

Limits to Cell Size Notes

On average, the cells of an adult animal are the same size of those of a young animal.

The difference is that there are a lot more cells in an adult animal.

2 Reasons Why a Cell Divides Rather than Continue to Grow Bigger:

1. More demands placed on the cell's DNA
2. More trouble moving enough nutrients & wastes across the cell membrane

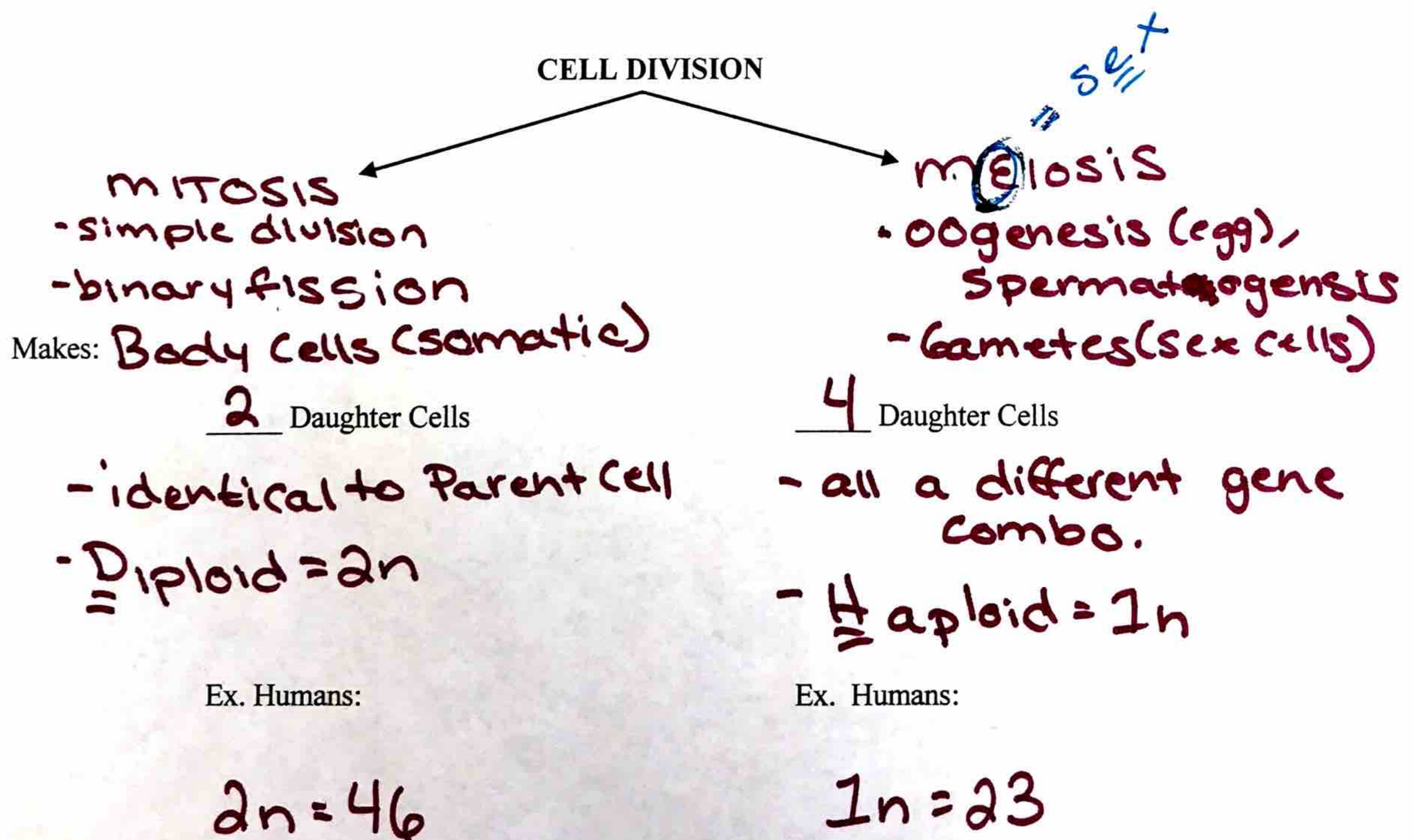
Why Does the Rate of Exchange become Difficult?

- The rate of exchange for food, H₂O, and oxygen across the cell's membrane depends upon the cell's surface area
- How quickly these materials are used by the cell depends upon the volume of the cell
- Surface Area & Volume do NOT increase at the same rate → a problem for the cell!
- The lower the SA:Volume ratio, the harder it is to get materials into/out of the cell
- To solve this problem, the cell divides into two smaller cells (daughter cells)

This process is called cell division

2 Main Steps:

1. Cell replicates (copies) all of its DNA
2. Cell divides DNA and cytoplasm equally between two new cells.



n = number of different chromosomes