

A panoramic view of the Philadelphia skyline across a body of water. The Comcast Center is the most prominent building in the center. The sky is clear and blue.

# The Philadelphia Story

*Chromosomes and Human Genetics*

11.0

# 11.0 In Question

Differentiate between Mitosis and Meiosis.

## The Philadelphia Story

A. The first abnormal chromosome to be associated with cancer was named the Philadelphia chromosome after the city in which it was discovered.

1. Karyotyping revealed that the abnormal chromosome is number nine to which a piece of number twenty-two is attached.

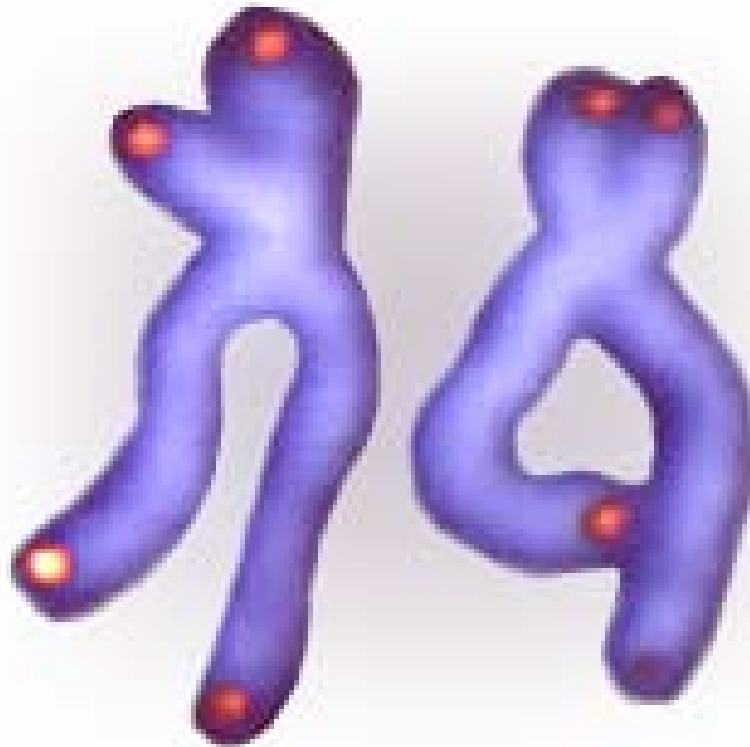
2. The altered genes specify an abnormal protein that stimulates unrestrained division of white blood cells – leukemia.

# Philadelphia Karyotype



B. The modern study of genetics began with the rediscovery of Mendel's work in 1884.

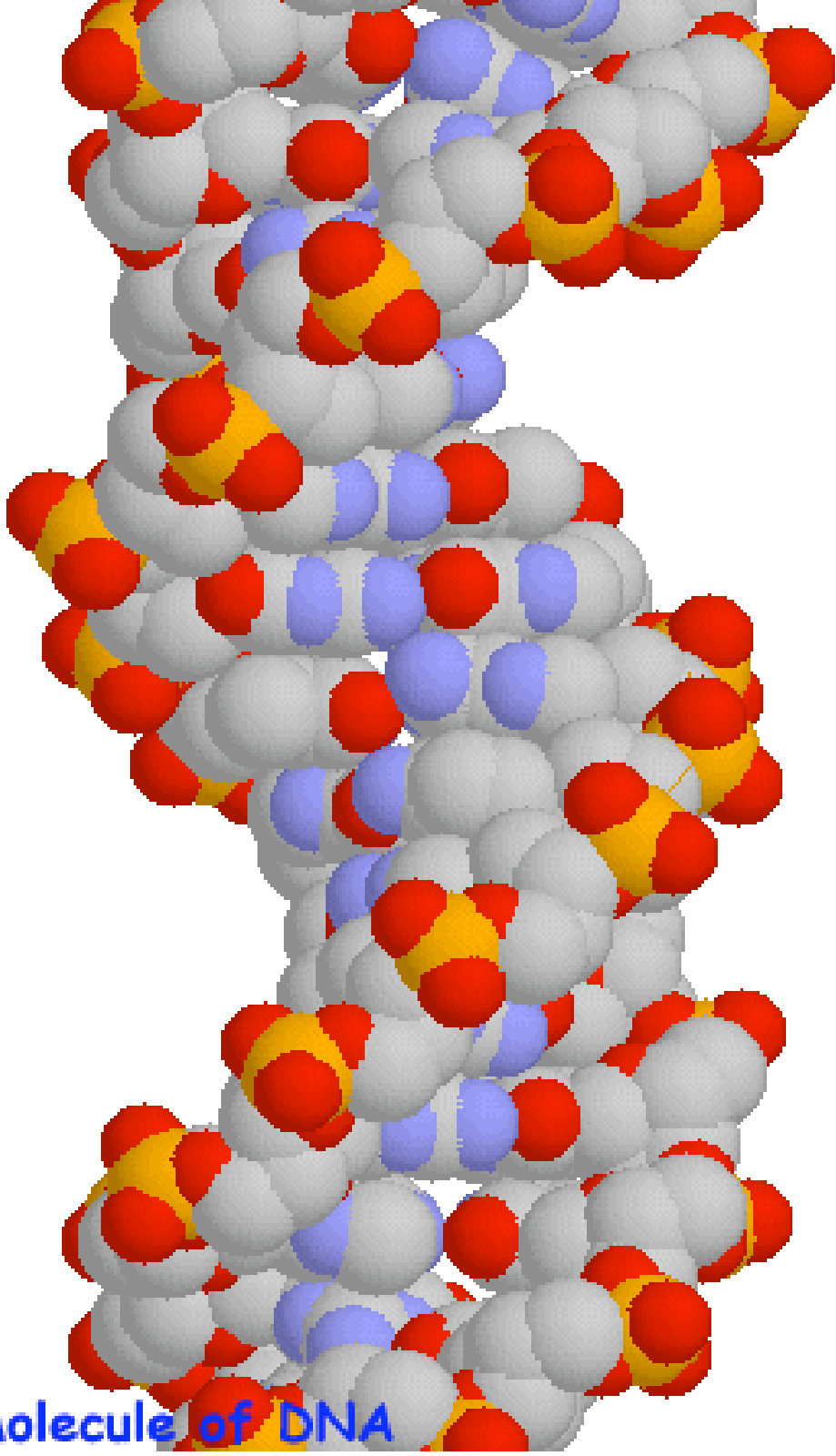
1. By 1882, Flemming observed threadlike chromosomes in the nuclei of dividing cells.



2. By 1887, Weismann suggested that meiosis halves the number of chromosomes when gametes are made.

3. By 1900, Mendel's work was finally appreciated – namely, his view that diploid cells have two units for each trait and the units segregate during gamete formation.

©Rothamsted Experimental Station, 1997, 1998



DNA

Molecule of DNA

# Out

Who noticed chromosomes in the nucleus of a cell?

- a. Mendel
- b. Weismann
- c. Flemming
- d. Pasteur
- e. Nye