

## A CHROMOSOME STUDY

In this activity, you will create a karyotype from a page of mixed chromosomes. Karyotypes are created by matching homologous pairs and numbering them from largest to smallest. Abnormalities, such as extra or deleted chromosomes can then be diagnosed. Pictured chromosomes will be used for this model rather than real chromosomes, but the process is the same for real chromosomes extracted from cell or fetal samples.

Two karyotypes will be created - A karyotype is a pattern or picture of chromosomes from one cell **grouped into pairs** and **organized by size**. The first you will create represents a normal human karyotype of a male or a female, the second represents and abnormal karyotype. You will then compare and diagnose the abnormality present in the patient of the second karyotype.



### Normal Human Karyotype

- Obtain the page marked "normal" - these are pictures of chromosomes from a normal human.
- Cut each chromosome out and set the ones labeled X & Y aside.
- Pair each chromosome up with its match - the X & Y will not match.
- Arrange the chromosomes in pairs from largest to smallest. **NUMBER** them starting from one.
- Place the sex chromosomes last, at the #23 spot.

1. How many total chromosomes are present in this karyotype? \_\_\_\_\_

2. How many sex chromosomes are present? \_\_\_\_\_

How many autosomes (not sex chromosomes)? \_\_\_\_\_

3. What is your person's sex chromosomes (XX or XY)? \_\_\_\_\_ Is this a boy or girl? \_\_\_\_\_

Body cells are called somatic cells. Somatic cells include the skin, liver, muscle, stomach and other bodily cells. The karyotype you prepared is from a somatic human cell. The term **diploid chromosome number** refers to the number of chromosomes in a somatic cell. The diploid number varies from species to species, however it does not differ from somatic cell to somatic cell within the same organism. To find your diploid number, simply count the number of chromosomes in your karyotype.

4. What is the diploid chromosome number for your karyotype? \_\_\_\_\_

The **HAPLOID CHROMOSOME NUMBER** refers to the number of chromosomes in an organism's sex cells. Sperm in males, eggs in females. The **haploid number**, is always -half- that of the diploid number.

5. What would the haploid chromosome number for your karyotype be? \_\_\_\_\_

### Abnormal Human Karyotype

- Obtain the page marked "abnormal" - there is more than one set, take note of which set you have (A, B, C, D) → \_\_\_\_\_
- Cut each chromosome out and set any labeled ones (X, Y) aside.
- Pair each chromosome up with its match - the X & Y will not match.
- Arrange the chromosomes in pairs from largest to smallest. **NUMBER** them starting from one.
- Place the sex chromosomes last, at the #23 spot.

# Chromosome Study 21 Answer Key

**Michael Seilmaier**

A red circular graphic with a gradient, appearing as a partial circle or a thick arc, located to the right of the author's name.

## **Chromosome Study 21 Answer Key:**

## **Chromosome Study 21 Answer Key** Book Review: Unveiling the Magic of Language

In an electronic digital era where connections and knowledge reign supreme, the enchanting power of language has are more apparent than ever. Its ability to stir emotions, provoke thought, and instigate transformation is really remarkable. This extraordinary book, aptly titled "**Chromosome Study 21 Answer Key**," compiled by a very acclaimed author, immerses readers in a captivating exploration of the significance of language and its profound effect on our existence. Throughout this critique, we will delve in to the book is central themes, evaluate its unique writing style, and assess its overall influence on its readership.

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