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Respirometers and electrocardiograms (or computer simulations of the results of their outputs) are often used in labs when students in biology survey courses are learning about respiration and circulation. Both instruments produce graphs. The students need to be able to calculate a variety of appropriate distances, ratios and slopes from the graphs to obtain important information about the underlying biological behaviors. However, many students in these lower level courses do not have sufficient experience in reading information from graphs and relating the behavior of the graphs to underlying physiological causes to make this an effective exercise. We propose that spending some time learning how to read and interpret graphs before the instruments are used will enhance the amount of science learned. We have developed a set of hands-on activities where students analyze graphs related to some common day-to-day activities and see how the various distances, ratios and slopes in the graphs are related to the actual physical behaviors. Then, in the labs, they can concentrate on the science rather than on the mathematics. We will provide copies of the materials, demonstrate how some of them are used and share the results of our experiences with using them in class. (Received September 15, 2000)