

Example 2: chicken fence

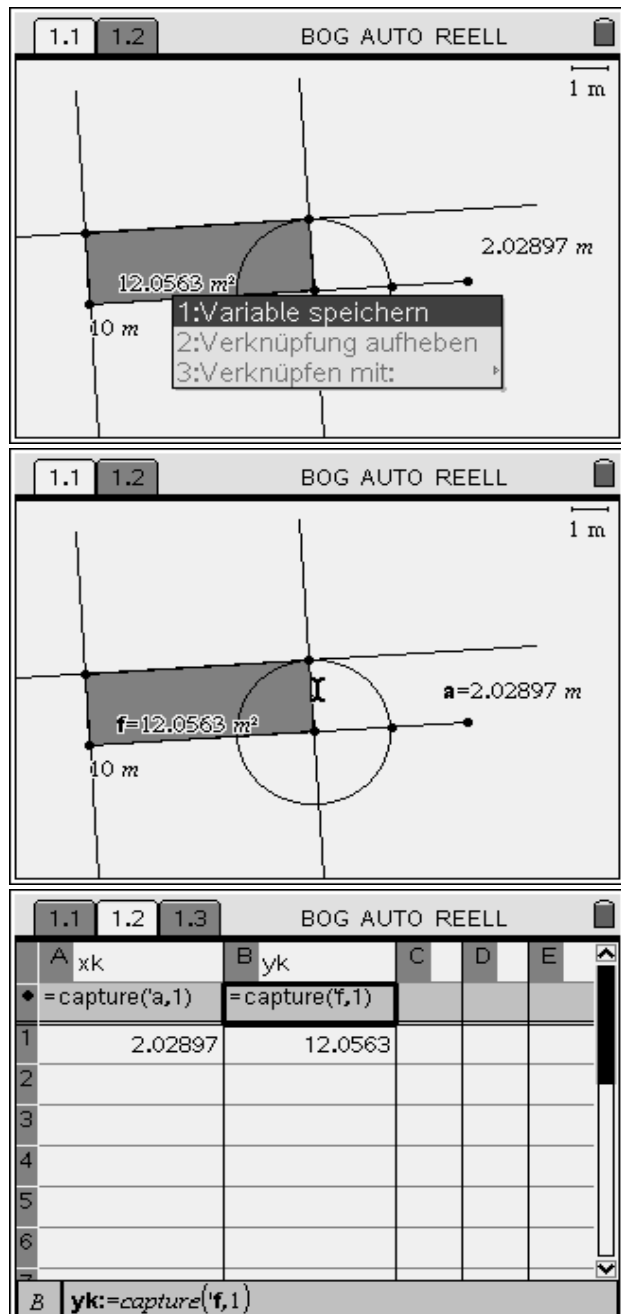
Connecting various ways – Long Version

Various ways that have been outlined can indeed be connected. To this end the geometrical, the graphical and the approach with tables can be transformed into an algebraic representation. For instance this is shown with the geometrical approach:

It is our objective to analyse the area dependent on the left boundary of the fence. In a first step the measured values are saved as variables. (store values).

Here the variable names **a** (for left boundary) and **f** (for area) were chosen.

In your document open a new page with application **Lists & Spreadsheets**. The area for different values of the left boundary can now be collected (data capture). The columns thus created are saved with the corresponding label **xk** and **yk**.

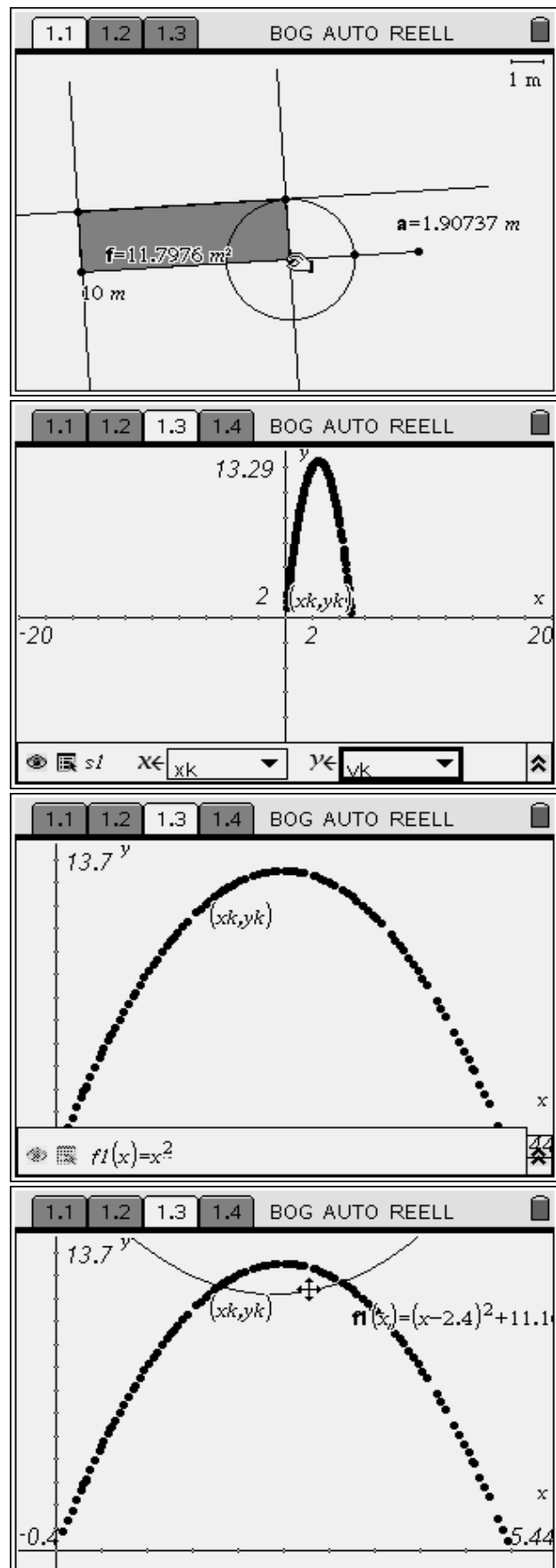


Go back to **Graphs & Geometry**. Vray the left boundary of the fence. If you choose the option *Automated data capture* you don't have to do anything except adjusting the relevant point. Chosing *Manual Data Capture* every single data has to be confirmed (**Data capture**).

Both Lists ***xk*** and ***yk*** are now displayed on a new page using the **Graphs & Geometry** application (**Trace**). These data can now be fitted to a graph of a parabola.

Draw the graph of the square function x^2 . In order to be able to get exact results, vary the **Window settings** of the axes.

The parabola can now be modified interactively. Adapt the parabola to the data measured.



Once the adaption is completed, the apex (i.e. the maximum) of the parabola can be read from the screen.

Additionally a point on the parabola can be designed in order to determine the maximum (point on). As this method works with every graph, it will be shortly described: the coordinates of the point on the graph are displayed automatically. Move the point on the graph to the maximum point. The letter **M** appears in a small box and the coordinates of the maximum point are displayed.

Result: With a left boundary of 2,5m the maximum area that can be created is approximately 12.5 sqm.

