

Name _____

The Marvelous World of Mitosis

Open-Ended Response Answer Key

1. Mitosis is essential for maintaining our body's organs and tissues because it allows for the replacement of old or damaged cells. Without mitosis, our organs and tissues would not be able to function properly, and injuries would not heal.
2. In metaphase, chromosomes line up along the cell's equator, while in anaphase, sister chromatids are pulled apart towards opposite ends of the cell.
3. Asexual reproduction produces offspring with the same genetic makeup as the parent, leading to limited genetic diversity. In contrast, sexual reproduction involves the combination of genetic material from two parents, resulting in greater genetic diversity among offspring.
4. If cytokinesis did not occur after mitosis, the cell would remain as a single entity with two nuclei, instead of dividing into two distinct daughter cells. This would lead to abnormal cell function and potential health issues.

