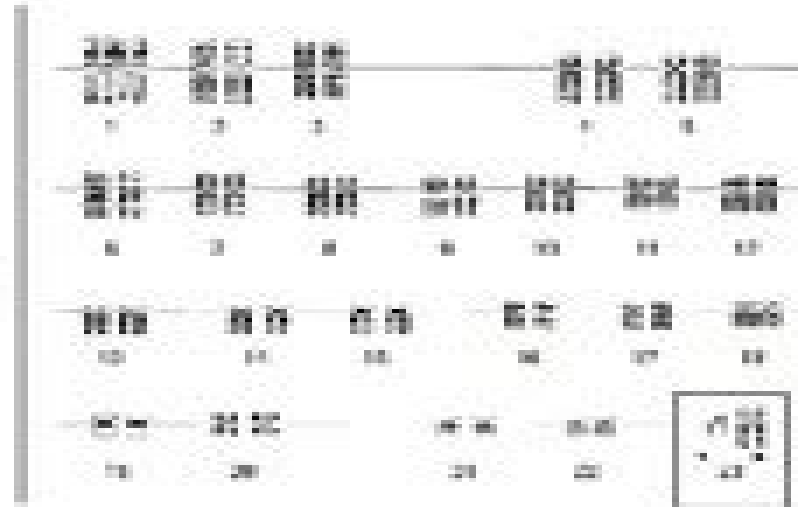


# MAKING KARYOTYPES:

## Introduction:

Several human genetic disorders are caused by extra, missing, or damaged chromosomes. In order to study these disorders, cells from a person are grown with a chemical that stops cell division at the metaphase stage. During metaphase, a chromosome exists as two chromatids attached at the centromere.

The cells are stained to reveal banding patterns (areas that are dark are areas rich in Adenine [A] and Thymine [T]). The chromosomes are placed on glass slides, then observed under the microscope where they are oriented, checked for abnormalities, and photographed. The photograph is then enlarged, and the images of the chromosomes are individually cut out. The chromosomes are identified and arranged in homologous pairs. The arrangement of homologous pairs is called a **karyotype**. In this investigation, you will use a sketch of chromosomes to make a karyotype. You will also learn the karyotype to determine the presence of any chromosomal abnormalities.



Normal male karyotype

This is a diagram of a normal male karyotype: 23 pairs of chromosomes, 46 total. Pairs 1-22 are referred to as **autosomal chromosomes**. Pair number 23 are the sex chromosomes. In the case of this male, one chromosome is an "X" and one chromosome is a "Y". Females would have 2 "X" chromosomes.

We have discussed 3 major genetic disorders easily identified by karyotyping:

- **Turner's Syndrome:** female with only one "X" chromosome
- **Down's Syndrome:** 3 copies of chromosome number 21
- **Klinefelter's male** with XXX for his sex chromosomes

## Using A Karyotype to Identify A Genetic Disorder:

### Procedure:

1. Look at the chromosome answer on the next page. Notice that half of them are number 1-22.
2. Cut out the chromosomes and match the un-numbered homologous chromosomes to the numbered ones and tape/glass them to the empty karyotype worksheet. Make sure that chromosome pair #1 gets taped/glassed above the "1" on the karyotype sheet, etc.
3. Line up the centromeres of the chromosomes along the lines above the numbers on the empty karyotype worksheet.

# Laboratory Manual Making Karyotypes Answers

**Prentice Hall Direct Education Staff**



## **Laboratory Manual Making Karyotypes Answers:**

**Prentice Hall Miller Levine Biology Laboratory Manual a for Students Second Edition 2004** Kenneth Raymond Miller, Joseph S. Levine, Prentice-Hall Staff, 2003-02 Authors Kenneth Miller and Joseph Levine continue to set the standard for clear accessible writing and up to date content that engages student interest Prentice Hall Biology utilizes a student friendly approach that provides a powerful framework for connecting the key concepts a biology Students explore concepts through engaging narrative frequent use of analogies familiar examples and clear and instructional graphics Whether using the text alone or in tandem with exceptional ancillaries and technology teachers can meet the needs of every student at every learning level Miller Levine Biology 1e Lab Manual a (Average Advanced) Student Edition 2002c Prentice Hall Direct Education Staff, 2001-04 One program that ensures success for all students *Biology Living Systems* Paul J. Hummer, 1994 *CAP Today*, 1990 **Bulletin of the Atomic Scientists**, 1966-10 The Bulletin of the Atomic Scientists is the premier public resource on scientific and technological developments that impact global security Founded by Manhattan Project Scientists the Bulletin s iconic Doomsday Clock stimulates solutions for a safer world **The Software Encyclopedia 2000** Bowker Editorial Staff, 2000-05 **Bibliography of Agriculture**, 1988-03

The book delves into Laboratory Manual Making Karyotypes Answers. Laboratory Manual Making Karyotypes Answers is a vital topic that needs to be grasped by everyone, from students and scholars to the general public. The book will furnish comprehensive and in-depth insights into Laboratory Manual Making Karyotypes Answers, encompassing both the fundamentals and more intricate discussions.

1. This book is structured into several chapters, namely:
    - Chapter 1: Introduction to Laboratory Manual Making Karyotypes Answers
    - Chapter 2: Essential Elements of Laboratory Manual Making Karyotypes Answers
    - Chapter 3: Laboratory Manual Making Karyotypes Answers in Everyday Life
    - Chapter 4: Laboratory Manual Making Karyotypes Answers in Specific Contexts
    - Chapter 5: Conclusion
  2. In chapter 1, the author will provide an overview of Laboratory Manual Making Karyotypes Answers. This chapter will explore what Laboratory Manual Making Karyotypes Answers is, why Laboratory Manual Making Karyotypes Answers is vital, and how to effectively learn about Laboratory Manual Making Karyotypes Answers.
  3. In chapter 2, this book will delve into the foundational concepts of Laboratory Manual Making Karyotypes Answers. This chapter will elucidate the essential principles that must be understood to grasp Laboratory Manual Making Karyotypes Answers in its entirety.
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  6. In chapter 5, this book will draw a conclusion about Laboratory Manual Making Karyotypes Answers. The final chapter will summarize the key points that have been discussed throughout the book.
- This book is crafted in an easy-to-understand language and is complemented by engaging illustrations. This book is highly recommended for anyone seeking to gain a comprehensive understanding of Laboratory Manual Making Karyotypes Answers.

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