

Mitosis & Meiosis Flip Books

Learning Goal: Students will compare the stages of Mitosis and Meiosis with respect to visual and written details. Students will draw diagrams for each stage of Mitosis and Meiosis that are SIMILAR to the textbook and CLASS EXAMPLE diagrams, except the flip book diagrams will show cell division for cells containing **3** different pairs of chromosomes ($2n=6$)

Mitosis Flip Book Showing how identical body cells (somatic) are made.

1. Collect 6 flip book papers and on one side LABEL and draw a neat diagram for each stage of Mitosis: Interphase, Prophase, Metaphase, Anaphase, Telophase (Early & late), 2 daughter cells HINT: ($2n=6$ means **3** different chromosome sizes)
2. Select **3** colors and consistently highlight the homologous chromosome pairs the SAME color through each diagram.
3. Identify (circle and draw arrows as needed) each of the following vocabulary concepts at least once in your flip book.

Nucleolus	Spindle	Centromere	"Single" chromosome	Fading Nuclear membrane
Chromatin	Equator Line	Sister Chromatid	"Double" chromosome	Reappearing Nuclear Membrane

4. Label each stage as either **Haploid** (1 of each chromosome size) or **Diploid** (2 of each chromosome size)
5. On the back of each diagram, **label** the appropriate Mitosis activity from the list below (Use only once)

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| <ul style="list-style-type: none"> • Nucleus reforms around diploid "single" chromosomes • "double" chromosomes appear in a random pattern • Copy DNA and build cell proteins | <ul style="list-style-type: none"> • Rip apart sister chromatids and reel in "single" chromosomes • 2 identical daughter cells • "double" chromosomes line up single file on equator |
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6. After your flip book is scored, STAPLE the flip book in the correct sequence.

Meiosis Flip Book Showing how genetically mixed up eggs and sperm (gametes) are made.

1. Collect 11 flip book papers and on one side LABEL and draw a neat diagram for each stage of Meiosis: Interphase 1, Prophase 1, Metaphase 1, Anaphase 1, Telophase 1 (Early & late), 2 daughter cells in Interphase 2, Prophase 2, Metaphase 2, Anaphase 2, Telophase 2 (Early & late), 4 gametes ** REMEMBER: ($2n=6$ means **3** different chromosome sizes)
2. Select **3** colors and consistently highlight the homologous chromosome pairs the SAME color through each diagram.
3. Identify (circle and draw arrows as needed) each of the following vocabulary concepts at least once in your flip book.

Tetrad "tango"(show 1,2,3,4)	"Single" chromosome	Fading Nuclear membrane
Chiasma (show crossing over)	"Double" chromosome	Reappearing Nuclear Membrane

4. Label each stage as either **Haploid** (1 of each chromosome size) or **Diploid** (2 of each chromosome size)
5. On the back of each diagram, **label** the appropriate Meiosis activity from the list below (Use only once)

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| <ul style="list-style-type: none"> • Nucleus reforms around "double" chromosomes • "double" chromosomes appear in a random pattern • Copy DNA and build cell proteins • Nucleus reforms around "single" chromosomes • "double" chromosomes appear and form tetrads • Short rest with NO DNA replication | <ul style="list-style-type: none"> • Rip apart tetrads and reel in "double" chromosomes • 4 genetically unique potential gametes • tetrads line up along equator (2 by 2 by 2 ...) • Rip apart sister chromatids and reel in "single" chromosomes • "double" chromosomes line up single file on equator |
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6. After your flip book is scored, STAPLE the flip book in the correct sequence.

