



## How to Analyze Karyotypes 101 video notes

Define the key vocabulary terms below:

- Genome - \_\_\_\_\_

- Karyotype - \_\_\_\_\_

- Sex chromosome - \_\_\_\_\_

- Autosome - \_\_\_\_\_

- Sex-linked gene - \_\_\_\_\_

- Pedigree - \_\_\_\_\_

Genome – The full set of \_\_\_\_\_ that an organism carries in its \_\_\_\_\_.

- How do scientists view an individual's genome?

- Cell biologists photograph cells in \_\_\_\_\_, which is when they are fully \_\_\_\_\_ and easy to view under a \_\_\_\_\_

- The scientists then cut out the \_\_\_\_\_ and arrange them from \_\_\_\_\_

Karyotype – a karyotype shows the complete \_\_\_\_\_ set of chromosomes grouped together in \_\_\_\_\_, arranged in order of \_\_\_\_\_

### So why do our chromosomes come in pairs?

- Remember through the process of \_\_\_\_\_ we get \_\_\_\_\_ chromosomes from our \_\_\_\_\_ and 23 chromosomes from our \_\_\_\_\_.

Sex chromosome – one of two chromosomes that determines an individual's \_\_\_\_\_

- The last \_\_\_\_\_ of the \_\_\_\_\_ that you see on a karyotype are \_\_\_\_\_ chromosomes, which determines an individual's sex.

- All human egg cells carry a single \_\_\_\_\_ chromosome

- Half of all sperm cells carry an \_\_\_\_\_ chromosome, while the other half of all sperm cells carry a \_\_\_\_\_ chromosome. This ensure that almost half of \_\_\_\_\_ will be \_\_\_\_\_ and half will be \_\_\_\_\_

List two major differences between X and Y chromosomes below:

X Chromosome	Y Chromosome

Autosome – chromosome that is not a \_\_\_\_\_ chromosome; it is also called an \_\_\_\_\_

- \_\_\_\_\_ of the chromosomes are autosomal chromosomes \_\_\_\_\_, while the last \_\_\_\_\_ are sex chromosomes \_\_\_\_\_.

- To summarize the number of chromosomes present in a \_\_\_\_\_ cell biologists write \_\_\_\_\_ for \_\_\_\_\_, and \_\_\_\_\_ for males.

- Important, genetic disorders can be autosomal \_\_\_\_\_ or sex-linked \_\_\_\_\_

**How do you read chromosomes?** \_\_\_\_\_

Down Syndrome (Trisomy 21) – an additional \_\_\_\_\_ on the \_\_\_\_\_ chromosome pair, Biologists write this as \_\_\_\_\_. Is down syndrome an autosomal or sex-linked disorder? \_\_\_\_\_

Klinefelter's Syndrome – an additional \_\_\_\_\_ on the sex \_\_\_\_\_ chromosome pair, Biologists write this as \_\_\_\_\_. Is Klinefelter's syndrome an autosomal or sex-linked disorder? \_\_\_\_\_

**Check for Understanding** – Analyze the following karyotypes and name the particular disorder, if any, associated with each. Also write the karyotype notation as well.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**Check for Understanding** – Use your guided notes and knowledge that you have gained from this video to answer the following questions.

1. What two types of chromosomes does your genome consist of? \_\_\_\_\_ How many are there of each? \_\_\_\_\_
2. The first 22 pairs of chromosomes on a karyotype are = \_\_\_\_\_ The last pair of chromosomes on a karyotype are = \_\_\_\_\_
3. How can you use a karyotype to determine if someone has down syndrome? \_\_\_\_\_  
\_\_\_\_\_
4. What would be the karyotype notation for someone who has Klinefelter's syndrome? \_\_\_\_\_
5. Explain two differences between the X & Y sex chromosomes. \_\_\_\_\_  
\_\_\_\_\_
6. Why do our chromosomes come in pairs? \_\_\_\_\_
7. 46 XX = \_\_\_\_\_ 46 XY = \_\_\_\_\_ 47 XX +21 = \_\_\_\_\_  
47 XY +21 = \_\_\_\_\_ Bonus: 47 XXY +23 = \_\_\_\_\_