

How Charts and Predictions Work.

All charts and predictions begin with a maximum. Most designate that maximum as 3,400 cM. That's a parent, child, and full sibling, although, full siblings are usually around 2,600 cM.

From that maximum of 3,400 cM, every relationship down from that, gets theoretically mathematically cut in $\frac{1}{2}$, to get an average. This is based on the theory that every child will inherit exactly $\frac{1}{2}$ of every single ancestor. It doesn't happen that way in real life, but, that's what charts do, just based on a simple mathematical formula.

3,400 cM

1,700 cM

850 cM

425 cM

212.50 cM

106.25 cM Etc.

The next relationship shown, is 1,700 cM, which is exactly $\frac{1}{2}$ of 3,400 cM. That's a $\frac{1}{2}$ sibling, grandparent, grandchild, aunt, uncle, niece, nephew, or double 1st cousin, where siblings from one family, marry and have children with siblings from another family. They're all in the same range, because they're all 1 step away from a parent, or 1 step away from a child.

The matching algorithms can't tell exactly which relationship that is. For 2 males, it could be $\frac{1}{2}$ brothers, grandfather and grandson, uncle and nephew, or double 1st cousins.

The next relationship shown, is 850 cM, which is exactly $\frac{1}{2}$ of 1,700 cM. That's a 1st cousin, great grandparent, great grandchild, grand aunt, grand uncle, grandniece, grandnephew, $\frac{1}{2}$ aunt, $\frac{1}{2}$ uncle, $\frac{1}{2}$ niece or $\frac{1}{2}$ nephew.

They're all in the same range, because they're all 2 steps away from a parent, or 2 steps away from a child.

The chart continues on, with every relationship further away from parent and child, continuously getting cut in $\frac{1}{2}$, getting smaller and smaller, until it disappears. This is why autosomal DNA is only good for about 5 generations back.

Once you understand how the charts work, it's really easy to figure out the predicted cM of relationships that aren't listed on charts.

Well, that's great for a theoretical mathematical chart for averages. But, see, here's the thing. DNA isn't inherited in perfect mathematical equations, like that. That's just not how it works in real life. DNA is inherited in random, uneven chunks; a lot from this ancestor, and very little or none from that ancestor, and so on.

This is why you will almost never have the same amount of cM that's shown on a chart. So, you look for the closest total that you and your match have. The amount you have could be kind of low, or kind of high, but you have to start somewhere.

Per Occam's Razor, which basically states to always go for the most obvious choice, first, then work out from there.

(Source from the internet)