

<b>CHAPTER 16</b>	<b>Investigation 16.C: Modelling to Compare Meiosis and Mitosis</b>	<b>BLM 16.3.13</b>
<b>HANDOUT</b>		
<b>Problem:</b> How can you design a model to show a cell that is undergoing mitosis and meiosis?		

### Design Specifications

1. Work in a small group. With your group, examine the following design specifications:
  - You are modelling a germ cell from the testes of a male diploid organism. The haploid number of chromosomes in this organism is 4 (that is,  $2n = 8$ ).
  - Your model must be able represent the changes that take place in the germ cell and in its chromosomes as it divides to produce two identical germ cells, one of which then divides to produce four nonidentical gametes.
  - Your model must be able to represent at least one mechanism that ensures genetic variation among the gametes.

### Plan and Construct

1. Brainstorm options for a model that meets the design specifications. Be creative—for example, your group could build a clay model, create a computer simulation, or perform a play. Make a list of your ideas, and decide on the model you will use.
2. Design your model.
3. Prepare an assessment plan for your model. That is, how will you know if your model is successful at meeting the design specifications? What features will make it a useful model for explaining cell division?
4. Review your model design and assessment plan with your teacher. Then assemble the materials you will need, and create your model.
5. Present your model to your class.

### Evaluate and Communicate

1. Using the assessment plan you prepared, evaluate your model and presentation. How effectively do you think your model and presentation described mitosis and meiosis?

