

Mitosis in Motion

Overview: Although when we study mitosis, it appears as a series of snap shots, in fact, it is a continuous process involving a disappearing nuclear membrane and moving chromosomes. In this activity, you will be creating a flip book on mitosis. When you finish you will have a little book that you can scroll through and it will show a rough continuous animation of the process of mitosis.

Materials:

3 x 5 cards - 16 per student

Templates: available at this website: <http://sciencespot.net/Media/mitosisbook.pdf>

Colored pens or pencils

Stapler

Procedure:

On each card you will draw a cell going through some stage of mitosis. You will label the appropriate structures and you will put a brief narrative of the steps. Your cell should have 4 chromosomes (2 pairs). Use the given number of 3 x 5 cards for each of the stages listed below.

- Title Page - 1 card
- Interphase - 2 cards
- Prophase - 3 cards
- Metaphase - 3 cards
- Anaphase - 3 cards
- Telophase - 3 cards
- Cytokinesis - 1 card

1. Get 16 3/5 cards.
2. On the first card put your name and a title for the book (Mitosis in Motion, for example)
3. Make sure that the location where you draw your nucleus will be on the same place on each card.
4. Use colored pens or pencils and be consistent with your colors on each card.
5. On each card label structures such as chromosomes, centromere, spindle fiber, nuclear membrane,
6. On the back of each card, describe what is happening on the front.
7. When finished, staple them together in the correct order along the left edge.
When you flip through the book you will have Mitosis in Motion!

Notes:

- The first "cell" to begin each phase should be the beginning stages of that phase (e.g., the first cell for metaphase should include the chromosomes lined up along the center of the cell and the spindle fibers attached to the centromere).

- The other cards for each phase should change very gradually to give the appearance of the cell actually dividing. You should also make sure that the last "cell" for a particular phase gradually changes into the beginnings of the next stage (e.g., the final "cell" for interphase should blend into the first "cell" for prophase).
- Make sure that you make your drawings in a place that they will be seen when you flip the pages. Also watch the size of your drawings. Do not make the drawings so large that you will be able to see only parts of the "cell," but do not make them so small that you will compromise details.