

1 **DNA Kindergarten**12  **During this webinar series we'll look at:**

- Science of DNA
- Understanding ethnicity from our DNA
- Using the puzzle pieces of DNA relationships to:
  - Verify and expand your family tree
  - Use shared matches to break down brick walls

13 **DNA Science**14  Reference

- Nelson, Ken. (2018). Biology for Kids: DNA and Genes. Ducksters. Retrieved from <http://www.ducksters.com/science/biology/dna.php>

15  **What does DNA stand for?**

Deoxy-ribo-Nucleic- Acid

- DNA is an essential molecule for life
- DNA acts like a recipe holding the instructions telling our bodies how to develop and function

17  **The DNA Code**

Adenine Thymine Guanine Cytosine

A T G C – grouped by 3's into codons

18  **Chromosomes**

- Long chains made of DNA and protein
- 23 pairs of chromosomes
- 46 chromosomes in each cell

19  **23 chromosome**

XX pair is female

XY pair is male

20  **Karyotype of chromosomes**21  **Three kinds of DNA – mtDNA, YDNA and atDNA**22  **mtDNA**

- Passed from mother to daughters and sons
- Maternal line
- Trace back 150k-200K years

23 **YDNA**

- Only males inherit
- Passed from father to son
- Paternal line
- Trace back 60K years

24  **Haplogroups**

- identify your YDNA and MtDNA
- Defined by specific sets of shared genetic variation

25  **atDNA**

- Autosomal DNA
- From both parents
- Recombines when passed on
- Blocks or pieces of atDNA are called segments

27  **Centimorgan or cM**

- DNA pieces that measure genetic linkage
- Likelihood that a match shares a single, recent common ancestor (CA)
- DNA testing companies report shared DNA in # or % of cMs shared
- Every company reports total #of shared cMs

29  **atDNA Inheritance**

While we inherit 50%of our DNA from each parent, due to how atDNA recombines, siblings don't inherit the same 50% from each parent

33  **Relationships - Who is your first cousin once removed?**35  **The "G" Rule**

- The # of "G's" = the # of the cousin
- #Removed = number of generations separated

37  **How many cMs do you share?**

- #1. Shared cM project  
<https://thegeneticgenealogist.com/2017/08/26/august-2017-update-to-the-shared-cm-project/>
- DNA Painter interactive calculator <https://dnainter.com/tools/sharedcm>

44 **Next Installments- Saturdays:**

March 14 - Ethnicity  
March 21 - Using your DNA  
April 4 – Shared Matches