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** - click on Karyotyping under Human Biology. Introduction:

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)**
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 a 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.