Meiosis Modeling Lab

Materials:

- Play doh or sculpey.
- Big piece of white paper
- Small piece of construction paper
- Lab groups of 3 or 4

Purpose:

To model meiosis correctly, showing how one parent cell becomes four gametes.

Procedure:

1. Each person in the lab group must construct a homologous chromosome pair, about ¼ inch long at the most. Make them in the “X” shape denoting a chromatid and its sister. Like this:

   ![Homologous Chromosome Pair](image1)

2. Now, since the chromosomes in a homologous pair are not identical, make ONE of your pairs have a different mark than the other one. Like this:

   ![Different Mark](image2)

3. Now (and pay attention here!), make FOUR MORE pairs of homologous chromosomes EXACTLY like your first pair. You will have FIVE pairs total.

4. You and your lab partners will now make a KARYOTYPE chart of your chromosomes. If there are three of you in the group, your karyotype will contain three pairs; if there are four of you, you’ll have four pairs. Like this:
5. Now it’s time to model meiosis. On a large sheet of white paper, copy this diagram. Then, using the other four pairs of homologous chromosomes (from everybody in your lab group) show what happens to chromosomes during meiosis.

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Parent cell at the beginning of Meiosis I. This is a **diploid** cell.

End Meiosis I. Two cells result. Both are **haploid**.

Beginning of Meiosis II. (These cells look identical to the previous two.)

Ta da! At the end of Meiosis II there are FOUR gametes. These are **haploid**. They contain unduplicated chromosomes.