

CHAPTER 16	Investigation 16.C: Modelling to Compare Meiosis and Mitosis Answer Key	BLM 16.3.13A
ANSWER KEY		

Answers to Evaluate and Communicate Questions

1. Make clear reference to your assessment plan in evaluating your model and presentation.
2. Effective models are well thought out (planned), meet all of the design specifications, and accurately depict mitosis and meiosis.
3. Your answer should clearly indicate and provide an explanation for the proposed changes.
4. Meiosis is well suited to the production of gametes because it reduces the chromosome number in half (haploid) and provides the opportunity to increase genetic variation (via crossing over and independent assortment) in the species. Meiosis is not suited to the purposes of the cell cycle for similar reasons. Because of the reduction division that occurs in meiosis, the daughter cells are no longer identical to the parent cell, a requirement of the cell cycle. Similarly, crossing over and independent assortment lead to genetic variation, which is not desired in the cell cycle. Mitosis is better suited to the cell cycle because daughter cells are identical to parent cells—each has an exact replica of the parent cell’s genetic material. Thus mitosis creates an identical cell that can continue through the cell cycle to produce more identical cells, unlike meiosis, where genetic reduction and variation would result in cells that differ from the parent cell and would eventually bring the cell cycle to a halt.