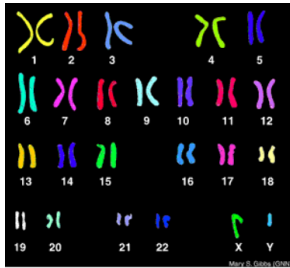## Human Karyotypes   (TB, ch 14, p. 341)

A karyotype is a picture of all the chromosomes in a cell that have been arranged according to pairs.

A karyotype represents a diploid cell, or one that has homologous chromosomes.

Two of these chromosomes, known as pair 23, determine a person's gender.

XX = female

XY = male

Sep 12-6:30 PM

Male and female are born in approximately equal quantities because of the way the sex chromosomes are distributed:

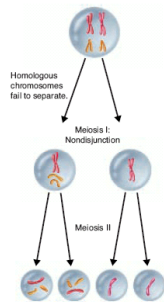|	Male	
	X	Y
Female X	XX	XY
X	XX	XY

Sep 12-6:49 PM

Chromosomal Disorders

Sometimes, thnigs go wrong during meiosis.

Non-disjunction, for example, occurs when chromosome pairs fail to separate during meiosis I.

In the case of non-disjuction, the cells get an irregular number of chromosomes. Either too many, or not enough.

Homologous chromosomes fail to separate.

Meiosis I: Nondisjunction

Meiosis II

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Down Syndrome

If chromosome 21 fails to separate during meiosis I, then one of the cells may end up with 3 copies of the same chromosome.

This is known as   *trisomy*   , or down syndrome.

Symptoms include mental retardation, birth defects and a higher chance of getting certain diseases.

Sep 12-7:01 PM

Turner and Klinfelter's Syndrome

These syndromes are the result of non-disjunction in the sex chromosomes.

Turner's Syndrome occurs in females who only receive one X chromosome. Their reproductive organs do not develop at puberty and they remain unable to reproduce for life.

Klinfelter's syndrome is the alternative, where males receive 2 X chromosomes (karyotype XXY). They are also sterile.

There have been no cases reported of babies born without an X chromosome. What does this tell us about the role of the X chromosome?

It must play a vital role to cell survival.

Sep 12-7:06 PM

Issues in Biology:

Is DNA private??

Read p. 354 and formulate an answer to question #2. Prepare yourself to present your point of view to the class.

FIND AN ARTICLE FOR CLASS DISCUSSION!!

Do Genetic Disorders debate or Huntington's Case Study in file folder (Adobe reader file)

Do Genetic Variations Lab in file folder

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Sep 12-7:11 PM