

Guesstimating

How good can you estimate distances? As a group, select a starting point for your measurements.

| Description | Estimated Distance (m) | Actual Distance (m) |
|-------------|------------------------|---------------------|
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Step 1: Choose between five and nine objects in the room that appear to be less than 5 m away. Record them in the chart in the description column.

Step 2: Estimate the distances in meters or parts of a meter from your starting point to each object. If group members disagree, find the mean of your estimates. Record the estimates in your table.

Step 3: Measure the actual distances to each object and record them in the table.

Step 4: Draw coordinate axes and label the estimated distance on the x-axis and actual distance on the y-axis. Use the same scale on both axes. Carefully plot all your points.

Step 5: Describe what this graph would look like if each of your estimates had been exactly the same as the actual measurement. How could you indicate this pattern on your graph?

Step 6: Make a calculator scatter plot of your data. Use your paper-and-pencil graph as a guide for setting a good graphing window.

Step 7: On your calculator, graph the line $y = x$. What does this equation represent?

Step 8: What do you notice about the points for distances that were underestimated? What about points for distances that were overestimated?

Step 9: How would you recognize the point for a distance that was estimated exactly the same as its actual measurement? Explain why this point would fall where it does.

