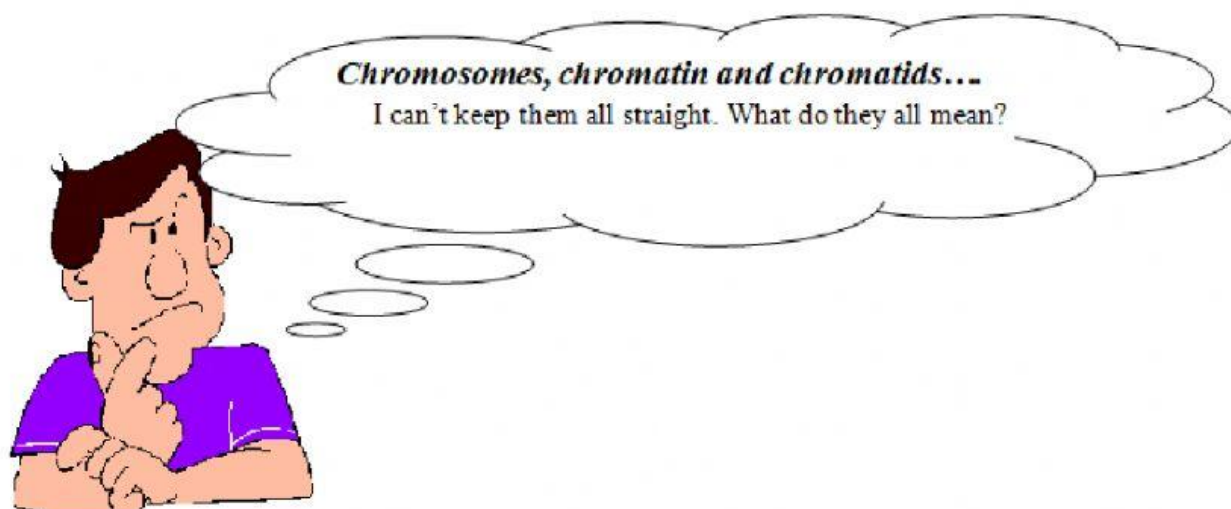
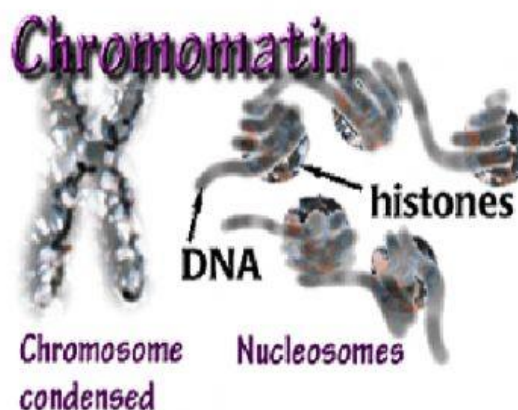


Chroma-Something Practice**Overview**

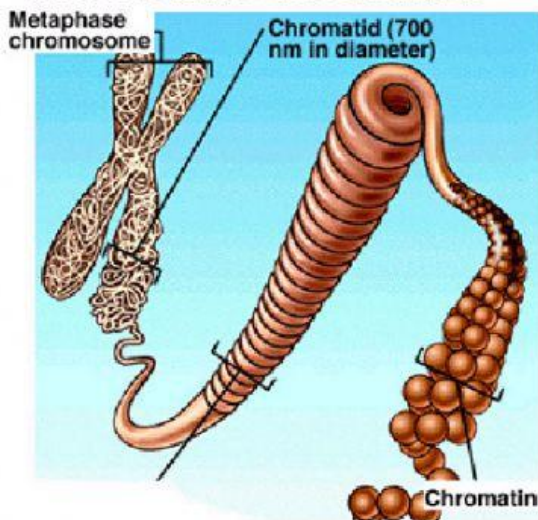
Chromosomes are long threads of material called **chromatin**. This material is composed of a central core of DNA (making up about 40% of the chromosome), and packaging proteins (about 60%). Depending on the circumstances, some RNA can also be associated with these structures, particularly when they are active in directing protein synthesis.

The central DNA molecule in a typical human chromosome contains about half a billion nucleotides, and, if stretched out to its full length, would be about 2 inches (5 centimeters) end to end. Obviously, in a cell, this DNA has to be coiled and packaged to allow it all to fit inside the nucleus.

**Review Questions**

1. Chromosomes are made of long threads of _____.
2. Chromosomes are composed of 40% _____ and 60% _____.
3. A typical chromosome is made up of about _____ nucleotides and would stretch out to be _____ in length.

Chromatin Structure



Chromosome and Chromatin

Chromatin is a mass of uncoiled DNA and associated proteins called histones.

When cell division begins, DNA coils around the proteins forming visible structures called **chromosomes**.

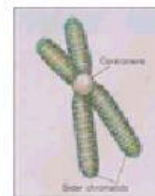
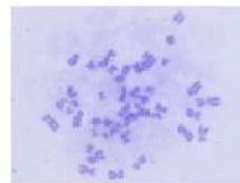
Review Questions

- Uncoiled DNA is referred to as _____.
- During cell division, DNA coils to form a visible structure known as a _____.

Chromosome Structure and Replication

Double-stranded chromosomes have two **chromatids**; normally, each one is identical to the other.

The point where two chromatids are attached is called the **centromere**.



Above: Human chromosomes (female)

Review Questions

- A single DNA molecule is called a _____.
- A double-stranded chromosome is made up of _____ chromatids attached at a point called a _____.