A Fun View Genetics

An Offspring has 50% of the Genetic Information of each of his/her parents. For purposes of this paper I will use the word 'allele' whose definition is: "***either of a pair (or series) of alternative forms of a gene that can occupy the same locus on a particular chromosome and that control the same characteristic"*** interchangeably with 'genetic information.' So, a child has 50% of the alleles of the Mother, and 50% of the alleles of the Father.

A child has 25% of the alleles (or genetic information) of each of his/her 4 biological grandparents [ie: his/her mother has 50% of each of her parents, and the child-in-question here has 50% of that; 50% of 50% is 25%].

A child has 50% of the alleles of his or her siblings of the same parents. This one is a little more controversial, as it is possible by random dispersal, one brother or sister could be more or less alike in similar alleles shared than another sibling of the same family, but for purposes of statistical odds, we can go with the 50% number. And it must be noted along those same lines, that if random characteristics get dispersed in different ways, particularly that of dominant and recessive genes, we get the phenomenon of a child or grandchild or niece, nephew of cousin, sometimes having more of a resemblance than others in the same family.

So, Grandparents share in common with their Grandchildren, 25% of their alleles or genetic information.

The "relationship" of the Great-grandchild to Great-grandparent is the sharing of 12.5% Alleles or Genetic information, that is: 50% of 50% of 50%.

The relationship of Aunt and Uncle to Niece and Nephew is….you got it, 25%; that is: a child-in-question here, let's say it is a boy, has 50% of the alleles of his parents' genetic information, and his mother shares 50% of the alleles with her sister, so his mother's sister and he share 50% of 50% which equals 25%.

That's an interesting observation, isn't it: a Niece and Nephew stand in the same genetic relation to their Aunts and Uncles as they do to their grandparents.

1st Cousins stand at 12.5%, that is, 1/8th in amount of alleles shared. [50% of the bloodline connection of the Aunt or Uncle parent, that is, 50% of 25%].

2nd Cousins, those children of a 1st cousin in relation to oneself as a 1st cousin, is 6.25%.

A Great Uncle or Great Aunt [or Great Nephew or Great Niece of such] stand at 12.5%.

Etc. Etc. Etc. Etc. Etc. Etc. Etc. Etc. Etc. Etc. Etc. Etc. Etc. Etc. Etc.

All this being said, keep all this in-mind in FAMILY TREES, but I bid you to consider the message in the other links related herein, particularly: The Mystery of the Blood Connection, which gives argument that a "blood tie" can be established without any direct sharing of any genetic information, a stronger tie sometimes, and many times more often, than the genetic tie.

The Chart

You	in Relation to Your:	Percentage of Alleles Shared	Fraction
	Mother	50%	one-half
	Father	50%	one-half
	Son	50%	one-half
	Daughter	50%	one-half
	Brother	50%	one-half
	Sister	50%	one-half
	Grandmother	25%	one-quarter
	Grandfather	25%	one-quarter
	Aunt	25%	one-quarter
	Uncle	25%	one-quarter
	Niece	25%	one-quarter
	Nephew	25%	one-quarter
	1st Cousin	12.5%	one-eighth
	2nd Cousin	6.25%	one-sixteenth
	Great-Grandmother	12.5%	one-eighth
	Great-Grandfather	12.5%	one-eighth
	Great-Grandchild	12.5%	one-eighth
	Half-Brother	25%	one-quarter
	Half-Sister	25%	one-quarter
	Great-Uncle & Aunt	12.5%	one-eighth
	Children of a Great Uncle & Aunt	6.25%	one-sixteenth
	Grand-Children of a Great Uncle & Aunt	3.125%	one-thirty-second