

**INVESTIGATING YOUR HERITAGE: DNA, DIARIES,  
DOCUMENTS OR DATABASES?**



**JENNIFER DAUGHERTY  
NORTH CAROLINA COLLECTION LIBRARIAN**

# What is Genealogy?



- The study of the history of families using historical documents to discover the relationships between people. \*Macmillan Dictionary
- A record or account of the ancestry and descent of a person, family, group, etc. \*dictionary.com

# Genetic Genealogy

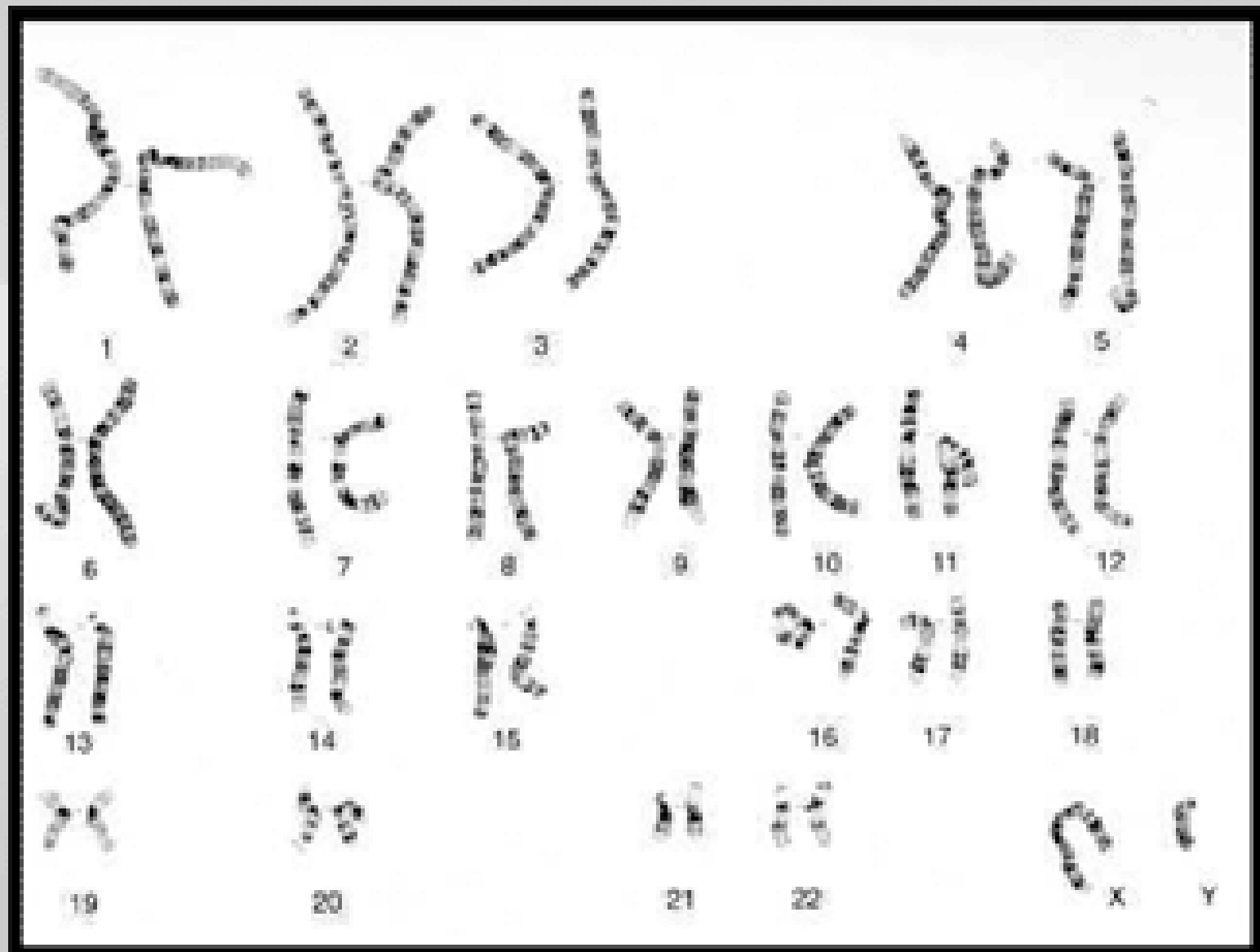


- “the use of DNA testing in combination with traditional genealogical and historical records.”
- International Society of Genetic Genealogy: Great resources



22 Pairs Autosomes  
1 Pair of Sex Chromosomes  
(XX or XY)  
1 from each pair from mother  
1 from each pair from father

# Pictures of Chromosomes



# 4 Different Types of DNA:



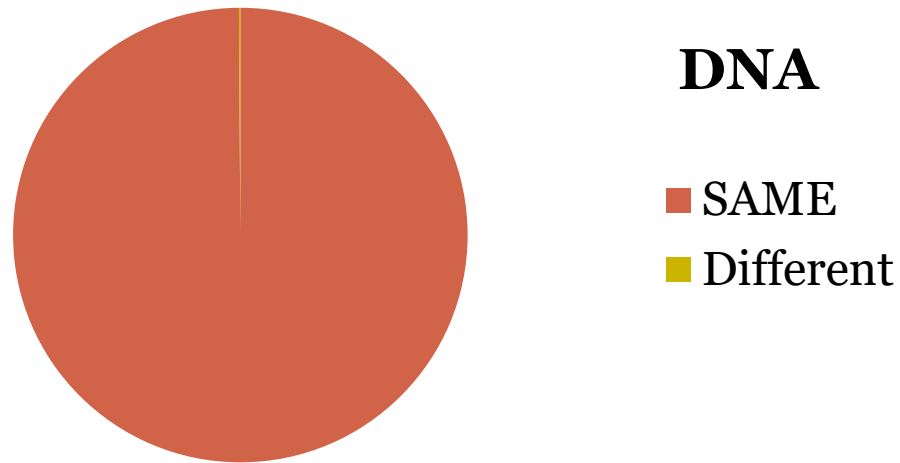
**Y-DNA**

**X-DNA**

**Autosomal DNA**

**Mitochondrial DNA**

99.9% ALL HUMAN DNA IS THE SAME  
.1% Makes us individuals



# Y-DNA



Y Chromosome.  
Males Only.  
Father-to-son.  
Slow to change.  
Good for Surname Projects.



# What are the Y tests measuring?



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## STR- Short Tandem Repeats

Parts of the DNA that repeat in particular locations.

**A**denine, **T**hymine, **C**ytosine, and **G**uanine

**TGTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTT**  
**GTTGTTGTTGTTGAC** (This is 12 repeats.)



**Table 1. Sample Y-DNA STR Results**

<b>DYS#</b>	393	390	19	391	385a	385b	426	388	439	389-1	392	389-2
<b>Alleles</b>	13	24	14	10	11	14	12	12	12	13	13	29

This test looked at 12 locations.

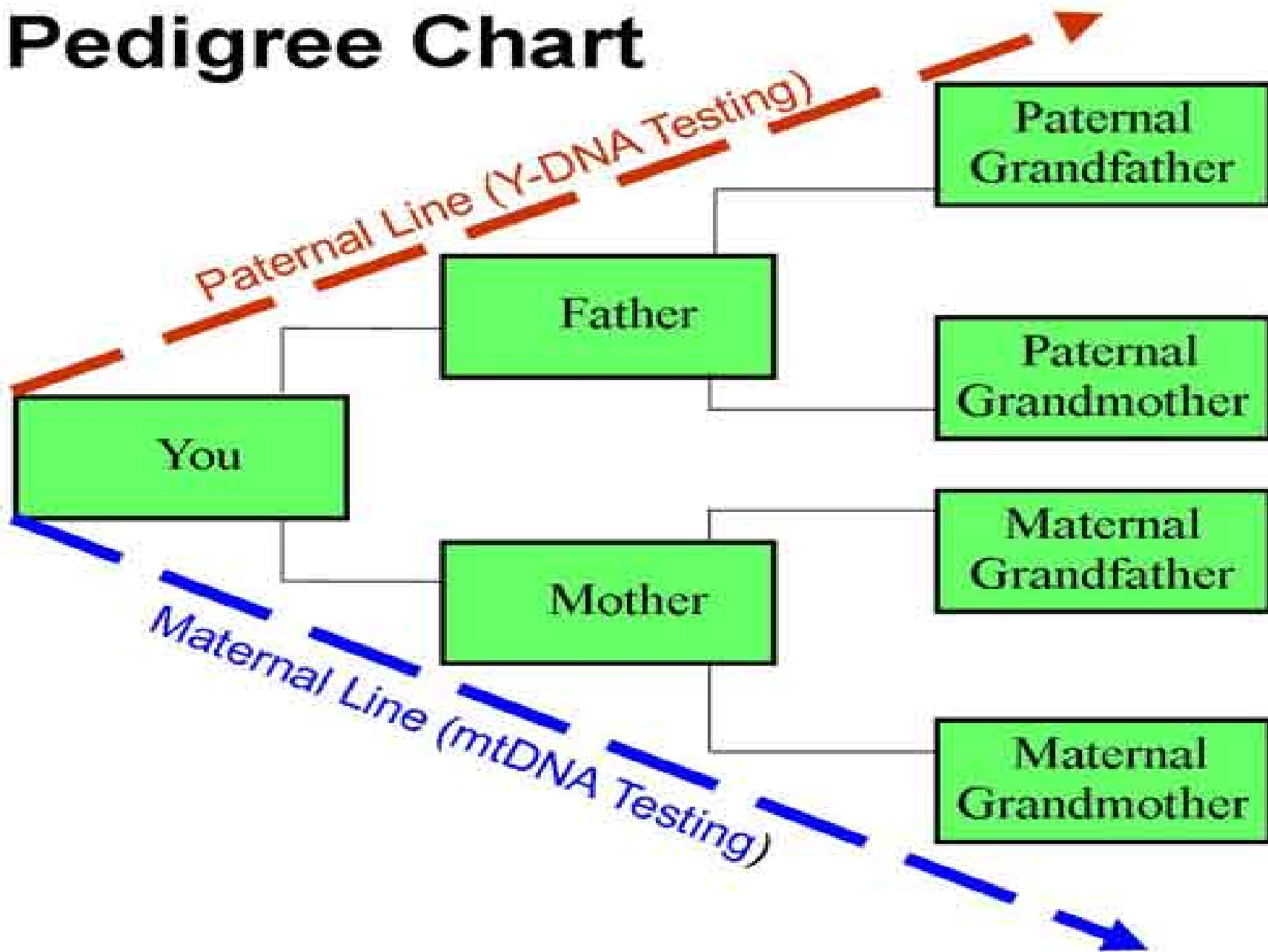
Compare those results to others to find relationships.

# Y-DNA



- Locations have been assigned where there are commonly found repeats. Your results tell how many repeats you have in that area.
- The more locations they test, the more accurate.
- You inherit repeats from your ancestors.

# Pedigree Chart



Number of matching markers	50% probability that the MRCA was no longer than this number of generations	90% probability that the MRCA was no longer than this number of generations	95% probability that the MRCA was no longer than this number of generations
10 of 10	16.5	56	72
11 of 12	17	39	47
12 of 12	7	23	29
23 of 25	11	23	27
24 of 25	7	16	20
25 of 25	3	10	13
35 of 37	6	12	14
36 of 37	4	8	10
37 of 37	2 to 3	5	7
65 of 67	6	12	14
66 of 67	4	8	9
67 of 67	2	4	6

# Courtesy of Smith Family DNA Project

To see details on this collaborative group, including sources, children and locations, click on the tree icon and pedigree icon associated with each kit, below, or the master tree if there is one for this group. We invite you to join us and share additional information such as children, sources, and locations in order to discover and verify all connections between DNA testing members.....[Read More Description](#)

Do you see how these kits connect? Think a better grouping? Additional info on any? Sources? Corrections? Want to add to this group description to make it more informative and useful? Come Discuss on the Smith DNA Guestbook Forum for Smith DNA Group GRP-R-M269-54 or Send Email to Smith admins

YDNA Modal Baseline	Migration	Haplo-ISOGG	13	24	15	10	11	14	12	12	10	14	13	30	16	9	10	11	11	24	15	20	30	15	15	16	17	11	11	19	23	15	15	19	18	37	41		
(Smith DNA Kit #143498-FTD)(67)	G	Thomas Smith b c1634 ENG.; d 1724 New Haven, CT	R-Z253/ISOGG	13	24	15	10	11	14	12	12	10	13	13	29	16	10	10	11	11	24	15	20	30	15	15	16	17	11	11	19	23	15	15	19	18	37	41	
(Smith DNA Kit #216226-FTD)(37)	G	Thomas Smith, bc. 1634 and d. 1724, New Haven, CT	R-Z253/ISOGG	13	24	15	10	11	14	12	12	10	14	13	30	16	9	10	11	11	24	15	20	29	15	15	16	17	11	11	19	23	15	15	19	18	37	41	
(Smith DNA Kit #45012-FTD)(37)	G	David Smith b 1770 IRE d Washington Co VA	IRE>VA	R-M269/ISOGG	13	24	15	10	11	14	12	12	10	14	13	30	16	9	10	11	11	24	15	20	29	15	15	17	17	11	11	19	23	15	15	19	17	37	40
(Smith DNA Kit #N39426-FTD)(37)	G	George Hempleton Smith of Newark, OH	OH>OH	R-Z253/ISOGG	13	24	15	10	11	14	12	12	10	14	13	30	16	9	10	11	11	24	15	20	30	15	15	16	16	11	11	19	23	15	15	19	17	37	40
(Smith DNA Kit #126487-FTD)(25)	G	Anson A. Smith b 1808 Windsor Co., VT; parents of CT	R-Z253/ISOGG	13	24	15	10	11	14	12	12	10	14	13	30	16	9	10	11	11	24	15	20	30	15	15	16	17											
(Smith DNA Kit #209504-FTD)(67)	G	Ned Henry Noyes	R-Z253/ISOGG	13	24	15	10	11	14	12	12	10	14	13	30	16	9	10	11	11	24	15	20	30	15	15	16	17	11	11	19	23	15	15	19	18	37	40	
(Smith DNA Kit #176457-FTD)(67)	G	Thomas Smith b c1634 ENG.; d 1724 New Haven, CT	ENG>CT>CT	R-Z253/ISOGG	13	24	15	10	11	14	12	12	10	14	13	30	16	9	10	11	11	24	15	20	30	15	15	16	17	11	11	19	23	15	15	19	18	37	41
(Smith DNA Kit #28849-FTD)(67)	G	Thomas Smith b c1634 ENG.; d 1724 New Haven, CT	ENG>CT>CT	R-Z253/ISOGG	13	24	15	10	11	14	12	12	10	14	13	30	16	9	10	11	11	24	15	20	30	15	15	16	17	11	11	19	23	15	15	19	18	37	41
(Smith DNA Kit #141726-FTD)(67)	G	Anson A. Smith b 1808 Windsor Co., VT; parents of CT	R-Z253/ISOGG	13	24	15	10	11	14	12	12	10	14	13	30	16	9	10	11	11	24	15	20	30	15	15	16	17	11	11	19	23	15	15	19	18	37	40	
(Smith DNA Kit #95454-FTD)(67)	G	Thomas Smith b c1634 ENG.; d 1724 New Haven, CT	ENG>CT>CT	R-Z253/ISOGG	13	24	15	10	11	14	12	12	10	14	13	30	16	9	10	11	11	24	15	20	30	15	15	16	17	11	11	19	23	15	15	19	18	38	41
(Smith DNA Kit #N24447-FTD)(25)	G	John Smith b c1729 Preston, Scotland	Scotland	R-Z253/ISOGG	13	24	15	10	11	14	12	12	10	14	13	30	16	9	10	11	11	24	15	20	30	15	15	17	17										
(Smith DNA Kit #133785-FTD)(67)	G	Marcus Hamilton b 1847 Rutherford Co NC	NC>NC>NC	R-M269/ISOGG	13	24	15	10	11	15	12	12	10	14	13	30	16	9	10	11	11	24	15	20	31	15	15	17	17	11	11	19	23	15	15	19	17	37	40
(Smith DNA Kit #24085-FTD)(67)	G	Robert Smith b c 1733 IRE	IRE>KY>PA>OH	R-P312/ISOGG	13	24	15	10	12	14	12	12	10	14	13	30	16	9	9	11	11	24	15	20	30	15	15	16	17	11	11	19	23	15	15	19	17	37	41

Y Y  
G C C  
A A A  
A I I  
T - -  
A I I  
C C  
D D  
Y Y

# X-DNA



- Not tested as a standalone
- XX Female (X from mother and father)
- XY Male (X from mother, can help exclude what side matches are from?)

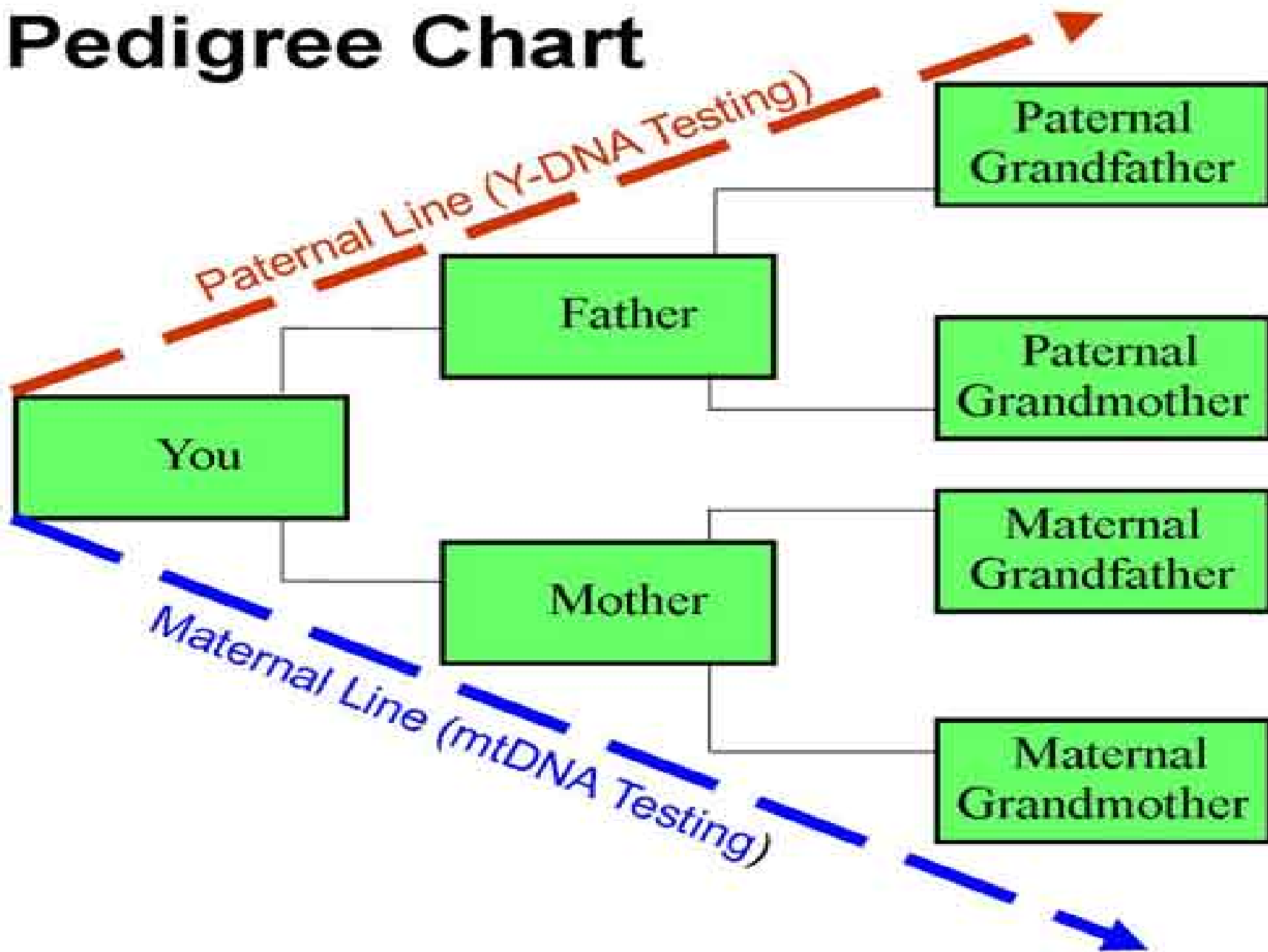
# mtDNA:



- Mitochondrial DNA (outside the nucleus of the cell).
  - Females and Males inherit.
  - Mother to son or daughter.
  - Males can not pass mtDNA.
  - Slow to change.
  - Can track for thousands of years on maternal lines.
    - ✦ Cousins can share the same mitochondrial DNA.
    - ✦ Used to help identify remains from Vietnam.

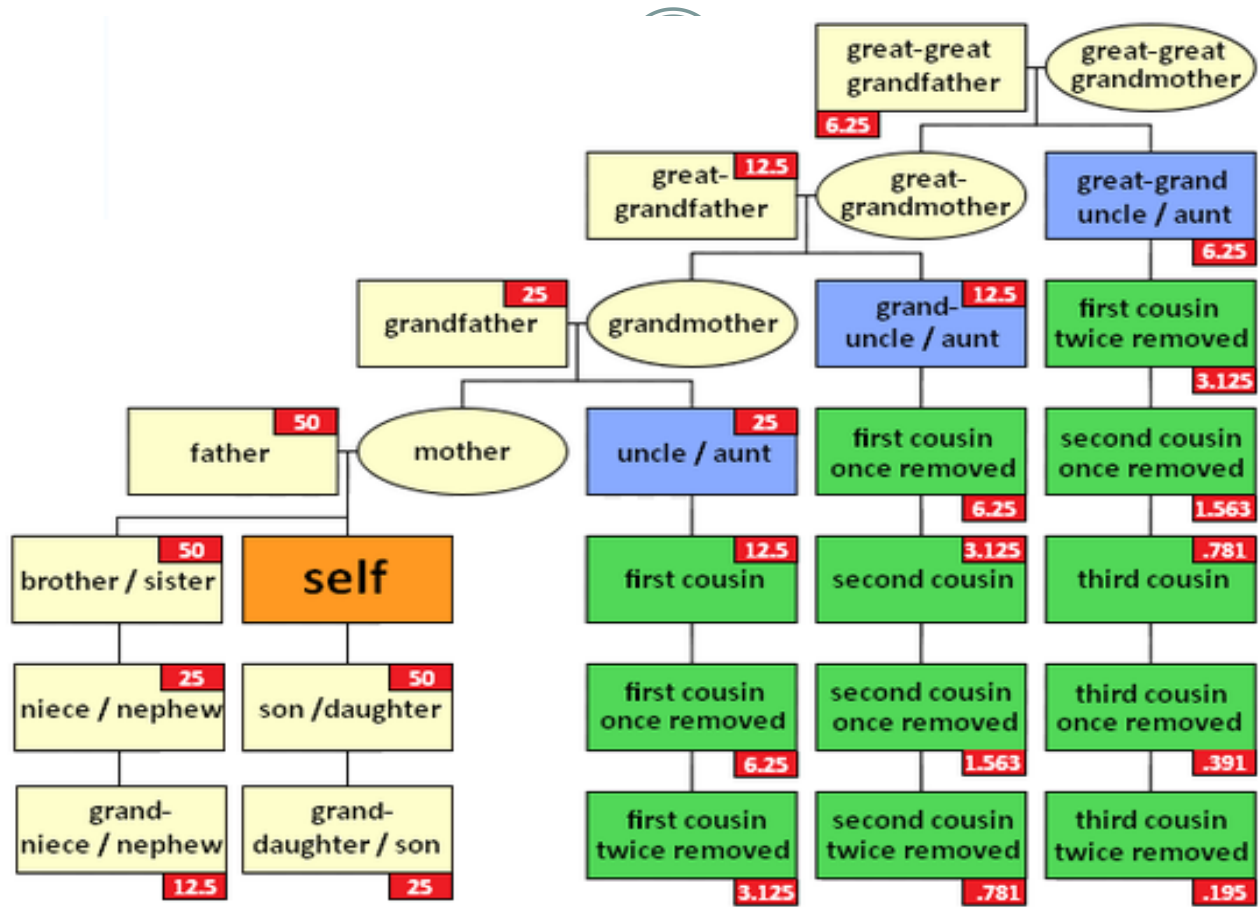


# Pedigree Chart



# atDNA

- **22 Pairs Autosomal Chromosomes**
  - Males and Females.
  - Inherit half from mother and half from father.
  - Random mixture through recombination.
    - ✦ Because the DNA mixes it can not be traced as far back the same way as Y and Mitochondrial.



Courtesy: Wikimedia commons



- cM- Centimorgans = unit of recombinant frequency which is used to measure genetic distance

Parent/child: 3539-3748 centimorgans (cMs)

1st cousins: 548-1034 cMs

1st cousins once removed: 248-638 cMs

2nd cousins: 101-378 cMs

2nd cousins once removed: 43-191 cMs

3rd cousins: 43- 150 cMs

3rd cousins once removed: 11.5-99 cMs

4th and more distant cousins: 5-ca 50 cMs

## Can autosomal tests help you find ancestors?



- If others have their tree loaded, it can help you confirm common ancestors.
- Find cousins or other relatives.
- Adoptees are using it to find parents.
- Donor children finding other siblings and relatives.





# Gedmatch.com



Kit Nbr	Type	List	Select	Sex	Haplogroup		Autosomal				X-DNA			Name	Email
					Mt	Y	Details	Total cM	largest cM	Gen	Details	Total cM	largest cM		
A300706	F2	<a href="#">L</a>	<input type="checkbox"/>	F	<a href="#">v</a> <a href="#">A</a>	<a href="#">v</a> <a href="#">A</a>	<a href="#">A</a>	116.4	24.3	3.5	<a href="#">X</a>	<a href="#">v</a>	<a href="#">v</a>		
F131560	F2	<a href="#">L</a>	<input type="checkbox"/>	U		R1b1a2a1a1a8	<a href="#">A</a>	52	52	4.1	<a href="#">X</a>	0	0		
F259730	F2	<a href="#">L</a>	<input type="checkbox"/>	M	H5a1-T152C!	I-M223	<a href="#">A</a>	46.1	46.1	4.1	<a href="#">X</a>	0	0		
F83676	F2	<a href="#">L</a>	<input type="checkbox"/>	M		R-M269	<a href="#">A</a>	47.5	37.8	4.1	<a href="#">X</a>	0	0		
A836467	F2	<a href="#">L</a>	<input type="checkbox"/>	F			<a href="#">A</a>	48.3	27.5	4.1	<a href="#">X</a>	0	0		
A629046	F2	<a href="#">L</a>	<input type="checkbox"/>	M			<a href="#">A</a>	45.7	31.6	4.1	<a href="#">X</a>	0	0		

Shared cM= 116.4

2nd cousins: 101-378 cMs

2nd cousins once removed: 43-191 cMs

3rd cousins: 43-ca 150 cMs



Kit Nbr	Type	List	Select	Sex	Haplogroup		Autosomal				X-DNA			Name	Email
					Mt	Y	Details	Total cM	largest cM	Gen	Details	Total cM	largest cM		
A300706	F2	<a href="#">L</a>	<input type="checkbox"/>	F			<a href="#">A</a>	116.4	24.3	3.5	<a href="#">X</a>	17.5	17.5		
F131560	F2	<a href="#">L</a>	<input type="checkbox"/>	U		R1b1a2a1a1a8	<a href="#">A</a>	52	52	4.1	<a href="#">X</a>	0	0		
F259730	F2	<a href="#">L</a>	<input type="checkbox"/>	M	H5a1-T152C1	I-M223	<a href="#">A</a>	46.1	46.1	4.1	<a href="#">X</a>	0	0		
F83676	F2	<a href="#">L</a>	<input type="checkbox"/>	M		R-M269	<a href="#">A</a>	47.5	37.8	4.1	<a href="#">X</a>	0	0		
A836467	F2	<a href="#">L</a>	<input type="checkbox"/>	F			<a href="#">A</a>	48.3	27.5	4.1	<a href="#">X</a>	0	0		

## Unknown Common Ancestor

### Match on the X Chromosome

We can't be related on Father's Paternal line because he inherited his Y from his Father. Could be Father's Maternal line.

Could be from Mother's Maternal line or Mother's Paternal Line (Her father inherited an X that he could have passed on.)

Have my mother tested to narrow it down

Compare trees-possible unknown ancestor

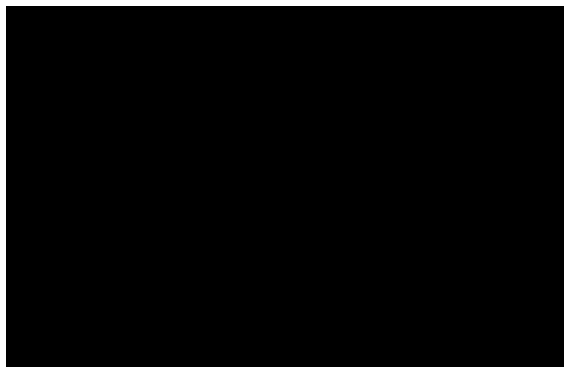
< View Another Test

# Mary Bausback's DNA Matches

List Map

Filter by:  Unviewed  Common ancestors  Messaged  Notes  Trees  Shared DNA  Groups Search | Sort

Parent/Child			
	<b>Martha Crowder</b>	<b>Parent/Child</b> Shared DNA: 3,458 cM across 28 segments	<b>306 People</b> Common ancestor <span>+ Add to group</span>
Close Family			
		<b>Close Family-1st Cousin</b> Shared DNA: 1,922 cM across 31 segments	<b>1,412 People</b> Common ancestor <span>+ Add to group</span>
	<b>Amanda Crowder</b>	<b>Close Family-1st Cousin</b> Shared DNA: 1,476 cM across 31 segments	<b>306 People</b> Common ancestor <span>+ Add to group</span>



**Henry Bausback**

Paternal grandfather

1877-1956

[View Relationship](#)

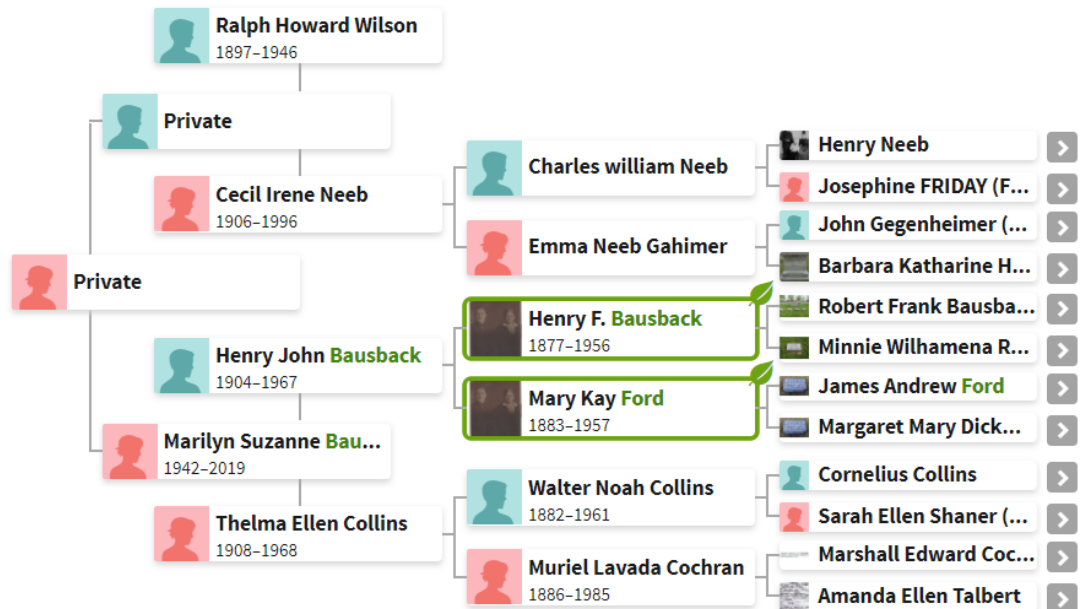
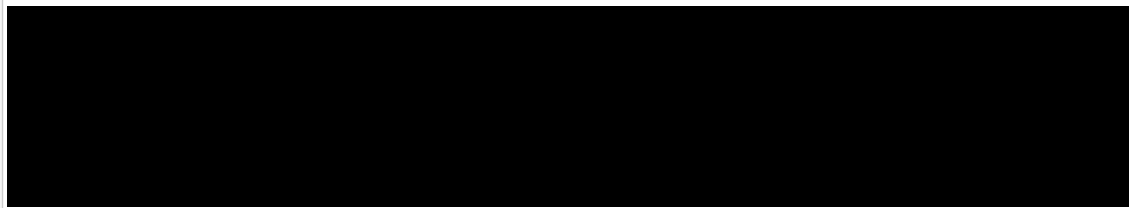


**Mary Catherine Ford**

Paternal grandmother

1883-1957

[View Relationship](#)











Chromosome Browser   In Common With   Not In Common With   [Reset Filter](#)

1-30 of 6550   << < > >>   Page 1 / 219   Go

All (6550)   Paternal (0)   Maternal (0)   Both (0)

	Name	Match Date	Relationship Range	Shared cM	Longest Block	X-Match	Linked Relationship	Ancestral Surnames	
<input type="checkbox"/>	 Martha Crowder <small>✉ ✎ 👤</small>	07/08/2015	Mother/ Daughter	3,383	267	X-Match			
<input type="checkbox"/>	 Jen Daugherty <small>✉ ✎ 👤</small>	07/08/2015	Full Sister	2,701	205	X-Match		Adkins (Kentucky) / Bausback (Germany/Indiana) / Boone (North Carolina)	



**ONE DOES NOT SIMPLY**



**SWITCH GEARS**

[memegenerator.net](http://memegenerator.net)

# Researching



- **Why the Census is so Important**
  - Every 10 years since 1790 (Constitution)
  - Early Censuses have limited information
    - ✦ Not all include all of the information listed here
  - Identifies Head of Household/Family Members
  - Property Ownership
  - Could they read or write?
  - Helps identify parents and siblings when there are no other records
  - Military Service
- **1890 Census burned**
  - Very limited information left from it
- **Due to privacy-Only Censuses up to 1940 are available**

# Researching



- **County Courthouses**

- Register of Deeds

- ✦ Land Records
- ✦ Birth Records
- ✦ Marriage Records

- **North Carolina**

- Government and Heritage Library: Genealogy Collection

- State Archives

- ✦ Land Records
- ✦ Birth Records
- ✦ Marriage Records



# Where to find these Records?



- **National Archives**
  - Census
  - Military Records/Pension Records
  - Federal Records “Doing Business”
  - Historical Documents
- **Remember:**
  - No central place to search all records.
  - Every state is different.

# Online Research



- **\$\$Ancestry.com (Free at many public libraries)**
  - Census Records
  - Death Records (Certificates) for some states
  - City Directories
  - Birth Indexes
  - International Records

# Online Research



- **Heritage Quest (FREE @ the Library)**
  - Freedman's Bank Records
  - Genealogy Titles
  - Census
  - Revolutionary War Pension Applications
- **Discover Freedman (Freedman's Bureau)**
  - <http://www.discoverfreedmen.org/>
  - Index of Bureau of Refugees, Freedmen, and Abandoned Lands

# Online Research



- Family Search

- [www.familysearch.org](http://www.familysearch.org)

- ✦ Census records (limited)
- ✦ Family Trees
- ✦ Court Records (wills, probate, land)
- ✦ International Records
- ✦ Catalog of records/books at Library in Salt Lake City, Utah

- Cyndi's List

- <http://www.cyndislist.com/>

- ✦ Comprehensive index of genealogy sites

# Online Research



- **Rootsweb**
  - [www.rootsweb.com](http://www.rootsweb.com)
    - ✦ Family Trees
    - ✦ Message Boards
- **Find-a-Grave**
  - <http://www.findagrave.com/>
- **Ellis Island (Immigration Records)**
  - <http://ellisland.org/>

# Archives



- Personal papers in Archives, Libraries, Historical Societies
  - Genealogies
  - Diaries
  - Club Records (Women's Organizations)
  - Ledgers (Frederick Douglass US Civil War Colored Troops Pension Ledgers)
  - See presentation in The Scholarship ["Discovering The Hidden Women In Your Family History"](#) by Diane Richard

# Questions??

