

# SGS & SIGS DNA Learning Series

## Homework for Class 1: Intro to Genealogical DNA Testing

Thinking about your own research into your genealogy, what are one or two brickwalls, mysteries or questions you have that you want to solve?

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In considering those brickwalls, mysteries or questions, which of your relatives would it be useful to test? Would any of them be more closely related to the line the brickwall or mystery is on than you? Are there other cousins of yours who are also related to the line you are wanting to research?

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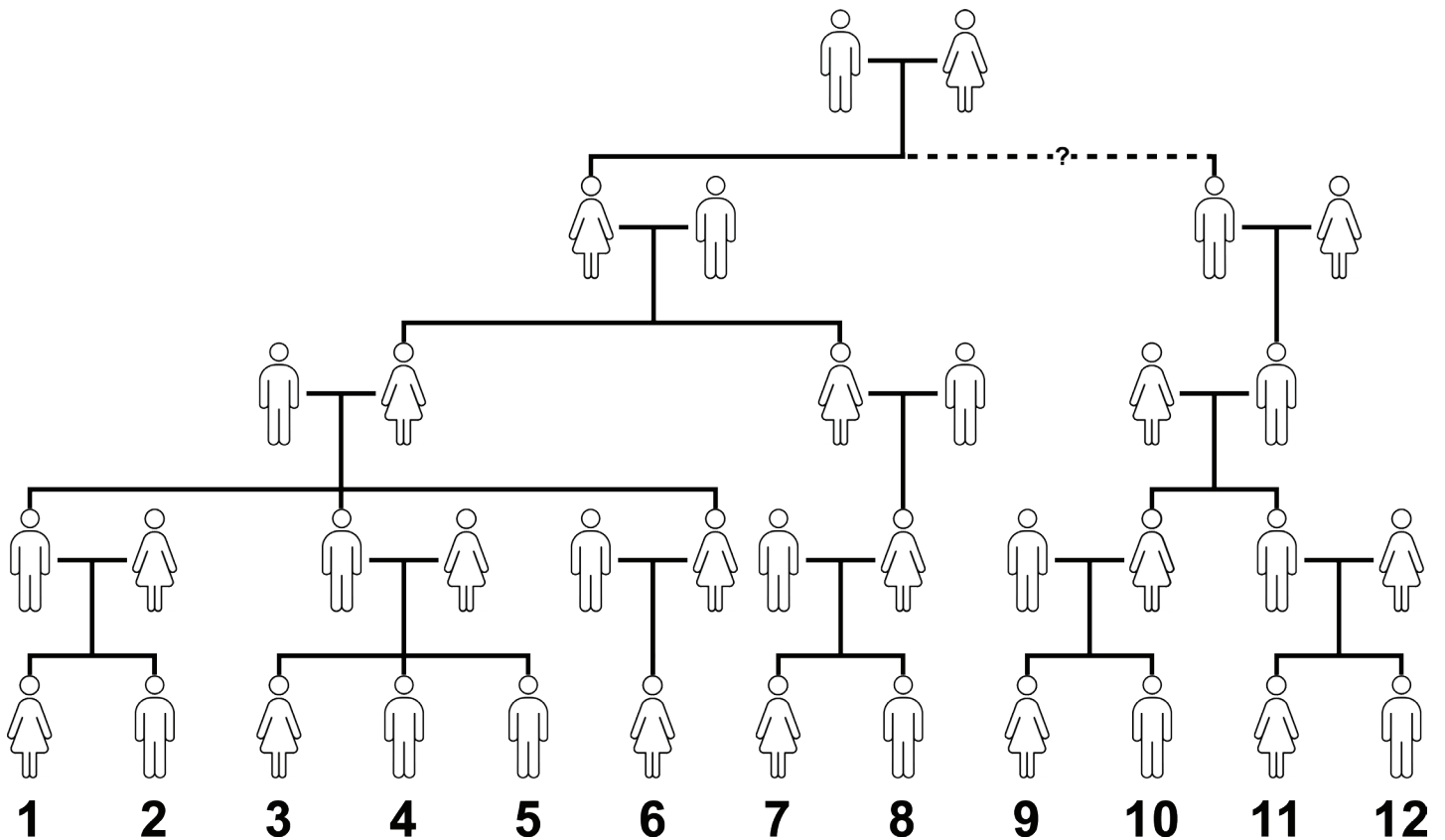
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Which DNA testing company would be appropriate for (more than one may apply)

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| A. An 89 year old aunt wants to help with research, but is concerned about testing because she tends to have a dry mouth <u>6,7</u>  | 1. Y-37 DNA test at Family Tree DNA                  |
| B. A 40 year old co-worker who wants to explore the roots of her maternal grandparents who immigrated to the U.S. from Italy and Slovakia between WWI and WWII <u>3,7</u>            | 2. Ancestry DNA test                                 |
| C. A friend is just casually curious about DNA testing <u>2</u>  | 3. MyHeritage DNA test                               |
| D. Your 12 year old grandson has seen the TV commercials and wants to learn more about himself <u>9</u>  | 4. 23andMe DNA Test (w/o health)                     |
| E. Your male 1st cousin wants to know more about his father who was KIA in Vietnam <u>1,6,7</u>  | 5. 23andMe DNA Test (w/ health)                      |
| F. The 18 year old friend of your child/grandchild was adopted at birth and wants to find his birth parents, but has little money for extensive testing <u>2,7,8</u>                 | 6. Family Tree DNA Family Finder test                |
| G. The 16 year old babysitter of your children was also adopted and she want to find her birth parents <u>9</u>  | 7. Upload raw DNA file to GEDMatch                   |
| H. A neighbor is curious about her ancestry because she never knew any of her grandparents and wants to know if there are any health risks they may have passed down to her <u>5</u> | 8. Transfer raw DNA results to FTDNA                 |
|  | 9. Testing is inappropriate without parental consent |



You are researching one of your lines and discover your great grandmother may have had an older brother that you didn't know about. He would have been born in 1881 and isn't in the household with your great grandmother and her parents in the 1900 census, the 1890 census being unavailable. You research and make a complete tree of the descendants of your great grandmother and her potential brother and want to confirm the connection using DNA. You are Person 1 in the tree and you make contact with Person 9. Both of you agree to do a DNA test.

1. If you are related, what is your relation to Person 9? 3rd Cousin

2. When the results come back, you and Person 9 do not match. Can you conclude that your theory that her great grandfather was not the younger brother of your great grandmother? Why or why not?

No, because beyond 2nd cousins, there is no guarantee that cousins will share atDNA. This is one reason it is advantageous to test multiple cousins on a line to capture a greater diversity of the ancestral DNA from the common ancestor(s).

3. You and Person 9 decide to gather more DNA evidence to explore the potential connection by testing one more person on each side of the family. Of your known cousins 2-8, which person(s) would it be most appropriate to test to maximize the DNA coverage of your great grandmother? Why? Of Person 9's known cousins 10-12, which would maximize the DNA coverage of their great grandfather?

Test Person 7 or 8 because they come from a different child of the great grandmother and are likely to have DNA from her that was not present in your grandmother. Since Person 9 does not have any 2nd cousins to test as you do, their best option is to test Person 11 or 12 rather than their sibling.

4. The results of the additional tests come back. Your new tester matches Person 9, but not Person 9's new tester, but you find their new tester in your match list. One is estimated to be a 2nd cousin relationship and the other a 2nd-3rd cousin relationship. Can you definitively conclude Person 9's great grandfather was the brother of your great grandmother? Why or why not?

The relationship between you and the cousin's new tester is 3rd cousin as is the relation between your new tester and Person 9. Given that the testing company's predicted relationship ranges are 2nd cousin and 2nd-3rd cousin and the research you have done independent of DNA, you can probably conclude they were siblings.

5. After searching additional paper records, you find evidence that your great grandmother's brother was apprenticed out at age 17. The apprenticeship contract was signed by your great great grandfather and by his putative son, but does not state the relationship between the two. Does this change or reinforce your conclusion in Question 4? Why?

This strongly reinforces the conclusion of the relationship as you now have a paper trail record showing your great great grandfather have some sort of legal authority over a 17 year old minor who is putatively his son and you have DNA evidence of a strong genetic relationship between known descendants of both.

6. Could Y-DNA or mtDNA be used to provide additional evidence to support or disprove your conclusion?

Probably not, at least not from the known descendants in this tree. Persons 9-12 do not have the mtDNA of the GG grandmother. Person 12 is a Y-DNA descendant of the GG grandfather, but you would need someone against whom to compare his Y-DNA results, a male-line descendant of a brother of your GG grandfather for example.

7. You discover that your great great grandfather on the tree was one of six brothers and that a male-line descendant of one of those brothers has done extensive Y-DNA testing of the male lines of each brother except your great great grandfather, because he didn't know about the potential son of his. Who in the tree could be Y-DNA tested to compare to the set of known male-line cousins?

Person 12 is the only person in the tree who could potentially carry the Y-DNA of the GG grandfather.

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