Grouping DNA Matches
on Ancestry
by Branches of the Family Tree

Preface

Autosomal DNA is the type of DNA we are focused on today. This is what I call the shotgun blast of DNA since it brings in DNA from all four of your grandparents and beyond. Autosomal DNA is the only test Ancestry provides, and you will also find it at all other DNA providers.
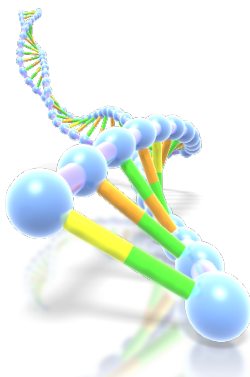
This Lesson

In this lesson we are digging deeper into using DNA to assist with family history research. While some of this document is duplicated in the previous YouTube video by the same name, we are focusing here on three major components.

1) Grouping Along Family Branches
2) Specific Projects
3) Ethnicity Estimates and How They Can Help

Parental Sides

In 2023, Ancestry introduced automatic grouping for parental sides, allowing you to easily separate your paternal matches from your maternal ones. At RootsTech 2023, they also announced plans to further divide DNA Cousin Matches into the four groups representing your grandparents. However, over a year later, this feature has yet to be implemented. In the meantime, we will manually group the four branches of your family tree using this method. Once you learn this approach, you can extend it to higher generations, such as your great-grandparents, and beyond.

GenealogyTV.org   YouTube.com/GenealogyTV

DNA Basics

In 2022 I produced a video called DNA Basics. If you are very new to DNA, I suggest you watch that video first to give you a foundation from which this lesson will make more sense.

Getting DNA from Each Parent

Briefly, you get about 50% of your DNA from each of your parents, as did they. Therefore, you have roughly 25% of the DNA from each of your grandparents. In this lesson we are focused on the concept of grouping your DNA matches into the four branches representing your grandparents lines.
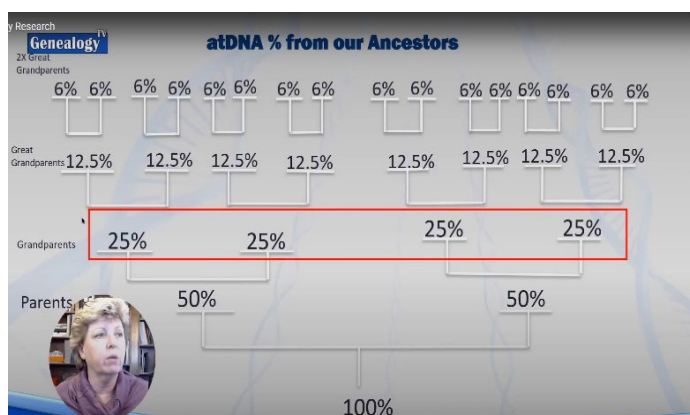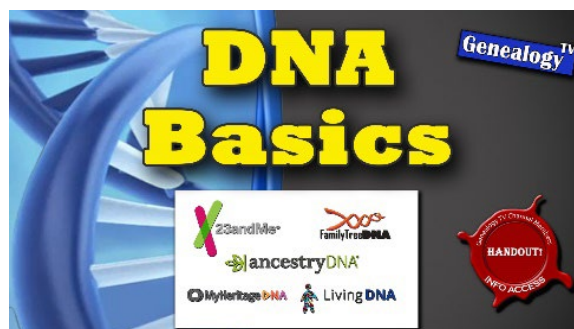
1 DNA Basics Video on GTV

Have You Taken a DNA Test?

If you have not done so already and would like to buy a DNA kit from Ancestry, here is my affiliate link that helps support the Genealogy TV channels. They also make great gifts but ask family before purchasing a DNA kit. They have the right to say no. Below are my affiliate links if you wish to help support the channel
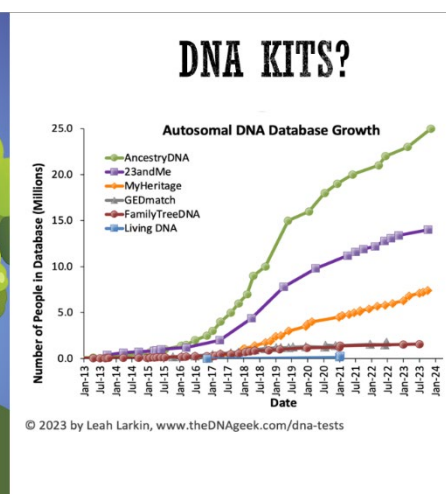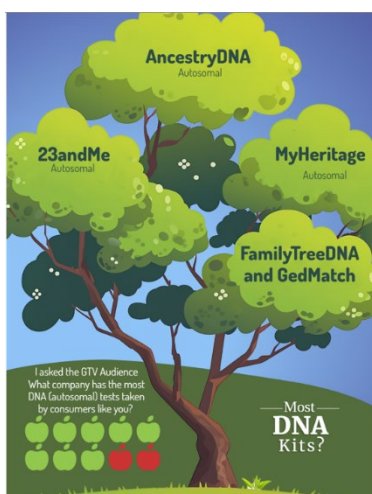
AncestryDNA + Traits (U.S.)
AncestryDNA (U.S.)
AncestryDNA (UK)
Ancestry World Explorer

DNA Companies

The most common DNA company is AncestryDNA. They have more test-takers than any other company. As of this writing, in 2024 they have approximately 25 million tests in their database helping you to find more DNA cousins than any other company.

Expect Surprises

Whenever one takes a DNA test, you never know what you might learn. Therefore, test takers should be ready for unexpected surprises in the form of newly found relationships they might not have known existed.

DNA Matches

DNA matches are genetic connections that are factual based on science. In these matches you will see centimorgan (cM) counts. This is a unit of measurement that shows you how closely related you are to each DNA match. The higher the number, the closer you are related. Ancestry (as well as other platforms) will give you a predicted or estimated relationship. However, because genetic relationships overlap in centimorgans, there may be more than one possible relationship, when you are not closely related (such as a parent-child relationship or full siblings). DNAPainter is a great tool for seeing all possible relationships by cM count or percentage of DNA. Here is an example of the various relationships for someone who matches at 250 cM.

2 DNAPainter.com

Why Group DNA Matches

Grouping the **Known Matches** and researching the **Unknown Matches** can help solve mysteries in your family tree. Regardless of if you group DNA matches or not, researching match trees and seeing what records they have collected for your ancestors may help verify your suspected ancestors.

The Concept of Grouping

Everything we do in genealogy, including DNA research, is **working from the known to the unknown.** Therefore, as we group our DNA matches into family groups (along branches of the tree) we are starting with the DNA matches we know, grouping them, and then seeing what is left or ungrouped. This process of elimination will help us discover DNA matches in branches we have yet to reveal in our family tree.

Understanding Common Ancestors and Cousin Relationships

Common Ancestors are ancestors you share with another person. Sometimes the common ancestor may be way up the tree. In the graphic here you can see an example of a DNA cousin who is a 4th cousin, once removed (4C1R).

Ideally when we are grouping matches, we want to find a closer match. The best cousin range to group the matches by the four grandparent branches is to use 2nd cousins from each branch of the family.

The G Rule

A quick way to know what cousins you have found (when you know who the common ancestors are) is what I coined as the G Rule. **Count the G's** for each **Great** and including **Grand**. So, if you found a DNA cousin who you share **G**reat **G**reat **G**randparents with, he or she is your 3rd cousin. If there is a generational difference, then add once removed. If there were two generational differences, then add twice removed.

The G Rule is not a perfect rule but helps in many cases. Keep in mind that you may have half relationships too, which might complicate your analysis. When in doubt, use the [Shared Matches tool on DNA Painter](#) to help you figure it out.

Ancestry's ThruLines® may help you figure out the relationship between you and your DNA cousins. However, ThruLines® is just an estimate based on other member trees along with DNA and may be incorrect. It is just a hint feature. Always verify with records!

Start with a Plan

While you could dive right in, it is best to start with a clear plan. Outlining your DNA groups before you begin will help keep you organized as you work through your matches. You can group your DNA matches in any way that works for you. In this lesson, I will show you how to group them based on the four branches of your grandparents' family tree.
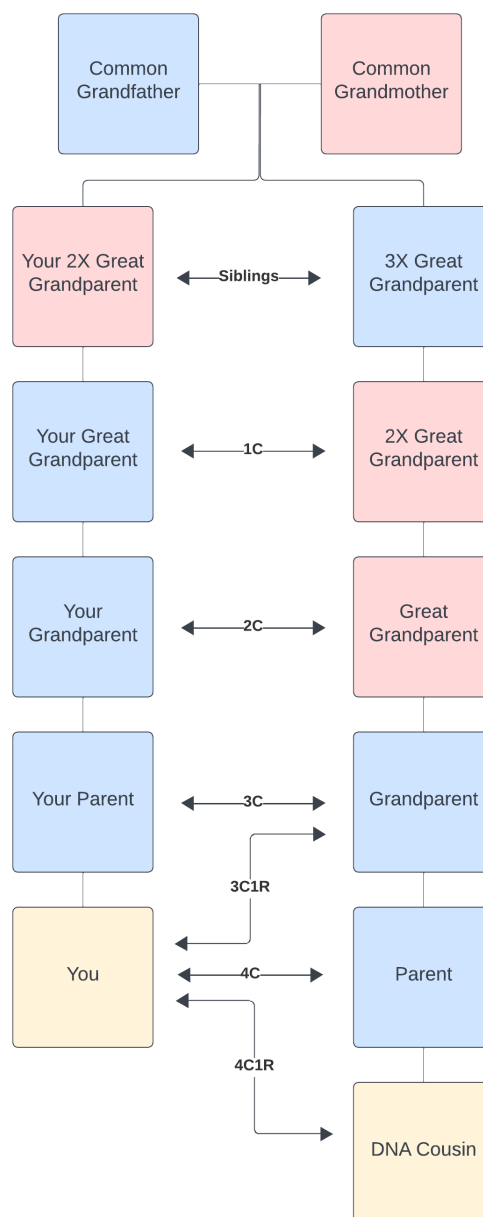
Map Out the Branches

In this example, I have used the new color codes provided by Ancestry and applied them to the family tree in the Ancestor view. You will notice that the cooler colors represent the paternal side, while the warmer colors represent the maternal side. This helps you quickly identify which side of the family your DNA cousins come from when viewing the entire unfiltered match list.

Using the surnames of the eight grandparents we have created four groups that will ultimately represent the four branches of the family tree.

To start assigning groups and colors to your DNA matches, go to the DNA tab, then select Matches to view your

unfiltered match list. If you have not done this before, you will not see any groups or colors yet. However, once you have grouped them, your list may look something like this. The DNA matches in this example have been blurred for privacy reasons. As Ancestry continues to roll out these tools, some of you may see colored dots. In this example, we see colored squares along with the first letter of the group title.
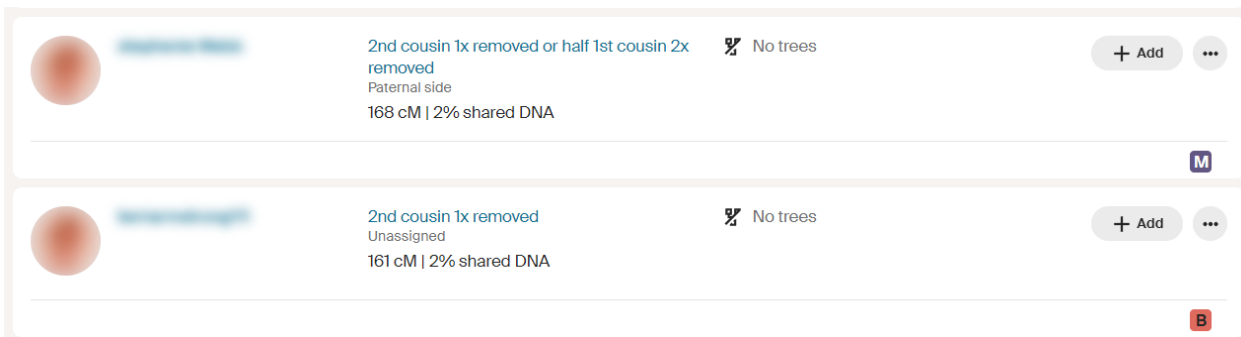
Initially, you may see just one letter next to each DNA match, but as you research, you may find DNA matches have multiple letters and colors assigned to each of them.

Before Moving On...

If you have not seen the Grouping Your DNA Matches on Ancestry by Branches of the Family Tree, it would help to do so. Academy members will find it here. This will give you a foundation for the next steps.

Detailed Steps for Grouping DNA Matches

Here we are repeating the steps with more detailed instructions.

Creating Groups - Assign Colors – and Names

If you are starting from nothing with no groups, you can create groups at the top of your DNA match list (under the DNA tab) by clicking the +Create Group button. Alternatively, you can click the +Add button next to a DNA match and choose "Create Group."

If you know the names of your grandparents, you can create a group using their surnames. Ideally, if you know your great-grandparents' surnames, use those to create the group, like Madsen-Jensen as shown above. Using the great-grandparents surnames will still represent your grandparent since they made that grandparent. As always, start with what you know and work your way toward the unknown.

Extended Family

	2nd cousin or half 1st cousin 1x removed Maternal side 327 cM | 5% shared DNA	Public linked tree 15 people Common ancestor	+ Add ...
	She is my Best Known Match for Booth-Smith. Descends from the Oliver Booth a...		B B B
	2nd cousin or half 1st cousin 1x removed Paternal side 296 cM | 4% shared DNA	No trees	+ Add ...
	BKM Henley-Winslow - 1C1R...		H D W B
	2nd cousin or half 1st cousin 1x removed Maternal side 270 cM | 4% shared DNA	Unlinked tree	+ Add ...
			B C C
	2nd cousin Paternal side 255 cM | 4% shared DNA	Unlinked tree	+ Add ...
	BKM from Madsen-Jensen line. . Comes down the Madsen Pharis line.		M M J B

Find the "Best Known Match"

To identify your **Best Known Match**, scroll through your DNA matches to **find a cousin in the 2nd to 3rd cousin range**. In some cases, a **1st cousin once removed may also work**, depending on your family tree. Second cousins are descendants of your great-grandparents, which is why we focus on this relationship—they come from the same branch of the family that produced your grandparents. Look for a second cousin from a known branch of the tree, skipping over immediate family members. On Ancestry, you can typically find 2nd cousins in the **Extended Family section**.

Look for a 2nd or 3rd cousin with the highest cM count relative to you. Try to identify where they fit in your family tree. Do they share a common ancestor that might offer helpful context? Review their family tree to determine their relationship to you.
If you can figure out how they fit into your family tree and they have the highest cM count for that branch, then this person is your "Best Known Match." If you cannot establish a connection, move to the next DNA cousin match, and see if you can determine their relationship. Once you do, use that person as your "Best Known Match."

While it is beneficial if your Best Known Match has a family tree, it is not a requirement. **You can still work with a Best Known Match who does not have a tree**, **as long as you have access to the Shared Matches Tool (Pro Tool)**. Be sure to **make a note of your Best Known Match in the Note section**. You may want to **create a group called BKM** (Best Known Match) so you can filter to just those matches. BKM's may change over time as closer related matches test.

Shared Cousin Match Tool

Now that you have identified your "Best Known Match," it is time to find the DNA cousins you both share. To see who you and this match share DNA with, click on the **Shared Matches Tool** (Pro Tool). Without the add-on subscription to Pro Tools, you will only see the top three DNA matches.

Once you access the Shared Matches Tool, the list will display all the DNA cousins you share with your Best Known Match, meaning both you and your match have a genetic connection to everyone on the list. **You can now group everyone in that list under the same group. The best part is you can see the relationship between your BKM and all of those DNA Cousins. Look for closer relationships that you have with some of those in the list. They may hold clues.**

Adding DNA Cousins to Groups

Here is a step-by-step guide for grouping DNA cousins after deciding on your grouping method:

1. Decide how you want to group your DNA cousins (e.g., by grandparent branches or another method).
2. Click on the Shared Matches Tool from a DNA match you are interested in.
3. To add a DNA match to a group, find the +Add button next to each DNA match in the list.
4. Select Add/Edit Groups from the menu that appears.
5. Choose an existing group from the side panel or create a new one.
6. Before closing the box, make sure you check the box next to the group you want to assign the DNA match to.
7. Repeat this process for each DNA match you want to group.

Research DNA Matches by Groups

Once you have created a few groups, the fun begins. You can use the filters at the top of your unfiltered DNA match list to find DNA cousins who might hold clues to your ancestry. The important thing about these filters is that they are stackable. Instead of being an OR filter, they work as an AND filter, allowing you to refine your search. For example, you can filter by a group you have created and then add a search for a specific surname you are investigating. This layered filtering can help you uncover more targeted insights into your family history.

Exceptions

Endogamy & Pedigree Collapse

Endogamy and Pedigree Collapse are both concepts that can affect genealogical research, but they differ in how they occur. Endogamy refers to the practice of marrying within a specific community or group

over many generations, resulting in a higher-than-usual amount of shared DNA among members. This can make it appear that people are more closely related than they really are, complicating DNA analysis. Pedigree Collapse, on the other hand, occurs when two related individuals have children, causing the same ancestors to appear multiple times in a family tree. This reduces the number of unique ancestors and can increase the amount of shared DNA between descendants, but unlike endogamy, it is typically the result of a specific relationship in a limited number of generations rather than a long-term community-wide pattern.

In this image, you can see the Keziah Nixon and John Henley are in the tree in two different branches of the tree.

Tracing that down to Henry Henley and Nancy Winslow, we can determine that they were second cousins because they share the same great grandparents.
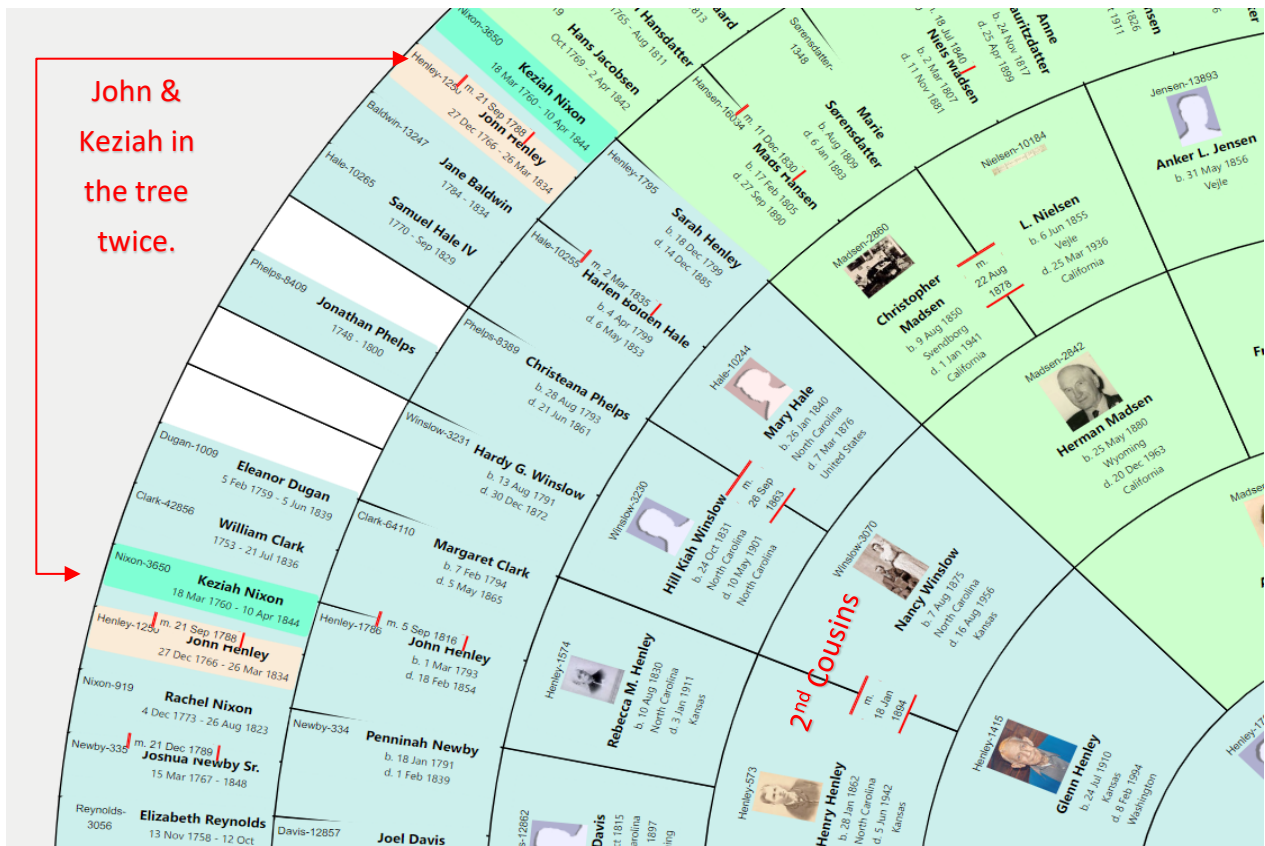
3 Example of Pedigree Collapse - WikiTree

Strategies

Starting with a clear goal, research question, or purpose in mind will help determine which strategy to use. Whether you are looking to identify an unknown ancestor, confirm a relationship, or explore a specific branch of your family tree, having a defined objective will guide your approach and help you select the most effective methods for analyzing your DNA matches. This focus ensures that your research remains targeted and productive.

Filtering to the Problem

Explore filtering options such as parental side, tree types, cM range, groups you have created, or whether you have viewed a DNA match, to significantly narrow down the number of matches for your specific research. Additionally, the search menu offers even more ways to refine your search. You can search by surname, match name, or birth location (from your matches' trees). The most effective strategy is often combining a surname search with a group filter from the branch of the family tree you have previously identified. This will help you zero in on the most relevant matches.

Special Projects

Now that you understand how to group your DNA matches along the branches of your family tree, it is time to put this method into practice with special projects. Start by defining the problem you want to solve. Who or what do you want to learn more about? Identifying your focus will help guide your research as you analyze and group your DNA matches to uncover more information about that particular ancestor or branch of your family tree.

It is easy to get distracted while working through special research problems, so it is important to write out your specific research question and your plan to solve it. Having a clear focus will keep you on track and help guide your approach as you work through your DNA matches and family tree. Define exactly what you are trying to discover and outline the steps you will take to answer your question. This plan will serve as a roadmap for your research, helping you stay organized and avoid distractions.

Here are some ideas for tackling those individuals research problems.

- Create a Lucid Chart (free at LucidChart.com) to help you think through and **map out the relationships or suspected relationships**. Think of it like a scrap piece of paper. It is super easy.
- Use a **spreadsheet to map out or list your cousin matches**.
- Create **a horizonal family tree in Lucid Chart and color code the known ethnicities** using the detailed comparison in the DNA by Parent, then Regions, then scroll down to ethnicities.

Difference Between Ethnicity Results and DNA Matches

What is the difference between ethnicity estimates and DNA Matches? DNA Matches are your genetic cousins, without a doubt, where as ethnicity estimates will change over time as the database grows. How can Ethnicity Estimates help?

Ethnicity Estimates

Ethnicity estimates are *estimates* of your geographic origins. This is based on your DNA inherited and where those genetic ancestors are known to be from. However, keep in mind that ethnicity estimates are "estimates" based on family tree and other data. **As research and DNA reference panels grow, estimates will change over time.**

The estimated ethinicity can be helpful when trying to determine the possible homelands from unknown branches of the family. For example, I know that **24% of my DNA comes from Denmark & Norway** on my **father's side** of the family. I have researched this and one quarter of my tree comes from the Danish homeland. I also know that the other **25 % of my paternal side comes from England**. Since my mother was adopted we knew very little about her side of the family, so through **process of elimation** we have about **17% left from the England and Northwest Europe** and a large **(26%) from Scotland**, and **(7%) from Ireland**. There are no Scottish or Irish ancestors on my fathers side, so this must be coming from my mothers side.

Ancestral regions

Your DNA looks most like DNA from these 7 world regions

We compare your DNA against a worldwide reference panel to see which populations your DNA looks most like.

How do we calculate this?

Region	%
England & Northwestern Europe	37% >
Scotland	26% >
Sweden & Denmark	22% >
Ireland	9% >
Norway	3% >
Wales	2% >
Cameroon, Congo & Western Bantu Peoples	1% >

View all 2,600+ regions tested

DNA by Parent

We can also see ethnicity by parental sides by drilling into the DNA by Parent. On **Ancestry** go to **DNA**, then **Origins**, then **scroll down** the right side panel until you see **Your DNA by Parent** and **click** into the **Regions by Parents** link.

Then scroll down to the Detailed Comparison. Here you can see which side of the family you are getting your DNA estimates from.

DNA by parent **PLUS**

Your DNA by parent

Your parents each contributed half of your DNA. Now, you can see which regions and journeys you inherited from each parent—even if they haven't taken tests.

How we identify this

Inherited from Maternal side

Inherited from Paternal side

Regions by parent

Here you can see that the Scottish and Irish are coming primarily from my mother's side of the family along with some English. There is a 2% sliver from Ireland on my father's side. Estimates may change over time as more people get tested.
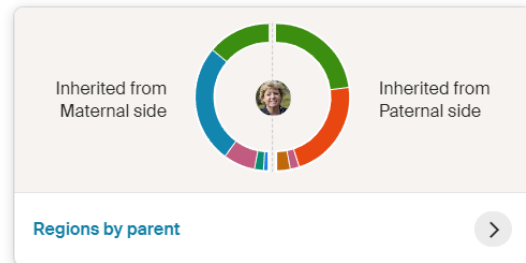
If you do the division for each generation (50% from each parent, then 25% from each grand parent, and so on) you can guess that the 2% DNA might come from your 4x-5x great grandparents.

Detailed comparison [Share] [Edit parent labels]

Same data, more detail. This chart shows the percentages of each region you inherited from your parents. Added together, the percents from each parent for a region equals your percent for that region.

Region	Maternal	Paternal	You
Total: 7	50%	50%	100%
● England & Northwestern Europe	14%	23%	37%
● Scotland	26%	0%	26%
● Sweden & Denmark	0%	22%	22%
● Ireland	7%	2%	9%
● Norway	0%	3%	3%
● Wales	2%	0%	2%
● Cameroon, Congo & Western Bantu Peoples	1%	0%	1%

Ethnicity Results

Using Ethnicity Results and a process of elimination can help you better understand your ancestors' origins. By reviewing your known ethnicity estimates and comparing them to what is left unexplained (the unknown branches), you may gain insights into which family branches have yet to be traced and where they might have originated. This method can provide valuable clues about the geographic regions or populations that make up your ancestry.
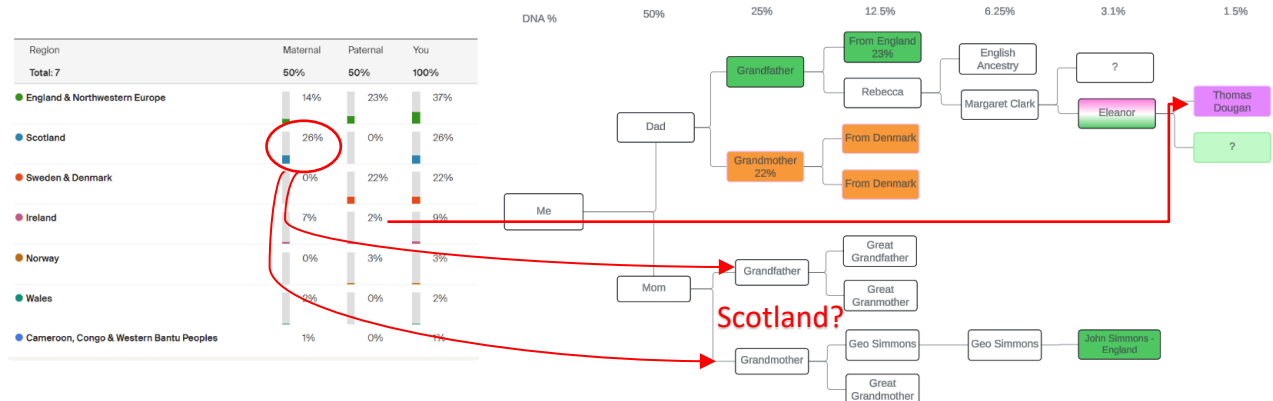

Using traditional genealogical research, we believe that Thomas Dougan came from Ireland. That fits with the approximate 2% DNA on the paternal side. This 2% likely came from that one ancestor or perhaps a combination of two ancestors one more generation back somewhere on the paternal side.

Mapping out where your ethnicity estimates come from can help determine the unknown parts of your tree. For example, according to my ethnicity estimates there is 0% Scottish ancestry on my paternal side.

All of the 26% is on my maternal side. It is possible that one of my grandparents on the maternal side was 100% Scottish. Keep in mind that there could be some combination of Scottish DNA in both of those grandparents. Knowing the Simmons line comes from England helps narrow the possibilities. Keep researching the records and mapping out the known heritage. This may give you clues to the unknown family origins.

Use this for grouping DNA Matches on Ancestry using their colors.

Great Great Grandparents
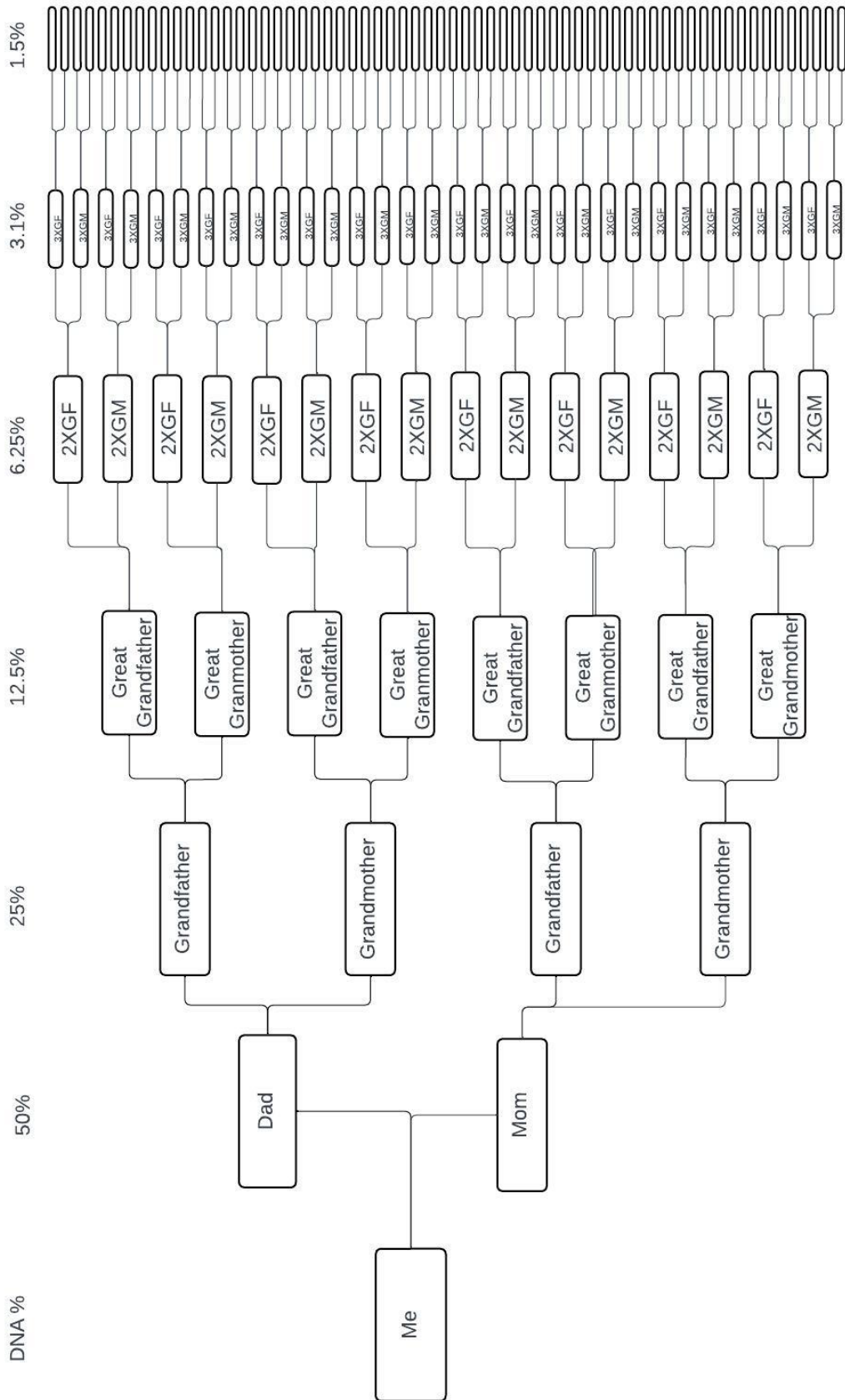
Great Grandparents

Grandparents
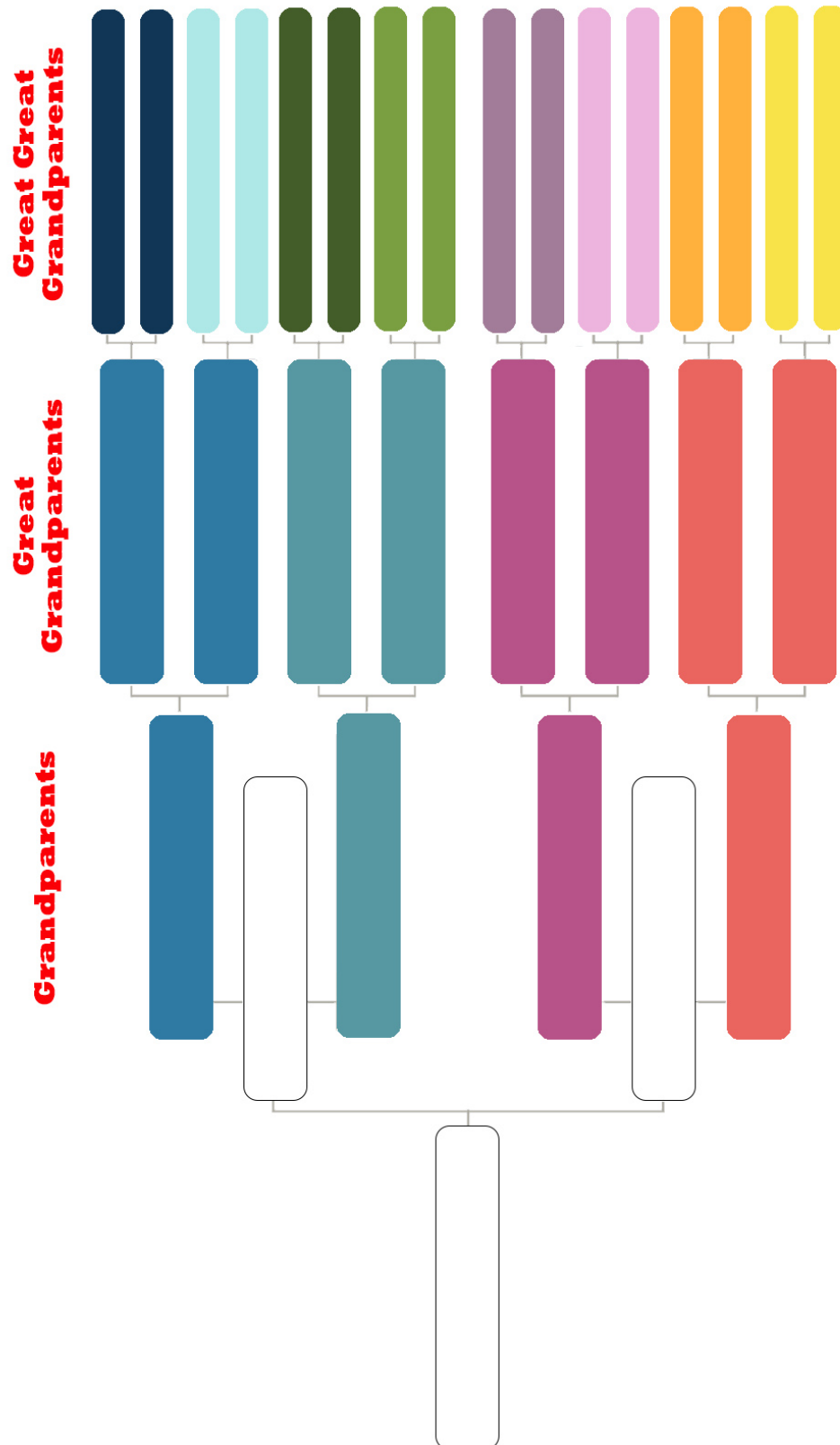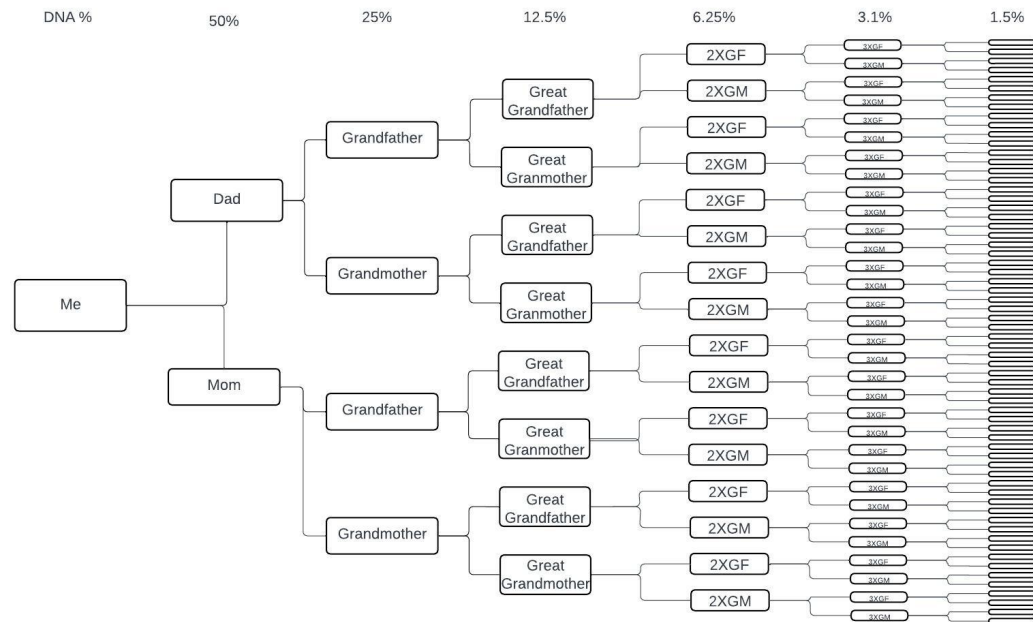
Ethnicity Map

Create an Ethnicity Map. This was created on Lucid Chart. You can do the same with a free account or use a larger version of the map on the next page.

Tips for Using Lucid Chart:

- Use shapes to create blocks or circles.
- Change the default arrows to no arrow.
- To connect blocks hover over a block until you see handles. Grab a handle and connect to the next blocks handle.
- Use the paint bucket to fill in the selected block with the color of your choice.
- Consider making a legend for each of your ethnicities. I used similar colors as that on Ancestry.
- Save under the file name. Lucid Chart saves frequently but save again just to be safe.

Here is a link to the Lucid Chart as a blank form. You should be able to save it and then edit it under your own account without editing mind (I hope).

DNA %

50%

25%

12.5%

6.25%

3.1%

1.5%

Me

Dad

Mom

Grandfather

Grandmother

Grandfather

Grandmother

Great Grandfather

Great Granmother

Great Grandfather

Great Granmother

Great Grandfather

Great Granmother

Great Grandfather

Great Grandmother

2XGF 2XGM 2XGF 2XGM 2XGF 2XGM 2XGF 2XGM 2XGF 2XGM 2XGF 2XGM 2XGF 2XGM 2XGF 2XGM

3XGF 3XGM 3XGF 3XGM 3XGF 3XGM 3XGF 3XGM 3XGF 3XGM 3XGF 3XGM 3XGF 3XGM 3XGF 3XGM 3XGF 3XGM 3XGF 3XGM 3XGF 3XGM 3XGF 3XGM 3XGF 3XGM 3XGF 3XGM 3XGF 3XGM 3XGF 3XGM

Here is a blank version in case you want to write in it.

1.5%

3.1%

6.25%

12.5%

25%

50%

DNA %