

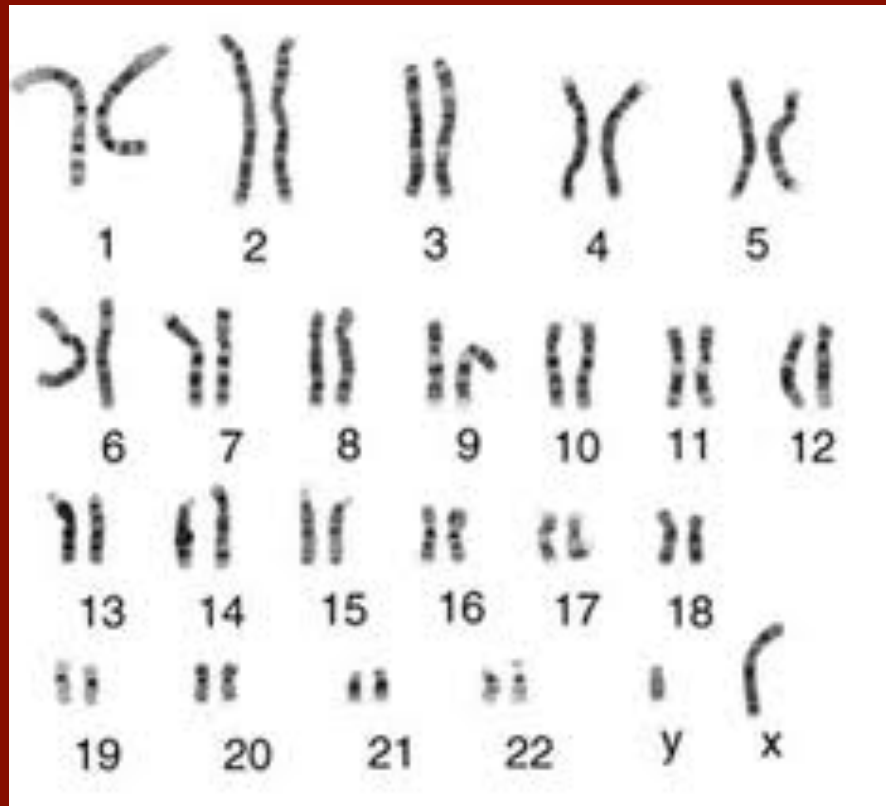
# Chapter 14–2: Human Chromosomes

Essential questions:

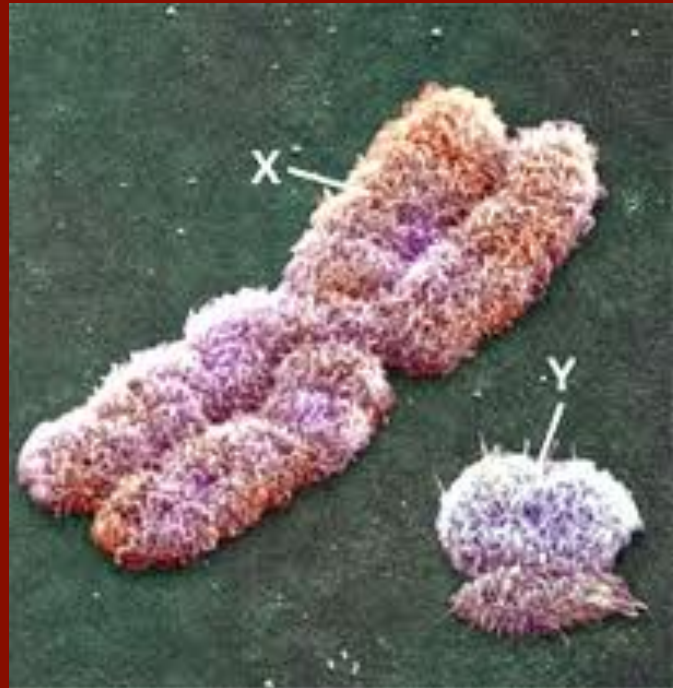
- What is a ***sex-linked trait***?
  - Why are sex-linked disorders more common in males?
- What is ***non-disjunction***, and what problems it can cause?

# ■ Human Chromosomes

- karyotype

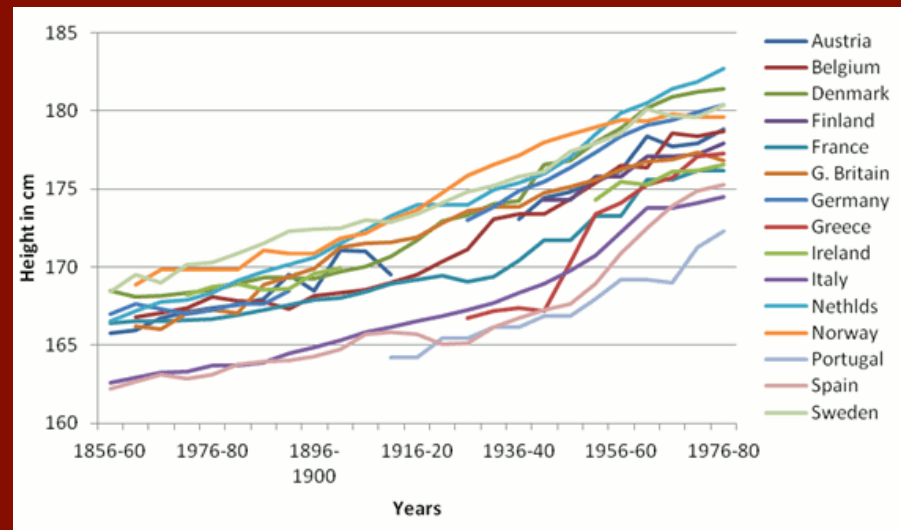
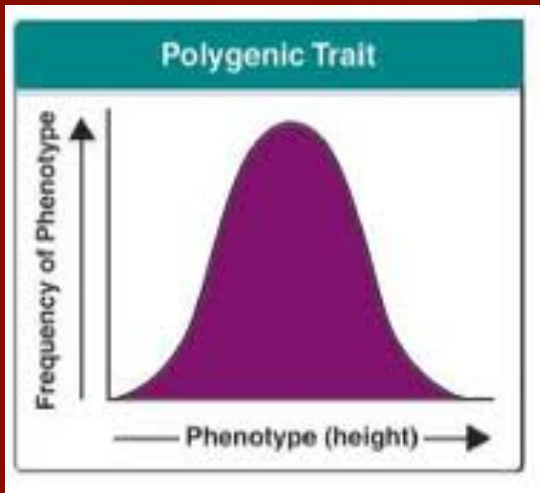


- sex chromosomes – XX or XY
- Autosomal chromosomes – non-sex chromosomes



## ■ Human traits

- Most polygenic
- many traits influenced by environment
  - Ex: height & nutrition



# ■ Human Genes

## – Blood Group Genes

- Rh group – + dominant, - recess.

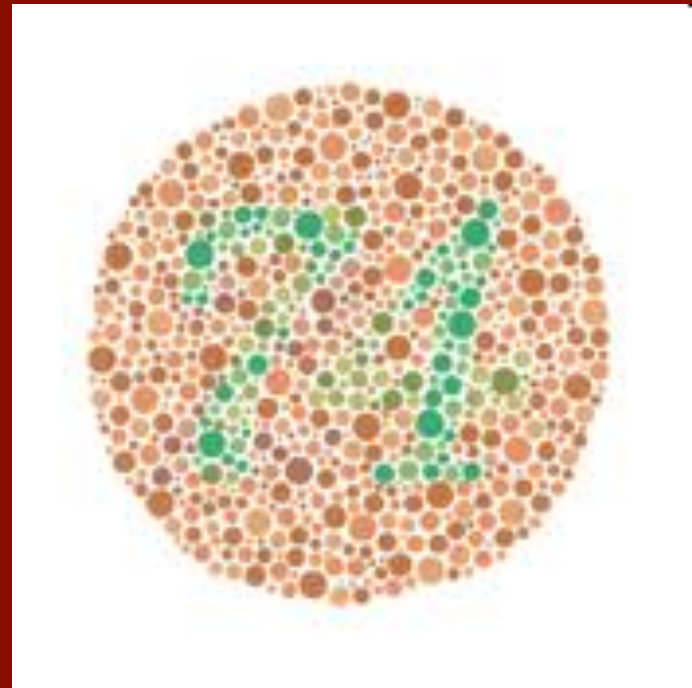
- ABO group

– 3 alleles  $I_A$   $I_B$   $i$

- first 2 are codominant
- $I_AI_B$  = type AB
- $I_AI_A$  or  $I_Ai$  = type A
- $I_BI_B$  or  $I_Bi$  = type B
- $ii$  = type O
- Universal donor – Type O
- Universal recipient – Type AB

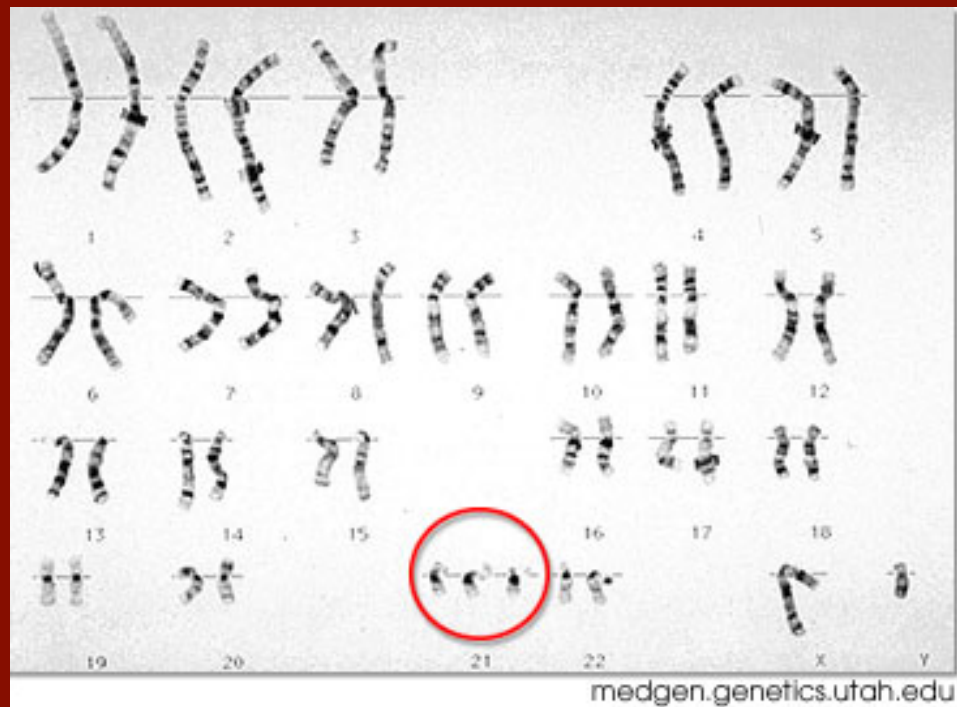
# 14–2 Human Chromosomes

- Sex-linked genes
  - found on X chromosome
  - males have only 1 X, all x-linked alleles expressed
    - Colorblindness
    - Hemophilia



# ■ Chromosomal disorders

- Nondisjunction -homologous chromosomes fail to separate
  - abnormal numbers of chromos. in gametes
  - Down Syndrome – 3 copies of #21 (“trisomy”)



## ■ Sex Chromosome Disorders

- Turner's syndrome – XO
- Klinefelter's syndrome - XXY

