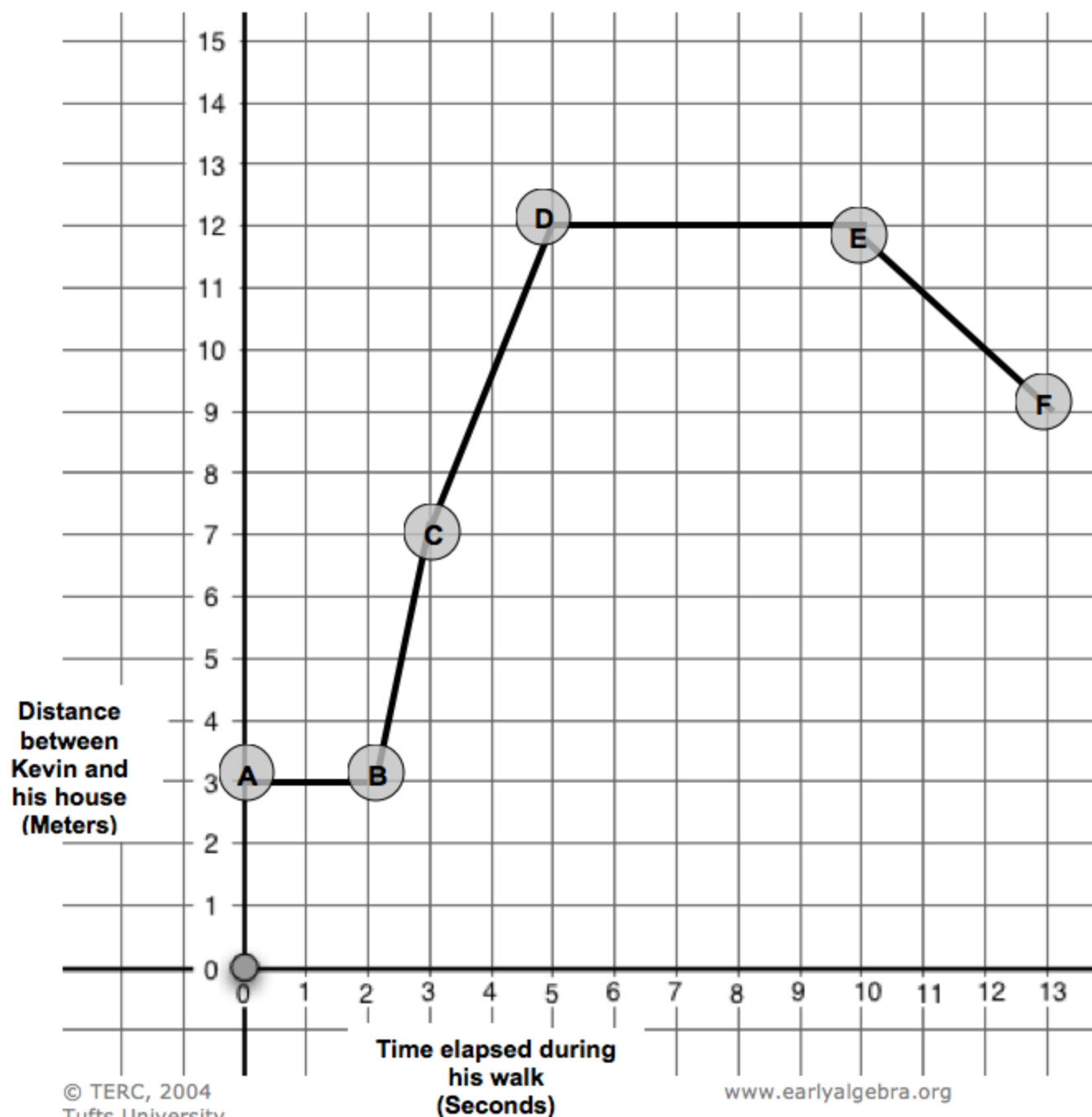
- Where did Kevin start his walk? Did he start at his house?
- Did he end up at his house?
- Did he ever go to his house?
- What is the maximum distance he was from his house?
- What is happening from **E** to **F**? Is Kevin still walking? Why is the line going down? What happens with the time in this interval? What happens to the distance in this interval? (the time increases but the distance decreases)
- When did Kevin go the fastest? When did he walk the most meters per hour? How do you know?
- Explain what is happening from **A** to **B**. And from **D** to **E**. What is varying? What is constant?
- Why does the steepness of a line tell you?

3. Homework (Pages 3 & 4)

The homework will be similar to the classroom activity.

Name: _____ Date: _____

The graph below shows how Kevin walked yesterday. Write a story about how Kevin walked.



Overhead and Handout: The Story

(Page 2)

Name: _____ Date: _____

Below, write a story about Kevin's walk.

You can describe where Kevin went, how far he was from his house, when he was and where he was at that time, how fast he walked, where he walked faster, and where he started his walk.

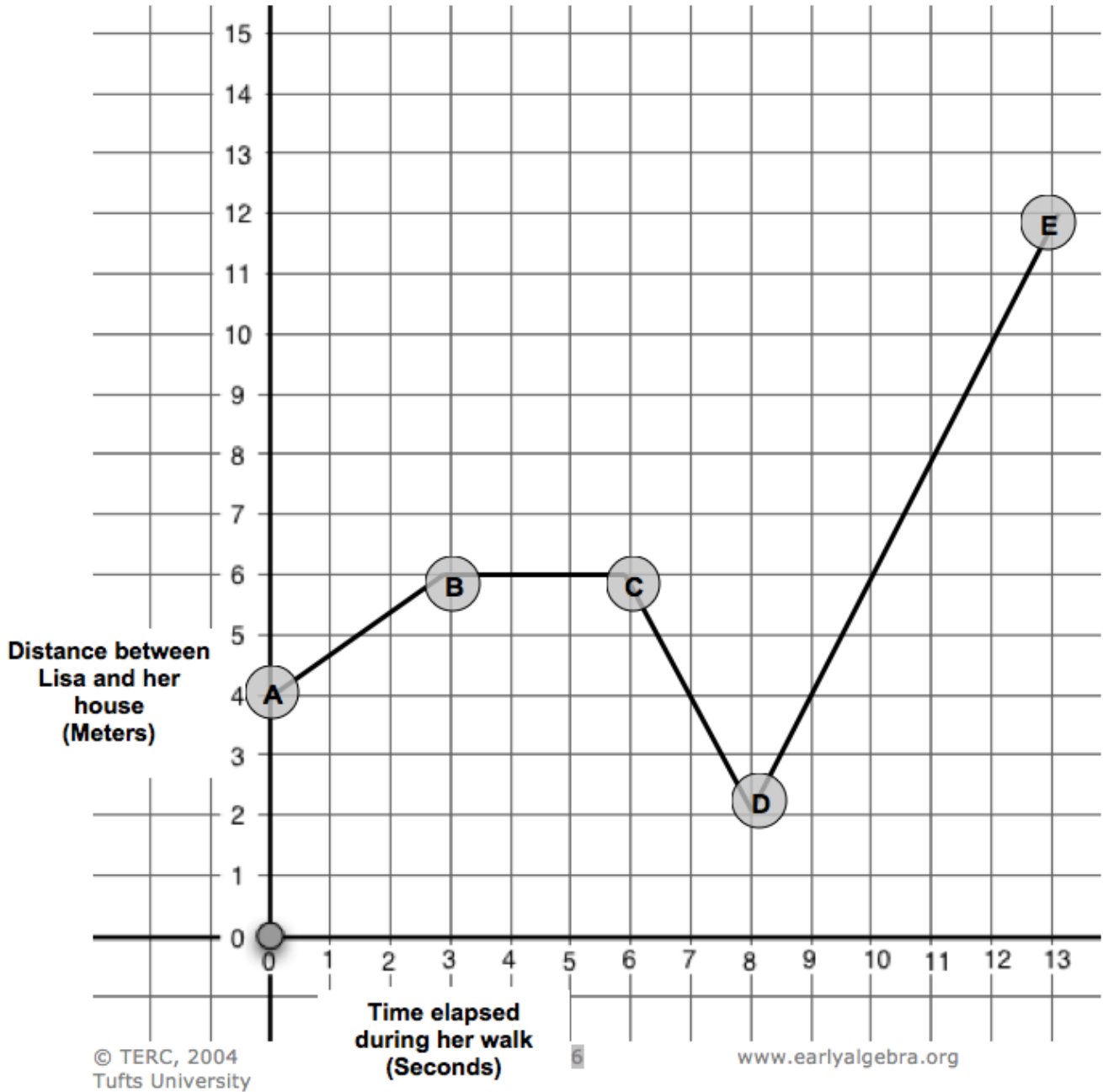
What else can you describe?

Homework: The Graph

(Page 3)

Name: _____ Date: _____

The graph below shows how Lisa walked yesterday. Write a story about how Lisa walked.



Homework: The Story

(Page 4)

Name: _____ Date: _____

Below, write a story telling how Lisa walked.

You can describe where Lisa went, how far she was from her house, when she was and where she was at that time, how fast she walked, where she walked faster, and where she started her walk.

What else can you describe?