

How Is Meiosis Different from Mitosis?

Goal • Make models of the steps of mitosis and meiosis.

Introduction

The model you make will allow you to compare the end results of mitosis and meiosis.

Materials

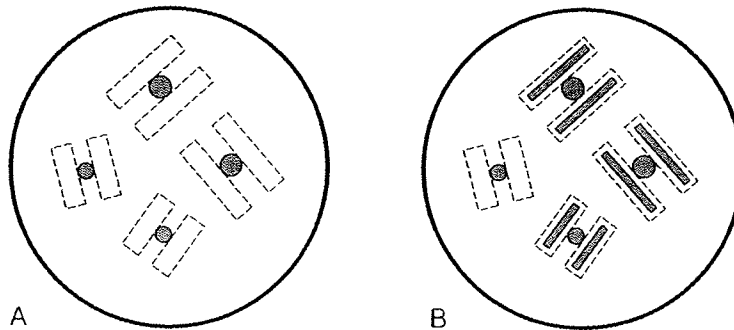
- yarn strands, four different colours
- tape or glue
- scissors
- large sheets of paper

Safety Precaution

Be careful when handling sharp or pointed objects.

What to Do

1. In your group, develop a plan for using the materials provided to make a model of the steps of mitosis and meiosis. Refer to the data table below for the number of chromosomes to include in your model. You may sketch a diagram of your plan to use as a pattern.



Hint: If you need help, the steps of mitosis and meiosis are shown on pages 18 and 49 in *SCIENCEPOWER™ 9*.

2. Make your model.
3. When you are finished your model, complete the data table below.

Observations

Comparing Mitosis and Meiosis	Mitosis	Meiosis
Type of cell undergoing reproduction		
Number of chromosomes before cell begins to divide	4	4
Number of chromosome pairs in the original cell		
Final number of chromosomes in each new cell at the end of division		
Chromosome pairs in each new cell at conclusion of division		

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(continued)

Analyze

1. Compare the location and arrangement of chromosomes in the cell during metaphase in mitosis and metaphase I in meiosis.

2. Compare the location and arrangement of chromosomes in the cell during anaphase in mitosis and anaphase I in meiosis.

Conclude and Apply

3. How do the end results of mitosis and meiosis differ?

4. Predict what would occur if sex cells were produced by mitosis rather than by meiosis.
