

"Flash" Let's Make those Chromosomes "Dance"

Remember that during the cell cycle, a cell grows, prepares for division, and divides to form two daughter cells, each of which will begin the cell cycle again. The cell cycle consists of four phases. Mitosis and cytokinesis take place during the M phase. Chromosome replication takes place during the S phase. Between the M and S phases are the G1 and G2 phases which are periods of growth and cellular activity.

In this activity you will be learning how to use the software "Flash" to create a video clip of 2 homologous pairs of chromosomes going through the cell cycle. The following stages and components of each stage must be included in your video clip.

Interphase:

1. During interphase the DNA is in the form of _____.
2. Do you see a nuclear membrane and nucleolus? Include these parts in your drawing if they are present.
3. Where are the centrioles located? Put these in the proper location.

Mitosis:

Prophase:

1. Show the centrioles and the spindle fibers radiating across from one centriole to the next.
2. Draw two pairs of homologous chromosomes. One pair should be large and the other pair should be small and all of your chromosomes should be in the duplicated state.

Metaphase:

1. Move the chromosomes to the equator of the dividing cell.
2. Show the spindle fibers attaching to the centromere of each of the chromosomes.

Anaphase:

1. Separate the sister chromatids from one another.

Telophase:

1. Show the chromosomes reaching the opposite sides of the cell and the nuclear membranes reappearing.
2. Show the cytoplasm pinching in and two cells forming.

Cytokinesis:

1. The cell membrane continues to pinch in and two new daughter cells have been formed.

Flash Project Story board

Your flash project is an animation of the cell cycle. It is important that you understand the stages of the cell cycle before you begin the project. Use the following story board to draw what is going on during each particular stage of the cell cycle. Label all of the parts and indicate on which layers you will be working on these particular parts.

Interphase: Frames: _____ - _____	Prophase Frames: _____ - _____	Metaphase Frames: _____ - _____
Anaphase Frames: _____ - _____	Telophase Frames: _____ - _____	Cytokinesis Frames: _____ - _____

FLASH DANCE GRADING RUBRIC

Are all of the stages of mitosis present?

1 2 3 4 5

Do you include all of the necessary components for each of the various stages of mitosis?

1 2 3 4 5

Do you begin with 2 sets of homologous chromosomes and are these two sets easy to distinguish?

1 2 3 4 5

Are pairs of homologous chromosomes correctly lined up?

1 2 3 4 5

Do sister chromatids correctly separate from one another and at the appropriate time?

1 2 3 4 5

Overall flow to the presentation

1 2 3 4 5