

Name: \_\_\_\_\_  
Blk: \_\_\_ Date: \_\_\_\_\_

## Science 9 Karyotyping Activity

In this activity, you will use a computer model to look at chromosomes and prepare a karyotype. You will diagnose patients for abnormalities and learn the correct notation for characterizing karyotypes.

Go to **www.biology.arizona.edu** – Under “ACTIVITIES” click on the word link for “Human Biology” then select “Web Karyotyping”.  
Read through the **Introduction** and then answer the following:

1. What causes a dark band on the chromosome?

\_\_\_\_\_

2. What is a centromere?

\_\_\_\_\_

Patient Histories: \*Click on Patient Histories”. You will be completing a karyotype for Patient A, B & C

**Patient A** (Click on the link to "Complete Patient A's Karyotype" )

\*Match the chromosome to its homolog. After all the matches are complete you'll analyze your patient. (Scroll down to view your completed karyotype).

3. What is patient A's history (summarize)

\_\_\_\_\_

4. How many total chromosomes are in your karyotype - count them \_\_\_\_\_

The last set of chromosomes is the sex chromosomes, if you have two large chromosomes, your patient is XX (female), one large and one small indicates and XY (male) . What sex chromosomes does your patient have \_\_\_\_\_

Which chromosome set has an extra + \_\_\_\_\_

5. What diagnosis would you give this patient (what disease)? \_\_\_\_\_

**Patient B** - click on the link to go to Patient B and repeat the above process.

6. What is Patient B's history (summarize)

\_\_\_\_\_

7. How many total chromosomes are in your karyotype - count them \_\_\_\_\_

What sex chromosomes does your patient have \_\_\_\_\_

Which chromosome set has an extra + \_\_\_\_\_

8. Finish the notation for this patient's karyotype : 47 X \_\_\_\_\_

9. What is the diagnosis? \_\_\_\_\_

**Patient C** - click on the link to go to Patient C and repeat the above process.

10. What is patient C's history (summarize)?  
\_\_\_\_\_

11. How many total chromosomes are in your karyotype - count them \_\_\_\_\_

What sex chromosomes does your patient have \_\_\_\_\_

Which chromosome set has an extra + \_\_\_\_\_

12. Write out the correct notation for this karyotype. \_\_\_\_\_

13. What is the diagnosis? \_\_\_\_\_

**Site 2:** Genetic Science Learning Center ([learn.genetics.utah.edu](http://learn.genetics.utah.edu))

Go to: Genetics → Basic Genetics → Go to: How Do Scientists Read Chromosomes

1. What is **Giemsa**? \_\_\_\_\_

2. What are the three key features used to read chromosomes?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Sketch the diagrams for: metacentric, submetacentric, acrocentric

4. Go back to the HOME page, then go to → Human Health → Genetic Disorders → Go to: Extra or Missing Chromosomes

What is aneuploidy? \_\_\_\_\_

What is trisomy? \_\_\_\_\_

What is monosomy? \_\_\_\_\_

5. Now go to → **Examples of Aneuploidy** and describe the chromosome abnormality and the symptoms.

**Turner Syndrome:**

**Klinefelter Syndrome:**

6. Now go to: **Examples of Unbalanced Chromosomal Arrangements** and describe the chromosome abnormality and the symptoms.

**Cri-du-Chat Syndrome:**

**Williams Syndrome:**

Extra Credit - Do at home

Site: <http://bluehawk.monmouth.edu/~bio/karyotypes.htm>

Pick from the list of abnormal karyotypes and arrange the chromosomes in a karyotype. Use the "print screen" button to copy your finished karyotype onto a word processing document. For "Diagnosis" write the chromosome set that has the abnormality, and what type of abnormality it is. Print this page out and turn it in.