

Role of Mitosis in Creating Identical Daughter Cells

Challenge Area 3.11	You are able to evaluate evidence provided by data sets to support the claim that heritable information is passed from one generation to another generation through mitosis, or meiosis followed by fertilization.
Building Block B	Mitosis
Misunderstanding	You may be able to describe or explain the role of each phase in mitosis, but you have difficulty connecting how each event results in a new generation with genes identical to the parents.

Take action

Mitosis distributes identical genetic material to two daughter cells. These daughter cells can both be haploid if the parent cell is haploid, or will be diploid if the parent cell is diploid. Let's assume that you cut your hand, and now mitosis will occur to produce cells to repair the injury. In order to get identical replacement cells, the DNA of the parent cell must be faithfully copied, and then distributed to two daughter cells.

Go to the link: *http://www.pbs.org/wgbh/nova/miracle/divide.html*. Read the background information, and then follow a link to the animation *Mitosis vs. Meiosis*. Ignore the right side of these pages for now, and focus on mitosis. Answer the questions below, and always narrow your response to explain how this contributes to identical daughter cells.

- 1. What happens in interphase?
- 2. Describe the chromosomes after interphase.

3. Explain how metaphase and anaphase contribute to distribution of the chromosomes.





4. Summarize how mitosis results in daughter cells that are identical to the parent cell.

Click to view the *answer key*.

