



A PILOT DVD PROJECT

MODELING MEIOSIS

TED DAVIS

LEIGH FLOYD

SOUTH BROWARD HIGH SCHOOL

Activity: Modeling Meiosis: Flip Book

- **Time Frame:** 1-1.5 hours
- **Materials:** Index cards, scissors or glue or tape, crayons or colored pencils or markers, templates
- **Teacher Directions:**
 - Make sure students understand that meiosis involves two division sequences in succession which result in new cells. Students should also understand the chromosome number in the resulting gamete is half the number in the original cell. You may provide examples before doing the activity. For example, a dog's body cell contains 78 chromosomes. After meiosis I, the dog's cell still contains 78 chromosomes (make sure to mention that the cell replicated before its first division). After the second division, the chromosome is cut in half and results in a haploid number.
 - Watch Lecture 1 Chapter 26
 - Define chromatids, homologous chromosomes (homologs), gametes, diploid, and haploid.
 - What are the two consequences of meiosis?
 - Discuss gene swapping and division of chromosomes.
 - Describe the stages of meiosis.
 - Watch Lecture 1 Chapter 31 Animation: Meiosis

- **Student Directions:**

- Starting with 2 tetrads, draw each step of meiosis into the templates provided.
- Cut out templates and attach each to an index card.
- Label and color each stage of meiosis on the index card.
- On back of each index card, explain the step in your own words.
- Create a cover index card with title of your book.
- Bind index card together like a book.
- As you thumb through the book, you should see the process of meiosis occurring.

- **Evaluation:**

1. During what stage of meiosis do we find tetrads?

2. What is a tetrad?

3. Why is it necessary to have two separate divisions in meiosis?

4. What would happen to the final cells if one chromatid pair did not separate in Anaphase II?

5. What is the difference between a tetrad and a chromatid pair?

6. If a cell has 26 chromosomes before meiosis begins, how many tetrads will it contain after a.) Prophase I _____
b.) anaphase I _____
c.) telephone II _____

7. What is the final result of the meiotic process?

- **Evaluation Answer Key:**

During what stage of meiosis do we find tetrads? Prophase

What is a tetrad? A tetrad is four homologous chromosomes joined together.

Why is it necessary to have two separate divisions in meiosis? To reduce the number of chromosomes to one half the diploid number

What would happen to the final cells if one chromatid pair did not separate in Anaphase II? Mutation

What is the difference between a tetrad and a chromatid pair? A chromatid is one of the strands that make up a chromosome; therefore, if you have a chromatid pair you have a completed chromosome. When homologous chromosomes pair up they form a tetrad.

If a cell has 26 chromosomes before meiosis begins, how many tetrads will it contain after a.) Prophase I-52

b.) anaphase I-26

c.) telophase II-13

7. What is the final result of the meiotic process?

- **Web Connection:**

- Take a virtual tour of meiosis in the cell.
www.thebiologyproject.com



