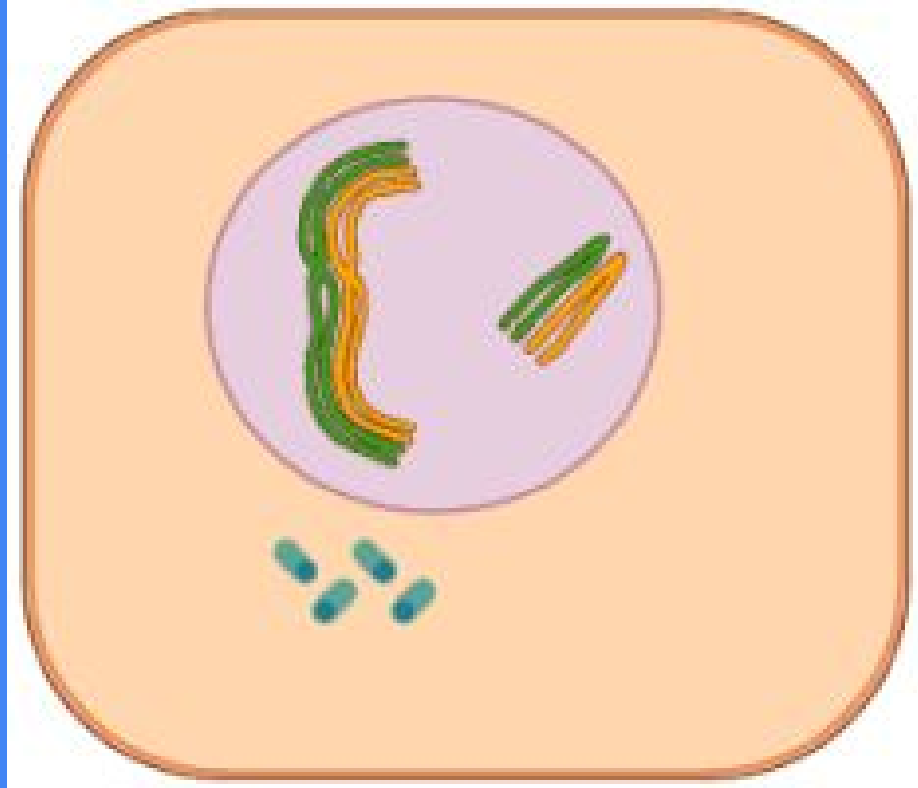


Reproduction & Mitosis

SCIENCE 9: UNIT 1 - SECTION 1.2



Developed by V. Sidhu

Plan of the Day

February 8th, 2018

- 1) Attendance
 - 2) Hand in Lab
 - 3) Plickers
 - 4) Mitosis Group Activity
 - 5) Review of Activity
 - 6) Recap Quiz Topics for tomorrow
 - 7) Participation Exit Slip
-

PLICKER QUESTION

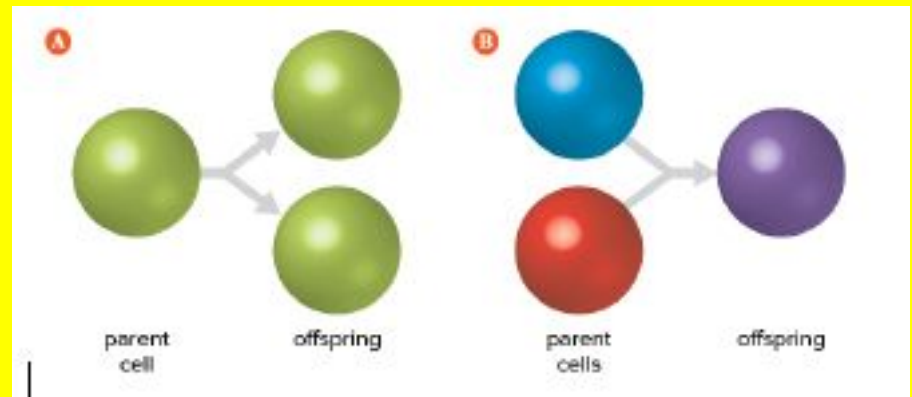
What is sexual reproduction?

- a) When a single parent produces offspring that are genetically identical to itself
- b) When 2 parents produce offspring that are genetically a mix
- c) The molecule that parents pass on to their offspring
- d) When chromatin is condensed into chromosomes

PLICKER QUESTION

The puppies in a litter have **DNA that is identical to one another**

- a) True
- b) False



PLICKER QUESTION

How does the genetic information of the parents and offspring compare in sexual reproduction?

- a) Their genetic information is the same
- b) The genetic information of the parents is the same, but different from the offspring
- c) The genetic information of the parents is different, also different from the offspring
- d) All of the above

Activity Instructions

Determine what group you are assigned to & move into assigned groups

You will either be in an acting group or drawing group.

You will need to read the instructions and complete the assignment within 20 *minutes*, after that we will go through and present your assignment.

ACTIVITY GROUPS

Acting Groups

- 1) Jaylyn, Ashton, Emma
- 2) Maya, Jeanelle, Daniela
- 3) Jeremy, Ramnique, Mikayla
- 4) Maya, Kevin, Vasilisa

Drawing/Sketching Groups

- 1) Tim C., Armaan, Ajnur
- 2) Kelly, Lucas
- 3) Tristan, Serina, Gena
- 4) Tim Y., Markus, Mary Joe

PLICKER QUESTION

What stage do you think goes first?

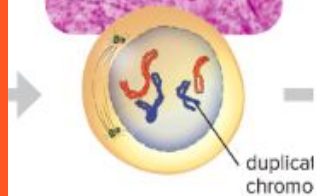
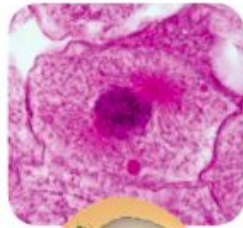
- a) Telophase
- b) Anaphase
- c) Metaphase
- d) Prophase

Phase 1

PROPHASE

The first and longest phase of mitosis is prophase. During prophase, **chromatin** condenses into **chromosomes**, and the **nuclear envelope, or membrane, breaks** down. In animal cells, the centrioles near the nucleus begin to separate and move to opposite poles of the cell. As the centrioles move, a **spindle starts to form** between them.

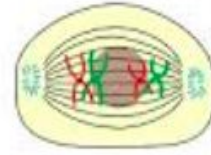
- The nuclear membrane begins to disappear.
- DNA condenses into duplicated chromosomes. Each contains two copies of the same DNA.



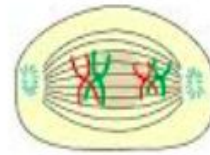
PROPHASE 1



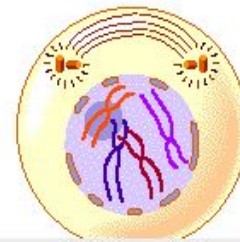
Early Prophase 1



Mid Prophase 1



Late Prophase 1



Prophase

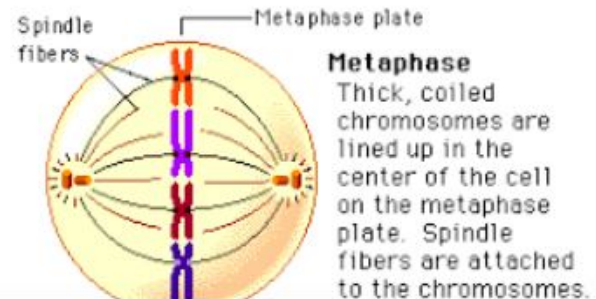
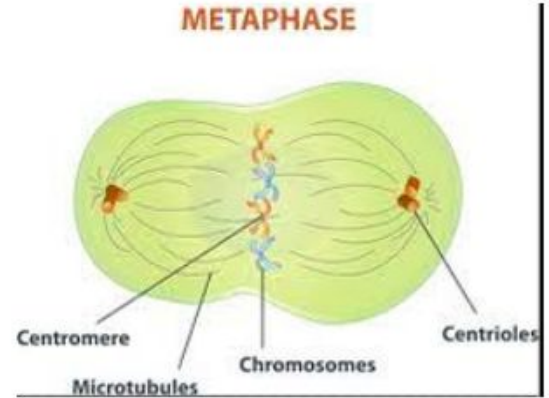
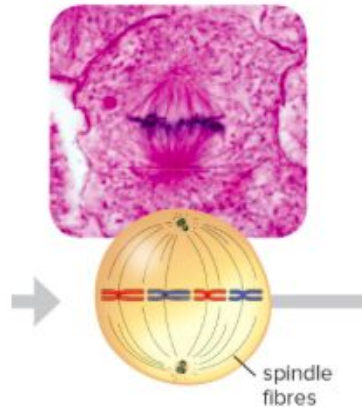
The chromosomes appear condensed, and the nuclear envelope is not apparent.

Phase 2

METAPHASE

During metaphase, *spindle fibers* attach to the *centromere* of each pair of sister chromatids. The sister chromatids line up at the *equator*, or center, of the cell. The spindle fibers ensure that sister chromatids will separate and go to different daughter cells when the cell divides.

- Structures called spindle fibres guide chromosome movement.
- Chromosomes line up along the middle of the cell.

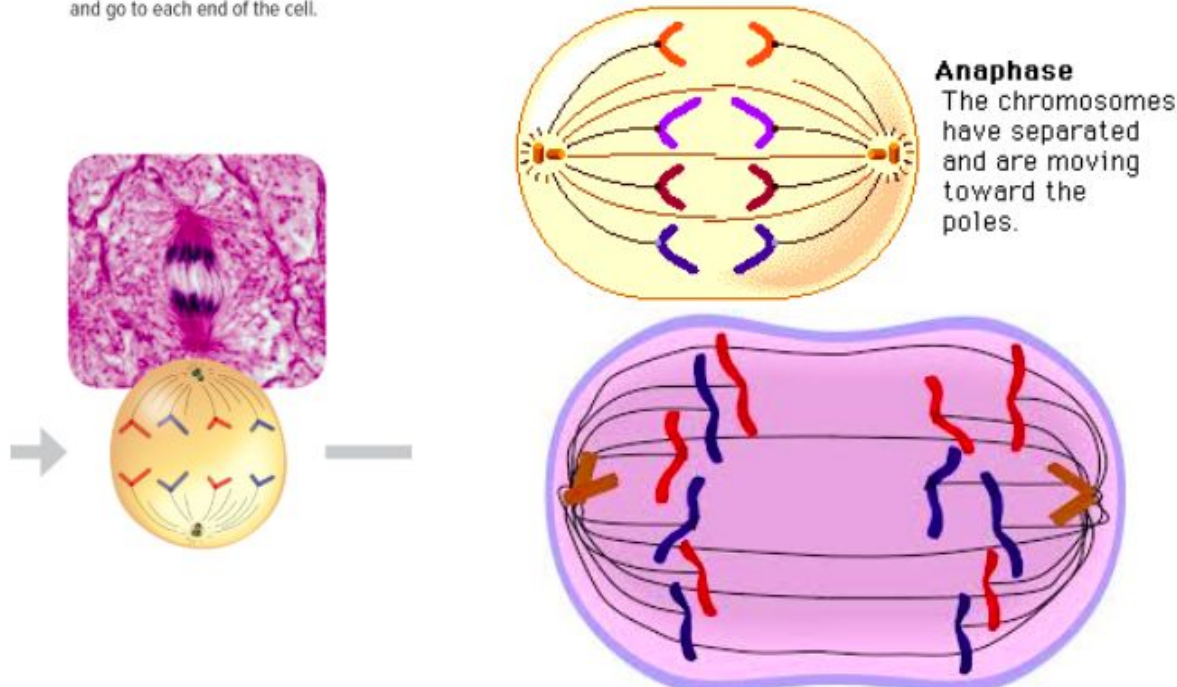


Phase 3

ANAPHASE

During anaphase, sister chromatids *separate* and the centromeres divide. The sister chromatids are *pulled apart* by the shortening of the spindle fibers. This is like reeling in a fish by shortening the fishing line. One sister chromatid moves to one pole of the cell, and the other sister chromatid moves to the opposite pole. At the end of anaphase, each pole of the cell has a complete set of chromosomes.

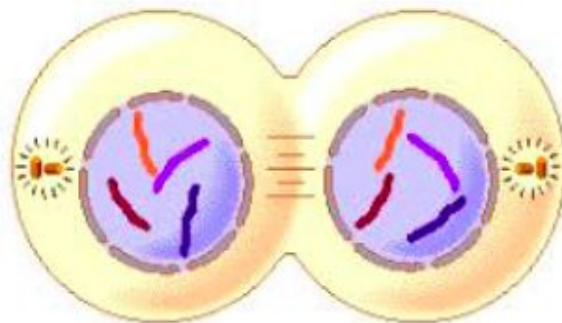
- The copies of DNA are separated and go to each end of the cell.



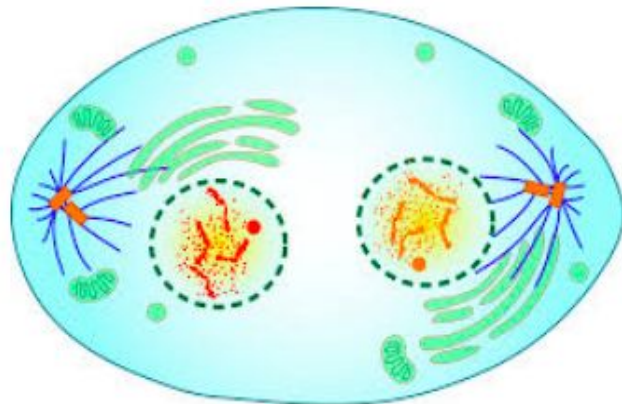
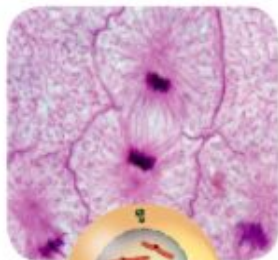
TELOPHASE

During telophase, the chromosomes begin to ***uncoil and form chromatin***. This prepares the genetic material for directing the metabolic activities of the new cells. The ***spindle*** also breaks down, and new nuclear membranes form.

- Two nuclei form and each nucleus contains a complete copy of the cell's DNA.



Telophase
The chromosomes are at the poles, and are becoming more diffuse. The nuclear envelope is reforming. The cytoplasm may be dividing.



Phase 4

PLICKER QUESTION

Is mitosis sexual or asexual reproduction?

- a) Sexual Reproduction
- b) Asexual Reproduction
- c) Neither

TO ACCESS THE PDF VERSION OF MITOSIS NOTES...

https://docs.google.com/document/d/1KXLqarY306TXRQ2Ca8iCeZ0BmU2EyCq6lqpzYBXP_ss/edit?usp=sharing

1 Interphase

- The cell grows and the number of organelles increases.
- The DNA in the nucleus is copied.

2 Phase 1 of mitosis (prophase)

- The nuclear membrane begins to disappear.
- DNA condenses into duplicated chromosomes. Each contains two copies of the same DNA.

3 Phase 2 of mitosis (metaphase)

- Structures called spindle fibres guide chromosome movement.
- Chromosomes line up along the middle of the cell.

4 Phase 3 of mitosis (anaphase)

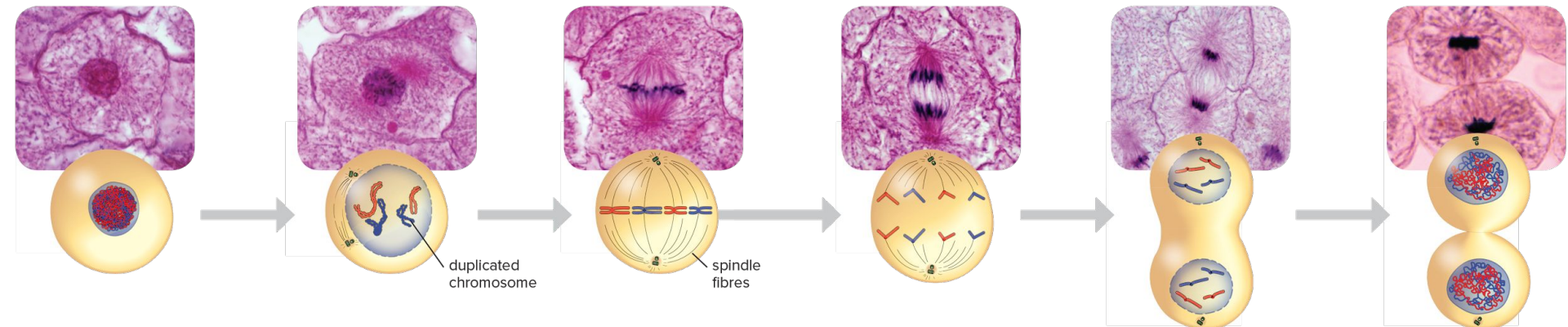
- The copies of DNA are separated and go to each end of the cell.

5 Phase 4 of mitosis (telophase)

- Two nuclei form and each nucleus contains a complete copy of the cell's DNA.

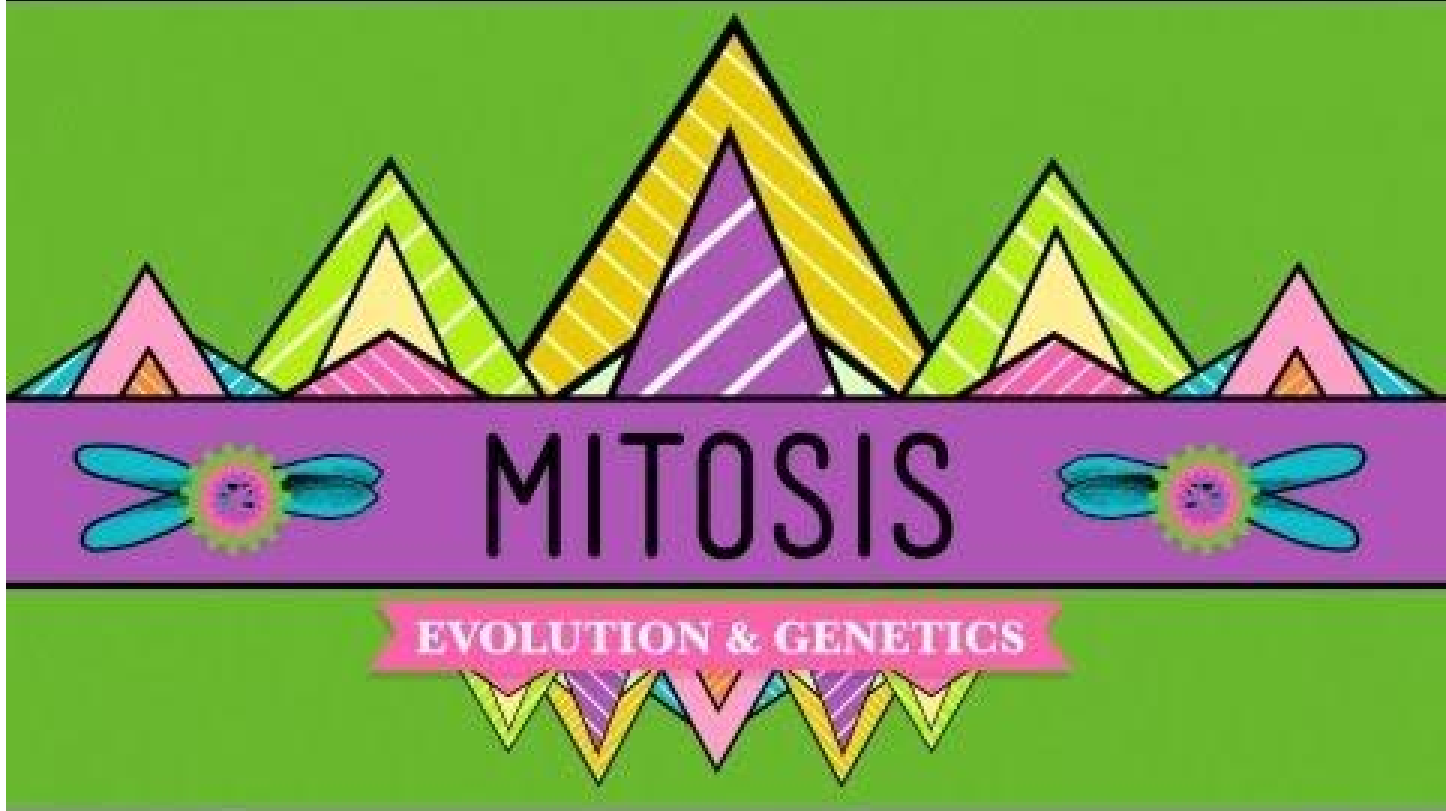
6 Cytokinesis

- The cytoplasm and organelles are divided, and two separate cells form.
- The cells then begin interphase.



PHASES OF MITOSIS

**MITOSIS
REVIEW
VIDEO**



Exiting

Thursday Feb 8th
Science 9

Quiz Tomorrow

- Complete quiz prep notes
- Complete workbook questions

Quiz topics

What have we talked about this week?
