Ch 14 The Human Genome

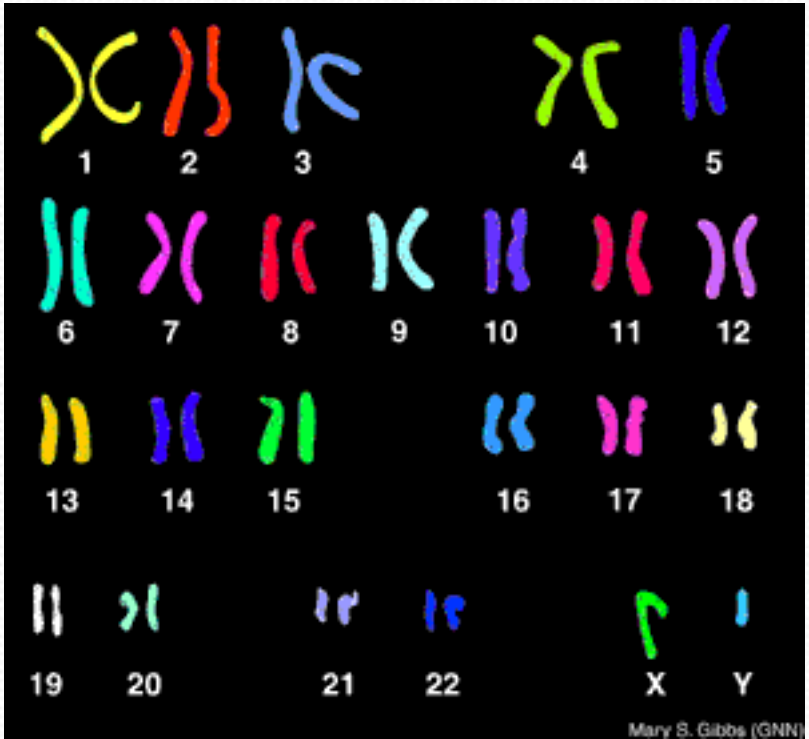
14-1 Human Heredity

14-2 Human Chromosomes

14-3 Human Molecular Genetics

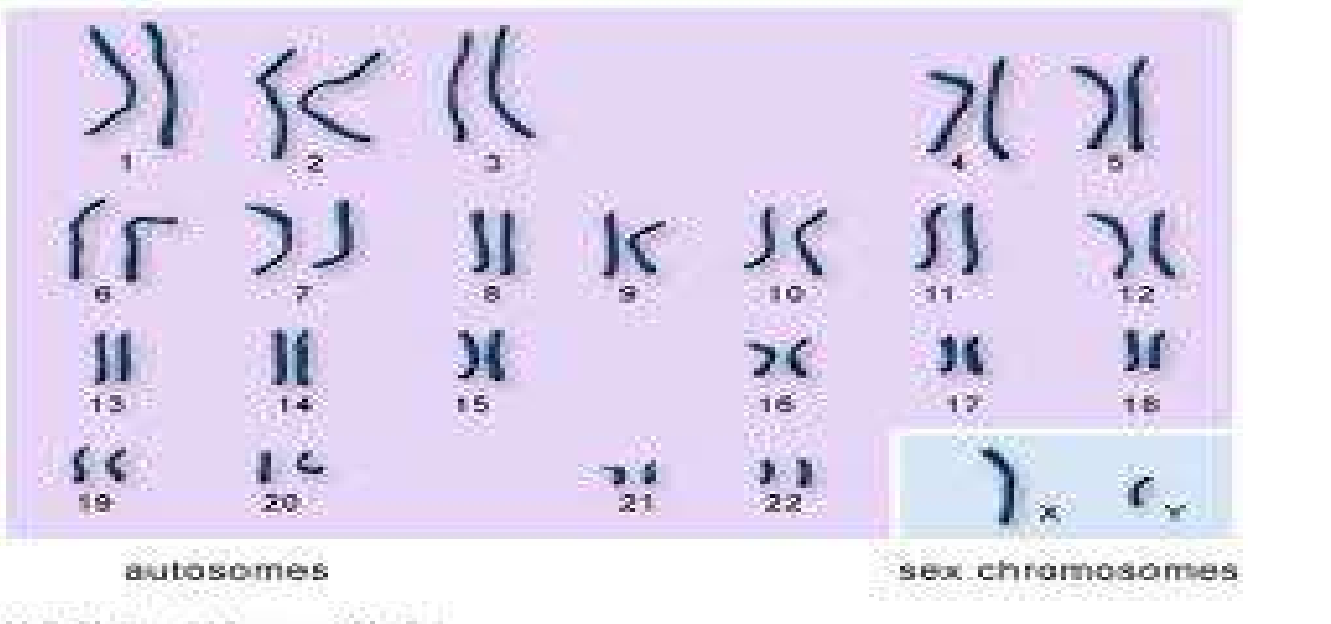
14-1 Human Heredity

- When human cells are going through mitosis, DNA is clusters into chromosomes and these 46 individual chromosomes pictured are called a Karyotype



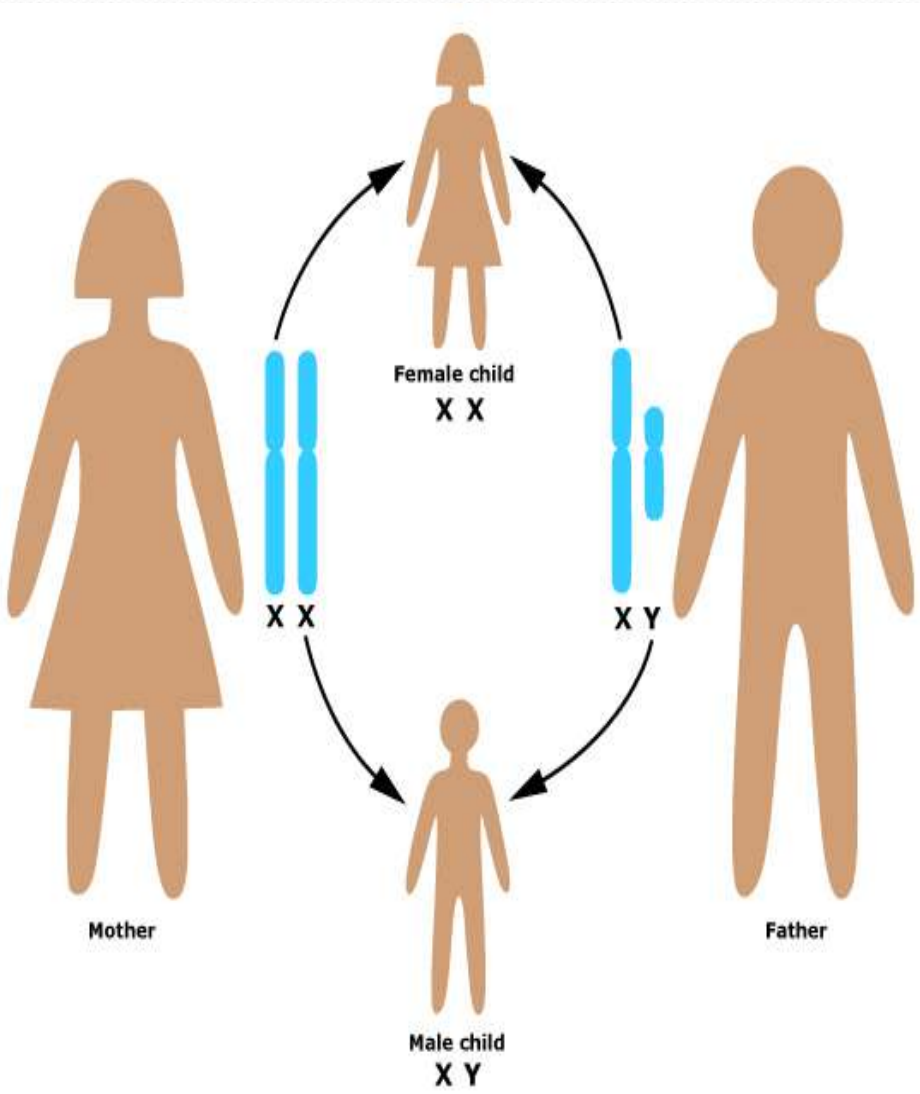
14-1 Human Heredity

- Two of those 46 chromosomes are known as Sex Chromosomes, because they determine an individual sex
- The other 44 chromosomes are Autosomes



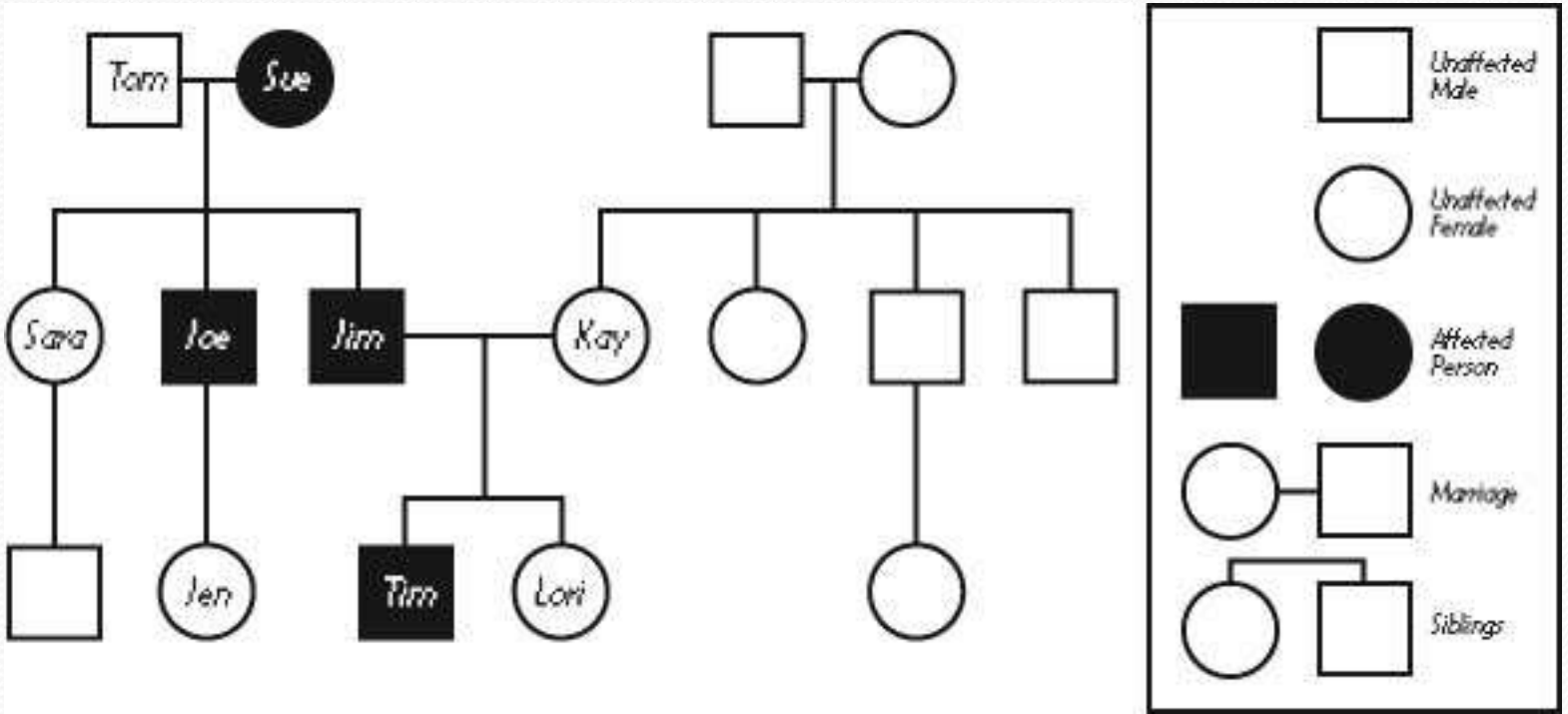
14-1 Human Heredity

- **All human eggs cells carry a single X chromosome and 22 autosomes**
- **Half of every sperm carry a single X chromosomes and 22 autosomes while the other half carry a single Y chromosome and 22 autosomes**
  - This ensures that half our zygotes will be Boys (46,XY) and half will be girls (46,XX)



14-1 Human Heredity

- A Pedigree chart, which shows the relationships within a family, help to follow genetic flow throughout a families allele frequency

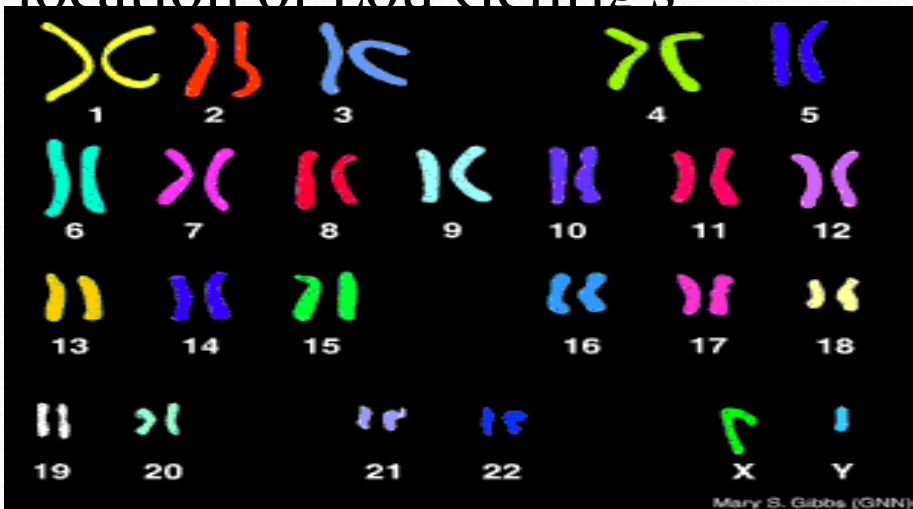


Questions

- Pg 348 (1-4) THEN START PEDIGREE WORKSHEET
- Answer the questions. Don't copy questions, no complete sentences. Draw pedigree when Necessary
- Do in your notebook, Save room if you don't finish

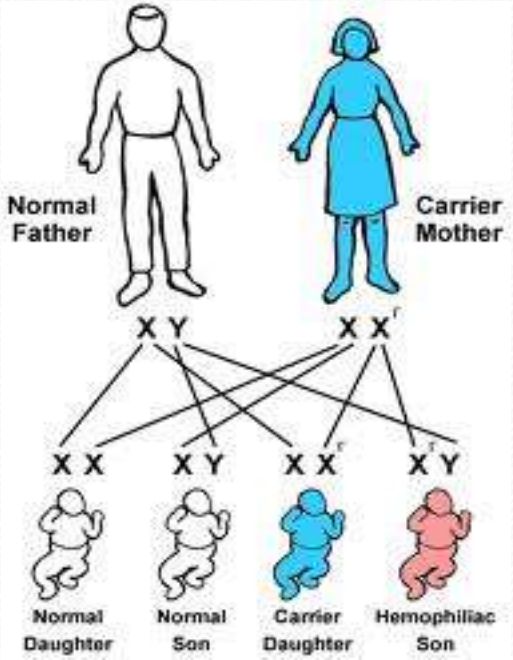
14-2 Human Chromosomes

- A human diploid cell contains more than 6 billion base pairs while only 2% of it is transcribed into proteins
- Chromosomes 21 and 22 are the smallest chromosomes and were also sequenced first
  - 21 chromosomes-225 genes, location of Lou Gehrig's Disease
  - 22 chromosome- 545 genes, location of Leukemia and Neurofibromatosis



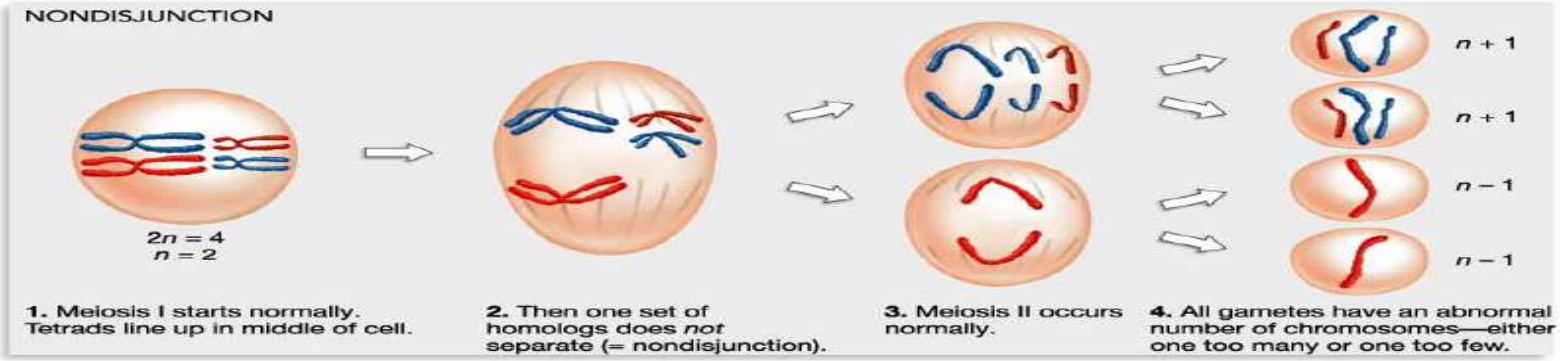
14-2 Human Chromosomes

- Any gene that is controlled on the X or Y chromosome is considered a Sex-linked Gene
- Male have just one X chromosome, thus all X-linked alleles are expressed in males even if they are recessive



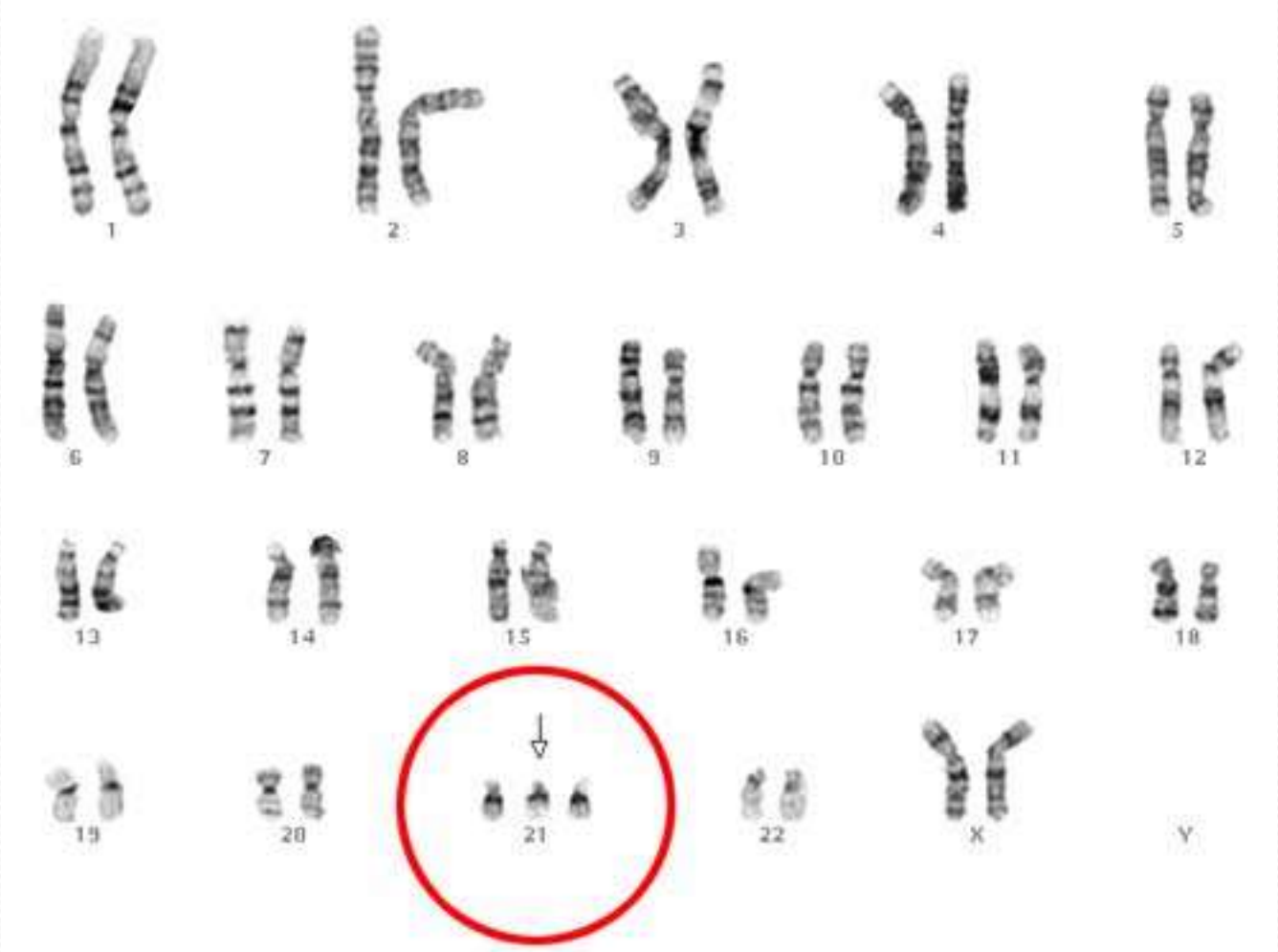
14-2 Human Chromosomes

- The most common error in meiosis occurs when homologous chromosomes fail to separate which is called Nondisjunction
- If nondisjunction occurs, abnormal numbers of chromosomes may find their way into gametes and a disorder of chromosome numbers may result



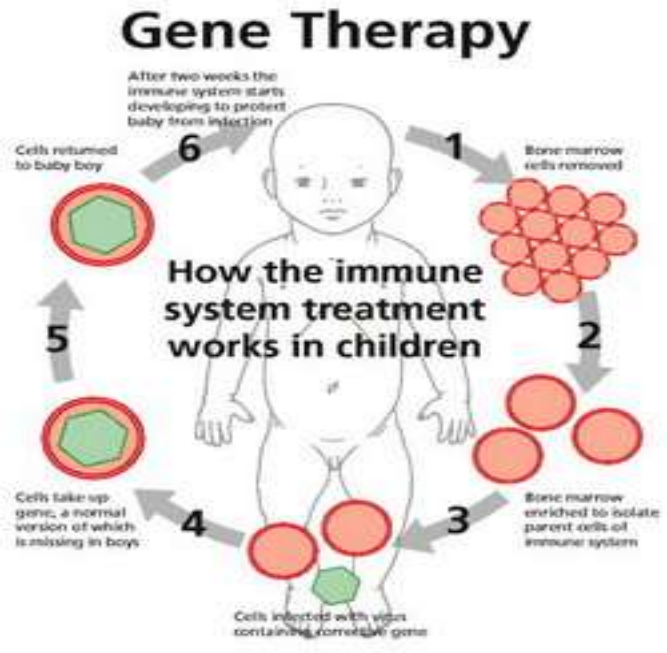
14-2 Human Chromosomes

- Pg 353
- (1-5)



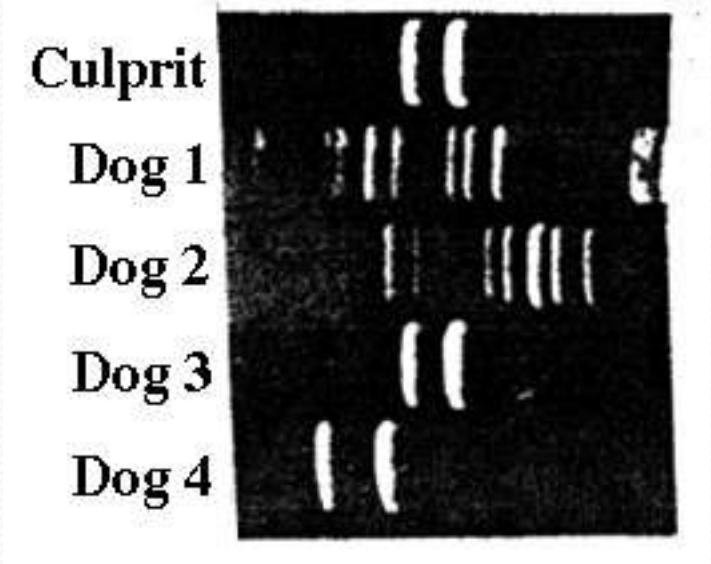
14-3 Human Molecular Genetics

- With technology, Parents that suspect they may be carries of diseases can run allele tests to see the percentages of their children acquiring diseases
- In gene therapy, an absent or faulty gene is replaced by a normal, working gene



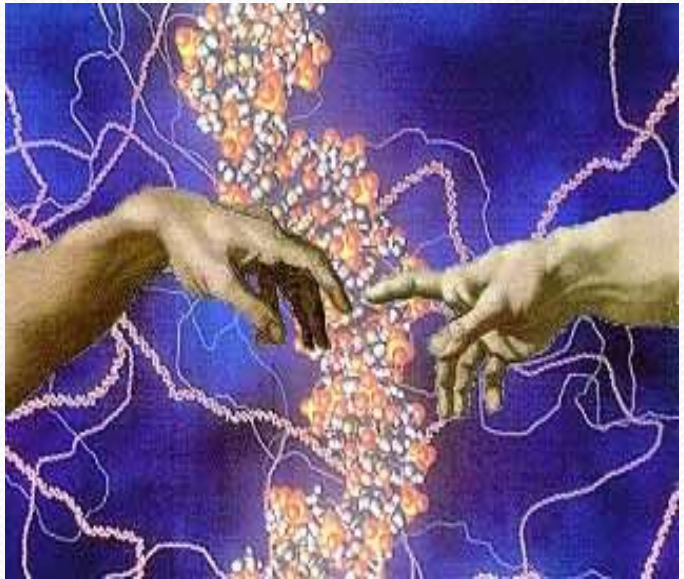
14-3 Human Molecular Genetics

- DNA Fingerprinting analyzes sections of DNA that have little or no known function but vary widely from one individual to another



14-3 Human Molecular Genetics

- As our knowledge increases so does our ability to manipulate the genes of living things leading to many ethical questions– what should and shouldn't be done with our information?
- Speaking of questions- Pg 360 (1-5)
- Finish
- Karyotyping



- Keep workin
- On Pedigree