1. In a blank/new Fathom document, drag a collection from the shelf.
2. With the collection highlighted, drag a table down as well.
3. Name the first attribute x and the second y.
4. In the table put the following ordered pairs (-3, 7.5), (-2, 3), (-1, 0.5), (0, 1), (1, 3), (2, 6), and (3, 14).
5. Drag a graph down from the shelf and plot the x values and the y values on the graph.
6. Drag three sliders down and name the first a, the second b, and the last c.
7. Click on the graph and in the menu for graph, select plot function, and type a\*x^2 + b\*x + c and click apply.
8. Once the function has been plotted, under the graph menu select show squares.
9. Drag the sliders until the sum of the squares is as small as possible.

When the coefficient of the quadratic term becomes a larger number, what happens to the graph?

When the coefficient of the quadratic term is negative, what happens to the graph?

When the coefficient of the linear term becomes a larger number, what happens to the graph?

When the coefficient of the linear term becomes smaller, what happens to the graph?

When the constant is a larger number, what happens to the graph?

When the constant is a smaller number, what happens to the graph?

How are the coefficient of the quadratic term and the coefficient of the linear term related to the axis of symmetry?

How do you find the vertex of a quadratic function?

1. Drag two other sliders down, name them h and k.
2. Select the graph and plot the function a\*(x – h)^2 + k and drag the sliders around until the graph is as close to the plotted points as possible (the sum of the squares is as small as possible).

How do the values of h and k relate to the vertex of the function?

When the h value is a positive, what direction does the graph move? When the h value is negative, what direction does the graph move?