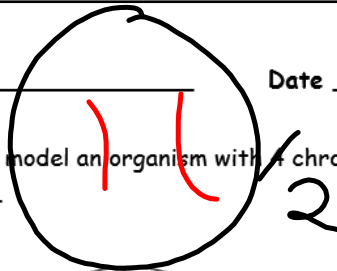
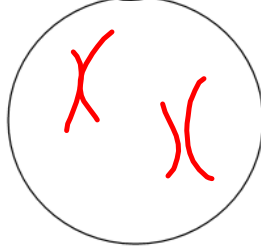


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**Model Mitosis** - We are going to model an organism with 4 chromosomes but the process is the same for humans with 23 chromosomes.

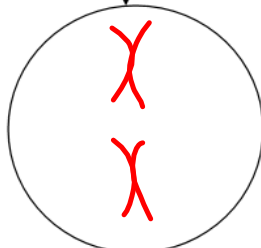


a. Using four colors, draw four **uplicated** chromosomes inside of a nucleus.



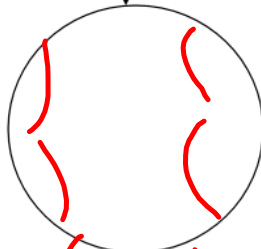
**Step 1**  
Chromosomes  
Condense

b. Using the same four colors, draw the four chromosomes lined up vertically; the nucleus has disappeared.



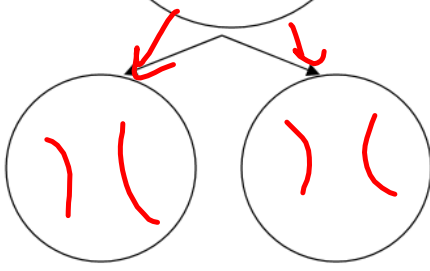
**Step 2**  
Chromosomes  
Line Up

c. Using the same four colors, separate the upper chromatids and lower chromatids to opposite sides of the cell.



**Step 3**  
Chromosomes  
Separate

d. Using the same four colors, draw the chromatids inside a nucleus within each cell.

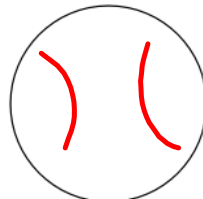


**Step 4**  
Nuclei Form (Cells  
Pinch and Divide)

**\* Mitosis produces 2 cells IDENTICAL to the original cell**  
**\* Growth, repair**  
**All body cells EXCEPT sex cells**

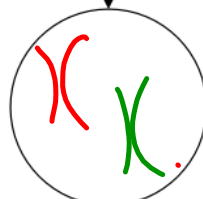
**Model Meiosis** - We are going to model an organism with 4 chromosomes but the process is the same for humans with 23 chromosomes.

a. Using two colors, draw four unduplicated chromosomes in two different sizes.



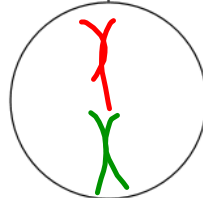
**Parent Cell**  
Chromosomes Condense and Nucleus Disappears

b. Using two colors, draw the four chromosomes replicated.



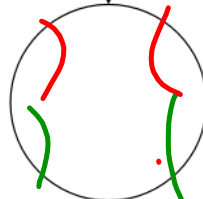
**Part of Division 1:**  
Chromosomes Replicate

c. Draw one chromosome from each pair on separate sides of the cell.



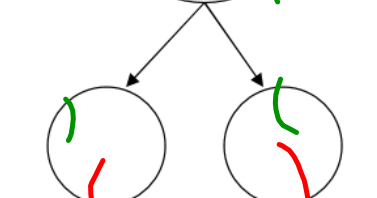
**Part of Division 1:**  
Like Chromosomes Pair Up

d. Draw the chromosomes with pieces interchanged.



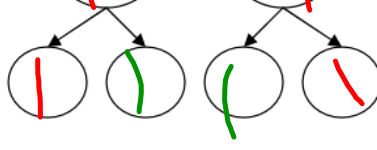
**Part of Division 1:**  
Chromosomes Swap Portions of their DNA

e. Draw one of each pair in the daughter cells.



**Part of Division 1:**  
Chromosomes Pairs Divide

f. Draw half of each chromosome in each daughter cell.



**Part of Division 2:**  
Daughter Chromosomes Divide Again

**★ Meiosis: Produces 4 cells that have HALF the # of chromosomes from the OG**  
**★ This creates sex cells**