**PhET Tips for Teachers     Curve Fitting**

**Non-obvious controls:**
- There is a zoom feature for all Flash simulations. Right click on the sim and select **Zoom in.** This can be helpful when you are using a projector or writing a lesson where you want a screen shot.
- Most things on the screen are draggable: the bucket, the Chi-square graph, and the control panel (grab panel by the border)

**Important notes / simplifications:**
- $\Delta y$ and $\sigma$ represent the same idea, but conventions for graphical display and equations are not the same.  The term "error bar" is commonly used to refer to the uncertainty of a data point on a graph. Technically, the half-length of the error bar is equal to one standard deviation. The symbol sigma_i is conventionally used to refer to the uncertainty of data point $(x\_i, y\_i)$  in equations.
- We have written an activity that includes a lesson plan with detailed explanations for how $\chi^2$ is calculated see: [Curve Fitting Activity](#)

**Insights into student use / thinking:**
- Students may have experience with correlation coefficient, $r^2$, from using graphing calculators and Excel (or another spreadsheet program). They may not observe the deviations if their data points all are on the curve. Make sure that as they explore the sim that they use many points and with some deviation.
- This sim could be used as an exploration into statistics without students trying to learn how $\chi^2$ is calculated. For an example, see: [Curve Fitting Activity](#)

**Suggestions for sim use:**
- For tips on using PhET sims with your students see: **Guidelines for Inquiry Contributions**  and **Using PhET Sims**
- The simulations have been used successfully with homework, lectures, in-class activities, or lab activities. Use them for introduction to concepts, learning new concepts, reinforcement of concepts, as visual aids for interactive demonstrations, or with in-class clicker questions. To read more, see **Teaching Physics using PhET Simulations**
- For activities and lesson plans written by the PhET team and other teachers, see: **Teacher Ideas & Activities**

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