

Combined DNA Relationship Prediction Chart

Last Update Jan 15, 2018
V1.1

Relationship

Parent/Child
Siblings (See note*)
Nephew, Niece, Uncle, Aunt
Half Siblings
Double first cousins
Grandparent, grandchild
Great Grandparent, Great grandchild
Great Uncle/Aunt/Niece/Nephew
Half nephew/niece/aunt/uncle
1st cousin
Half 1st cousin
1st cousin 1X
Half 1st cousin 1X
1st cousin 2X
2nd cousins
2nd cousins 1X
2nd cousins 2X
3rd cousins
3rd cousins 1X
4th cousins
5th cousins
6th cousins
more distant than 6th cousins

FTDNA / 23andMe / GEDMATCH DNA									ANCESTRY DNA				
Relationship	Total cMs (centimorgans)	Longest Segment	Number of Segments	Minimum Total cMs	Maximum Total cMs	Average % Shared DNA	Range % Shared DNA**	Probability of match showing ***	Sample	Total cMs	Avg cM	Total Segment	Average of shared Segments
									Size				
Parent/Child	3539-3748	~285	23 - 34	3539	3748	50.000%	47.29 - 50.66	100%	24	3314-3431	3396	70-106	83
Siblings (See note*)	2643- 2802	50 - 141	43 - 67	2643	2802	* 50.000%	* ~37.5	100%	14	2282-2695	2536	60-81	71
Nephew, Niece, Uncle, Aunt	1526 - 2082	95 - 163	38 - 52	1526	2082	25.000%	19.43 - 32	100%	22	1360-1873	1602	58-89	70
Half Siblings	1320 - 2100		29 - 33			25.000%	19.42 - 31.39	100%	16	1381-2033	1667	52-85	68
Double first cousins	~ 1500					25.000%		100%					
Grandparent, grandchild	1087 - 2297		20 - 47	1087	2297	25.000%	18.32 - 29.35	100%	2	1822-2091	1957	72-73	73
Great Grandparent, Great grandchild	572 - 1231		15 - 25	572	1231	12.500%		100%	1	636	636	28	28
Great Uncle/Aunt/Niece/Nephew	550 - 860	60 - 135	23 - 30	550	860	12.500%	9.5 - 12.3	100%	2	641-961	801	36-51	44
Half nephew/niece/aunt/uncle	684 - 1172	54 - 112	22- 47	684	1172	12.500%	9.6 - 15.8	100%	12	528-1078	843	25-46	36
1st cousin	548-1034	50 - 182	17 - 32	530	1128	12.500%	7.31 - 13.8	100%	17	560-1138	859	29-54	43
Half 1st cousin	~325	30 - 35	~21			6.250%	~4 - 7	100%	4	400-596	499	21-26	24
1st cousin 1X	220 - 638	34 - 106	12 - 26	218	638	6.250%	2.88 - 8.41	99%	20	204-536	401	16-32	23
Half 1st cousin 1X	~200	~28	~14			3.125%	~2 - 3.5	99%	4	30-226	99	2-12	6
1st cousin 2X	107 - 426	21 - 64		127	139	3.125%	1.42 - 5.68	99%	8	119-233	183	5-17	12
2nd cousins	101-378	31 - 61	10 - 18	73	383	3.125%	2.88 - 5.04	99%	40	99-464	233	8-21	14
2nd cousins 1X	19 - 197	19 - 81	4 - 12	19	197	1.563%	0.25 - 2.54	90%	60	19-435	117	1-28	7
2nd cousins 2X	12 - 72.5		1 - 6	12	72.5	0.781%	0.16 - 2.54	<90%	26	10-131	54	1-7	4
3rd cousins	43- 150		2 - 6	8	58	0.781%	0.3 -2.0	90%	77	6-135	50	1-10	4
3rd cousins 1X	11.5- 99		1 - 4	8	58	0.391%	0.11 - 1.32		112	5-202	31	1-8	3
4th cousins	5 - 50	0 - 24	0 - 4	8	58	0.195%	0.07 - 0.66	45 - 50%	71	5-128	26	1-7	2
5th cousins	0 - 33	0 - 10		0	27	0.049%	~0.049	10 - 15%	83	5-63	16	1-4	1
6th cousins							0.001 - 0.012	2 - 5%	31	5-43	12	1-3	1

remote - less than 2%

ANCESTRY PREDICTION CATEGORIES				
	cM Avg	cM Min	Max- Seg Avg	Max- Seg Min
PARENT_CHILD	3396	3431	-3314	83 106 - 70
IMMEDIATE_FAMILY	2536	3695	-2282	71 80 - 61
CLOSE_FAMILY	1636	2091	-1360	68 89 - 52
CLOSE_FAMILY- 1st COUS	1737	1850	-1638	76 82 - 72
FIRST_COUSIN	840	1138	- 418	40 54 - 25
SECOND_COUSIN	290	561	- 144	17 32 - 8
THIRD_COUSIN	98	139	- 72	6 12 - 2
FOURTH_COUSIN	32	71	- 18	3 7 - 1
DISTANT_COUSIN	10	18	- 5	1 4 - 1

* Everyone has two copies of each chromosome, one from mother, one from father. The DNA companies' matching algorithms do not treat the two copies separately. It is considered a match whether you share DNA on your maternal copy or your paternal copy or both. This is also the reason why full siblings who essentially share ~50%, but only ~37.5% is reported - the "missing" ~12.5% is where siblings match on both the maternal and paternal copies but only one is counted.

**To figure the % of shared DNA - add up the total cMs over 5 cMs and divide by 74, if X is included; by 71 if not. So if the total = 1700, take $1700/74 = 22.97\%$ and would fit into the range of a half-sibling, or

Sources:

Richard Weiss
Tim Janzen
Matt Dexter
CeCe Moore
Karin Corbeil

Diane Harman-Hoog
Kelley Wheaton
Kitty Munson Cooper
DNAAdoption Yahoo Group
DNA-Newbie Yahoo Group

http://isogg.org/wiki/Identical_By_Descent_segment
<http://cryokidconfessions.blogspot.com/2011/09/dna-numbers-game.html>
*** per John Walden analysis and info from CeCe Moore (Probability of match showing)