

Gizmo Distance-Time Graphs Answers

Exploring Learning **GIZMOS**

Teacher Guide: Distance-Time Graphs

Learning Objectives

Students will:

- Observe the relationship between a running person and a graph of distance vs. time
- Calculate the speed of the runner based on the graph
- Interpret a graph showing the distance and time of two runners
- Use distance-time graphs to solve word problems involving distance and speed.

Vocabulary

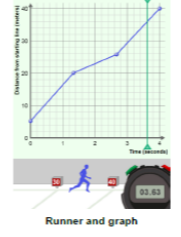
Speed: a measure of how fast something is moving

Lesson Overview

The Distance-Time Graphs Gizmo™ shows a runner on a track and a graph that represents the runner's position over time. By manipulating the position on the graph, students can control the speed and direction of one or two runners. Students will plot graphs on the interactive graph and compare the graphs to the motions of the runners.

The Student Exploration contains three activities:

- Activity A – Students see how position and time are shown on a graph.
- Activity B – Students explain how a graph shows the direction and speed of a runner.
- Activity C – Students interpret graphs of two runners and use graphs to solve problems.



Suggested Lesson Sequence

1. The Gizmo activity: Make a distance-time graph (45–60 minutes)

Introduce the Gizmo by graphing your student's movements. You will need a track or field marked with 10-meter increments, several stopwatches, and students who consent to be tracked, measured, and timed.

First, position a student with a stopwatch at each 10-meter marker. Position the runner at the starting line, and ask "Go!" for "Time 0." Record the start time (dependent on 10's) and stop that student when the runner passes by. The recorder can then record the distance and the conditions for that runner. Do this for four runners: one female, walkers, and people who only run 200m as they go along the course.

Graph the data with time on the x-axis and distance from the start on the y-axis. Discuss how each graph shows the runner's position and speed.

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