

## Learning Project 7

# The Coordinate Plane, Intercepts and Slopes

### Introduction

The new version of the mathematics test in GED 2002 has a greater emphasis on data and statistics than the previous tests, so it contains more graphs than the earlier version. This Learning Project focuses on the features of graphs that provide particular interest when interpreting their stories. Inquiry Activity 7-1 (item #22) uses the coordinate grid answer format. We use it to introduce the ordered pair notation  $(x,y)$  for points on a plane, as well as to discuss circles and negative numbers.

The next three Inquiry Activities (7-2 to 7-4) all refer to the same stimulus, a graph showing the line of best fit for a group of data points. The first two items involve tasks that the students have already studied in the first Learning Project on informational graphs: locating a precise point and interpolating to estimate the value of the  $y$ -intercept. The last activity (7-4) is a critical one in that it connects the ideas of rate of change and slope of a line. Students are asked to find the slope by inspecting the graph, but are later introduced to the formula for the slope that is included on the formulas page. Students look at the overall story a graph is telling by making generalizations about the rate of change that is indicated by straight lines vs. curved lines and positive slopes vs. negative slopes. Finally, you can connect algebra to geometry by analyzing an equation from a previous activity looking for its slope and  $y$ -intercept.

While the topics involved in this project can be much more sophisticated than in other projects, answering the questions that are asked about them does not require a rigorous understanding. Emphasize the big picture rather than the details, the reasoning rather than the procedures.

