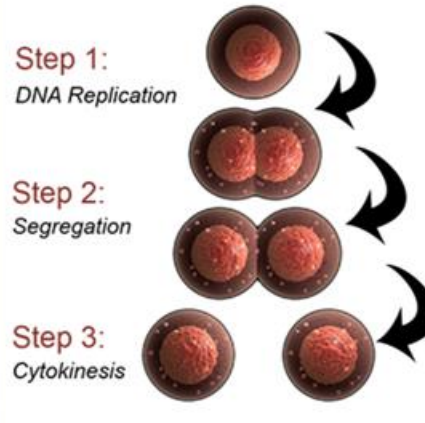


Module 4: Cell Biology - Growth and Reproduction

Topic 1 Content: Binary Fission Notes

Introduction

Binary Fission



Step 1:
DNA Replication

Step 2:
Segregation

Step 3:
Cytokinesis

1 2 3

Introduction

Binary fission is a type of asexual reproduction that requires only one, unfertilized parent cell to produce offspring. There are three steps in binary fission: DNA replication, segregation, and cytokinesis.

In this interactivity, click **NEXT** to learn about the three steps of binary fission.

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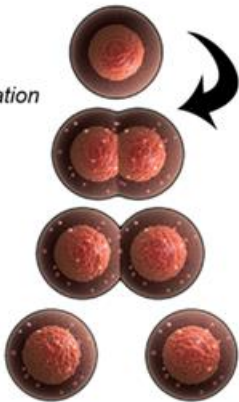
Module 4: Cell Biology - Growth and Reproduction

Topic 1 Content: Binary Fission Notes

Step 1: DNA Replication

Binary Fission

Step 1:
DNA Replication



1 **2** **3**

DNA Replication

Binary fission begins with the replication of the parent cell's chromosome, which in prokaryotes is typically a single circular-shaped DNA molecule. These chromosomes contain all the genetic material of the cell and must be duplicated exactly before being transferred to the new daughter cells.

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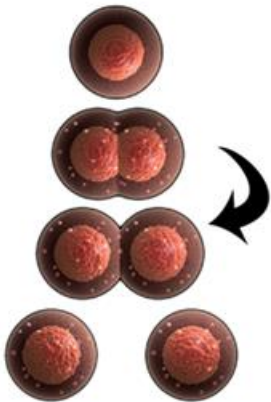
Module 4: Cell Biology - Growth and Reproduction

Topic 1 Content: Binary Fission Notes

Step 2: Segregation

Binary Fission

Step 2: Segregation



The diagram illustrates the segregation stage of binary fission. It shows a vertical sequence of four circular cells. The top cell contains a single red spherical chromosome. The second cell shows two red chromosomes, one on each side of the cell. The third cell shows the two chromosomes moving toward opposite poles of the cell. The bottom cell shows two separate daughter cells, each with one red chromosome. A curved arrow points from the second cell to the third, and another from the third to the bottom cell.

1 2 3

Segregation

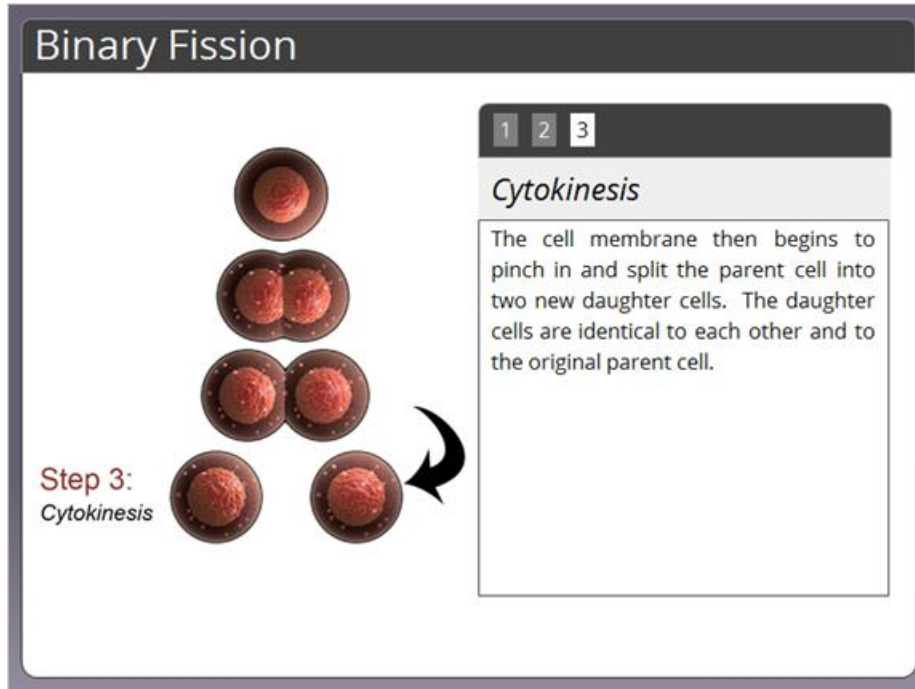
After the chromosome has replicated, the two chromosomes move to opposite ends of the cell.

After the chromosome has replicated, the two chromosomes move to opposite ends of the cell.

Module 4: Cell Biology - Growth and Reproduction

Topic 1 Content: Binary Fission Notes

Step 3: Cytokinesis



The cell membrane then begins to pinch in and split the parent cell into two new daughter cells. The daughter cells are identical to each other and to the original parent cell.