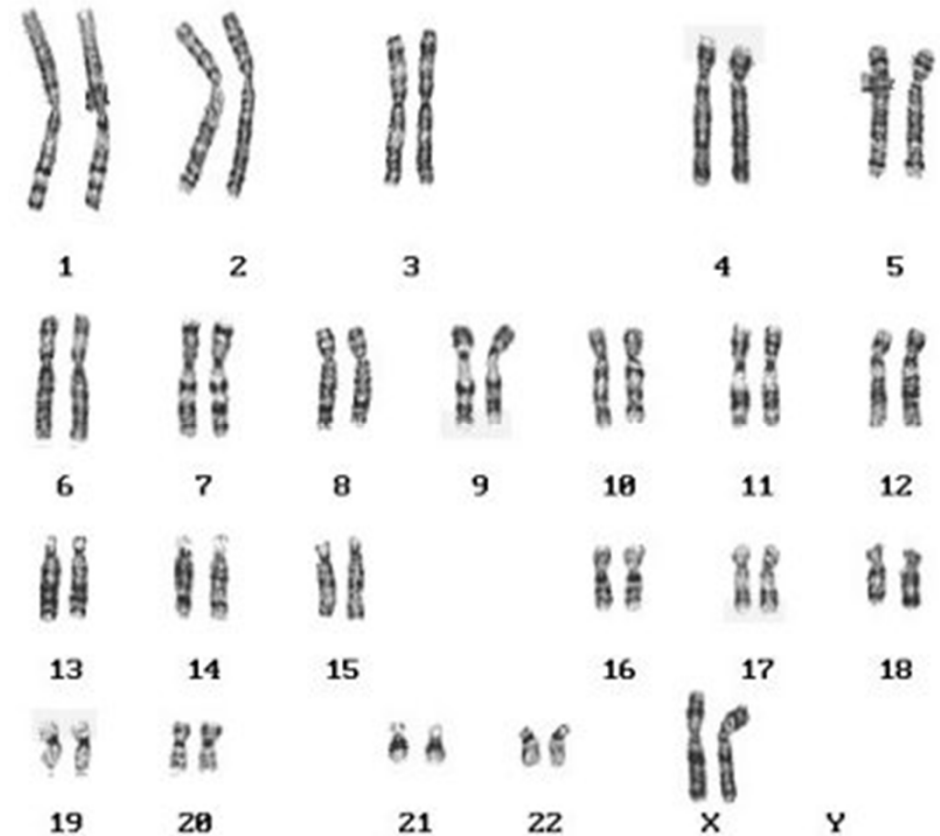


Karyotypes

- ▶ Chromosomes and disorders can be studied using a **karyotype**
 - ▶ Images of chromosomes stained during metaphase
 - ▶ Shows pairs of homologous chromosomes
 - ▶ Each pair is arranged according to size
 - ▶ 23 pairs are shown with the last one being the sex chromosomes



Nondisjunction

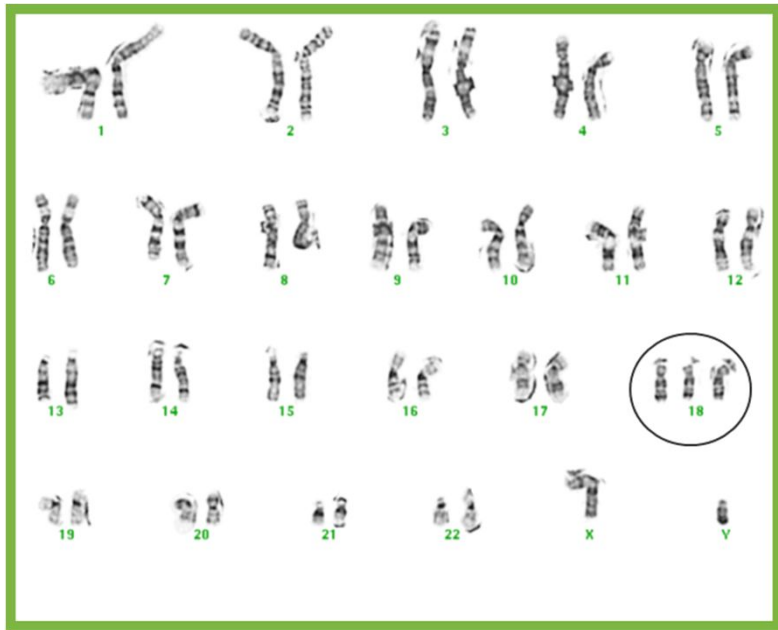
- ▶ Remember during cell division, the chromosomes separate
- ▶ This moves one to each pole of the cell
- ▶ What about if this doesn't happen correctly?
 - ▶ NONDISJUNCTION
 - ▶ If this occurs during meiosis I or II the resulting sex cells will not have the correct # of chromosomes
 - ▶ If it is fertilized the offspring will not have the correct number either



Nondisjunction

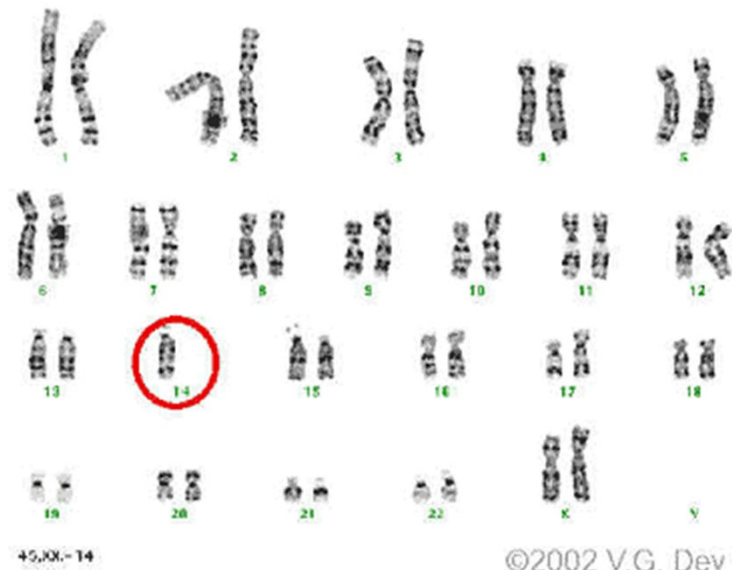
Trisomy

- ▶ Result of an extra copy of a chromosome



Monosomy

- ▶ Results from only one particular type of chromosome



Nondisjunction

▶ Trisomy 21

- ▶ Down's Syndrome
- ▶ Extra chromosome on the 21st pair
- ▶ Distinctive facial features, short stature, heart defects, mental disabilities
- ▶ Around 1 out of 800 births in the US
 - ▶ Increases with the age of the mother

Down Syndrome - Trisomy 21

