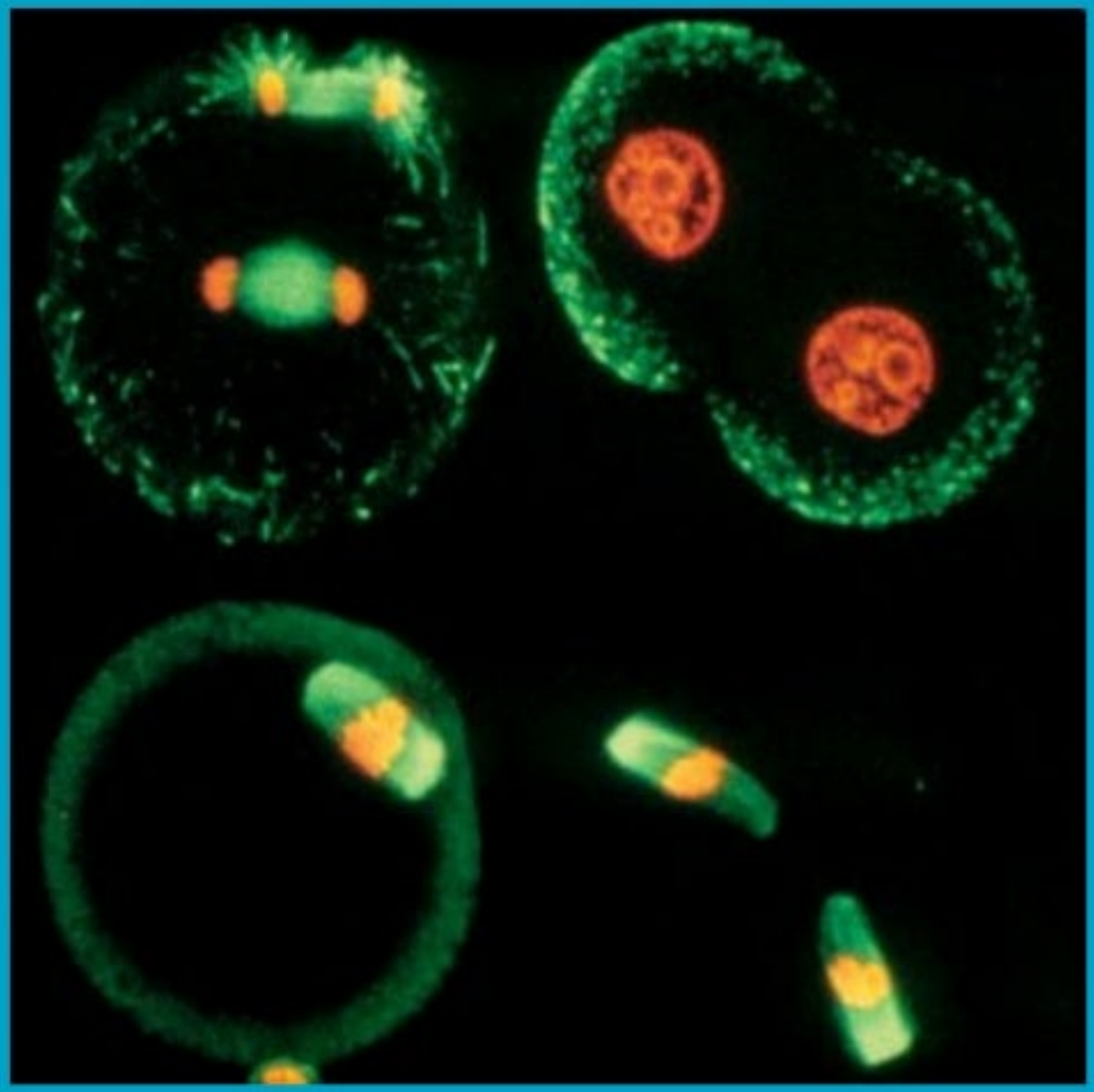
Cell Division

Mitosis & Meiosis

You are a living organism, made of cells.

In order to keep living, your cells must stay alive.

In order for cells to keep living, they must divide and multiply



Meiosis

Why We Are Who We Are

Meiosis

Takes place in the Gametes of an organism

People have a Chromosome count of 46

When an egg joins a sperm the count must stay at 46 to remain human

So, the egg can only have 23 chromosomes, and the sperm can only have 23 chromosomes

But, the integrity of the organism must be ma

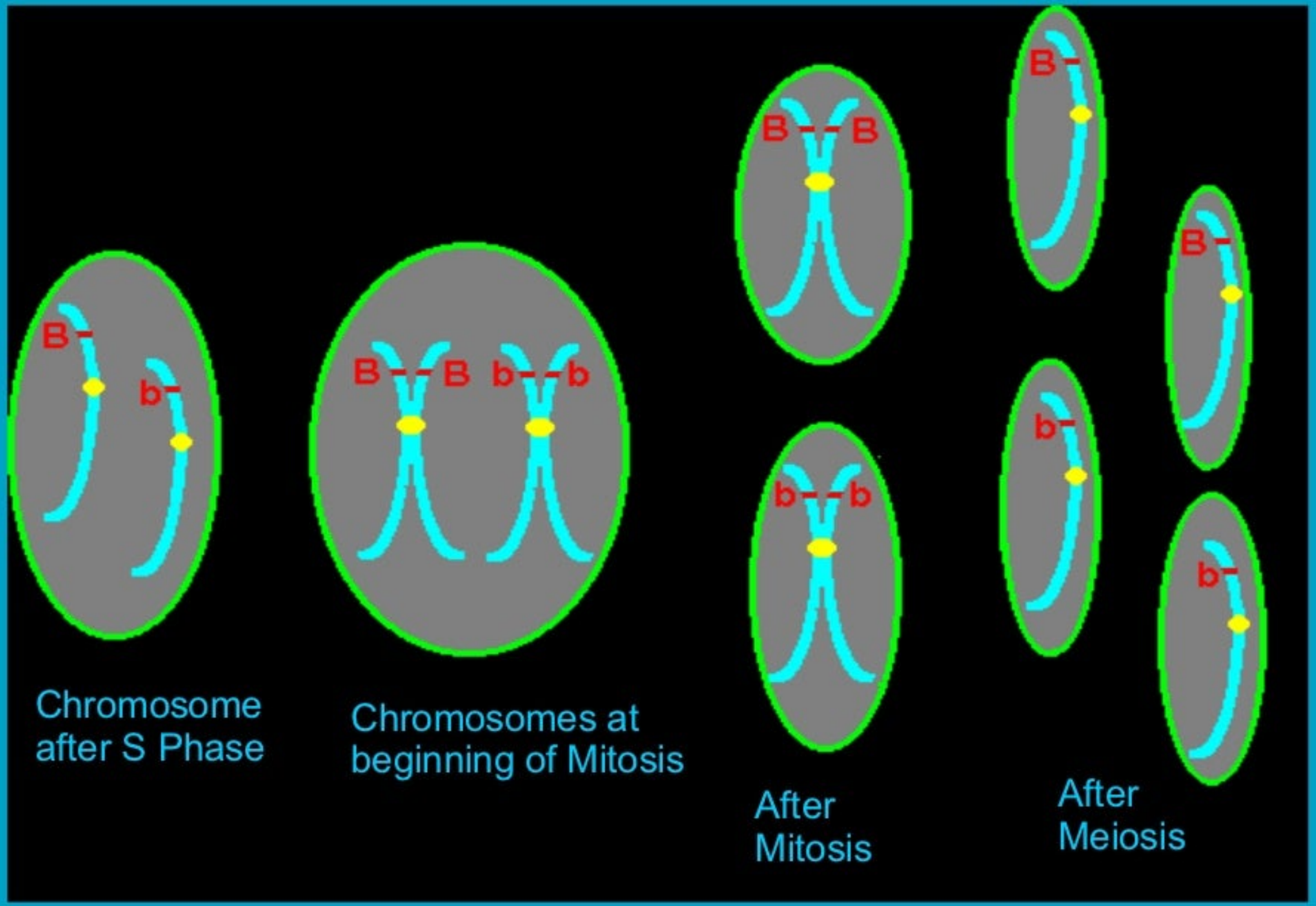
How does this happen?

During Meiosis gamete (sex) cells undergo a “double division”, maintaining the DNA, but reducing the chromosomal count to 23

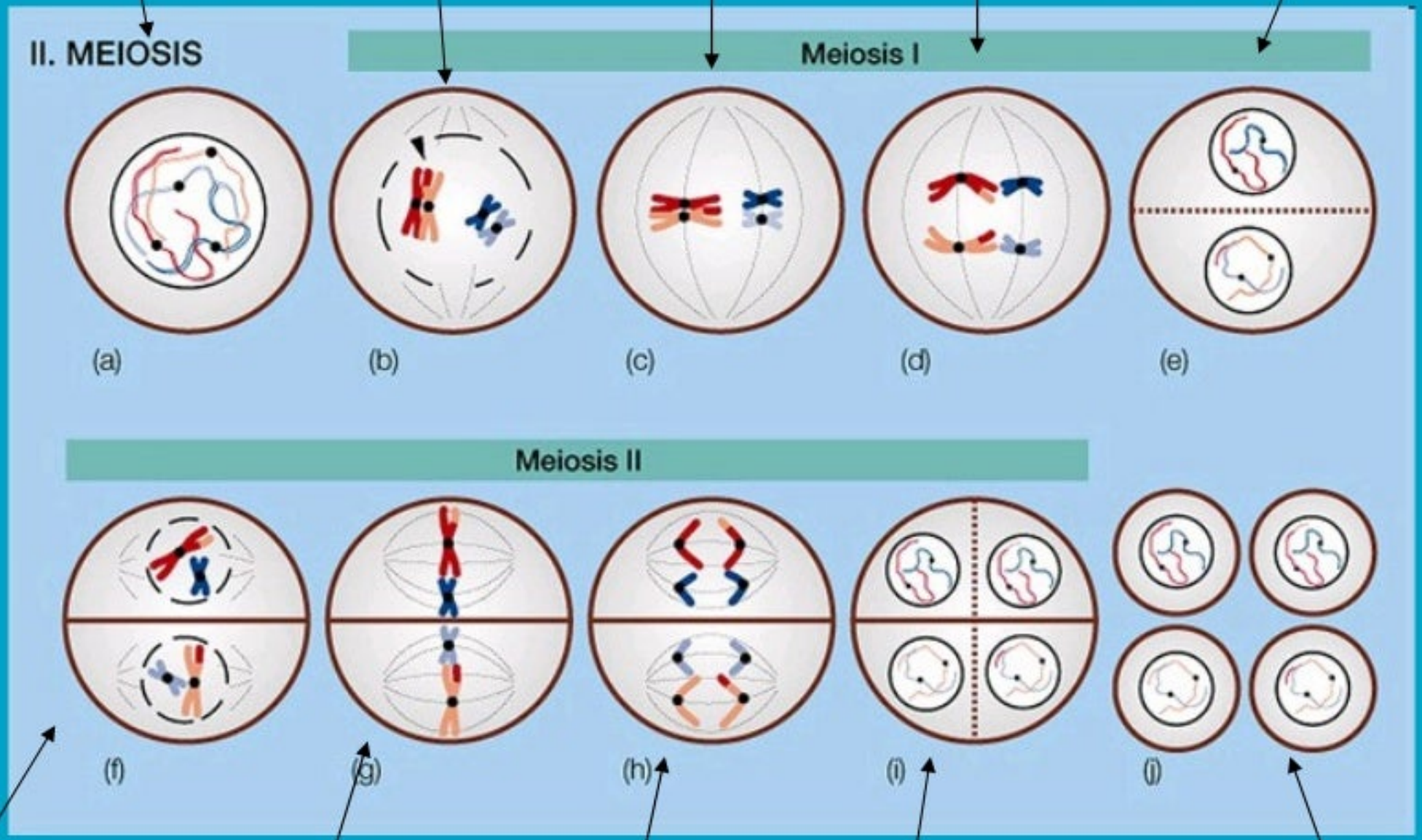
+

=

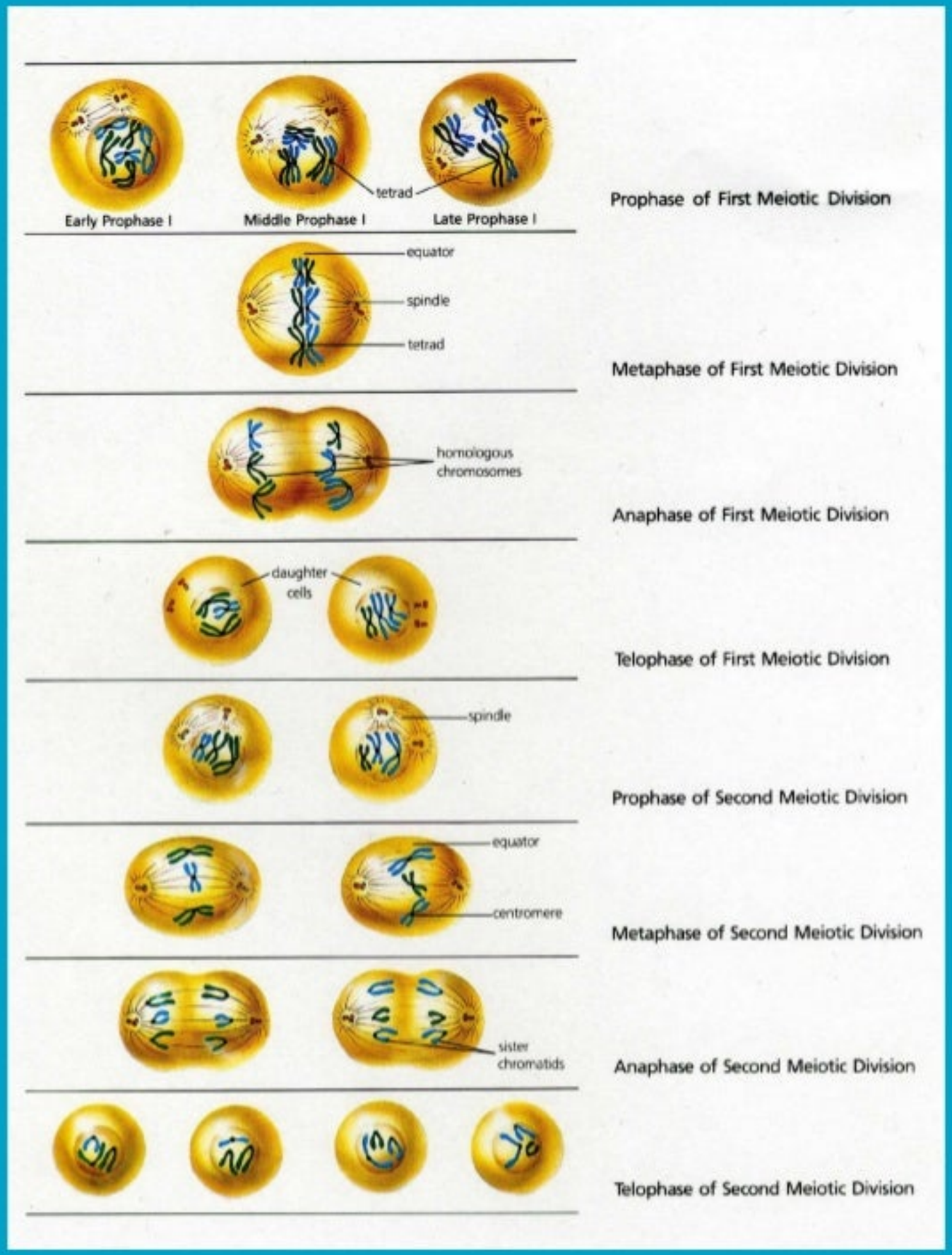
Sperm (23) + Egg (23) = Fertilized Cell (46)


B
b
B B
b b
B B
b b
B
b
B
Chromosome after S Phase
Chromosomes at beginning of Mitosis
After Mitosis
After Meiosis

Original Gamete Metaphase Anaphase Telophase Cytokinesis



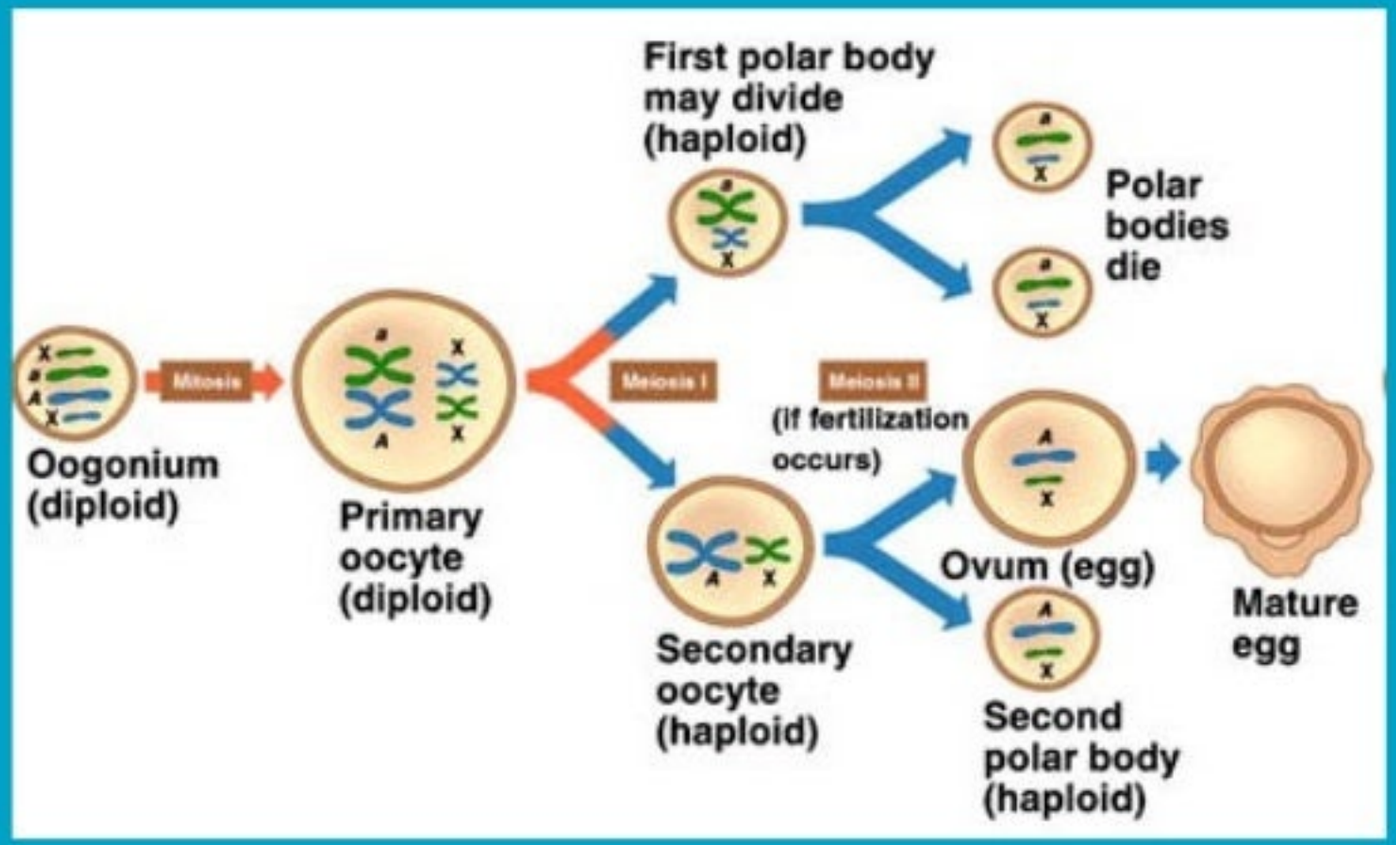
2 Daughter Cells Metaphase 2 Anaphase 2 Telophase 2 Cytokinesis – 4 Gametes



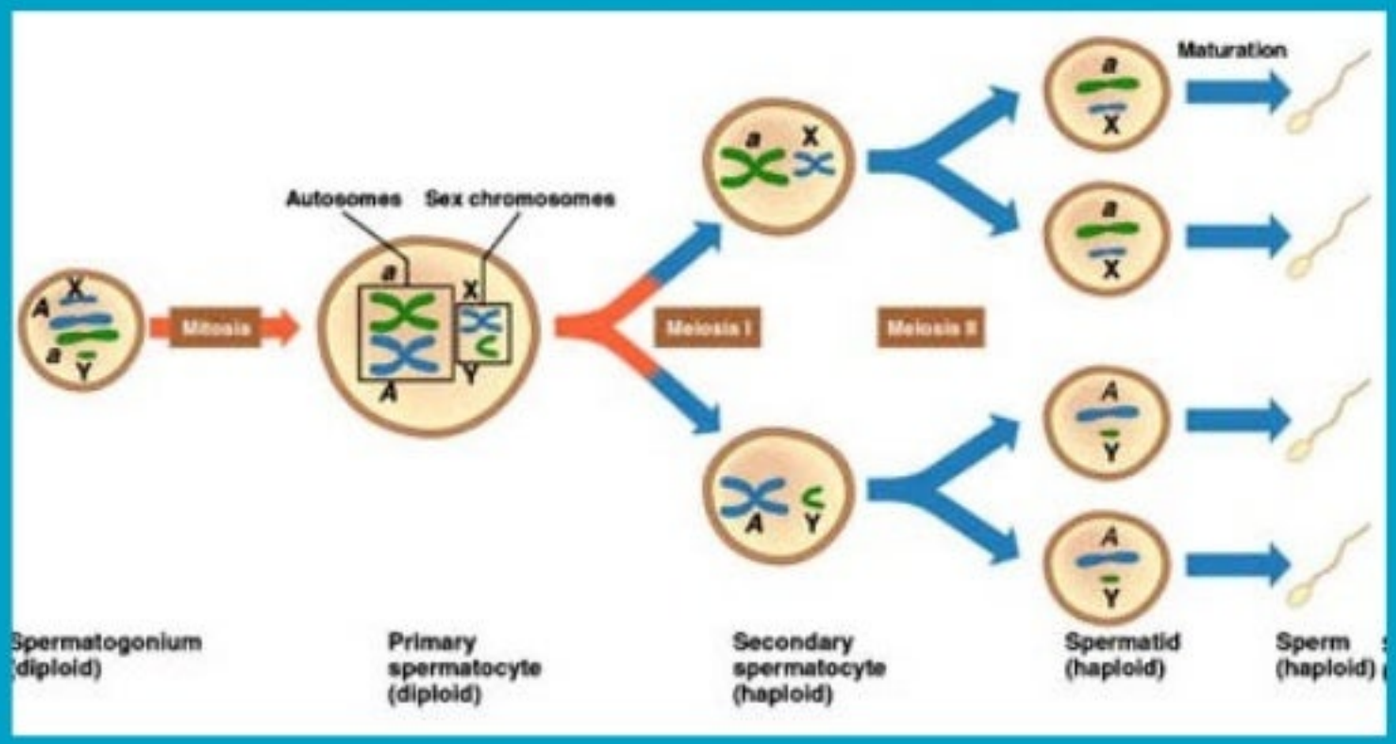
At the end of Meiosis the individual Gamete cell has divided from one cell to four.

Males produce 4 viable sperm.

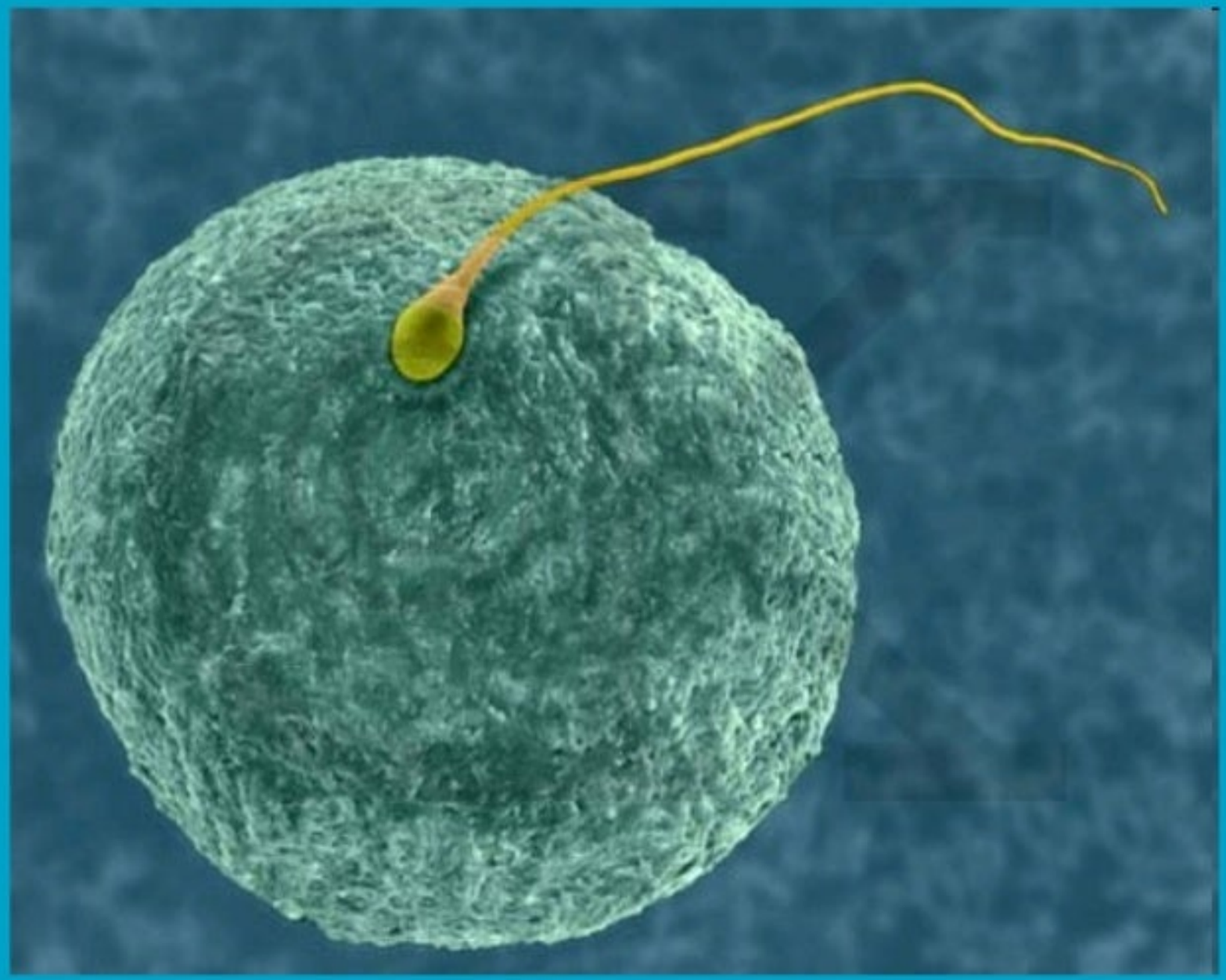
Females produce 1 viable egg and 3 non functioning polar bodies.



OOGENESIS



SPERMATOGENESIS



Meiosis ensures that all living organisms will maintain both Genetic Diversity and Genetic Integrity