## **Genetic lab exercise 1**

## Exercise Guide for Karyotype "A Chromosome Study"

This exercise is designed as an introduction to genetic studies on humans. Karyotyping is one of many techniques that allow us to look for several thousand possible genetic diseases in humans.

This activity requires you to cut and paste paper models of chromosomes in order of largest to smallest. The chromosomes must be paired with their homologs. you will often have trouble finding pairs and getting the exact matches and size orientation. Generally, when grading I look to see if it look mostly right, and look for the specific abnormality showing an extra chromosome.

Preparation:

There are enough karyotype sheets, Use Normal Girl and Normal Boy sheets as a start then complete the other sets for some patients and decide their condition by using the following:

**Down syndrome** (trisomy 21): The result of an extra copy of chromosome 21. People with Down syndrome are 47, 21+. Down syndrome affects 1:700 children and alters the child's phenotype either moderately or severely:

**Patau syndrome (trisomy 13):** serious eye, brain, circulatory defects as well as cleft palate. 1:5000 live births. Children rarely live more than a few months.

**Edward's syndrome (trisomy 18):** almost every organ system affected 1:10,000 live births. Children with full Trisomy 18 generally do not live more than a few months.

<u>Klinefelter syndrome: 47, XXY</u> males. Male sex organs; unusually small testes, sterile. Breast enlargement and other feminine body characteristics. Normal intelligence.

<u>Monosomy X (Turner's syndrome</u>): 1:5000 live births; **the only viable monosomy** in humans women with Turner's have only 45 chromosomes!!! XO individuals are genetically female, however, they do not mature sexually during puberty and are sterile. Short stature and normal intelligence. (98% of these fetuses die before birth)

Eman Al-Hazmi

<u>Name</u>:.....

<u>ID</u>:.....

<u>Set :</u>.....

Patient condition:....

Patient sex:....

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	









![](_page_6_Figure_0.jpeg)

![](_page_7_Figure_0.jpeg)