

Name: \_\_\_\_\_  
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## Science 9 Notes on Meiosis Continued

### **Chromosome mutations sometimes occur spontaneously:**

Chromosome changes during meiosis can cause changes in the **genetic information**. Parts of chromosomes can be:

1. **inverted**
2. **deleted**
3. **duplicated**
4. **moved to another spot**

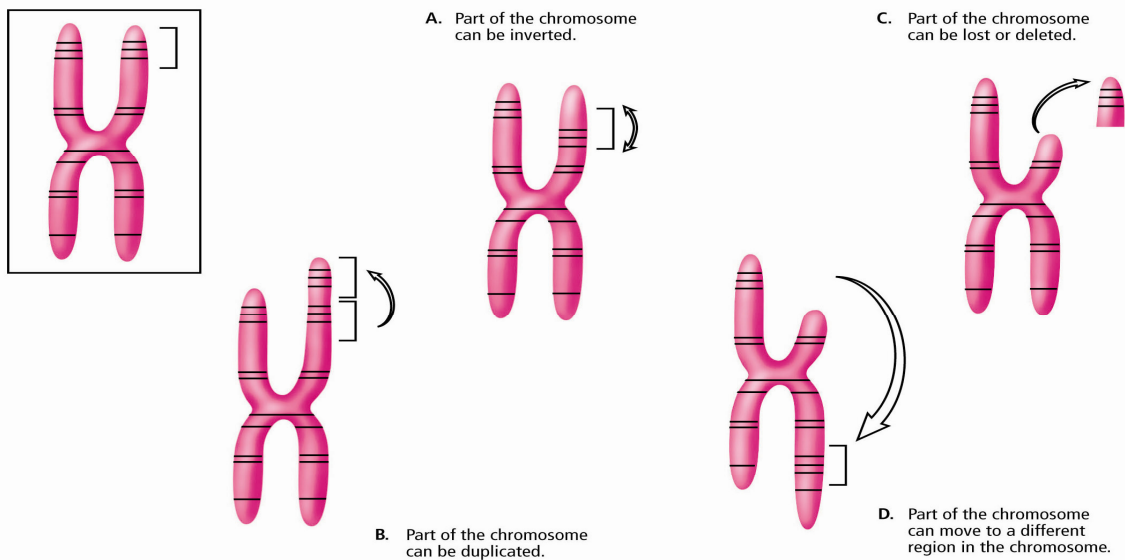


Figure 6.8 Several types of chromosome mutations

### **Chromosome mutations can occur because of mutagens:**

Chromosome changes, sometimes leading to genetic disease or death, can be caused by **mutagens** such as **radiation** or **chemicals**.

### **Failed separation of chromosomes in meiosis has serious consequences:**

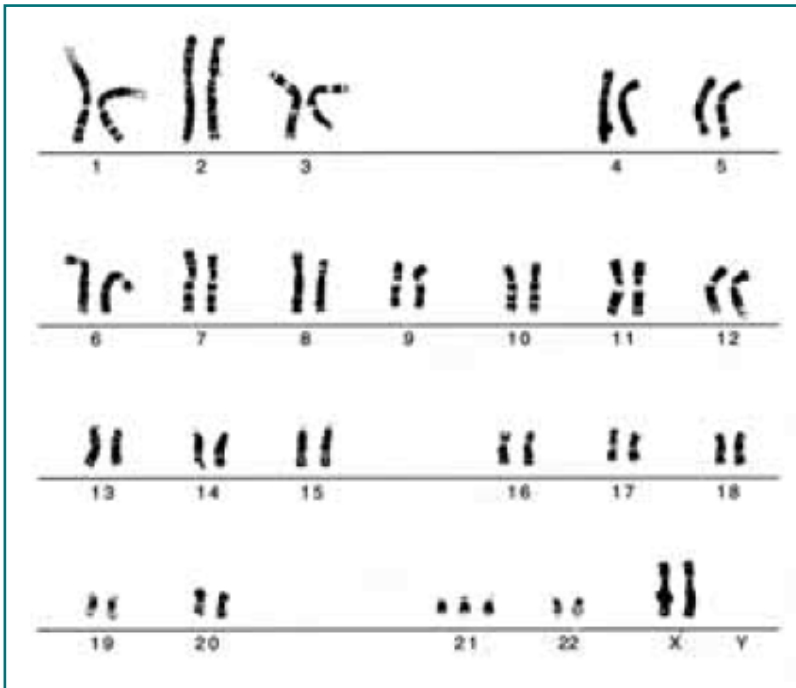
Failed separation means that a gamete may end up with **no** chromosome or **too many** of a chromosome. Zygotes that result from these gametes rarely survive, and if they do, they will have **serious** genetic disorders.

**Genetic Disorders:**  
**The chromosomes of an individual can be studied**

By using a **karyotype**, geneticists can view an individual's chromosomes.

Certain genetic disorders or syndromes occur when there are specific chromosomes extra or missing

**Down syndrome** usually occurs when there is an extra **21<sup>st</sup>** chromosome



**Ex. Down Syndrome karyotype**